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THE INFLUENCE OF SEXUAL IDENTITY ON HIGHER EDUCATION OUTCOMES

A Dissertation in
Higher Education

by
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ABSTRACT
This research empirically explores how sexual identity influences higher education outcomes for lesbian, gay, bisexual, and queer (LGBQ) college students. A path model was constructed with structural equation modeling using responses from 1,125 non-heterosexual college students. The model includes four psychological variables (level of sexual identity disclosure, internalized sexual identity stigma, self-esteem, and social support from friends), three measures of involvement in higher education (peer group, faculty, and student affairs staff) and the outcome of academic development. Results were analyzed in the aggregate as well as by sexual identity group. The path model adequately fit the data, indicating it is correctly specified. Level of sexual identity disclosure has a positive indirect influence on academic development. Implications of the findings are discussed and recommendations to support academic development of LGBQ students are provided.
# TABLE OF CONTENTS

List of Tables ........................................................................................................ vi
List of Figures .......................................................................................................... viii

**CHAPTER 1. INTRODUCTION** .......................................................................... 1
- Overview ............................................................................................................. 1
- Current Research on Higher Education Outcomes for LGBQ Students .......... 5
- This Research ................................................................................................. 7
- Methods .......................................................................................................... 9
- Conclusion ..................................................................................................... 11

**CHAPTER 2. REVIEW OF PSYCHOLOGICAL AND HIGHER EDUCATION LITERATURE** ................................................. 13
- Higher Education Outcomes: Academic and Social Integration ................. 13
- Sexual Identity ............................................................................................... 19
- Stress and Stigma Unique to Sexual Identity ............................................... 26
- Self-Esteem .................................................................................................... 29
- Social Support ............................................................................................... 31
- Other Variables of Interest ........................................................................... 32
- Conclusion ..................................................................................................... 39

**CHAPTER 3. METHODS** .................................................................................. 40
- The Dependent Variables: Academic and Social Integration ....................... 40
- Sexual Identity ............................................................................................... 42
- Psychological Variables for SEM .................................................................... 45
- The Procedure ............................................................................................... 46

**CHAPTER 4. RESULTS** ................................................................................... 54
- Sample Description ......................................................................................... 54
- Measures ....................................................................................................... 58
- Path Model ..................................................................................................... 63
- Mediation and Indirect Effects ....................................................................... 68
- Conclusion ..................................................................................................... 70

**CHAPTER 5. DISCUSSION AND IMPLICATIONS** ............................................. 72
- Promote Sexual Identity Disclosure ............................................................... 76
- Assuage Stigma Associated with Non-Heterosexual Identities ................. 79
- Encourage LGBQ Students to Seek Support from Friends ......................... 84
- Differentiate Among Non-Heterosexual Identities ....................................... 86
- Study the Influence of Sexual Identity in Institutional Assessments ........... 86
- Support Research on LGBQ Students .......................................................... 88
- Summary of Implications ............................................................................. 93
- Final Thoughts .............................................................................................. 96

**REFERENCES** ................................................................................................. 97
**LIST OF TABLES**

Table 2.1 Outness Inventory Items and response choices .......................................................... 24

Table 3.1 College Student Outness Inventory (CSOI) items and response choices ................ 44

Table 4.1 Number of survey respondents by sexual identity and gender identity ...................... 56

Table 4.2 Average age of respondents’ sexual orientation characteristics by sexual identity group ........................................................................................................... 56

Table 4.3 Results of confirmatory factor analyses ...................................................................... 59

Table 4.4 CSOI descriptive statistics by sexual identity group .................................................. 62

Table 4.5 CSOI standardized CFA factor loadings by sexual identity group .............................. 62

Table 4.6 Regression and correlation coefficients, standard errors, and statistical significance by sexual identity group .................................................................................. 67

Table 4.7 Direct and indirect effects of Internalized Homophobia and Outness to Academic Development by sexual identity group ................................................................. 69

Table B.1 Item correlations for Academic Development ............................................................. 137

Table B.2 Item correlations for Interactions with Student Affairs Staff .................................... 137

Table B.3 Item correlations for Faculty Student Interactions .................................................... 137

Table B.4 Item correlations for Peer Group Interactions .......................................................... 137

Table B.5 Item correlations for Internalized Homophobia ........................................................ 138

Table B.6 Item correlations for Social Support from Friends ..................................................... 138

Table B.7 Item correlations for Self-Esteem .............................................................................. 139

Table B.8 Item correlations for CSOI – Gay/Lesbian ............................................................... 140

Table B.9 Item correlations for CSOI – Queer/Other ............................................................... 141

Table B.10 Item correlations for CSOI – Bisexual ..................................................................... 142

Table B.11 Path model covariances – All participants ............................................................... 143

Table B.12 Path model covariances – Gay/Lesbian ................................................................. 143
List of Tables (cont.)

Table B.13  Path model covariances – Queer/Other ................................................................. 144
Table B.14  Path model covariances – Bisexual ............................................................................ 144
LIST OF FIGURES

Figure 1  Model of multiple dimensions of identity ................................................................. 1
Figure 2.1 Hypothesized path model prior to data collection and analysis ............................. 12
Figure 4.1 Respondents categorized by class standing .............................................................. 57
Figure 4.2 Path model from Outness to Academic Development .......................................... 64
For the students...

Embrace what makes you unique.
Difference is what we all have in common.
CHAPTER 1
INTRODUCTION

Overview

In their model of multiple identities, Jones and McEwan (2000) provide a way of conceptualizing the relationships among college students’ salient identities. They depict intersecting ellipses of identities (e.g., class, gender, race, religious, and sexual orientation) around a core of personal identity, attributes, and characteristics. The model is situated within contexts like family background, sociocultural conditions, current experiences, and life planning that are highly salient to the multiple identities and the core. The figure below is a conceptual diagram of multiple identities as provided by Jones and McEwan.

Figure 1. Model of Multiple Dimensions of Identity
As a person grows and develops, the identities intersect and influence each other and are influenced by the contexts. Ostensibly, it is impossible to isolate the influence of one salient identity on a person’s core personal identity. Recognizing multiple identities in college students, higher education professionals should be interested in knowing how identity characteristics affect students’ experiences, and in turn, their learning and development.

In the United States, socially constructed identities have similar characteristics. Very simply, gender is primarily based on biological sex, race on skin color, and sexual identity on romantic attraction. Unique to people who are lesbian, gay, bisexual, or queer (LGBQ) is the disclosure of a non-heterosexual identity to others. Similar to other hidden identities like religion or social class, the markers of a person’s romantic attractions are not visibly apparent. Through disclosure about one’s sexual identity to others, LGBQ people shed an assumed privileged identity and face stigma and marginalization in our society.

Heterosexuality and being romantically attracted to the opposite sex is ubiquitous in society, making it highly influential for societal norms as the dominant and generally assumed sexual identity. The power distinction between people who are heterosexual and people who are not is apparent in cultural practices, public policies, and social norms. Heterosexism is an ideology embodied in institutionalized practices that helps to subordinate sexual minority groups (Herek, Gillis, & Cogan, 2009). Like other “-isms,” it provides power to heterosexuals.

Heterosexism influences LGBQ people from birth because children are typically born to heterosexual parents and are raised assuming they will not be romantically attracted to the same sex. Pervasive practices to subordinate people with non-heterosexual identities are institutionalized in cultures because heterosexuality is the norm. Additionally, up until 1973,
homosexuality was a psychological disorder in the United States (Spitzer, 1981). This means that only three generations of Americans, GenX (born 1961-1981), Millennials (born 1982-2000), and Homelanders (born 2001-present), have lived without LGBQ people being deemed mentally ill, although GenXers grew up during the AIDS epidemic. Even though for Millennials, the current traditional undergraduate, non-heterosexuality is more normalized in their upbringing than any other American generation, people who are romantically attracted to the same sex remain marginalized because the nature of society is heterosexist.

Since the traditional college experience generally has positive implications for development (Pascarella & Terenzini, 2005), it is assumed that attending college positively influences psychological characteristics, including sexual identity. In informal conversations, non-heterosexual college students acknowledge the prominence of their sexual identity and the terms sexual orientation and sexual identity are often used interchangeably. According to the American Psychological Association (2008), sexual orientation also refers to a person’s sense of identity (i.e., how they label themselves) based on sexual attractions, sexual behaviors, and affiliation with others who share similar attractions. Typically, these identities are “lesbian,” “gay,” “bisexual,” “fluid,” “questioning,” “queer,” and “straight/heterosexual.” I use the terms “LGBQ” and “non-heterosexual” interchangeably, but refer to “homosexual” as describing behavior, not a sexual identity (Broido, 2000).

In student affairs, services provided to LGBQ students also include and are relevant to transgender students. When discussing higher education services, I often refer to the acronym “LGBT.” Transgender students are distinct from other students inasmuch as they may experience additional stressors and/or unique developmental milestones. Gender is certainly
important to consider as a variable of interest; however, the primary focus in this study is on the influence of sexual identity on higher education outcomes.

Many non-heterosexual college students disclose their sexual orientation during their undergraduate experience (D'Augelli, 1991; Evans & Broido, 1999; Rhoads, 1994). The number of non-heterosexual students in higher education cannot be accurately quantified. By combining prevalence rates of homosexuality from a national database of youth as well as prevalence rates of emerging adults in higher education, it can be estimated that there are between 370,000 and 1.3 million\(^1\) students in U. S. higher education who identify as something other than heterosexual. In order for universities to effectively allocate resources to non-heterosexual students, research focused on LGBQ students warrants further investigation. Administrators at colleges and universities need information about higher education outcomes for LGBQ students to better assist with their policies and decision making practices.

This research is an attempt to use quantitative methods to explore the influence of sexual identity on selected higher education outcomes for LGBQ college students. Survey data on identity characteristics, psychological measures, social interaction, and learning are analyzed using structural equation modeling. This work provides those who serve LGBQ college students

\(^1\) According to the National Center for Education Statistics (2007), 46% of emerging adults (EA), those 18-24 years old, who completed high school attended four year higher education institutions in 2006. The total emerging adults in U.S. higher education are approximately 5.1 million males and 6.5 million females. To approximate the prevalence rate of non-heterosexual 18-24 year olds in U. S. higher education, I used prevalence rates from the National Study of Adolescent Health (Savin-Williams & Ream, 2007). AddHealth’s prevalence measure of emerging adults who self-identify other than “100% heterosexual” is 6% for males and 15% for females.

A more conservative estimate would be to only use those who identified as “Bisexual,” “Mostly homosexual,” and “100% homosexual.” The prevalence rates change to 2.4% for males and 3.8% for females.
with more information on how to better meet their needs promote healthy and positive development.

**Current Research on Higher Education Outcomes for LGBQ Students**

Although the number of higher education professionals who serve LGBQ students has grown in the past two decades (Tubbs, 2009), research on the academic outcomes of these students is lacking (Sanlo, 2004). According to Sanlo (2004), their experiences in higher education are known mostly anecdotally, with limited empirical studies. There are developmental models that help to operationalize the concept of adopting a marginalized sexual identity (Cass, 1979; D'Augelli, 1994; Fassinger, 1998). There are also studies that measure a level of developmental progression based on disclosure (Brady & Bruce, 1994; Mohr & Fassinger, 2000) and psychological outcomes (Halpin & Allen, 2004). However, information on the influence of sexual identity on college outcomes is lacking. Only two recent quantitative studies are available in the literature (Carpenter, 2009; Gonyea & Moore, 2007). These are among the first to empirically substantiate that higher education experiences and outcomes are different for students who are LGBQ. Both of these studies warrant further exploration because they each highlight and discuss higher education differences among non-heterosexual students.

Carpenter (2009) analyzed three waves of the Harvard College Alcohol Study for differences among lesbian, gay, bisexual, and heterosexual students. He found that compared to heterosexual males and females, gay males have higher grade point averages, were more likely to report social support from faculty or administrators, and placed more importance on being involved in their learning. He also reported that bisexual females are less satisfied with
their education, and spend less time on academic work then heterosexual males and females. Using data collected by the National Survey of Student Engagement (NSSE), Gonyea and Moore (2007) found that LGBT students were about twice as likely as their heterosexual peers to major in arts and humanities, and about half as likely to be a member of a social fraternity or sorority. They also report that the level of disclosure of one’s non-heterosexual identity influences active and collaborative learning, and that LGBT students are more likely to interact with faculty members.

More information is not available about higher education outcomes and sexual identity because, in part, sexual identity is not routinely collected as a demographic variable, neither on an institutional level nor a national level. These data may never be completely stable because of the fluid nature of sexual identity; however, the profession of higher education is remiss by not considering sexual identity as an important variable in analysis. On an institutional level, ex post facto comparison studies between heterosexual students and LGBQ students are seldom conducted because sexual identity is not assessed. Thus, with many studies of LGBQ youth, convenience samples are often used, which influences the external validity of the research.

Typically, random samples are drawn from the population to allow generalizability of the results (Krathwohl, 2009). Unfortunately, the population random studies related to involvement like the National Survey of Student Engagement (NSSE) and the Cooperative Institutional Research Program (CIRP) do not ask students to identify their sexual orientation. Recently, however, NSSE began collecting sexual orientation information with a small number of institutions (Gonyea & Moore, 2007). Those institutions wanting to analyze the data based on sexual identity or transgender identities may add additional questions to these surveys.
However, with NSSE’s method of random sampling, the sample size of LGBQ students may be too small to conduct statistical analyses. Moreover, adding these questions is specific to each institution. Data analysis of a random sample of LGBQ students on a national level is not possible with either study.

This Research

My primary research question is: How does sexual identity influence higher education outcomes for LGBQ students? I hypothesize a relationship between sexual identity and other psychological variables as well as higher education outcomes. Additionally, this research expands on sexual identity development models by measuring sexual identity through level of disclosure. One outcome of this research project is to construct an effective scale to measure sexual identity disclosure as a psychological variable. Being able to accurately assess a level of non-heterosexual identity will benefit researchers in disciplines and fields of social science.

The outcomes I am studying are specific to academic and social integration in higher education. Pascarella and Terenzini (1980) define academic integration as the student’s academic performance and level of intellectual development. They define social integration as the quality of students’ relationships with both faculty and peers. I chose measures of integration as outcome variables because being actively engaged in one’s collegiate experience is an important predictor of persistence to obtaining a degree (Pascarella & Terenzini, 1980, 1983; Robinson, 2003).

Rather than conducting a comparison between heterosexual students and LGBQ students, this research is mainly focused on within-group differences among non-heterosexual students. I agree that knowledge of differences between the two groups is beneficial; however,
it does little to help explain how identifying as non-heterosexual influences academic and social integration. Additionally, my research intends to explore factors unique to LGBQ students that are not relevant to heterosexual students, as heterosexual students generally do not disclose their heterosexual status (it is assumed from birth) nor do they experience distress or marginalization as a result of their sexual identity.

This process of developing one’s sexual identity happens through both proximal and distal acts of relinquishing heterosexual identity and asserting one that is non-heterosexual. The disclosure can also be considered a person’s comfort about his or her non-heterosexual identity with other people. I build on an extant scale constructed by Mohr and Fassinger (2000) to study the “Level of Outness” of students. In addition, I capture the length of time a person has been identifying as his or her current sexual identity.

There are many characteristics that comprise and influence identity. I believe people are keenly aware of these personality constructs, especially if they differ from the majority of people in their environment. It may be impossible for a person to separate these identities, for the synergy they create is the essence of Jones and McEwan’s (2000) concept of a person’s “core.” Sexual identity is highly salient to people who are not heterosexual. Research should focus on understanding how to conceptualize and measure it. For many LGBQ college students, their sexual identity relates to other identities as well as contextual factors that contribute to their higher education experiences.

Support from others in college is highly influential to a person’s success (Pascarella & Terenzini, 2005). The amount of challenge one can handle depends on the amount of support available (Sanford, 1966). Bronfenbrenner (1977) posited a theoretical model that places the
person in the center of systems, often depicted as concentric rings. He asserted those individuals closest to the center are highly influential on the person. Thus, one’s level of social support is a variable of interest in my model. For all college students, not only those who are LGBQ, I hypothesize that there is a positive relationship between their level of support from family and peers and other variables, except internalized stigma. As support increases, internalized stigma decreases.

**Methods**

Structural equation modeling (SEM) is appropriate for analyzing the data in the project and making statistical inferences because many of the variables are latent; that is, they are theoretical constructs that cannot be observed directly (Byrne, 1998). SEM incorporates measurement models (i.e., the instruments) with a structural model by allowing for the specification of regression structure among the latent variables (Byrne, 1998). In other words, it focuses on the covariances of the latent constructs and provides an overall statistical analysis of how well the latent variables fit together. This project incorporates eight measurement models and one full latent variable path analysis model.

**The Instruments**

The instruments used in this project are the measurement models of full latent variable model. They have been developed and tested by researchers, primarily through exploratory factor analysis. However, I use confirmatory factor analysis (CFA) with the instruments because it is appropriate when the researcher has knowledge of the factor structure (Byrne, 1998). Since these scales are already developed, I use CFA results to determine the adequacy of each of their goodness of fit to the data. From a psychological measurement perspective, this is
helpful for future research because it indicates how well the instruments measure the intended latent construct(s) with LGBQ college students.

This research focuses on higher education, but also contributes to the psychological measurement of sexual identity. Based on previous work to operationalize “outness,” I constructed a scale composed of 12 items that measure a level of outness for college students. Quantifying this latent construct allows researchers to statistically analyze the influence of sexual identity disclosure on any number of other variables.

**Survey Design and Sampling Procedure**

Researchers must critically examine non-heterosexual college students independently of heterosexual students because of the uniqueness of identifying as non-heterosexual. To capture the data necessary for this project, I developed an online survey that took students about 15 minutes to complete. The survey called, “Sexual Identity in College Students,” was pilot tested with students at Penn State in October 2009. Initial correlations and exploratory factor scores were examined from 72 respondents. I revised and added questions to the survey and distributed it outside of the university (See Appendix A for the survey).

In May 2010, a recruitment email for my survey was sent to people who opted in to a general listserv of Campus Pride, a national LGBT organization serving colleges and universities. Certainly this sampling technique has limitations regarding external validity. However, as SEM is a large sample technique, sample size is paramount. From one email posting, I obtained approximately 1,400 usable responses. As I am studying the experiences of college students, it was also important that I sample during the spring semester (or quarter). This provides a full year of experiences rather than sampling in October.
Conclusion

As a field, higher education is just beginning to recognize the influence of sexual identity on academic and social outcomes. My conceptual model hypothesizes a relationship between sexual identity, other psychological characteristics, and higher education outcomes. See Figure 2.1 on the next page for a conceptual rendition of how the variables are related. This hypothesis was developed in conjunction with a thorough review of published psychological and higher education literature regarding emerging adults and sexual identity. By building on extant research, my intent is to provide information about the influence of sexual identity on higher education outcomes.

The next chapter begins with a conceptual path model regarding the relationship of my variables of interest. What follows is an extensive review of literature regarding higher education outcomes, sexual identity, and other psychological characteristics. The third chapter describes how I intend to answer my research question using structural equation modeling. The fourth chapter focuses on the data analysis and statistical results. Finally, this dissertation concludes with a discussion of its implications on practice and future research. Appendices of the survey instrument, conceptual diagrams and additional data tables are attached at the end.
Figure 2.1 Hypothesized Path Model Prior to Data Collection and Analysis

Additional Identity & Psychological Variables
- Race
- Gender Identity & Birth Sex
- Sexual Identity Label
- Age
- Parent/Guardian Income
- Familial conservatism
- Gender atypicality
- Substance Abuse

Addtional Higher Education Variables
- Class standing
- Living Environment
- Employment
- GPA
- Co-curricular involvement
- Standardized Test Scores
- Institutional Characteristics
CHAPTER 2
REVIEW OF PSYCHOLOGICAL AND HIGHER EDUCATION LITERATURE

The purpose of this study is to better answer the question, “How does sexual identity influence higher education outcomes for LGBQ students?” My research is conceptually situated in the context of higher education and uses quantitative methods to show relationships among psychological constructs. I developed my conceptual framework after an extensive review of psychological and higher education literature. In this section, I synthesize numerous theoretical and empirical journal articles and book chapters related to the variables in my model. The next chapter will discuss the pilot study and present preliminary results that informed the final study.

The structure of this literature review begins with an explanation of two higher education outcomes: academic and social Integration. Sexual Identity is then discussed with a focus on its disclosure. As one’s sexual identity is not a visible physical characteristic, people who are lesbian, gay, bisexual or who report other non-heterosexual identities can choose to acknowledge their difference in personal and public environments. I recognize this “Level of Outness” about identifying as non-heterosexual as a measureable psychological variable. Relationships among the variables will be identified and discussed in the subsequent chapters. The review concludes with a discussion of other factors that may have an effect on the model.

Higher Education Outcomes: Academic and Social Integration

“To learn is to act; a learner must do something in order to learn...By acting, being involved, and being engaged, students learn. True student learning, therefore, must involve the purposeful engagement of that student in the
process of learning through specific and deliberate behaviors” (Pomerantz, 2006)

p. 179

Involvement, engagement, and integration are three terms used to describe the interaction between students and their collegiate environment. Many higher education researchers agree that “what students do” while in college is perhaps the most single important determinant of college success. Success is commonly measured by degree completion. Pascarella and Terenzini (2005) suggest that “the impact of college is largely determined by individual effort and involvement in the academic, interpersonal, and extracurricular offerings on a campus” (p. 602). There are behavioral and psychological components relating to the amount of effort a student devotes to the academic experience (Astin, 1984). Engaging in learning affects students’ development; however, there is little agreement on precisely how this occurs (Bean, 2005). Each student has unique characteristics that influence his or her involvement in higher education.

For most people who enroll in higher education, the primary objective is to earn a degree. Many authors note the link between what students do while they are in college and degree attainment (Braxton, 2000; Braxton, Milem, & Sullivan, 2000; Nora, Cabrera, Hagedorn, & Pascarella, 1996; Pascarella & Terenzini, 2005; Tinto, 1975, 1987, 1993). Involvement in one’s educational process is an important consideration when studying persistence; thus researchers have supported that integration into the learning environment both academically and socially are important variables that influence dropping out of college (Cabrera, Castaneda, Nora, & Hengstler, 1992; Pascarella & Terenzini, 1980, 1983). Measuring degree attainment
can be complex and difficult, particularly in a sample of currently matriculated college students. In this research, I focus on assessing academic and social integration. Although there is no measure of degree attainment in this study, it is assumed that academic and social integration is positively correlated with degree attainment.

Content knowledge and cognitive growth are two intellectual factors obtaining a higher education degree posits. Cognitive research on college student development is of keen interest when studying intellectual development. There are numerous ways to assess academic and social integration of college students, including faculty and peer interactions (Pascarella & Terenzini, 1980). For non-heterosexual college students, the academic experience on campus could be influenced by sexual identity. The overarching question, “is there a relationship between sexual identity and higher education outcomes?”

**Academic and Intellectual Development of LGBQ Students**

Unfortunately, little has been studied about non-heterosexual students’ integration on college campuses or their degree attainment (Sanlo, 2004). This is problematic, because research shows that students whose values, norms, and behaviors are congruent with dominant patterns on campus are most likely to persist (Berger & Milem, 1999). For students who identify as LGBQ, their values, norms, and behaviors may differ from the majority of heterosexual students. Having a marginalized sexual identity may be a salient factor in their educational experiences.

Quantitative studies of academic outcomes in non-heterosexual youth have disparate findings between sample populations of secondary and higher education. In high school, gay males suffer academically, in part because of risk factors like emotional distress and substance
use, but lesbians do not have poorer academic performance (Pearson, Muller, & Wilkinson, 2007). The opposite was true with college students. Carpenter (2009) reported that compared to their heterosexual peers, gay males have higher GPAs and perceive their academic work as more important. He also notes that bisexual males and females are less satisfied with their education and perceive their academic work as less important than heterosexual students. Lesbians did not significantly differ from heterosexual students on any academic outcome variable.

Students who are questioning their sexual identity are selective about disclosure, potentially affecting their involvement in higher education. Research has demonstrated that a student’s level of outness about sexual identity influences active learning (Gonyea & Moore, 2007). These researchers note that students who were less open about their sexual identity reported lower scores on measures related to active and collaborative learning than those who were more open. This suggests when working with peers to solve academic problems, being comfortable with one’s sexual identity is important. Robinson (2003) found that congruency of one’s overall identity mediated academic integration in undergraduates, supporting the idea that people with integrated identities are more likely to persist to graduation. This may be particularly relevant for students who identify as bisexual, as some may use this label prior to identifying as lesbian or gay (Diamond, 2008).

**Social Integration**

The relationships that students have both on and off campus are influential to their success in college (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Although most of the initiative to succeed in college depends on the student, learning also occurs through interactions.
Students must learn to negotiate environments that are initially foreign to them (i.e. residence hall living or lecture style instruction) and interact effectively with new people (Kuh & Love, 2000). A robust predictor for persistence of college students is their level of social integration, or how students interact with the institution’s social systems (Braxton, Sullivan, & Johnson, 1997). The idea is that social integration leads to a greater institutional commitment, in turn increasing the likelihood that students will continue at that institution (Braxton et al., 2000; Kuh et al., 2006). Pascarella and Terenzini (1980) define social integration as the quality of students’ relationships with both faculty and peers. They measure it with peer group interactions and interactions with faculty. Particularly in higher education, interacting with faculty and peers greatly contributes to one’s academic and intellectual development (Pascarella & Terenzini, 2005).

Although most of the research on faculty-student interaction has been studied within the classroom (Cox & Orehovec, 2007), there is a growing body of literature to support the benefit of faculty-student contact outside of the classroom (Astin, 1993; Kuh, 2003; Kuh & Hu, 2003; Pascarella & Terenzini, 1980; Tinto, 1993). The relationships students build with faculty positively influence educational aspirations (Pascarella, 1985) and student persistence (Tinto, 1993). For most students, more (quantity) interactions with faculty outside of the classroom positively influences their development (Kuh et al., 2006), although the nature of the interaction is also important (Anaya & Cole, 2001; Kuh, 2003). That is, for some students, the quality of the interactions matters more than the frequency. Specifically, studies in higher education have demonstrated that, compared to heterosexual students, LGBQ students are more likely to interact with faculty (Carpenter, 2009; Gonyea & Moore, 2007) regardless of
outness level (Gonyea & Moore, 2007). This supports the idea that sexual identity is influential to LGBTQ students’ involvement on campus.

Interacting with other students is also important to one’s development. Peers have more influence than any other group with college students (Astin, 1993; Sawyer, Pinciaro, & Bedwell, 1997). Interaction with peers, particularly those who reinforce an academic ethos, positively influences knowledge acquisition and academic skill development (Pascarella & Terenzini, 2005; Whitt, Edison, Pascarella, Nora, & Terenzini, 1999). Generally, the more students are involved academically, the more they will be involved socially (Bryant & Bradley, 1993; Pascarella & Terenzini, 1991). The nature of social involvement may negatively influence academic outcomes for some students, particularly if it is antithetical to an academic ethos (Astin, 1993; Pascarella et al., 1996; Terenzini, Springer, Pascarella, & Nora, 1995).

Faculty and peers are undeniably major actors in one’s college experience. Positive faculty and peer interaction can make complex environments feel more supportive (Johnson et al., 2007). Interaction with faculty and peers contributes to intellectual development as well as changes in attitudes, values, aspirations, and psychological characteristics (Pascarella & Terenzini, 2005). Additionally, students’ quality of education may be enhanced when they make meaningful connections with professional staff members on campus such as residence hall coordinators or those who work in student services. Social integration not only occurs with other students and faculty, but also with student affairs professionals who support the co-curricular education of college students.

In order for students to learn on campus, they must be active agents in the process. Academic and social integration are influential for student success (Robinson, 2003). The two
quantitative studies that have focused on higher education outcomes for LGBQ students
(Carpenter, 2009; Gonyea & Moore, 2007) found differences between LGBQ and heterosexual
students and differences among LGBQ students. Clearly, this is an area in need of more
research. What students “do” on campus both socially and academically may be influenced by
aspects of their sexual identity.

**Sexual Identity**

Sexual orientation and sexual identity are two terms frequently used when discussing
people who are not heterosexual. Little distinction has been made between the two; scholars
and practitioners generally use them interchangeably. A distinction made by Savin-Williams
and Ream (2007) notes three components of sexual orientation: attraction, behavior, and
identity. Attraction more often develops before behavior and identity. However, sexual
identity development can occur concurrently with same sex behavior or prior to any same sex
behavior. According to the American Psychological Association (2008), “Sexual orientation
refers to an enduring pattern of emotional, romantic and/or sexual attractions to men, women,
or both sexes. It also refers to a person’s sense of identity based on their sexual attractions,
sexual behaviors, and membership in a community of others who share similar attractions” (p.
1). Typically, these identities are “lesbian,” “gay,” “bisexual,” “fluid,” “questioning,” “queer,”
and “straight/heterosexual.” The term “homosexual” generally refers to behavior, not identity
(Broido, 2000). The focus of this research is not on sexual behavior or sexual attraction, rather
the primary interest is sexual identity. I operationalize sexual identity as how people label
themselves based on their sexual attractions and behaviors.
People who adopt a non-heterosexual identity tend to progress through similar developmental processes (Cass, 1979; Fassinger, 1998). Generally they must exit the heterosexual identity assigned to them as a result of heterosexist norms for their birth sex and develop a non-heterosexual identity, risking marginalization as a result. Sexual identity has typically been studied through models that posit developmental tasks through which people must proceed when adopting a non-heterosexual identity. Cass’ seminal work, “Homosexual identity formation: A theoretical model,” postulates six stages through which individuals progress: confusion, comparison, tolerance, acceptance, pride, and synthesis (Cass, 1979). Other models show similar developmental trajectories (Fassinger, 1998; Troiden, 1989). Although not a stage model, D’Augelli conceptualized LGBTQ identity development using a lifespan approach highlighting tasks that LGBTQ people perform when adopting a non-heterosexual identity (D’Augelli, 1994).

For higher education professionals, a theoretical framework for sexual identity development process is helpful when working with LGBTQ college students because coming out quite often occurs in college (D’Augelli, 1991; Evans & Broido, 1999; Rhoads, 1994). These models are beneficial to those working with college students because they provide a way to operationalize abstract concepts, identify common patterns and language, and understand a general process. Professionals who support students transitioning from a privileged identity to one that is stigmatized should recognize common characteristics of how this development might occur. However, many students are entering higher education having already disclosed their non-heterosexual identity while in high school. This promotes the need for these developmental models to be expanded. While the stages of development are beneficial to
know when working with college students who are negotiating their sexual identity, student affairs professionals must also have an understanding of the influence of sexual identity on higher education outcomes.

People with non-heterosexual identities have unique components of their sexual identity that are irrelevant to heterosexual populations. Researchers have postulated distinct and measurable dimensions that can provide frameworks to study attributes of non-heterosexual identities. They include level of outness (Mohr & Fassinger, 2000; Rankin, 2003), length of outness (Wright & Perry, 2006), internalized stigma or negative views of one’s sexual identity (Herek, Gillis, & Cogan, 2009; Herek, Cogan, Gillis, & Glunt, 1998), and victimization and/or harassment based on sexual orientation (Pilkington & D'Augelli, 1995; Rankin, Weber, Blumenfeld, & Frazer, 2010). These constructs are unique to the population of non-heterosexual people.

People who are LGBQ acknowledge that sexual identity is one of their most important and influential characteristics of their overall sense of self. It manifests through personality, behaviors, and peer networks. In my experience with LGBQ college students, sexual identity is often a salient part of their identity as they face both psychological and social adversity as a result. The process of developing one’s sexual identity involves transitioning from a privileged, heterosexual identity to non-heterosexual, marginalized identity. It has similar characteristics among people who are LGBQ, including proximal and distal acts of refuting a heterosexual identity and confirming one that is non-heterosexual. This research works to measure how integration of sexual identity influences psychological characteristics and higher education outcomes.
Measuring Sexual Identity through Outness

This section is a discussion about measuring sexual identity. An extensive review and report of the literature is warranted because I intend to enhance previous efforts to measure this latent construct, particularly for use with LGBQ college students. I intend to develop an instrument to quantitatively assess sexual identity for use in psychological and higher education research.

Conceptualizing a “Level of Outness.” As previously discussed, one’s “level of outness” refers to the degree of self-disclosure about one’s non-heterosexual status. The more out non-heterosexuals are about their sexual identity, the higher their psychological self-worth (Elizur & Ziv, 2001; Halpin & Allen, 2004; Koh & Ross, 2006; Kosciw, Diaz, & Greytak, 2008; Peterson & Gerrity, 2006; Wright & Perry, 2006). Conversely, not disclosing one’s sexual identity (being closeted) can be viewed as a stressor (Meyer, 2003) and negatively influences psychosocial well-being (Halpin & Allen, 2004). Although being out about one’s LGBQ identity is beneficial for healthy psychological adjustment, there are risks associated with disclosure (D’Augelli & Hershberger, 1993; Garnets & Kimmel, 1991; Herek, 2003; Kosciw et al., 2008). An effective way to manage the stress of being LGBQ is to “come out of the closet” or disclose one’s non-heterosexual identity (Morris, Waldo, & Rothblum, 2001). Those who are out about their sexual orientation experience less sexual identity distress (but, perhaps, more victimization) than those who continue to hide.

Disclosure about one’s non-heterosexual identity could also be an indicator of a person’s comfort about this identity with other people. The more comfortable a person is, both
with the identity and with the other’s knowledge about it, the more likely he or she is to be open.

**Measuring a “Level of Outness.”** There have been previous attempts to measure a “level of outness.” The most inadequate measurement of sexual identity is, unfortunately, the most widely used. Researchers on LGBTQ youth can use data from the National Longitudinal Survey of Adolescent Health (AddHealth) when studying attraction, behavior, and identity. The question asked is “Please choose the description that best fits how you think about yourself:” Response choices are on an ordinal scale as “100% heterosexual (straight),” “mostly heterosexual (straight), but somewhat attracted to people of your own sex,” “bisexual – that is, attracted to men and women equally,” “mostly homosexual (gay), but somewhat attracted to people of the opposite sex,” “100% homosexual (gay),” and “not sexually attracted to either males or females.” (Savin-Williams & Ream, 2007)

While the AddHealth survey acknowledges sexual diversity, it is problematic for this research because it focuses on behavior without actually discussing identity. Current research should assess these factors separately, as they are distinct from each other. Moreover, non-heterosexual sexual identities are complex constructs unique to LGBTQ people and should be measured accordingly.

A second way of measuring “outness” was used by Rankin (2003) in her national study of campus climate for LGBT people. She assessed the “degree of disclosure” using an ordinal scale of “Totally closeted,” “Out to a few close friends,” “Out to a few friends/family members,” “Out to family and friends,” and “Out to everyone personally and professionally.” While this does a much better job of assessing outness of sexual identity than the AddHealth question, it
again is a one-question item that assesses the complexity of sexual identity. Additionally, this measure conflates outness to family and outness to friends; when, in reality, they may be two distinct categories. Also, it does not account for situational factors like outness online, a construct that is imperative to include when studying sexual identity of college students.

A third measure, The Outness Inventory, is a scale measurement of outness (Mohr & Fassinger, 2000). It consists of eleven items and provides an overall score. Also, it factors into three subscales (out to family, out to world, and out to religion). This inventory uses a seven point Likert scale to assess outness to other people, and also how often sexual orientation is discussed with that person. The item levels and response choices are listed in Table 2.1.

Table 2.1
Outness Inventory items and response choices (Mohr & Fassinger, 2000)

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. mother</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. father</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. siblings (sisters, brothers)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. extended family/relatives</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. my new straight friends</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. my work peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. my work supervisor(s)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. members of my religious community (e.g., church, temple)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9. leaders of my religious community (e.g., church, temple)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10. strangers, new acquaintances</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11. my old heterosexual friends</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Mohr and Fassinger's (2000) work has been instrumental in trying to quantify a level of outness. The measure has limitations when used to measure the construct in college students.
Although not the intention of the measure, it does not ask about the level of outness specific to higher education (i.e. residence halls or campus activity groups). Assessing the construct in college students should specifically include peer networks and online profiles as these are a salient part of the collegiate experience. There are also other limitations to this inventory, to which I offer as a critique. First, it assumes the respondent’s family as one mother, one father, siblings, and extended relatives. While this is common, it does not account for blended families. Another limitation of the inventory is the response choices, which concern other people’s knowledge of one’s sexual orientation and also attach a level regarding how often the outness is discussed with other people. This conflates a person’s outness to others with a level of avoidance coping.

In the Methods section, I propose a scale specifically for college students. I modified the Outness Inventory (Mohr & Fassinger, 2000) to be applicable to higher education. The stem question is “How open are you about your sexual identity or sexual orientation when...” The item-levels ask about specific environments like family, peers, new people, online, living, and learning. There are five ordinal response choices ranging from “Completely” to “Not at all.” More discussion of this work is available in the next chapter.

**Length of Outness.** In addition, the length of time a person has been identifying as their current sexual identity may be correlated with one’s level of outness. Accepting one’s sexual orientation and beginning to identify (both to one’s self and to others) as non-heterosexual is bounded by time. Labeling oneself as LGBQ not only has level of disclosure, but also a length of time since one’s initial disclosure to close family and close friends. For many LGBQ people, beginning to identify as LGBQ includes coming out first to one’s self, then to close friends and
perhaps close family. Once out to people in one’s close support system, people often become more comfortable labeling themselves as LGBQ.

It seems plausible to assert that the length of time a person has been identifying his/herself as LGBQ is positively correlated with one’s level of outness about his or her sexual identity. That is, the longer a person has been self-identifying as LGBQ, the more open he/she is about who knows and vice versa (those who are more open about their sexual identity have been self-identifying as LGBQ longer). The participant’s age of initial disclosure to others should be considered. In addition, considering age of first same-sex attraction and first same-sex behavior might provide insight to the age at which one begins to identify as LGBQ. It is possible to calculate the length since initial same sex attraction, behavior, and identity by subtracting the age of the variable of interest from the current age, a demographic variable.

**Stress and Stigma Unique to Sexual Identity**

In addition to the stress that all college students experience, non-heterosexual students also must cope with stress uniquely related to their sexual identity. It can manifest through intentional acts (e.g., “dyke” being written on a dry erase board in a residence hall) or heterosexist norms (e.g., a gay couple not feeling comfortable holding hands in public). These stressors may contribute to internalized stigma and subordination of non-heterosexual people which can have serious negative health problems. Researchers have shown that there are higher rates of mental health problems in gay men and lesbians as compared to heterosexuals (Cochran, Sullivan, & Mays, 2003; Gilman et al., 2001) and that these problems may be based on the effects of bias against people who are LGBQ (Cochran, 2001). The most often used framework is minority stress theory (Meyer, 2003). Although not the primary focus of my
research, this framework serves as a theoretical base because it incorporates both the individual and the environment to help explain psychological outcomes as a result of sexual identity disclosure.

The concept of minority stress “explain[s] that stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems...[it] describes the stress process, including the experience of prejudicial events, expectations of rejection, hiding and concealing, internalized homophobia, and ameliorative coping processes” (Meyer, 2003, p. 674). These constructs are unique to sexual identity and previous research discusses their influences on psychological outcomes. According to Meyer minority stress is counteracted by establishing personal and peer structures that enhance LGBTQ people as a group. This contributes to the saliency of sexual identity both individually and as a community.

The minority stress model is a conceptual framework that recognizes both internal and external stress experienced as a result of one’s non-heterosexual identity and serves as a theoretical explanation of why individuals who are non-heterosexual have a higher prevalence of mental disorders.

In order for LGB people to achieve a positive self-image about their sexual identity, they must effectively handle minority stress. It can be exacerbated and ameliorated on both the individual level and the group level (D'Augelli, Hershberger, & Pilkington, 2001; Meyer, 1995, 2003). This research intends to statistically represent a relationship among extant minority stress factors including internalized stigma, external stressors, and social support. In addition, I introduce the perception of one’s coming out experiences to close family and friends as a minority stressor.
Internalized Stigma

Because many LGBTQ people are raised in a heterosexual environment that is negative about LGBTQ people, they are taught from the beginning of their lives that a non-heterosexual identity is wrong. These are stigmas associated with being non-heterosexual that negatively affect a person’s mental health (Wright & Perry, 2006). In early research on sexual identity, Weinberg (1972) described a construct of self-loathing that accompanies a “homosexual” identity. Today the terms “internalized homophobia” and “internalized stigma” are commonly used for describing psychological negativity about one’s sexual identity (Herek et al., 2009; Herek, 2000). Herek recommends using “Internalized stigma” to accurately describe the construct.

Experiencing distress about one’s sexual identity may lead people to internalize this stigma, also having negative physical and mental health outcomes. Previous studies on LGB youth have shown that distress regarding sexual identity is closely related to general psychological distress (Halpin & Allen, 2004; Wright & Perry, 2006). In other words, the more negatively they felt about their sexual orientation, the more likely they were to report significant mental health problems. The internalization of negativity toward sexual identity can have serious consequences on the mental health of people who are non-heterosexual. There are within-group differences in the amount of internalized homophobia people who identify as lesbian, gay, and bisexual experience (Weber, 2008). According to Weber, lesbians experience less internalized homophobia than do gay men and people who are bisexual, although the magnitude of the difference was modest. In a sample of LGBTQ adults, Herek (2009) found that the majority (89% lesbian, 76% gay male, and 78% bisexual females) did not agree with any of
the items on an internalized homophobia scale IHP-R. However, this finding could be different for college students. Internalized stigma needs to be specifically studied in LGBQ college students, as age may be influential. Younger people are more likely to be in the process of identity development and perhaps influenced more by internalized stigma (Ross & Rosser, 1996). Studies specifically of LGBQ youth have demonstrated an inverse relationship between parental knowledge of sexual orientation and reported levels of internalized stigma (D’Augelli, Grossman, Starks, & Sinclair, 2010).

**Self-Esteem**

In higher education research, self-concept and self-esteem are terms that are defined in different ways (Pascarella & Terenzini, 2005). Generally, self-concept is comparing one’s self to others; college students do this both academically and socially. Self-esteem, however, is an internal construct. Self-esteem is the degree to which a person feels adequate and valuable, usually comparing a “real” and “ideal” self (Pascarella & Terenzini, 2005; Rosenberg, 1979). Living up to one’s ideals is beneficial as there is little dissonance experienced as a result of psychological incongruence. Not surprisingly, there is a positive correlation between self-esteem and one’s health and well-being (DuBois & Flay, 2004), higher education outcomes including persistence (Bank, Biddle, & Slavings, 1994) and faculty contact (Kuh, 1995), as well as outness of sexual orientation (Halpin & Allen, 2004; Peterson & Gerrity, 2006). As a result, I purport an interrelation of social integration, academic/intellectual development, and self-esteem that occurs with all college students.

Specifically for LGBQ students, I hypothesize how the relationship between sexual identity and self-esteem influences higher education outcomes. Noticeably absent from the two
published quantitative studies on higher education outcomes for LGBQ students is a control for self-esteem. How well people feel they are living up to their ideals is a critical psychological variable for both sexual identity and higher education.

**Self-Esteem and Sexual Identity**

Self-esteem for LGBQ people is also influenced by facets of sexual identity like outness of sexual orientation (Halpin & Allen, 2004; Peterson & Gerrity, 2006) and self-stigma about homosexuality (Herek et al., 2009). Research highlights a conjecture in Cass’ stage model in which gay men who are just beginning to personally tolerate a non-heterosexual identity reported the lowest scores on measures of self-esteem, happiness, and life satisfaction (Halpin & Allen, 2004). Those who had accepted and integrated their sexual identity into their overall self-concept scored higher on measures of self-esteem, happiness, and satisfaction with life than people who were negotiating disclosure. This could mean that students who are questioning their sexual identity may be more at risk for a multitude of problems while in college. Interestingly, those who were in the two earlier stages of development and more closely identified as heterosexual reported higher psychosocial well-being than people who personally tolerated a non-heterosexual identity.

In a sample of gay and bisexual men, researchers found that self-esteem moderated the relationship between heterosexist events and psychological distress (Szymanski, 2009). Gay and bisexual men with higher self-esteem experienced less psychological distress as a result of experiencing a heterosexist event. From a developmental perspective, it is not a question of “What happens first a positive self-esteem or a positive LGBQ identity?”, but rather how much are they related for college students.
Self-Esteem and Higher Education Outcomes

Attending college has a positive, long-term influence on self-esteem (Pascarella & Terenzini, 2005). College students’ self-esteem and higher education outcomes, like integration with faculty and peers as well as educational attainment, are highly correlated. Self-esteem scores increased with each level of education above high school (Knox, Lindsay, & Kolb, 1993). Being actively involved academically and socially is positively related to self-esteem. Students who participated in service learning demonstrated increased self-esteem as a result (Rama, Ravenscroft, Wolcott, & Zlotkowski, 2000; Shumer & Belbas, 1996). College students’ social connections, including informal faculty contact, are also positively related to self-esteem (Kuh, 1995; Williams & Galliher, 2006).

Social Support

While experiencing victimization, or being the target of prejudicial events, exacerbates minority stress, support from friends and family attenuates its influence (Meyer, 2003). In LGBQ high school students, both social support and victimization mediated the link between sexual orientation and psychological outcomes (Williams, Connolly, Pepler, & Craig, 2005). When controlling for victimization or social support, the association between psychosocial difficulties and sexual orientation was no longer significant. In bisexual and lesbian women, social support has been found to mediate the relationships between internalized homophobia and psychological distress (Szymanski & Kashubeck-West, 2008).

Members of stigmatized groups often seek others who have experienced similar stigma or those who provide support for their identity. For LGBQ youth, one of the most fundamental expressions of social support is others’ acceptance of one’s non-heterosexual identity (Sheets &
Mohr, 2009). Personal networks are often homogeneous with regard to many sociodemographic, behavioral, and intrapersonal characteristics (McPherson, Smith-Lovin, & Cook, 2001) and people who are LGBQ often seek others with similar non-heterosexual identities as friends (Cass, 1979). They also seek environments in which they are not stigmatized (Jones et al., 1984). Hershberger and D’Augelli (2000) reported that the mental health of LGB youths was related to their perceptions of being accepted for their sexual orientation.

LGBQ youth often report more support from peers and non-family adults than from family members (Mufioz-Plaza, Quinn, & Rounds, 2002). Hershberger and D’Augelli (1995) found that family support contributes to positive mental health outcomes for youth who experienced antigay abuse. Additionally, family support and being out to one’s family influences one’s psychological adjustment in gay men (Elizur & Ziv, 2001).

Other Variables of Interest

Upon reading psychological and higher education literature for this research, I noted factors that could affect the latent variables in my model: sexual identity, internalized stigma, self-esteem, social support, higher education interactions, and academic development. Five are categorical variables (gender, sex, race, class standing, living environment, and sexual identity label); the rest are continuous. They are categorized as Identity and Psychological Controls and Higher Education Controls.

Identity and Psychological Constructs

Coming out affect. Also, it is plausible that college students are more influenced by their coming out experiences than the general LGBQ population presumably because it is more
recent. Although the environment in higher education may be supportive of sexual diversity and non-heterosexual identity development, a person’s inner network of friends and family is highly influential on one’s internalized stigma as well as disclosure. In his ecological model, Bronfenbrenner (1977) conceptualizes a microsystem of “complex relations between the developing person and the environment in an immediate setting (p. 514).” He then goes on to theorize concentric circles both proximally and distally in relation to one’s microsystem. Based on this framework, close family, close friends, and the individual’s environment(s) are influential on college students.

For LGBQ college students, disclosure of one’s non-heterosexual identity to close family and friends is psychologically challenging (D’Augelli, 1991; Evans & Broido, 1999; Rhoads, 1994). Parents and caregivers are highly influential in youths’ lives and play a vital role in their well-being (Steinberg & Duncan, 2002). There can be negative mental health outcomes from family rejection for LGB young adults, particularly higher rates of depression, suicide, drug use, and risky sexual behavior (Ryan, Huebner, Diaz, & Sanchez, 2009). The extent to which a person internalizes his or her proximal coming out experiences as positive or negative is a characteristic worth examining. It may be particularly salient for traditional undergraduates.

Coming out about one’s sexual identity with close family and friends are experiences unique to people who are not heterosexual. The perceptions of one’s coming out experiences and initial disclosure to others may be particularly salient with college students because it is somewhat recent and closely related to the age of traditional undergraduates. Although not part of the model, I introduce a construct, Coming Out Affect, to represent the extent to which
one positively or negatively evaluates the nature of coming out experiences with close family and friends.

**Gender identity and birth sex.** After running an analysis on the aggregated data, I will also report results according to the participants’ gender identity as well as birth sex. Gender identity refers to one’s sense of self as traditionally masculine or feminine while birth sex is based on physical anatomy. Terms to describe one’s gender identity are man, woman, or transgender. Birth sex terms are male, female, and intersex (a person with characterizes of both males and females). Gender is an important consideration in my study because there have been reported differences in academic outcomes between non-heterosexual boys and girls (Pearson et al., 2007).

**Gender atypicality.** In addition to information based on the participants’ gender, gender atypicality, and gender expression is also collected. For example, women with a more masculine gender expression or men who express feminine characteristics can be considered gender atypical. This is an important consideration in minority stress research because harassment or victimization often occurs because of gender atypicality (D'Augelli, Grossman, & Starks, 2006; Pilkington & D'Augelli, 1995). Also, one’s gender atypicality could influence outness, particularly to parents (D'Augelli, Grossman, & Starks, 2005).

**Racial identity.** Analyzing the data based on race seems plausible because there may be differences in the ways in which people of color experience minority stress (Meyer, 2008). Meyer found that it may be more difficult for people of color to determine if experiencing victimization was based on their sexual identity or if was based on their race. Another study found that for non-heterosexual African-Americans, internalized heterosexism was a predictor
of psychological distress (Szymanski & Gupta, 2009). In the heterosexual population, there are studies concluding that people of color generally have more negativity toward non-heterosexuals (Franklin, 2000; Waldner, Sikka, & Baig, 1999), but there are others that refute this assertion (Herek & Capitanio, 1995; Jenkins, Lambert, & Baker, 2009). In a nationwide study of African-American LGB people, two-thirds agreed that homophobia was a problem within the Black community (Battle, Cohen, Warren, Fergerson, & Audam, 2002). In a survey of non-heterosexual Asian-Pacific Americans (APA), 96% reported that homophobia was a problem in the APA community (Dang & Hu, 2005). Additionally, Ryan et al (2009) show higher rates of family rejection of Latino LGB youth than LGB youth who are White. Because differences have been shown among various LGB racial groups, it is important to consider these subgroup differences in research (Poteat, Aragon, Espelage, & Koenig, 2009).

**Substance use.** Substance use in both college students as well as in non-heterosexual populations is a major public health concern. Combining the two identities as non-heterosexual college students, it seems logical that substance use be considered in my research. While I am not comparing LGB college students to heterosexual college students, previous studies have noted that binge drinking is more prevalent in non-heterosexual males and females than in heterosexual college students and that there is a relationship between psychological distress and alcohol use for non-heterosexual college students (DeBord, Wood, Sher, & Good, 1998). Researchers have also shown that there is a between group and within group disparity in substance use between LGB youth and heterosexual youth (Marshal, Friedman, & Stall, 2009; Marshal et al., 2008).
Conservative family background. Students who come from a conservative background may have higher levels of sexual identity distress than those who are raised with more liberal views. Studies have linked a conservative political ideology with negative views of homosexuality (Herek & Capitanio, 1995; Herek & Glunt, 1993).

External minority stress. This term is derived from the minority stress theory (Meyer, 2003). External minority stress is more distal to a person’s identity and can be independent of personal identification with a non-heterosexual identity (Diamond, 2000). Unlike internalized stigma, these stressors are generated from external sources, both on an individual level and a community or social level. Examples of social stressors on a micro level include family, friends, and personal experiences/interactions. The other way to experience external minority stress is sociological. These may be considered one’s environments, including social, familial, learning, and living. For college students, experiencing a hostile environment makes it much more difficult for them to be able to focus on their learning (Lucozzi, 1998). Sherill and Hardesty (1994) found that 40% of LGB college students do not feel completely safe on their campus. More recently, Rankin, Weber, Blumenfeld, and Frazer (2010) reported that 25% of non-heterosexual students had experienced some form of harassment based on their sexual identity. External minority stress like experiencing victimization or harassment may be psychologically influential on a person’s self-esteem, and perhaps their involvement in college and/or sexual identity.

Experiencing victimization and harassment. From Rankin et al., (2010) assertion that 75% of non-heterosexual students did not report harassment, it can be concluded that the majority of LGBTQ college students may not experience external minority stress. For some
people, however, the effects of minority stress are severe. Stress based on negative experiences like victimization, harassment, or family rejection may be major factors that exacerbate minority stress. These negative dimensions may influence one’s self-esteem, higher education outcomes, as well as sexual identity. In research on victimization and harassment, previous studies have highlighted that harassment or victimization may occur because of gender atypicality (D'Augelli, Grossman, & Starks, 2006; Pilkington & D'Augelli, 1995). The reality of experiencing harassment or victimization based on one’s perceived sexual identity may significantly distract from healthy identity development.

**Higher Education Control Variables**

In addition to identity and psychological factors, there are also other influences on students’ experiences in higher education.

**Class standing.** Because of the developmental milestones that occur within college, those with less experience to higher education (i.e., first year students) may not have as much opportunity for academic and social integration as seniors.

**Living environment.** Students in higher education reside in a variety of places while attending college. They may live on campus in a residence hall or university owned apartment or they could live off campus with peers, family members, or alone. According to Pascarella and Terenzini (2005), “residential students participate more in extracurricular activities, report more positive perceptions of the campus social climate, tend to be more satisfied with their collegiate experience, report more personal growth and development, and engage in more frequent interactions with peers and faculty members (p. 421).” This variable may be influential because previous researchers have shown that compared to those who lived off
campus, students who lived in residence halls reported higher levels of peer support and social integration (Pascarella, 1984; Pascarella, Terenzini, & Blimling, 1994) and are more engaged in their learning (Kuh, 2003).

**Employment.** Employment also may influence the ways in which a person is involved in college. Students who work full-time jobs during college have less time to devote to on-campus activities, either social or academic. Research highlights that students who work long hours spend less time doing coursework (Heller, 2002). Part time on or off campus employment (15-20 hours per week) had positive effects on critical thinking in college students, while working more than that had negative effects (Pascarella, Edison, Nora, Hegedorn, & Terenzini, 1998). However, research on employment and cognitive growth of college students is inconsistent. Pascarella and Terenzini (2005) conclude that employment has a trivial impact on intellectual development during college.

**Grade Point Average.** Perhaps one of the most ubiquitous indicators of academic achievement are grades. Research has demonstrated a positive correlation between grades and psychological variables like self-esteem and self-concept (Bank et al., 1994). Research has also shown that grades are related to students’ involvement on campus (Berger & Milem, 1999; Kuh et al., 2006).

**Additional variables.** There may be other explanations for some variance in my model. While I measure interaction with student affairs staff, I also include the number of hours a student participates in co-curricular activities. Also, I ask a question about parent/guardian income.
Conclusion

It has been well documented that actively engaging in learning both in and out of the classroom positively influences students’ psychosocial and academic development (Pascarella & Terenzini, 2005). For LGBQ students, stress factors unique to their non-heterosexual identity may affect their integration on campus. This research intends to better understand the influence of sexual identity on psychological and higher education outcomes. It provides insight about how sexual identity interacts with students’ self-esteem and integration in college experiences.
CHAPTER 3
THE METHODS

This chapter discusses the ways in which I intend to answer my research question, “How does sexual identity influence higher education outcomes for LGBQ college students?” I begin by highlighting the outcome variables and then move to an overview of the predictors. After the variables, I then note the procedures. Within that section, I discuss the sample as well as the statistical techniques I employed.

The Dependent Variables: Academic and Social Integration

For most people who enroll in higher education, the primary objective is to earn a degree. Much research explores the link between what students do while they are in college and degree attainment (Braxton, 2000; Braxton, Milem, & Sullivan, 2000; Nora, Cabrera, Hagedorn, & Pascarella, 1996; Pascarella & Terenzini, 2005; Tinto, 1975, 1987, 1993). Researchers have found that academic and social integration are important variables that influence retention and degree completion (Cabrera, Castaneda, Nora, & Hengstler, 1992; Pascarella & Terenzini, 1980, 1983, 2005); thus, how actively involved a student is in his or her educational process is an important consideration when studying persistence. This study is a cross sectional design making it impossible for me to accurately measure persistence. Therefore, I study the level of students’ integration, with an understanding of the well-established positive link between integration and persistence.

Attempting to predict persistence of first-year students, Pascarella and Terenzini (1980) developed a measure of academic and social integration called the Academic and Social Integration Scale. This questionnaire asks students to report their level of agreement with 34
items on a five-point, Likert scale. The scale contains five subscales related to: peer
interactions, faculty interactions, faculty concern for student development and teaching,
academic and intellectual development, and institutional and goal commitment. I use three of
these subscales in this research. Peer and faculty interactions are based on how students rate
the quality of their relationships with students and professors. Academic and intellectual
development is a composite of questions relating to interest in intellectual and cultural growth,
assessment of academic performance, and satisfaction with intellectual development and
academic experiences.

Academic and intellectual development is measured by seven items in Pascarella and
Terenzini’s (1980) Academic and Social Integration Scale (ASIS) and has been used extensively in
higher education (Patrick Terenzini, personal communication May 4, 2009). This self-report
measure looks at satisfaction with intellectual development and academic experience, interest
in intellectual and cultural growth, and assessment of academic performance.

Even more robust a predictor of persistence is social integration (Braxton, Sullivan, &
Johnson, 1997). The belief is that social integration leads to a greater institutional
commitment, in turn increasing the likelihood that students will continue at that institution
(Braxton et al., 2000; Kuh et al., 2006). The relationships that students have both on and off
campus are influential in their success in college (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006).
Pascarella and Terenzini (1980) define social integration as the quality of students’ relationships
with both faculty and peers. They measure it with two factors within the ASIS, peer group
interactions and interactions with faculty. Additionally, I added questions regarding
involvement with student affairs staff.
Sexual Identity

Sexual orientation and sexual identity are two terms frequently used when discussing people who are not heterosexual. Little distinction has been made between the two; scholars and practitioners generally use them interchangeably. Savin-Williams and Ream (2007) noted, however, three components of sexual orientation: attraction, behavior, and identity. They asserted that “to assess sexual orientation, investigators should measure multiple components over time or abandon the notion of sexual orientation and measure only those components relevant for the research question (p. 385).” They also discussed that sexual orientation is a complex construct and write “sexual orientation instability may not be simply a developmental issue, but a conceptual or measurement problem (p. 393).” Researchers should account for these considerations when trying to assess sexual identity as a psychological construct.

I also conceptualize sexual orientation as encompassing sexual attraction, sexual behavior, and self-reported sexual identity. My research focuses primarily on psychological characteristics; therefore I try to conceptualize sexual identity as a distinct construct, very much related to sexual attraction and sexual behavior. I, therefore, assess ages at which participants had their first same sex attraction and behavior, but the focus of my research is sexual identity, more specifically, disclosure to others about identifying as non-heterosexual.

LGBQ people have unique components of their sexual identity that would be impossible to study in heterosexual populations. This study uses a cross-section sample of LGBQ college students to see how influential psychological variables, including sexual identity are on a measure of higher education outcomes.
Level of Outness

A person’s sexual attraction and behavior are often not apparent without some form of self-disclosure. Generally, people are assumed to be heterosexual. D’Augelli, Grossman, and Starks (2008) attest that disclosure is a core component of gay, lesbian, and bisexual development. Developmentally, there is an integration of sexual identity into one’s overall sense of self (Cass, 1979; Fassinger, 1998; Troiden, 1989). There is a level of openness and comfort a person has about his or her sexual identity and environmental pressure to be heterosexual is less influential. I conceptualize this construct as “Outness about Sexual Identity.”

Researchers measured this construct in LGBQ people (Mohr & Fassinger, 2000; Rankin 2003; Rankin, Weber, Blumenfeld, & Frazer, 2010); although I plan to modify the way a level of outness is measured, particularly in college students. It will be based on the student’s disclosure of his or her sexual identity to others. To measure the level of outness, I expand on Mohr and Fassinger’s (2000) “Outness Inventory” to make it more applicable to college students. I changed the items to make them relevant to higher education.

My scale is shown in Table 3.1 below. Response choices are ordinal as “Completely,” “Mostly,” “Somewhat,” “Hardly,” and “Not at all.” Additionally, I will have a choice for those questions not applicable to a respondent. While these are ordinal categories, factor scores will be created to treat the scale as one continuous latent variable.
This scale builds upon those already used in education and psychological research. It will be tested for reliability and validity. The content validity has been examined by multiple discussions with psychological experts on LGBQ youth. Question 12 is posed to study the construct validity of the scale. If the grand mean from the questions above correlates with the last question, then the assumption is the scale has convergent construct validity.

**Internalized Stigma**

Because many LGBQ people are raised in a homophobic environment, they are taught from the beginning of their lives that a non-heterosexual identity is wrong. There is stigma associated with being non-heterosexual negatively affect a person’s mental health (D’Augelli, Hershberger, & Pilkington, 2001; Meyer, 1995, 2003). Experiencing this type of distress may lead people to internalize this homophobia, which also has negative physical and mental health outcomes (Wright & Perry, 2006). Researchers have worked to measure this variable among LGBQ adults, with minimal focus specifically on college students (Herek, & Glunt, 1993; Herek,
Gillis, & Cogan, 2009). I measure the level of stigma of one’s non-heterosexual identity using the IPH-R (Herek, Gillis, & Cogan, 2009). This instrument is a five item scale asking participants’ level of agreement with statements about their sexual identity.

**Psychological Variables for SEM**

In the path model, I intend to aggregate social support, self-esteem, and mastery to form one general psychological construct. I will use standardized data so each construct is on a similar metric. As the factor structure is already known, I employ confirmatory factor analysis on these data. I intend to analyze the variance of these scores across groups of non-heterosexual sexual identities to elucidate differences.

**Social Support**

To measure social support, I use the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988). Three factors emerge regarding one’s support network: family, friends, and significant other. This scale is multidimensional or second-order because these factors combine to form one overarching factor of social support. Additionally, for the LGBQ student sample, it is beneficial to assess the number of heterosexual and non-heterosexual friends in support networks. Particularly with college students, peers are extremely influential and often share similar characteristics.

It is imperative that I consider how social support influences each of the variables as well as the overall model. Moderator variables influence the relationship between the predictor and the outcomes (Baron & Kenny, 1986). Research highlights that the degree of outness to one’s social support network attenuates high levels of sexual identity distress
(Wright & Perry, 2006). This substantiates the claim that social support could moderate both sexual identity and self-esteem.

**Self-Esteem**

The Rosenberg Self Esteem scale (1965, 1979) is a frequently used measure of this construct. It is a ten-item inventory that asks respondents questions related to how they feel about themselves. The scale uses a four point Likert scale and is a single factor. To my knowledge, no researcher has used CFA to analyze how well the Rosenberg Self Esteem scale works with LGBQ college students.

**Mastery**

Mastery is the perceived sense of control a person has over events in his or her life (Pearlin, Lieberman, Menaghan, & Mullan, 1981). People who externalize their mastery tend to believe that outside influences are dominating events in their lives. Conversely, those who internalize mastery understand that they are the primary influence. This psychological construct measures the extent to which individuals externalize or internalize life events (Pearlin et al., 1981). The Pearlin Mastery Scale consists of seven items. Examples of the item stems are “What happens to me in the future mostly depends on me” or “I can do about anything I really set my mind to do.” The response choices are on a four-point, ordinal scale.

**The Procedure**

The purpose of this dissertation is to help answer the overarching research question, “How does sexual identity influence higher education outcomes for LGBQ students?” I intend to construct a path model that empirically tests a causal relationship among the latent psychological constructs of interest. I developed a survey to assess these variables in LGBQ...
college students and intend to use Structural Equation Modeling (SEM) to statistically support a causal model.

I reviewed higher education and psychological literature for the constructs as well as ways to measure them and their relationship among each other. Included in the survey are extant scales and potential covariates that may be influential. I piloted the survey with Penn State students. I examined the data and made additional changes to the survey as well as to the relationship of the variables in my model. I then conducted a national survey to obtain an adequate sample size for SEM analysis. Ideally, I hoped for approximately 1,200 participants with various identity characteristics, the vast majority of whom identify as lesbian, gay, bisexual, queer, questioning or another non-heterosexual identity.

**Pilot Survey**

I piloted my questions with Penn State students. I used Survey Monkey as an online host for this project. The LGBTA Student Resource Center at Penn State sent out a recruitment email to their appropriate list servs. That effort garnered 72 responses. After examining correlations of the variables and conducting initial exploratory factor analysis on the scales, most information was usable.

In the pilot survey, I asked for comments from participants that might strengthen the survey. I added two questions not included in the pilot, one on substance use and one asking participants to type the name their college or university. Additionally, I added “Queer” as a choice for sexual identity. The pilot survey was beneficial because it helped me test the questions as well as address issues of survey fatigue and skip patterns. Minimal changes were
needed to the instrument as a result of preliminary data analysis. Survey questions, including item stems and response choices, can be found in Appendix A.

**Sample Recruitment**

After enhancing the pilot survey, a recruitment email was sent to people who opted-in to the Campus Pride list serv. Campus Pride is a national organization focused on supporting LGBT college students. The Queer Research Institute for Higher Education is a branch of Campus Pride focusing on LGBT research and this survey was supported by the Institute. A link to the online survey was embedded in the recruitment email. As an incentive, participants also had the opportunity to enter a drawing for a $100 Visa gift card. Data were collected for two weeks in October, 2010. The survey was administered in the spring rather than the fall to afford respondents, particularly first-year students, with more experiences in higher education on which to base their answers.

The majority of participants in the study are undergraduate and graduate students who identify as lesbian, gay, bisexual, questioning or another non-heterosexual identity. Responses from heterosexual students were also collected; however data from heterosexual participants are not included in this study. Participants were not identified, making the responses anonymous. I assigned record identification numbers to the data after it was collected.

**Limitations of Sampling Procedure.** A caveat of this research is the convenience sampling from students who opted-in to receive emails from an LGBQ affirming organization. Unfortunately, it is impossible to know population information for this sample. Therefore, representativeness is impossible to establish and I am unable to weight the data in my sample. Also, because this was not a randomized sample, the generalizability of these results is
inappropriate. The intention of this study is to help inform research and practice. Readers should cautiously use these findings to benefit students.

**Data Analysis**

The next step in my research was to prepare for analysis. I cleaned the data by collapsing categories, deleting errors, and removing records with only demographic information. The data were analyzed using MPlus (Version 6.1) software. I examined the data for normality and collinarity issues. After diagnostics were completed, I analyzed the eight measurement instruments using confirmatory factor analysis (CFA). Upon confirming the scales, the software created factor scores that were then used for path analysis. I used a model-generating approach to path analysis. I began by testing the hypothesized path model (Figure 2.1) and iteratively modified it to produce a causal model that fit my data.

**Confirmatory Factor Analysis**

CFA is an integral part of structural equation modeling and occurs prior to building the path model (Byrne, 1998, Kline, 2005). Its purpose is to test how well an instrument measures a latent construct and allows statistical modifications to improve it. Ultimately, the goal of CFA is to compute the most precise factor scores possible. These factor scores are then used as input data for the path model. This is beneficial because the factor scores are continuous variables with a normal distribution and no missing data.

Items that comprise a latent variable are assumed to be measured independently, that is, without any error. However, if pragmatically justifiable, the researcher can specify which items have correlated errors. For example, the inventory I used to assess self-esteem (Rosenberg, 1965) had two similar question stems, “At times I think that I am no good at all”
and “I certainly feel useless at times.” When analyzing the covariance structure of the self-esteem measure, the software recognized that two error variances were similar and suggested I allow them to correlate in order to improve the accuracy of the measure. All modifications to the analysis of measurement instruments can be found in Appendix B below their respective correlation matrix.

For the CFA, the estimation method selected was diagonally weighted least squares because all of the response choices were ordinal (Muthen & Muthen, 2010). This procedure calculates non-parametric correlations among the items. Unlike exploratory factor analysis, CFA requires the researcher to scale the latent variables either by fixing the highest factor loading to one or fixing the variance to one. Although observed variables are assumed to be measured independently, CFA permits the researcher to correlate the errors of items if theoretically and statistically justifiable. Correlated errors and fixed factor loadings for the measurement models are reported with their respective matrices in Appendix B. Survey questions, including item stems and response choices, can be found in Appendix A.

Factor scores were subsequently created by the software program based on the participants’ responses. Essentially, these are deviation scores with a mean of zero and a standard deviation of one. Participants are assigned a value based on how their responses deviate from the average. When computing the factor scores, the specified factor structure and error correlations are considered, increasing the precision of CFA factor scores. These factor scores were saved and then used as continuous variables for the path model.

**Missing Data.** Concerns regarding missing data were also assuaged using CFA. The software recognizes missing data and accounts for it when calculating factor scores (Muthen &
In this research, all of the instruments have ordinal response choices. The software estimates the correlation matrix using diagonally weighted least squares, as this is appropriate for non-parametric correlations. Subsequently, missing data are handled using the pairwise present approach to estimate the model parameters and calculate factor scores. This technique uses all available information for analysis, but does not estimate the values of the missing data points or impute the data set.

All but one measure had less than five percent missing data. Tabachnick and Fidell (2006) report that samples with less than five percent missing will not alter the analysis. Missing data is of greatest concern with the College Student Outness Inventory. For this measure, respondents are permitted to select “Not Applicable” for items that do not pertain to their life. For example, some students may not have college roommates or housemates and the item asking about their level of disclosure to these people is not relevant. Responses marked as “Not Applicable” are categorized as missing data. All other measures used in this research do not have the option to select “Not Applicable.” Missing data were denoted and the factor scores estimated using the pairwise present approach.

Path Analysis

After the measurement model was completed, I began path analysis by testing the hypothesized path model (Figure 2.1). I modified the model by removing the largest non-significant parameter and re-running the analysis. The path model was iteratively respecified ten times to obtain accurate fit. Upon achieving a model within the recommended limits of multiple fit indices, I studied indirect effects of outness and internalized stigma on academic development.
The path model was analyzed using factor scores for the latent variables. These data are continuous and normally distributed; therefore maximum likelihood was selected as the estimation method. The residual variances of endogenous variables were permitted to correlate based on theory and information from the modification indices. Because there was only one exogenous variable in the path model, exogenous correlations were not possible.

**Interpreting Fit Indices**

Goodness-of-fit statistics were reported for each CFA as well as both path models. Although there are numerous methods for calculating model fit, I report those that are most common in SEM literature. Based on recommendations from Hu and Bentler (1999) the results from four “goodness-of-fit” indexes are provided [chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis Index (TLI)].

The most common test of fit in SEM uses a chi-square distribution derived from the fit obtained and the implied covariance matrices (Tanaka, 1993). However, researchers recognize that the chi-square test may be unsatisfactory for assessing model fit (Thompson & Daniel, 1996). Larger sample sizes produce larger chi-square test values, making even small discrepancies statistically significant. As a result, Hu and Bentler (1999) recommend using multiple fit indices to asses goodness-of-fit and have suggested cutoff values for misspecified models based on Monte Carlo simulation studies. They recommend cut-off criteria of less than 0.06, for the RMSEA, the CFI and TLI be close to or greater than 0.95. However, others have disputed using cutoff criteria as a finite value of misidentification because models are influenced by the degrees of freedom, sample size, and model specifications (Chen, Curran, Bollen, Kirby, & Paxton, 2008; Hayduk & Glaser, 2000; Steiger, 2000). The purpose of fit indices...
in SEM is to achieve adequate statistical power and cutoff values are arbitrary depending on the model specifications, degrees of freedom, and sample size (Chen, Curan, Bollen, Kirby, & Paxton, 2008). The premise of model misspecification is more important when examining the path model, as this is a proposed causal chain of latent variables.

When reporting results from the analysis of covariance structures, Boomsma (2000) recommends including enough information so that other researchers can replicate the study. Correlation and covariance tables with sample size are provided in Appendix B. The path model can be reproduced using the covariance tables. For group analyses, these tables are categorized by sexual identity. Correlation tables for the factor analyses are also included. The measurement correlations are non-parametric; therefore means and standard deviations are not reported. One measure is categorized by sexual identity group, the College Student Outness Inventory (OUTNESS). As this is a newly created instrument to measure disclosure of sexual identity, it seems appropriate to report item correlations for each of the three sexual identity groups.

The next chapter describes the findings of this study. It includes a description of the sample, information on the way these data were analyzed, results of the measurement models, and results of the path model.
CHAPTER 4
RESULTS

The results of this analysis demonstrate a relationship between sexual identity characteristics, psychological variables, and higher education constructs for lesbian, gay, bisexual, and queer (LGBQ) college students. Data were analyzed using structural equation modeling (SEM). For the measurement model of SEM, confirmatory factor analysis (CFA) was employed to test eight latent variables and create factor scores for the path model. A hypothesized path model was then tested and modified. Results are reported from the models that best fit the data.

This chapter is structured into four sections: sample description, results of the measurement model, results of the path model, and a description of the direct and indirect effects specifically for sexual identity characteristics. Where appropriate, differences in sexual identity groups are reported.

Sample Description

Participants were recruited with an email sent to people who signed up to receive emails from Campus Pride. Students currently enrolled in higher education were encouraged to take the survey, including heterosexual students. A total of 1,371 usable responses were obtained. Responses from participants who submitted the survey with only demographic data were deleted.

For this analysis, responses from heterosexual (n = 208) and questioning (n = 38) students were removed. Heterosexual students are not of interest to this particular study because the focus is on disclosure of sexual identity. As heterosexuality is the assumed norm in
society, generally, people identifying as heterosexual need not disclose their sexual identity. Questioning students were removed for two reasons. First, and most importantly, there were too few to make adequate comparisons with other sexual identity groups. Additionally, in my professional opinion, questioning is not a normed sexual identity, but rather an intrapersonal incongruence. Cass (1979) notes that when people are unsure of their sexual identity, they tend to compartmentalized their networks, disclosing their non-heterosexual identity only to those who share a similar sexual identity. From a measurement perspective, the instability of disclosure from these participants could create error when analyzing the data.

In this study, data from 1,125 participants were used after heterosexual and questioning participants were removed. Although conventional research methods often group participants by sex or gender, this research focused on differences in sexual identity, regardless of gender. Responses were collapsed into three groups: gay/lesbian (n = 651, 57.9%), bisexual (n = 212, 18.8%), and queer/other (n = 262, 23.3%). Gay and lesbian are identities based on monosexuality, meaning they are sexually attracted to one sex, albeit the same sex. People who identify as bisexual are attracted to two sexes. People who identify as queer (or other) are not basing their sexual identity on physiological attractions; rather they adopt a post-modern perspective of conceptualizing sexual identity (Rhoads, 1994).

Table 4.1 shows the breakdown of participants’ sexual identity by their gender identity. Transmasculine refers to people whose birth sex is female, but identify their gender as something other than a woman. Transfeminine refers to people who were born as males, but identify their gender as something other than a man. The column total in Table 4.2 is applicable
to the analysis. The row total is provided for illustrative purposes, as gender identity is not a variable of interest.

Table 4.1  
Number of survey respondents by sexual identity and gender identity

<table>
<thead>
<tr>
<th></th>
<th>Women n</th>
<th>Women %</th>
<th>Men n</th>
<th>Men %</th>
<th>Transfem n</th>
<th>Transfem %</th>
<th>Transmasc n</th>
<th>Transmasc %</th>
<th>Unknown n</th>
<th>Unknown %</th>
<th>Total n</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisexual</td>
<td>164</td>
<td>14.5</td>
<td>33</td>
<td>3.0</td>
<td>2</td>
<td>0.1</td>
<td>13</td>
<td>1.2</td>
<td>---</td>
<td>---</td>
<td>212</td>
<td>18.8</td>
</tr>
<tr>
<td>Gay/Lesbian</td>
<td>262</td>
<td>23.2</td>
<td>356</td>
<td>31.6</td>
<td>11</td>
<td>1.0</td>
<td>22</td>
<td>2.0</td>
<td>---</td>
<td>---</td>
<td>651</td>
<td>57.9</td>
</tr>
<tr>
<td>Queer/Other</td>
<td>122</td>
<td>10.8</td>
<td>28</td>
<td>2.5</td>
<td>9</td>
<td>1.0</td>
<td>98</td>
<td>8.7</td>
<td>5</td>
<td>0.4</td>
<td>262</td>
<td>23.3</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>48.7</td>
<td>417</td>
<td>37.1</td>
<td>22</td>
<td>2.0</td>
<td>133</td>
<td>11.9</td>
<td>5</td>
<td>0.4</td>
<td>1125</td>
<td>100.0</td>
</tr>
</tbody>
</table>

When comparing sexual identity groups, there were significant differences in the average age of first same-sex attraction, first same-sex behavior, and the age at which participants first identified as their current sexual identity. The mean ages and results of a one-way analysis of variance are provided in Table 4.2.

Table 4.2  
Average age of respondents’ sexual orientation characteristics by sexual identity group

<table>
<thead>
<tr>
<th>Sexual Identity Group</th>
<th>First Same-Sex Attraction $^1$</th>
<th>First Same-Sex Behavior $^2$</th>
<th>First Identified as Current Sexual Identity $^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisexual (n = 212)</td>
<td>12.4</td>
<td>15.6</td>
<td>18.1</td>
</tr>
<tr>
<td>Gay/Lesbian (n = 651)</td>
<td>10.8</td>
<td>14.7</td>
<td>17.1</td>
</tr>
<tr>
<td>Queer/Other (n = 262)</td>
<td>11.3</td>
<td>15.9</td>
<td>18.1</td>
</tr>
</tbody>
</table>

$^1$ F(2, 1110) = 219.21, p < .000  
$^2$ F(2, 1091) = 66.47, p = .041  
$^3$ F(2, 1110) = 115.26, p < .000

When examining birth sex, 60.9% (n = 685) were female, 38.9% (n = 438) were male. No participants indicated they were intersex. The sample was evenly distributed by class standing. Graduate students were included in this analysis, as previous LGBQ research has demonstrated their experiences are similar to undergraduates (Rankin, Weber, Blumenfeld, & Frazer, 2010).
Figure 4.1 below shows the numbers and percentages of respondents grouped by class standing.

![Class Standing Graph]

Although the analysis does not consider racial identity or national identity, it is important to note that the sample was predominately White students from the United States (n = 830, 73.8%). Regarding American students of color, the following racial identities were reported: Multiracial (n = 126, 11.2%), Latino(a)/Hispanic (n = 52, 4.6%), African American/Black (n = 45, 4.0%), Asian American (n = 36, 3.2%). Additionally, two percent of the sample were international students (n = 23); nine identified as White (0.8%) and 14 identified as people of color (1.2%). Thirteen students did not report either their race or nationality. When collapsing racial categories and including international students, 24.2% of the sample (n = 273) identified as something other than monoracial Caucasian.

Respondents represented 486 colleges and universities across the United States. Various types of institutions were reported including associates colleges, doctorate-granting
universities, master’s colleges and universities, baccalaureate colleges, and special focus institutions. No participant indicated attending a tribal college.

Measures

Eight scales were used to measure latent constructs in this research. Four measured psychological characteristics: self-esteem, social support, internalized stigma, and level of sexual identity disclosure. The other four scales focused on higher education characteristics: peer interaction, faculty interaction, student affairs staff interaction, and academic development. Six of the scales have been used in previous research, although not specifically on LGBQ college students. Each scale was independently tested on the data collected from the survey using confirmatory factor analysis. Based on the modification index provided by the software, models were re-specified and tested. The results provided in this section are from the best fitting model for each latent variable.

It was not possible to run a CFA on each latent variable by sexual identity group because the ordinal categories across the groups were not similar. For example, no person who identified as bisexual indicated “strongly disagree” for one item on the self-esteem scale. This created an error message from the software indicating that the response choices across groups were not equal. In order to rectify this problem, CFA was conducted without group analysis. However, in regard to the College Student Outness Inventory, it was possible to study by groups and results are provided in the respective subsection. When reporting the CFA results for each factor, I provide four indices of fit and the amount of variance explained by each factor. Table 4.3 shows the results of the CFA for each factor used in this analysis.
Table 4.3
Results of Confirmatory Factor Analyses

<table>
<thead>
<tr>
<th>Measure</th>
<th>Chi-Square (df)</th>
<th>RMSEA</th>
<th>CFI</th>
<th>TLI</th>
<th>Variance (S.E.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Student Outness Inventory (OUTNESS)</td>
<td>529.009 (213)</td>
<td>0.063</td>
<td>0.983</td>
<td>0.987</td>
<td>Depends on group</td>
</tr>
<tr>
<td>Internalized Homophobia (IH)</td>
<td>5.254 (4)</td>
<td>0.017</td>
<td>1.000</td>
<td>0.999</td>
<td>0.782 (0.028)</td>
</tr>
<tr>
<td>Social Support from Friends (FRND)</td>
<td>0.517 (1)</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
<td>0.880 (0.011)</td>
</tr>
<tr>
<td>Self-Esteem (ESTEEM)</td>
<td>229.757 (31)</td>
<td>0.076</td>
<td>0.990</td>
<td>0.985</td>
<td>0.784 (0.017)</td>
</tr>
<tr>
<td>Peer Group Interaction (PGI)</td>
<td>114.129 (12)</td>
<td>0.087</td>
<td>0.995</td>
<td>0.992</td>
<td>0.908 (0.014)</td>
</tr>
<tr>
<td>Academic/Intellectual Development (AID)</td>
<td>56.337 (13)</td>
<td>0.055</td>
<td>0.997</td>
<td>0.996</td>
<td>0.871 (0.012)</td>
</tr>
<tr>
<td>Interaction with Faculty (IWF)</td>
<td>28.707 (4)</td>
<td>0.074</td>
<td>0.999</td>
<td>0.996</td>
<td>0.883 (0.013)</td>
</tr>
<tr>
<td>Interaction with Student Affairs Staff (ISA)</td>
<td>14.020 (3)</td>
<td>0.058</td>
<td>1.000</td>
<td>0.999</td>
<td>0.939 (0.008)</td>
</tr>
</tbody>
</table>

Results from fit indices were mixed, depending on the measure. Internalized homophobia, social support from friends, academic/intellectual development, and interaction with student affairs staff were below the suggested RMSEA cutoff of less than .06 and had CFI and TLI above .95. Additionally, these measures explained between 78% and 94% of the variance. Interaction with student affairs staff (ISA) has not been previously tested. In order to assess this, I used the response choices and stems from the interaction with faculty subscale and replaced the word “faculty” with “student affairs staff.” In order to achieve the desired fit, it was necessary to correlate two errors. The measure explained 93.9% of the variance and adequately fit the data.
Although fit statistics indicate the model is correctly specified, perhaps the most problematic measure was social support. In the survey, I administered the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988). This is a hierarchical scale intended to measure a person’s level of social support from friends, family, and romantic partner. These three subscales are comprised of four items each. Unfortunately, this measure as a second-order factor did not fit the data well indicating there was not one latent construct of social support. I, therefore, used the separate subscales when constructing the path model. Allowing one correlation of errors, the items measuring social support from friends fit the data well and explained 88.0% of the variance. Although this measure fit the data well, when used in the path model the standard errors were large. Results from the other two subscales are not reported because they were not statistically significant in the path model.

Four measures indicated higher RMSEA than .06. Self-esteem, peer group interaction, interaction with faculty, and outness had CFI and TLI greater than .95, but the chi-square and RMSEA fit indexes suggest the models are misspecified. All measures had at least one correlation of error variance in order to achieve adequate fit. However, for self-esteem, four error variance correlations needed to be estimated. This implies that there is a lack of independence among the questions created to measure self-esteem. For outness, the RMSEA was barely over the recommended cutoff. This is reconciled because responses were grouped and tested based on sexual identity, thereby requiring many degrees of freedom.

**Measuring Sexual Identity Disclosure in College Students**

The College Student Outness Inventory (OUTNESS) was adapted from previous work by Mohr and Fassinger (2000). It is a thirteen item scale with a common stem that reads “How
open are you about your sexual identity when...” The five ordinal response choices are
“completely, mostly, somewhat, hardly, and not at all.” Also included is “not applicable” for
choices that are not relevant to students. Responses marked as not applicable were treated as
missing data. One item, “participating in religious activities” was dropped from the scale
because over eighty percent of students marked not applicable. The final item asks, “Overall,
how open are you about your sexual identity?” and is not included in the creation of factor
scores. Rather, it is used to assess convergent construct validity. Correlating the sum of items
one through eleven with the final item affords a way to ensure that this measure is
mathematically valid. Indeed, the correlation is .856 indicating that participants responded
similarly on a battery of questions as they did to one question assessing their overall sense of
outness.

When examining the outness by sexual identity groups, there were noticeable
differences. Not surprisingly, the measure explained the most variance (75.2%) for those
indicating their sexual identity as gay or lesbian. For people who identified as bisexual, the
measure explained 67.8% of the variance. There was a significant decrease in the average
difference from gay/lesbian to bisexual (-.662), which indicates that people who are bisexual
are less open about their sexual identity than people who are gay or lesbian. As a group,
people who identified as queer or other did not differ from those who identified as gay or
lesbian on their level of sexual identity disclosure. This measure explained the least amount of
variance (62.8%) for people who identified as queer/other. Table 4.4 shows descriptive
statistics of the College Student Outness Inventory by sexual identity group.
The results of the fit indices were mixed. The RMSEA was .063, above the recommended cutoff of .06 (Hu & Bentler, 1999). However, the CFI and TLI are both above .95. This analysis used 213 degrees of freedom, because it compared data from three groups. The amount of variance the measure explained is lower for bisexual and queer/other. This indicates that the items assessed construct of sexual identity disclosure best for people who identify as gay or lesbian. Table 4.5 highlights the standardized factor loadings from the CFA by sexual identity group. The standardized loadings are reported for comparison purposes.

<table>
<thead>
<tr>
<th>Sample size</th>
<th>Gay/Lesbian</th>
<th>Queer/Other</th>
<th>Bisexual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance</td>
<td>.752</td>
<td>.628</td>
<td>.678</td>
</tr>
<tr>
<td>Reliability</td>
<td>.914</td>
<td>.913</td>
<td>.923</td>
</tr>
<tr>
<td>Convergent construct validity</td>
<td>.831</td>
<td>.846</td>
<td>.868</td>
</tr>
<tr>
<td>Contribution to chi-square</td>
<td>266.40</td>
<td>144.51</td>
<td>118.10</td>
</tr>
<tr>
<td>Range (Min to Max)</td>
<td>11 to 55</td>
<td>11 to 55</td>
<td>11 to 55</td>
</tr>
<tr>
<td>Mean (Standard Deviation)</td>
<td>42.49 (9.77)</td>
<td>41.64 (9.25)</td>
<td>33.89 (10.99)</td>
</tr>
<tr>
<td>Standardized mean difference from Gay/Lesbian (p-value)</td>
<td>---</td>
<td>-.117 (p = .070)</td>
<td>-.662 (p &lt; .000)</td>
</tr>
</tbody>
</table>

Table 4.5
CSOI standardized CFA factor loadings by sexual identity group

<table>
<thead>
<tr>
<th>Sexual identity group</th>
<th>Gay/Lesbian (n = 651)</th>
<th>Queer/Other (n = 262)</th>
<th>Bisexual (n = 212)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Around your close friends</td>
<td>.793</td>
<td>.839</td>
<td>.802</td>
</tr>
<tr>
<td>2. Around your close family</td>
<td>.580</td>
<td>.642</td>
<td>.588</td>
</tr>
<tr>
<td>3. Around your extended family</td>
<td>.610</td>
<td>.677</td>
<td>.667</td>
</tr>
<tr>
<td>4. Around extended friends or ‘friends of friends’</td>
<td>.842</td>
<td>.805</td>
<td>.864</td>
</tr>
<tr>
<td>5. You meet new people in person</td>
<td>.867</td>
<td>.863</td>
<td>.883</td>
</tr>
<tr>
<td>6. You meet new people online</td>
<td>.789</td>
<td>.812</td>
<td>.739</td>
</tr>
<tr>
<td>7. In your online profiles</td>
<td>.738</td>
<td>.762</td>
<td>.743</td>
</tr>
<tr>
<td>8. With professors, faculty, and instructors</td>
<td>.810</td>
<td>.824</td>
<td>.803</td>
</tr>
<tr>
<td>9. At work</td>
<td>.808</td>
<td>.761</td>
<td>.824</td>
</tr>
<tr>
<td>10. With people where you live (roommates, housemates, suitmates, people in your residence hall)</td>
<td>.765</td>
<td>.730</td>
<td>.710</td>
</tr>
<tr>
<td>11. With members of campus activity groups (including Greek)</td>
<td>.834</td>
<td>.825</td>
<td>.794</td>
</tr>
</tbody>
</table>
The first step in SEM is to construct and test a measurement model of latent variables. In this research, I used six existing scales and adapted two scales for my study. The results from the CFA helped to elucidate how the data best fit the factors. Initial models were tested and then respecified based on information from the modification index and the largest factor loadings were fixed to one. This provides more accuracy to the factor scores used in path analysis. The results from “goodness-of-fit” tests indicate some constructs were measured well while others violated recommended fit indices. I chose to not exclude variables from the path model based on results from the fit indices. Rather, I used CFA to specify the best model possible.

**Path Model**

After the independent confirmatory factor analyses were conducted and the factor scores created, I constructed a causal model depicting regression paths from “outness” to “academic development.” Prior to solidifying the final model, I performed ten separate iterations of the path model making changes based on the statistical modification indices. When testing mediation effects, I used two models. The initial model was nested within the second by adding direct paths from internalized homophobia and outness to academic development. More information regarding mediation and indirect effects is described in the next section.

The final model was constructed using data from all participants. However, I also performed group analyses to elucidate significant differences between sexual identity groups. Figure 4.2 is a graphical representation of the regression paths with coefficients from the
analysis performed with all participants. The correlations of endogenous variables are also estimated, but not shown in Figure 4.2.

**Figure 4.2 Path Model from Outness to Academic Development**

When comparing the hypothesized model (Figure 2.1) with the final model (Figure 4.2), there are clear differences. First, the variables are no longer grouped as “Psychosocial Well Being” and “Academic & Social Integration.” Rather, they are acknowledged as independent constructs. Three psychological variables were removed from the path model. Social support from family, social support from a romantic relationship, and mastery were not statistically significant and therefore not included in the path model. Regression relationships were also modified. Interactions in higher education became predictors of academic development. Internalized stigma became a predictor of psychological variables rather than an outcome. Finally, outness was not a direct predictor of higher education variables.
The model fit improved when analyzing the data by groups, but not significantly. The RMSEA decreased (0.047) and CFI increased (0.987). The chi square was still statistically significant, but less so for the group model, \( \chi^2(30) = 54.861, p = 0.004 \). The difference in the chi square values of the two models \( \chi^2(20) = 11.656 \) (CI.95 10.851; 31.410) was not statistically significant, indicating the model with all participants and the model analyzed by groups do not differ in how well they fit the data.

For people who are gay or lesbian, all of the paths are statistically significant. However, when examining queer/other students, interactions with student affairs staff was not a significant predictor of academic development, nor can it be predicted by self-esteem. Similarly for those who identify as bisexual, interactions with student affairs staff cannot be predicted by self-esteem. Additionally, internalized homophobia cannot be predicted by support from friends.

The path model shows the relationship of psychological constructs to higher education outcomes. The addition of internalized homophobia and outness make the model unique to students who do not identify as heterosexual. Contrary to the hypothesized model (Figure 2.1), outness and internalized homophobia were not direct predictors of academic development. However, when mediated by self-esteem, support from friends, and interactions in higher education their influence on academic development becomes apparent.

As depicted in Figure 4.2, outness inversely predicts internalized stigma. For every unit change in outness, there is a .432 unit decrease in internalized stigma. In other words, the more open people are about their sexual identity, the less internalized stigma they experience. Internalized stigma negatively predicts self-esteem and support from friends. It can be
interpreted as people with higher levels of internalized stigma report having less self-esteem and less support from friends. The coefficients for the relationship of friend support and internalized stigma should be viewed with caution as there is a feedback loop. These variables cause and predict each other. Additionally, these measures have large standard errors indicating that they may be unstable. For future research, the way that support from friends is measured in LGBTQ students may need to be reassessed. This part of the path model demonstrates how internalized homophobia has a negative influence on psychological constructs and that outness attenuates internalized homophobia.

Aside from the influence of outness and internalized homophobia, the rest of the model could, theoretically, be replicated with all students. Self-esteem positively predicts interactions in higher education as well as academic development. The more positively people feel about themselves, the higher their scores on measures of higher education outcomes. Similarly, support from friends positively predicts interactions in higher education, but has no direct effect on academic development. Not surprisingly, interactions with peers, faculty, and student affairs staff all positively predicted academic development. Interactions with faculty were the most robust predictor at 0.312. Peer group interactions also positively influenced academic development as indicated by a regression coefficient of 0.282. Still a significant predictor, but not as strong was interactions with student affairs staff at 0.090. This section of the model depicts how self-esteem and support from friends affects higher education interactions and, subsequently, academic development.
Table 4.6
Regression and correlation coefficients, standard errors, and statistical significance by sexual identity group

<table>
<thead>
<tr>
<th>Regression Paths</th>
<th>All Participants (n = 1125)</th>
<th>Gay/Lesbian (n = 651)</th>
<th>Queer/Other (n = 262)</th>
<th>Bisexual (n = 212)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (S.E.)</td>
<td>p value</td>
<td>Estimate (S.E.)</td>
<td>p value</td>
</tr>
<tr>
<td>AID on PGI</td>
<td>.282 (.026)</td>
<td>.000</td>
<td>.359 (.034)</td>
<td>.000</td>
</tr>
<tr>
<td>IWF</td>
<td>.312 (.025)</td>
<td>.000</td>
<td>.262 (.033)</td>
<td>.000</td>
</tr>
<tr>
<td>ISA</td>
<td>.090 (.023)</td>
<td>.000</td>
<td>.072 (.031)</td>
<td>.020</td>
</tr>
<tr>
<td>ESTEEM</td>
<td>.206 (.025)</td>
<td>.000</td>
<td>.177 (.032)</td>
<td>.000</td>
</tr>
<tr>
<td>PGI on FRND</td>
<td>.360 (.029)</td>
<td>.000</td>
<td>.359 (.039)</td>
<td>.000</td>
</tr>
<tr>
<td>ESTEEM</td>
<td>.176 (.028)</td>
<td>.000</td>
<td>.206 (.038)</td>
<td>.000</td>
</tr>
<tr>
<td>IWF on FRND</td>
<td>.168 (.031)</td>
<td>.000</td>
<td>.174 (.041)</td>
<td>.000</td>
</tr>
<tr>
<td>ESTEEM</td>
<td>.249 (.031)</td>
<td>.000</td>
<td>.257 (.041)</td>
<td>.000</td>
</tr>
<tr>
<td>ISA on FRND</td>
<td>.155 (.034)</td>
<td>.000</td>
<td>.148 (.045)</td>
<td>.001</td>
</tr>
<tr>
<td>ESTEEM</td>
<td>.175 (.034)</td>
<td>.000</td>
<td>.250 (.044)</td>
<td>.000</td>
</tr>
<tr>
<td>ESTEEM on IH</td>
<td>-.578 (.054)</td>
<td>.000</td>
<td>-.726 (.078)</td>
<td>.000</td>
</tr>
<tr>
<td>FRND on IH</td>
<td>-.830 (.114)</td>
<td>.000</td>
<td>-1.015 (.157)</td>
<td>.000</td>
</tr>
<tr>
<td>IH on OUTNESS</td>
<td>-.432 (.038)</td>
<td>.000</td>
<td>-.547 (.058)</td>
<td>.000</td>
</tr>
<tr>
<td>FRND</td>
<td>.532 (.093)</td>
<td>.000</td>
<td>.686 (.121)</td>
<td>.000</td>
</tr>
</tbody>
</table>

Endogenous Correlations

<table>
<thead>
<tr>
<th></th>
<th>PGI w/ IWF</th>
<th>ISA w/ IWF</th>
<th>FRND w/ ESTEEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGI</td>
<td>.175 (.019)</td>
<td>.181 (.020)</td>
<td>.317 (.039)</td>
</tr>
<tr>
<td>ISA</td>
<td>.202 (.025)</td>
<td>.229 (.028)</td>
<td>.419 (.070)</td>
</tr>
<tr>
<td>FRND</td>
<td>.155 (.039)</td>
<td>.078 (.040)</td>
<td>.050 (.049)</td>
</tr>
<tr>
<td>ESTEEM</td>
<td>.116 (.035)</td>
<td>.141 (.042)</td>
<td>.225 (.056)</td>
</tr>
</tbody>
</table>
Mediation and Indirect Effects

Two models were examined to compare mediation effects of internalized homophobia and outness to academic development. Mediation examines how predictor variables affect the outcome when intervening variables are included (Barron & Kenny, 1986). The original model shown in Figure 4.2 above is considered the nested model in this analysis. A second model was created to test the direct effects of academic development on internalized homophobia and outness. Figure 4.2 does not include a direct path from outness to academic development nor does it include a direct path from internalized homophobia to academic development, as it is common practice to omit non-significant variables from model estimation. However, when studying indirect effects, not estimating the direct effects could potentially bias other path coefficients in a way that spuriously inflates estimates of indirect effects (Preacher & Hayes, 2008). Therefore, the coefficients of the indirect effects are reported from this non-nested model. Coefficients for direct effects, as reported in the previous section, are from the nested model. When comparing these two models, there was no significant difference in the fit $\chi^2(2) = 3.96$ (CI.95 0.103; 5.991).

In simple mediator models, an indirect effect is the product of the two direct regression coefficients on either side of the mediating variable (Barron & Kenny, 1986). In SEM, it is more complex because all paths in the model are being tested simultaneously. According to Preacher and Hayes (2008), a specific indirect effect is the product of two direct regression coefficients on either side of the mediating variable. This represents the ability of the mediator to account for the effects of the predictor to the outcome conditional on the inclusion of all other mediators in the model. The total indirect effect is the sum of all of the specific indirect effects.
The direct effects of internalized homophobia and outness to academic development were not statistically significant. In other words, a change in these predictors does not have a direct influence on a change in academic development. However, when examining the indirect effects of both internalized homophobia and outness are influential predictors of academic development. Table 4.7 shows the direct and indirect regression coefficients by sexual identity group.

<table>
<thead>
<tr>
<th>Direct Effects</th>
<th>All Participants (n = 1125)</th>
<th>Gay/Lesbian (n = 651)</th>
<th>Queer/Other (n = 262)</th>
<th>Bisexual (n = 212)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (S.E.) p value</td>
<td>Estimate (S.E.) p value</td>
<td>Estimate (S.E.) p value</td>
<td>Estimate (S.E.) p value</td>
</tr>
<tr>
<td>AID on IH</td>
<td>.009 (.029) .752</td>
<td>-.001 (.038) .981</td>
<td>-.106 (.068) .119</td>
<td>.061 (.064) .334</td>
</tr>
<tr>
<td>AID on OUTNESS</td>
<td>-.045 (.025) .073</td>
<td>-.048 (.034) .153</td>
<td>-.035 (.060) .560</td>
<td>-.076 (.058) .193</td>
</tr>
<tr>
<td>Total Indirect Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IH to AID</td>
<td>-.352 (.042) .000</td>
<td>-.444 (.062) .000</td>
<td>-.242 (.063) .000</td>
<td>-.229 (.075) .002</td>
</tr>
<tr>
<td>OUTNESS to AID</td>
<td>.152 (.027) .000</td>
<td>.243 (.052) .000</td>
<td>.103 (.035) .003</td>
<td>.084 (.038) .028</td>
</tr>
</tbody>
</table>

Internalized homophobia negatively influences academic development via self-esteem, friend support, and interactions in higher education. Although there is not a statistically significant direct effect, when controlling for these other variables, the results demonstrate an inverse relationship. Of keen interest are the differences in sexual identity groups. For people who identify as gay or lesbian, internalized homophobia has a stronger negative indirect effect on academic development. However, for people who identify as queer/other or bisexual, internalized homophobia has less of a negative indirect influence on their academic development.
As mentioned in the previous section, outness attenuates internalized homophobia. This research shows that outness has an indirect effect on academic development because of its ability to reduce internalized homophobia. There is a positive total indirect effect of outness to academic development for each sexual identity group. However, for people who are gay or lesbian, the influence is greater. For people who are queer/other or bisexual, being open about sexual identity has a small indirect effect on academic development (.103 and .084 respectively). But for those who are gay or lesbian, the coefficient is more than double (.243). While there is not a statistically significant direct effect of outness to academic development, the indirect effects elucidate how internalized homophobia, self-esteem, support from friends, and interactions in higher education mediate this relationship.

Conclusion

These findings indicate that sexual identity influences academic development for LGBQ college students. This research is a within-group analysis, rather than comparing LGBQ students with a heterosexual reference group. Specifically, identifying as non-heterosexual has implications both psychologically and psychosocially for LGBQ college students. Of particular interest are differences among sexual identity groups. How students label their sexual identity matters to their academic development.

The measures used in this study accurately ascertain the latent variables, although some measures are more precise than others. The path model is an investigation into how psychological constructs and interactions in higher education influence academic development. This research shows their effect on academic development as mediated by self-esteem, support
from friends, and interactions in higher education. Sexual identity groups differ on how much bearing outness and internalized homophobia have on academic development.

The next section discusses implications of these findings. For those who work directly with LGBQ college students, practical implications are discussed. Suggestions are provided for working with individuals, for example, in a counseling capacity, as well as on a macro level of policy recommendations. For researchers, I offer suggestions for future analyses, limitations of this study, and ideas for theoretical contributions.
CHAPTER 5
DISCUSSION AND IMPLICATIONS

There are many characteristics that comprise and influence a person’s overall sense of identity. It may be impossible to separate these, for the synergy they create is the essence of Jones and McEwan’s (2000) concept of “core.” Sexual identity is highly salient to people who are not heterosexual, particularly because they differ from the majority of people in their environment. For many LGBQ college students, their sexual identity relates to other identities as well as contextual factors that contribute to their higher education experiences and outcomes.

Empirical research on the academic outcomes of LGBQ students is lacking and their experiences in higher education are known mostly anecdotally (Sanlo, 2004). More information is not available about higher education outcomes and sexual identity because, in part, sexual identity is not routinely collected as a demographic variable, neither on an institutional level nor a national level. In order for universities to effectively allocate resources to non-heterosexual students, research focused on LGBQ students warrants further investigation. Administrators at colleges and universities need information about higher education outcomes for LGBQ students to better assist with their policies and decision making practices. This research is an attempt to use quantitative methods to explore the influence of sexual identity on selected higher education outcomes for LGBQ college students.

The intent of this research was to answer the question “How does sexual identity influence higher education outcomes for LGBQ students?” I tested a causal relationship between sexual identity and other psychological variables, as well as higher education
outcomes. Rather than conducting comparison studies between heterosexual students and LGBQ students, the focus was within-group differences among non-heterosexual students. Additionally, I explore factors unique to LGBQ students, particularly disclosure of their non-heterosexual identity and the amount of internalized stigma associated with it. Survey data were collected from 1,125 non-heterosexual college students using convenience sampling. Data were analyzed using structural equation modeling (SEM). Eight measurement models (i.e., the instruments) and one full latent variable path model were tested. Goodness of fit indices suggested the specified models fit the data well, allowing for accurate interpretation of regression and correlation coefficients.

The major results from this study suggest that sexual identity disclosure has a positive, albeit, indirect effect on academic development. Psychological characteristics and social interactions in higher education mediate this relationship. Particularly, outness directly attenuates the negative psychological influence of internalized stigma. Lower levels of internalized stigma are related to higher levels of self-esteem and support from friends. These are contributing factors to involvement in higher education, specifically interactions with peers, faculty, and student affairs staff, and, ultimately, academic development. Multiple group analysis indicates these findings hold true, regardless of how students label their sexual identity.

Since paths and correlations in the models are tested simultaneously, the results indicate that the influences of all other variables are controlled. The path model can be examined in sections and the coefficients interpreted as holding all other variables constant. The sexual identity variables (outness and internalized homophobia) can be studied as a set of
predictors unique to LGBQ students. They directly affect the psychological variables (friend support and self-esteem) and indirectly affect academic development. Next, controlling for the influence of sexual identity variables, the psychological variables predict interactions in higher education. Self-esteem and support from friends positively contribute to interactions with peers, faculty, and student affairs staff. Those interactions then predict the outcome of academic development. Understanding how the parts are interrelated helps to see the model as a whole.

This research demonstrates that interacting with peer groups, faculty, and student affairs staff are influential on academic development. Engagement is important when studying college students because previous research has demonstrated being actively involved in one’s collegiate experience is an important predictor of persistence to obtaining a degree (Pascarella & Terenzini, 1980, 1983; Robinson, 2003). The findings of this study suggest that, for LGBQ students, interactions in higher education are predictors of academic development and that psychological characteristics affect these interactions.

Two psychological characteristics were found to be predictors of interactions in higher education. Self-esteem and support from friends are positively related to students’ interactions with peers, faculty, and student affairs staff. Higher self-esteem and more support from friends encourage involvement. Internalized stigma, or negative affect of being non-heterosexual, is harmful to psychological characteristics, in turn attenuating interactions in higher education and academic development. However, this research demonstrates that disclosing one’s sexual identity to others mitigates the effect of internalized stigma. Outness has a direct negative
influence on internalized homophobia and an indirect positive influence on academic development.

Although the psychological nature of this research focuses on the individual, institutional environments have a strong impact on students (Strange & Banning, 2001). Previous research on racial minorities has demonstrated the influence of institutional climate on learning (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999). The relationship between sexual identity variables (outness and internalized stigma) and academic development suggests that institutions of higher education must create environments that foster acceptance of LGBQ students. The implications of this research directly support six actions fundamental to support academic development of LGBQ students. Specific recommendations are provided for promoting inclusive policies, practices, research, and assessments.

Six Fundamental Actions to Support Academic Development of LGBQ Students

- promote sexual identity disclosure
- assuage stigma associated with non-heterosexual identities
- study the influence of sexual identity in institutional assessments
- differentiate among non-heterosexual identities
- encourage LGBQ students to seek support from friends
- support research on LGBQ students

These recommendations are not mutually exclusive. In order to foster an inclusive environment and support students on an individual level, they should be enacted congruently.
For discussion purposes, they are framed as subsections. These recommendations should be applied in manners that are advantageous for both students and institutions.

**Promote Sexual Identity Disclosure**

Many LGBTQ persons will disclose their sexual orientation or “come-out” during college (D’Augelli & Hershberger, 1993; Rhoads, 1994). The process of self-disclosure about sexual orientation is cited by both lesbian college students and gay males in college as one of the most significant concerns (D’Augelli & Hershberger, 1993). Moreover, while the process of “coming-out” is a major stressor for LGBTQ college students, these students must also deal with how family and friends react while dealing with their own new identity and role exit as a heterosexual.

Findings from this research demonstrate that outness has a positive indirect influence on academic development, particularly because it attenuates internalized homophobia. Certainly, it is not suggested that professionals in higher education push students to prematurely disclose their sexual identity. The process of coming out is individualistic and should happen when the student feels safe and supported.

For students of color, current literature on racial differences suggests that coming out may be complicated by cultural pressures. Race, gender, class and sexual orientation are not separate identities; they are experienced as holistic and intersectional (Battle et al., 2002). According to Rosario, Schrimshaw, and Hunter (2004) racism within the predominantly white LGBTQ community may further complicate the coming out process for ethnic/racial minority LGBTQ individuals. Racial minority individuals could be caught between two major forces: (a) stronger cultural pressures in their ethnic/racial communities favoring heterosexuality and
discouraging homosexuality, and (b) ethnic/racial prejudice and discrimination in the predominantly white LGBQ community that alienates ethnic/racial minority individuals. Professionals are encouraged to help students make informed decisions, particularly evaluating the benefits and consequences of disclosing one’s sexual identity.

Implications for policy

Administrators at colleges and universities have the capability to promote sexual identity disclosure by creating an environment that supports LGBQ students. Institutional policies provide guidelines for acceptable and unacceptable behaviors and practices on campus. These symbolic statements are a formal way of reifying institutional values and are fundamental in promoting safety and inclusion. Colleges and universities should adopt policies at multiple organizational levels in order to create a learning environment that supports LGBQ students.

Many colleges and universities have added sexual orientation and/or sexual identity to their non-discrimination policies. This helps to ensure that, regardless of sexual orientation, people have equal access to university opportunities and are able to work and learn in an environment free of harassment. Having a formal, overarching policy demonstrates that the institution does not permit discrimination or harassment based on sexual identity. It is a ubiquitous commitment to promote equality for students, faculty, and staff who are LGBQ.

Often, institutions have codes-of-conduct policies that are specifically for students. These documents are agreements that stipulate unacceptable behaviors and potential sanctions for those in violation. The results of this research suggest that peer group interactions are influential on academic development. Institutions can create policies that
promote respectful peer interactions and deter defamation based on identity characteristics. In addition to explicitly stating the non-discrimination policy, the code-of-conduct should also include zero-tolerance or immediate expulsions for students who commit hate crimes. A hate crime occurs when the victim is selected because of his or her group membership (Stotzer, 2007). The code-of-conduct should also explicate the institution’s desire to foster a community of respect. Egregious violations that do not constitute criminal behaviors (i.e. harassment, verbal slurs, and minor graffiti) should carry appropriate, educational sanctions.

Additionally, interacting with peers occurs in the classroom. University senates should adopt a policy that requires instructors to include a “statement of respect” on their syllabi. The syllabus is essentially a contract between the instructor and the students. Much like the code-of-conduct, it contains information about the instructor’s expectations for the course, including behaviors (i.e. attendance, make-up assignments, and/or laptop use). Explicitly state in the syllabus that discourse around sensitive issues should be conducted with respect. This directive should come from faculty governance because members of the faculty are likely to be sensitive to academic freedom issues when asked to make the classroom more welcoming for LGBQ students (Moshman, 2002). The power of the university senate to create a policy mandating students act in respectful manners furthers the commitment of the institution to create an environment that is supportive. By adopting a policy that requires all syllabi include a “statement of respect” faculty governance is empowering students to excel academically.

Promoting sexual identity disclosure requires intentional efforts to support individual students and also to enact policies that create safe and inclusive environments. Results from this research suggest that sexual identity disclosure indirectly affects academic development.
On an institutional level, I provide policy recommendations for creating an environment that promotes sexual identity disclosure. On an individual level, professionals at colleges and universities should help students recognize both the benefits and consequences of disclosing their sexual identity.

**Assuage Stigma Associated with Non-Heterosexual Identities**

In addition to promoting sexual identity disclosure, colleges and universities should work to assuage stigma of identifying as LGBQ. The results of this study indicate that stigma associated with identifying as non-heterosexual directly influences psychological variables, namely self-esteem and support from peers. Congruent with promoting sexual identity disclosure, higher education institutions can implement changes that affirm and normalize LGBQ identities. While internalized stigma is a unique construct to people who are not heterosexual, those who are heterosexual are crucial in rectifying it. The stress associated with being a sexual minority is a direct result of heteronormativity (Meyer, 2003). These recommendations are for all students, not just those who identify as LGBQ.

The curriculum has a pervasive influence on students’ academic development. That is, the academic plan for degree attainment provides guidelines for content knowledge (Stark & Lattuca, 1997). Many researchers emphasize that colleges and universities need to support an LGBT inclusive academic curricula (De Welde & Hubbard, 2003; Evans & Borido, 2005; Evans & D'Augelli, 1996; Mathison, 1998; Rankin, 2003; Rankin, Weber, Blumenfeld, & Frazer, 2010 Waterman, Reid, Garfield, & Hoy, 2001). Often, students who identify as LGB do not encounter a curriculum that validates their identity. The lack of representation in the academic curriculum may indirectly and negatively impact students who identify as lesbian, gay or bisexual (Evans &
D’Augelli, 1996). This not only invalidates LGBQ students, but also perpetuates heterosexist assumptions and acts. I provide suggestions for three ways to enhance curricula supportive of LGBQ students. The first recommendation is to integrate LGBQ material into general education courses. Secondly, institutions should create an “LGBQ studies” interdisciplinary major or minor. Finally, I discuss the benefits of a course focused on sexual identity.

Incorporate LGBQ material into general education courses

Iconis (2010) asserts that the contribution of LGBQ people should be recognized in “mainstream” curriculum. Instructors should intentionally highlight how people who are LGBQ have influenced the content of the course. Also, they should discuss how the content of the course may affect sexual identity. Ostensibly, the content of some courses affords more opportunities for this type of discourse. This makes incorporating LGBQ issues into general education courses even more important.

Instructors are responsible for ensuring a supportive learning environment and facilitating a climate of respect. Particularly for courses that engage debate around moral views, students must discuss the topic, not the person. Iconis (2010) recommends that they “call prompt attention to both malicious and unintended homophobic remarks…and recognize and interrupt homophobic harassment when it occurs” (p. 69). Introducing LGBQ material into mainstream courses may be challenging for some instructors. They should be encouraged by faculty governance and supported with appropriate resources and pedagogical techniques.

Create and sustain LGBQ Studies major and minor

Faculty should be supported by the university to create major and minor programs focusing on sexual identity. Similar to degree programs like women’s studies or African
American studies, these academic curricula afford students specialized learning about LGBQ issues. The Association of American Colleges and Universities makes recommendations for curricular diversity (Association of American Colleges & Universities, 1995). This is an exceptional model because rather than one or two diversity courses, it is incorporated into the entire curriculum. AAC&U suggests that in order to prepare students as meaningful citizens, they should explore four areas during the higher education experience. First, the student should explore his or her self-identity. This includes inherited and constructed traditions, identity communities, and an introspective questioning of his or her complexity. The second recommendation is for students to explore diverse people in the United States and their struggle for equal opportunity. The third is for the student to examine institutionalized constraints on equality in the United States. More than community service, this experiential component of the curriculum places students in an environment where oppression has hindered democracy. The final component of a curriculum that prepares students for a meaningful citizenship is to experience multiplicity and relational pluralism in their academic endeavors. This component suggests that pluralism is enacted across multiple classes and that students have the opportunity to work with, explore, and take multiple perspectives which will contribute to their own meaning making.

Institutions considering implementing a degree in LGBQ studies should consider the advantages of an interdisciplinary program because the spectrum of content is broad. An interdisciplinary curriculum also allows students earning a degree in LGBQ to tailor their courses based on their career aspirations. Supporting this concept demonstrates a
commitment from the institution and from faculty across multiple departments, increasing the visibility of LGBTQ issues and people.

**Offer courses on sexual identity**

Although education perhaps has an effect on reducing sexual prejudice, many studies show that college students have negative attitudes for people who identify as lesbian, gay, or bisexual (D’Augelli & Rose, 1990; Evans & D’Augelli, 1996; Rankin, 2003; Rankin, Weber, Blumenfeld, & Frazer, 2010) but few studies describe attitude changes of college students toward LGB people (Pascarella & Terenzini, 2005). According to a national campus climate survey of heterosexual, non-heterosexual, and gender variant people conducted by Rankin, Weber, Blumenfeld, & Frazer (2010), 41% of respondents (students, staff, and faculty) stated that their higher education institution did not thoroughly address issues related to sexual orientation. This percentage was slightly higher (46%) when respondents were asked specifically about the college curriculum. They felt that the curriculum did not adequately represent the contributions of LGBT people (Rankin, 2003). Evans and D’Augelli (1996) assert that not fostering discourse on sexual identity could perpetuate discrimination against LGB people on campus.

Colleges and universities are offering classes that focus on lesbian, gay, and bisexual identities. A handful of articles have been written discussing the structure of a course on LGB issues (Bohan, 1997; D’Augelli, 1992; De Welde & Hubbard, 2003; Waterman, Reid, Garfield, & Hoy, 2001). The literature provides a mostly qualitative perspective of a class focused on sexual identity. Notably, all of the studies discuss some sort of attitude change for students.
Earlier articles describe courses on LGB identity as predominately attended by LGB students (Bohan, 1997; D’Augelli, 1992). However, there has been a transition; the more recent studies show that the classes are comprised of mostly heterosexual students (Bohan, 1997; Waterman et al., 2001). Helping students understand heterosexual identity is just as important as providing information on LGB identities. It is necessary for a person who is heterosexual to understand his or her privileged identity in order to fully support LGB people (Mohr, 2002; Simoni & Walters, 2001).

Learning about diversity, specifically sexual identity should not occur in isolation. Rather, students must challenge what they have been taught in order to help them make sense of a complex topic. It is important to note that didactic information is helpful to challenge heterosexism, but more effective strategies include cognitive components (Simoni & Walters, 2001). Social learning theories are appropriate when designing a course on sexual identity. These courses provide domain knowledge around LGB issues, challenge students to think about identity as multifaceted, and enhance their critical thinking ability around topics of power and oppression. Discussions of students critical thinking, problem solving, or communication should not be scientifically systematized; rather they are best applied as societal specific, situated, and partial approaches (AAC&U, 1995).

The learning of sexual identity should be grounded in social learning theories. Because identity is socially constructed, students need to use their experiences to help them understand the materials. They must challenge their current thinking about materials, particularly messages they have learned about same-sex sexual behavior. The major premise of the course is for students to learn social content. Social content includes matters of be collaborative, get
along with others, and maintain assertiveness (Salomon & Perkins, 1998). One of the goals is for students to construct their own meaning about sexual identity, but this does not happen in isolation. The social context is necessary for this to occur.

Courses designed to focus on sexual identity have a positive effect on both heterosexual and non-heterosexual students (Bohan, 1997; D’Augelli, 1992; De Welde & Hubbard, 2003; Waterman, Reid, Garfield, & Hoy, 2001). While it is ideal that LGB issues permeate the entire college curriculum, such thinking may be idealistic. Much like a multicultural curriculum focused on racial identity, academic administrators should consider the lasting benefits to student and society of encouraging discourse around issues of sexual identity. Not only does it foster discussion regarding specific issues, but also helps students to think critically about equality.

**Encourage LGBQ Students to Seek Support from Friends**

The results of this research suggest that support from friends reduces internalized stigma and promotes interactions in higher education. Sexual identity is a common aspect on which students can base friendships and create support networks. Personal networks are often homogeneous with regard to sociodemographic, behavioral, and intrapersonal characteristics (McPherson, Smith-Lovin, & Cook, 2001). Institutions can promote these groups by providing structures that encourage LGBQ students to support each other. Quite often, lesbian, gay, and bisexual students seek other students with similar non-heterosexual identities as friends, particularly at the earlier stages of coming out (Cass, 1979). Previous research on marginalized racial identities has demonstrated the benefits of having a staff member and physical space
specifically for Black students (Patton, 2006). Parallels between these findings and marginalized sexual identities are plausible.

Within the past twenty years, higher education in the United States has started to provide support for LGBT\(^2\) students and create programs to help change the campus culture. Although many institutions in the country have some form of student club or group specifically for LGBT students, relatively few provide funds for a full-time staff member devoted to working with this specific population (Tubbs, 2009). By only having a student group or club, administrators at colleges and universities are requiring LGBT students to support themselves without specialized guidance. Having a professional staff member devoted to working with LGBT students has institutional and individual benefits. These offices serve students in a variety of ways. They conduct programs, advise LGBT student clubs, and create a space where LGBT students can congregate.

The LGBT office also provides advocacy, referrals and resources for LGBT concerns on both individual and institutional levels. The LGBT office can help a student navigate the university’s financial aid process, provide resources to scholarships, and/or refer the student to a mental health professional to help him or her continue at the university. Some students may benefit from speaking with a professionally trained counselor, but are reluctant to find one because they don’t know who is accepting of their identity. The staff of the LGBT office may build an alliance with a person in the counseling center who is particularly knowledgeable and sensitive to these types of issues. Creating and sustaining a position devoted to assisting LGBT

\(^2\) The acronym for support services of non-heterosexual identities in higher education also includes support for people who are transgender. When discussing this advocacy unit, I use “LGBT,” Even though results of this study are limited to LGBQ students.
students bridges many of the fundamental actions implied by this research. Information for institutions wishing to develop an LGBT resource center can be obtained from the Consortium of Higher Education LGBT Resource Professionals at www.lgbtcampus.org.

**Differentiate Among Non-Heterosexual Identities**

People who are bisexual likely change their identity over time (Diamond, 2008) and therefore may not want to disclose a marginalized identity status if they are not certain. Results from this study indicate that, on average, they have identified as bisexual for about one and one-half years less than students who are gay or lesbian. Additionally, compared with students who are gay or lesbian, students who are bisexual reported being less open about their sexual identity. This implies that people who are bisexual are more discerning about disclosing their sexual identity perhaps because of stigmas associated with being bisexual.

These findings do not suggest that bisexuality is any less salient to a person’s identity. They do, however, indicate that disclosure of sexual identity for students who are bisexual is less salient to their success in higher education. The total indirect effect of outness on academic outcomes is approximately three times less for bisexual students (.084) compared with gay and lesbian students (.243). When interpreting the effect size of these coefficients, outness has a small indirect influence on academic outcomes for bisexual students, whereas it has a medium influence for those who are gay or lesbian. Much more research is needed on bisexuality in higher education, particularly because these results indicate significant differences when comparing groups.
Study the Influence of Sexual Identity in Institutional Assessments

Demographic questions regarding race, citizenship, socioeconomic status, birth sex, and age are standard practice for national studies of college students, such as the National Study of Student Engagement (NSSE) and the Cooperative Institutional Research Program (CIRP) Freshman Survey. Unfortunately, neither instrument includes a question asking about sexual identity; however individual institutions have the opportunity to add this variable. By not collecting this information, it is impossible to know about the experiences of LGBQ students.

The process of adding a question about sexual identity is daunting, particularly for CIRP researchers who adhere to the National Institute of Mental Health definition of “sensitive information” that includes “sexual attitudes/preferences/practices.” In order for institutions to include a question of this nature, they must 1) submit it to UCLA’s IRB for approval, 2) obtain a NIH certificate of confidentiality, 3) modify the consent document and explain what “sensitive information” is being asked. In order to accurately assess differences in outcomes for LGBQ students, the field of higher education assessment must reevaluate the current “taboo” mindset of asking students about their sexual identity.

Although CIRP is following governmental guidelines and ethical research protocol, the trepidation of negative ramifications is likely over exaggerated. First, researchers have an ethical obligation to ensure confidentiality of responses and to use the data in the aggregate without investigation of specific individuals. Additionally, CIRP will not release results for groups that are based on fewer than 15 respondents. Also, students voluntarily provide this information. If they wish not to disclose their sexual identity, they can either leave the question blank. The risks to students by including a question on sexual identity are negligible.
Intentionally not collecting this demographic information is considerably more damaging to LGBQ students. It provides the institution with absolutely no information to conduct group analyses of differences based on sexual identity. If these assessments are used to inform policy or practice, LGBQ students are not considered in institutional decisions. On a national level, it is impossible to know if there are differences in how non-heterosexual college students engage on campuses because there is no question that asks students to disclose their sexual orientation.

Sexual identity has a propensity to change over time (Diamond, 2008). Some people may argue that this fluidity poses a challenge for achieving accurate population numbers. My assumption is that more students change their college major than their sexual identity. The fluidity of students’ degree programs does not assuage institutions from using this information in data analyses. In order to have population data, institutions also need to ask sexual identity on internal assessments. Not having the ability to conduct ex-post facto research or assessment provides no representation of LGBQ students.

Support Research on LGBQ Students

This study helps to elucidate how sexual identity influences higher education outcomes for LGBQ students. It merges previous research on college students and on people who are not heterosexual. After an extensive review of higher education literature, empirical studies highlighting the influence of sexual identity on academic outcomes for LGBQ students are noticeably lacking. The results of the path analysis conducted in this research suggest that sexual identity is an indirect predictor of academic development. In order to better support LGBQ students in higher education, colleges and universities should promote inquiry into the
From a measurement perspective, this study tested eight instruments that can be used in future research. Suggestions for improving these instruments are provided in this section.

Performing confirmatory factor analyses on each of the measures used in this research demonstrates how well the items assess these latent constructs for LGBQ college students. The instruments have been vetted through previous research, however not specifically with LGBQ college students as participants. In this study, I tested each measure using responses from LGBQ college students, providing a baseline for those wishing to use these scales in future research on LGBQ college students.

The instruments used in this project are the measurement models of full latent variable model. Six of the eight scales used in this research have been developed and tested by researchers, primarily through exploratory factor analysis. Using existing measures provides knowledge of the underlying latent variable structure, thus testing these instruments with confirmatory factor analysis is appropriate (Byrne, 1998). Since these scales are already developed, I use CFA results to determine the adequacy of each of their goodness of fit to the data. From a psychological measurement perspective, this is helpful because it indicates how well the instruments measure their intended latent construct(s) specifically with LGBQ college students. Based on the results of this study, I provide suggestions to improve these measures for future research.

**Higher Education Variables**

The measure of academic development was a subscale of Pascarella and Terenzini’s (1980) academic and social integration scale. This served as the outcome for the path model. Although it fit the data well, future research should include more specific measures of higher
education outcomes. With the advancement in research on student development since this scale was published, more intentional efforts to measure gains in cognition, psychosocial development, and learning have been created. Future research on higher education outcomes for LGBQ students should attempt to test these specific types of development.

This study assessed interaction with student affairs staff. I included it as a variable of interest to better understand how influential co-curricular experiences are on academic development. For future research, I suggest that items comprising the scale be reworked to more closely assess the construct. Simply changing the wording from Pascarella & Terenzini’s (1980) interactions with faculty scale does not adequately assess students’ interactions with student affairs staff. This may be challenging because student affairs encompasses a variety of departments with different functions; the scope of the profession is very broad. Accurately quantifying the quality and amount of interaction students have with these professionals would be a beneficial contribution to measurement research in higher education.

Social Support

As mentioned in the previous chapter, the Multidimensional Scale of Perceived Social Support lacked the second-order factor structure when tested on the sample of LGBQ college students. This implies that, for LGBQ students, social support is not general. It is specific to friends, family, and romantic partner. Therefore, I analyzed the three subscales independently. Although the models fit the data adequately, having a factor with ordinal response choices and only four items created large standard errors, influencing the stability of the measure. Specifically with LGBQ students, future measures could be introduced to test the amount of friend support from other LGBQ students or from heterosexual peers.
**Internalized Stigma**

The instrument used for measuring internalized homophobia was the Revised Internalized Homophobia scale (Herek, Cogan, Gills, & Glunt, 1998). This scale is a five-item measure with ordinal response choices. The measure was developed and tested on adults, not specifically college students. Additional studies report that the measure works well for adults (Herek, Cogna, & Gillis, 2009). This research tested the model fit using a sample of college students and the results show that the data fit the model well, although one correlated error was permitted. Depending on the needs of those conducting future research, this scale could be useful to assess internalized homophobia in college students. With only five items, it is a parsimonious way to measure the construct. However, stigmas associated with bisexuality may not be appropriately assessed with this measure. Bisexuals may feel marginalized from both lesbian/gay students as well as heterosexual students because they do not fit into either category; rather, their sexual attractions and behaviors bridge both groups. Intentional efforts to test this scale specifically with bisexual college students should be encouraged.

**Outness**

Outness is a psychological construct unique to people who are not heterosexual. As heterosexuality is the assumed norm in society, generally, people identifying as heterosexual need not disclose their sexual identity. The inventory constructed for this study measuring disclosure of sexual identity affords researchers a way of quantifying outness, supplementing the theoretical literature on identity development. The field of higher education has focused mainly on processes of sexual identity formation rather than the implications of identifying as LGBQ. This measure intends to be a tool to apply the effects of outness on psychological and
higher education variables and can be used as a scale in quantitative research on LGBQ college students. It expands on current knowledge of sexual identity development models by measuring sexual identity through level of disclosure.

Measuring a level of sexual identity disclosure in college students affords researchers a tool to quantify how open LGBQ students are about being non-heterosexual. Although the scale is currently one-dimensional, future research should focus on constructing a multidimensional scale, making it a second-order construct. This is beneficial because it would allow researchers to model an overall level of disclosure as well as disclosure to specific groups of people. Initial examination of the data indicated a hierarchal factor structure if more questions were included in the instrument. Three factors seemed to emerge in the analysis: family, in-person communities, and online communities. However, the results of a multidimensional scale in this analysis were inconclusive because there were not enough items in the family or online communities categories to have a robust measure of these latent constructs.

In its current form, this measure is not intended to have implications for practice. It is under construction with nascent psychometric properties. With additional testing and modifications, this could afford practitioners a way of assessing how open college students are about their sexual identity when providing counseling or psychotherapy.

In this study, I tested four psychological measures and four higher education measures using data from LGBQ college students. While the scope of this research is broader than confirmatory factor analyses, information from the measurement models may be helpful for scholars wishing to use these instruments. To build on the current model developed through
this research, I suggest testing the influence of institutional characteristics. Environmental factors have a strong influence on college students (Strange & Banning, 2001). Multilevel modeling should be employed to examine institutional level variables on individual characteristics. The multilevel approach studies differences both within and between groups (Raudenbush & Bryk, 2002). This would provide more detailed information because it maintains the integrity of nested data rather than aggregating all participants.

The results of this study indicate that sexual identity is indirectly influential on academic development for LGBQ students. In order to better understand how sexual identity affects academic outcomes, more research is needed. Future studies should focus on specific higher education outcomes like psychosocial development, cognition, and learning. Additionally, institutional and environmental characteristics should be considered as students are nested within colleges and universities.

**Summary of Implications**

In the path model, internalized homophobia negatively predicted self-esteem as well as support from friends. These relationships indicate that discord with one’s sexual identity has direct implications on psychological well-being and indirectly influences academic development and interactions in higher education as well as academic development. University professionals should work to foster environments that support diverse sexual identities and to create a campus culture that does not tolerate homophobic acts. This demonstrates an institutional commitment to LGBQ students and, subsequently, promotes healthy psychological and academic development.
The results of this research suggest six fundamental actions to support academic development of LGBQ students. These actions should happen congruently and be implemented in manners that are advantageous for the institution as well as the students. A summary of how each action aligns with the findings from this study is provided below.

**Promote sexual identity disclosure.** Demonstrated by the indirect effect of outness on academic development, universities should promote sexual identity disclosure. Coming out is an individualized process and complicated by environmental pressures. Creating an institutional culture that supports disclosure helps alleviate some of the pressure.

**Assuage stigma associated with non-heterosexual identities.** Internalized stigma is a negative psychological construct that directly influences self-esteem and support from friends, and has an indirect effect on academic development. Institutions should work to assuage internalized stigma in students. This research shows that sexual identity disclosure attenuates internalized stigma, so by promoting outness, institutions are “helping students help themselves.” Additionally, internalized stigma is stress caused by heteronormativity (Meyer, 2003). Colleges and universities should work to educate all students, including those who are heterosexual, about LGBQ identities. Normalizing diverse sexual identities seemingly creates a culture where heterosexism is challenged thereby reducing the psychological influence of internalized stigma.

**Encourage LGBQ students to seek support from friends.** Social support from friends positively predicts interactions in higher education. LGBQ students should be encouraged to seek support from each other. Institutions should provide a practitioner who is specifically charged with advising LGBQ students. Professional support for students with marginalized
sexual identities affords a resource to help students connect with each other and navigate personal and institutional challenges.

**Differentiate among non-heterosexual identities.** Multiple group analysis shows differences in the path model based on sexual identity group, although the overarching results are similar. LGBQ students share a common characteristic inasmuch as they do not identify as heterosexual. However, the results of this study support that bisexual students differ in their amount of sexual identity disclosure and internalized homophobia. University professionals should distinguish groups within the LGBQ community.

**Study the influence of sexual identity in institutional assessments.** The overall path model demonstrates how sexual identity characteristics affect academic development. Assessments at the institutional and national level should routinely capture sexual identity as a demographic variable and data analyzed accordingly. Within-group analysis should be conducted among responses from LGBQ students and between-group analysis should look for differences of LGBQ students and those who are heterosexual. Administrators at colleges and universities use results from institutional assessments to effectively allocate resources. By omitting sexual identity as a variable of interest, administrators cannot confidently attest that the needs of these students are being met.

**Support research on LGBQ students.** This study tests a causal relationship of sexual identity disclosure to academic development. The findings indicate a positive indirect effect of being open about one’s sexual identity and academic development. This should encourage and guide future research of LGBQ college students. Future researchers wishing to employ the measures used in this study now have more knowledge of the factor structures specifically with
LGBQ students. Moreover, effects of institutional characteristics need to be examined in order to better assess how administrators can create environments that support LGBQ students.

**Final Thoughts**

The purpose of this research is to empirically demonstrate that, for LGBQ students, their sexual identity is influential to higher education outcomes. I chose to conduct a within-group analysis, rather than comparing LGBQ students to heterosexual students because two variables in this study are psychological characteristics unique to non-heterosexual identities, namely sexual identity disclosure and internalized stigma. This study shows that these sexual identity constructs are predictors of academic development. The path model illustrates positive indirect causality of sexual identity disclosure to academic development. This relationship is mediated by internalized stigma, self-esteem, support from friends, and interactions with peers, faculty, and student affairs staff. The implications presented from the findings are intended to leverage support for LGBQ students. Having more knowledge of LGBQ students affords professionals in higher education an empirical basis on which to make informed decisions.
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# APPENDIX A
## SURVEY INSTRUMENT

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<td>8.</td>
<td>IH Scale [Revised Internalized Homophobia Scale]</td>
<td>122</td>
</tr>
<tr>
<td>9.</td>
<td>Level of Outness</td>
<td>123</td>
</tr>
<tr>
<td>10.</td>
<td>Coming Out Experiences</td>
<td>124</td>
</tr>
<tr>
<td>11.</td>
<td>Victimization and Harassment</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>In college</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In high school</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Salience of Sexual Identity</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>When in specific environments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compared to other identities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peer Network Homophily</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Interactions in Higher Education</td>
<td>126-128</td>
</tr>
<tr>
<td></td>
<td>Peer-group interactions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interactions with faculty</td>
<td></td>
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<tr>
<td></td>
<td>Academic and intellectual development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interactions with student-affairs staff</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Personal Questions</td>
<td>129-130</td>
</tr>
<tr>
<td></td>
<td>Rosenberg Self-Esteem Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perlin Mastery Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multidimensional Scale of Perceived Social Support</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Final Demographic Information</td>
<td>131-133</td>
</tr>
<tr>
<td></td>
<td>Residence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parental income</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hours of employment per week</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hours of extracurricular involvement per week</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cumulative GPA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Citizenship status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized test scores</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Political views of self and family</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Substance use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Size of Campus</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Incentive</td>
<td>134</td>
</tr>
<tr>
<td>17.</td>
<td>Thank you page</td>
<td>135</td>
</tr>
</tbody>
</table>
1. Thank you!!!

Thank you for participating in this survey of Sexual Identity in College Students. It is intended to provide more knowledge about the influence sexual identity has on personal characteristics and higher education outcomes.

In keeping with the focus of the survey, the primary participants should be undergraduate students who identify as lesbian, gay, bisexual, questioning, or other non-heterosexual identities. However, responses from graduate students and those who identify as heterosexual are welcomed as well.

It will take approximately 15 minutes to complete.

Your responses are anonymous, so please be completely honest. The results from this survey will help higher education professionals better understand sexual identity to assist with their supportive practices.
2. Implied Informed Consent Form

Implied Informed Consent Form for Social Science Research

The Pennsylvania State University

Title of Project: A Survey to Examine the Influence of Sexual Identity on Higher Education Outcomes in Lesbian, Gay, Bisexual, and Questioning, and Other Non-Heterosexual College Students

Principal Investigator: Carl H. Sorgen, Ph.D. Candidate
400 Rackley Building
University Park, PA 16802
(814) 865-6346; chs140@psu.edu

Advisor: Dr. Robert Reason
400 Rackley Building
University Park, PA 16802
(814) 863-3766; rreason@psu.edu

1. Purpose of the Study: The purpose of this research study is to explore the variability of disclosing one’s non-heterosexual identity. Also of interest is the influence of disclosure on internalized homophobia, self-esteem, academic and intellectual development, social integration, and victimization.

2. Procedures to be followed: You will be asked to answer 36 questions on a survey.

3. Duration: It will take about 15 minutes to complete the survey.

4. Statement of Confidentiality: Your participation in this research is confidential. The survey does not ask for any information that would identify to whom the responses belong. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared because your name is in no way linked to your responses.

5. Right to Ask Questions: Please contact Carl Sorgen at (814) 865-6346 with questions or concerns about this study.

6. Voluntary Participation: Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

You must be 18 years of age or older to take part in this research study.

Completion and return of the survey implies that you have read the information in this form and consent to take part in the research. Please print this form for your records or future reference.
3. Two more things...

1. Please allow the entire 15 minutes to take this survey because you cannot stop and restart at a later time.

2. Just so we're on the same page, sexual identity refers to how people identify themselves based on their sexual attractions and behaviors.
4. Ready? Let’s begin!
Below are a set of demographic questions for you to answer.

1. How old are you?

2. What is your class year? First-year student, Sophomore, Junior, Senior, Graduate Student

3. What is your race/ethnicity? (If you are of a multi-racial/multi-ethnic/multi-cultural identity, mark all that apply.)
   - African
   - African American/Black
   - Alaskan Native
   - Asian
   - Asian American
   - Southeast Asian
   - Caribbean/West Indian
   - Caucasian/White
   - Indian Subcontinent
   - Latino(a)/Hispanic
   - Middle Eastern
   - Native American Indian
   - Pacific Islander/Hawaiian Native

4. What is your birth sex?
   - Male
   - Female
   - Intersex

5. What is your gender identity?
   - Woman
   - Man
   - Trans
   - None of the above (please specify)
   5a. How do you label your gender identity?
5. Gender Expression

The question below refers to ways you express yourself compared with societal norms of gender.

Where would you rate yourself on a continuum from feminine to masculine?

Extremely Feminine | Extremely Masculine
0 | 0
0 | 0
0 | 0
0 | 0
0 | 0

6. Compared with people of your gender?
7. Compared with people of your sexual identity?
6. Sexual Identity

8. What is your current sexual identity?
   Bisexual
   Gay
   Heterosexual (skipped to Page #)
   Lesbian
   Queer
   Questioning/Unsure
   None of the above (please specify)
   8a. How do you label your sexual identity?

7. Length of Sexual Identity

The next questions ask you the ages of your same-sex attraction, same-sex behavior, and sexual identity.

9. At what age was your first same-sex attraction?
10. At what age was your first same-sex behavior?
11. How old were you when you first thought you might be your current sexual identity?
12. At what age did you begin identifying as your current sexual identity?
8. IH Scale  
[Revised Internalized Homophobia Scale]  
13. Please rate the extent to which you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree and somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1</td>
<td>I wish I weren’t my current sexual identity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.2</td>
<td>I have tried to stop being attracted to the same sex.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.3</td>
<td>If someone offered me the chance to be completely heterosexual, I would accept it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.4</td>
<td>For me, I feel that having my sexual identity is a personal shortcoming.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td>I would like to get professional help to change my current sexual orientation to straight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Level of Outness

These questions relate to your “level of outness.” Please choose the response that best describes your openness about your sexual identity or sexual orientation.

14. How open are you about your sexual identity or sexual orientation when...

<table>
<thead>
<tr>
<th></th>
<th>Completely</th>
<th>Mostly</th>
<th>Somewhat</th>
<th>Hardly</th>
<th>Not at all</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1</td>
<td>Around your close friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.2</td>
<td>Around your close family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.3</td>
<td>Around your extended family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.4</td>
<td>Around extended friends or ‘friends of friends’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.5</td>
<td>You meet new people in person</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.6</td>
<td>You meet new people online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.7</td>
<td>In your online profiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.8</td>
<td>With professors, faculty, and instructors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.9</td>
<td>At work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.10</td>
<td>With people where you live (roommates, housemates, suitemates, people in your residence hall)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.11</td>
<td>When doing religious activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.12</td>
<td>With members of campus activity groups (including Greek)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.13</td>
<td>Overall, how open are you about your sexual identity?**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** If you answered “completely” on this question, please complete the additional question below. If you marked another response choice, please click the “Next” button.

14a. For how long have you been completely open about your sexual identity? Please provide the approximate number of years and months. (If you answered something other than "completely" on the last question above, please leave this blank.)
10. Coming Out Experiences

15. How would you rate your coming out experiences with the following people

<table>
<thead>
<tr>
<th></th>
<th>Very positive</th>
<th>Mostly positive, somewhat negative</th>
<th>Somewhat positive and somewhat negative</th>
<th>Mostly negative, somewhat positive</th>
<th>Very negative</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1</td>
<td>Close friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.2</td>
<td>Close family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.3</td>
<td>College roommate(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Victimization and Harassment

The two sets of questions below ask about different education environments.

16. Since starting college, how often have you experienced the following because of your sexual identity.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once</th>
<th>Twice</th>
<th>More than Twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.1</td>
<td>Verbal insults</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.2</td>
<td>Threats of physical violence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.3</td>
<td>Having personal property damaged or destroyed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.4</td>
<td>Being chased or followed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.5</td>
<td>Being spat upon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.6</td>
<td>Having objects thrown at you</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.7</td>
<td>Being punched, hit, kicked, or beaten</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.8</td>
<td>Sexual assault</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.9</td>
<td>Assault with a weapon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. While in high school, how often did you experience the following because of your sexual identity.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once</th>
<th>Twice</th>
<th>More than Twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.1</td>
<td>Verbal insults</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.2</td>
<td>Threats of physical violence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.3</td>
<td>Having personal property damaged or destroyed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.4</td>
<td>Being chased or followed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.5</td>
<td>Being spat upon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.6</td>
<td>Having objects thrown at you</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.7</td>
<td>Being punched, hit, kicked, or beaten</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.8</td>
<td>Sexual assault</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.9</td>
<td>Assault with a weapon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 12. Salience of Sexual Identity

18. How often do you think about your sexual identity when you are...

<table>
<thead>
<tr>
<th></th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.1 With family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.2 With friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.3 In classes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.4 Where you live (at school)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This question asks about your multiple identities. It asks you to compare how often you think about your sexual identity to other identities.

19. "In general, I think about my sexual identity ______ compared to the identity listed."

<table>
<thead>
<tr>
<th></th>
<th>More Often</th>
<th>About the Same</th>
<th>Less Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.1 Racial/Ethnic Identity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.2 Gender Identity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.3 Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. Most of my friends identify as LGBQ or some other non-heterosexual identity.
   - Strongly Agree
   - Agree
   - Neither Agree nor Disagree
   - Disagree
   - Strongly Disagree
13. Interactions in Higher Education
There are four sections below, each having a specific focus. The answer choices are identical. Please read the topic and then respond to the extent which you agree or disagree with each statement.

This is the longest part of the survey. Thanks for taking it 😊

<table>
<thead>
<tr>
<th>21. Peer-Group Interactions</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree and somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.1 Since coming to this school I have developed close personal relationships with other students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.2 The student friendships I have developed here have been personally satisfying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.3 My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.4 My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.5 It has been difficult for me to meet and make friends with other students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.6 Few of the students I know would be willing to listen to me and help me if I had a personal problem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.7 Most students at this school have values and attitudes different from my own.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
22. Interactions with Faculty

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree and somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.1 My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.2 My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.3 My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.4 Since coming to this school I have developed a close, personal relationship with at least one faculty member.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.5 I am satisfied with the opportunities to meet and interact informally with faculty members.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. Academic and Intellectual Development

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree and somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.1 I am satisfied with the extent of my intellectual development since enrolling at [your school].</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.2 My academic experience has had a positive influence on my intellectual growth and interest in ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.3 I am satisfied with my academic experience here.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.4 Few of my courses have been intellectually stimulating.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>23.5 My interest in ideas and intellectual matters has increased since coming here.</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>23.6 I am more likely to attend a cultural event (for example, a concert, lecture, or art show) now than I was before coming to this school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.7 I have performed academically as well as I anticipated I would.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
24. Interactions with Student Affairs Staff

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree and somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.1</td>
<td>My interactions with student affairs staff have had a positive influence on my personal growth, values, and attitudes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.2</td>
<td>My interactions with student affairs staff have had a positive influence on my intellectual growth and interest in ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.3</td>
<td>My interactions with student affairs staff have had a positive influence on my career goals and aspirations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.4</td>
<td>Since coming to this school I have developed a close, personal relationship with at least one staff member.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.5</td>
<td>I am satisfied with the opportunities to meet and interact with student affairs staff.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
14. **Personal Questions**

Below are two lists of statements generally asking about feelings with yourself. Please read each of the topics and respond to the extent you agree or disagree with each statement.

**Personal Questions**
25. [Rosenberg Self-Esteem Scale]
26. [Perlin Mastery Scale]

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.1</td>
<td>On the whole I am satisfied with myself.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.2</td>
<td>At times I think that I am no good at all.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.3</td>
<td>I feel that I have a number of good qualities.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.4</td>
<td>I am able to do things as well as most other people.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.5</td>
<td>I feel I do not have much to be proud of.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.6</td>
<td>I certainly feel useless at times.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.7</td>
<td>I feel that I am a person of worth, at least the equal of others.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.8</td>
<td>I wish I could have more respect for myself.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.9</td>
<td>All in all, I am inclined to feel that I am a failure.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.10</td>
<td>I take a positive attitude toward myself.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.1</td>
<td>I have little control over the things that happen to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.2</td>
<td>There is really no way I can solve some of the problems I have.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.3</td>
<td>There is little I can do to change many of the important things in my life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.4</td>
<td>I often feel helpless in dealing with the problems of my life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.5</td>
<td>Sometimes I feel that I’m being pushed around in life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.6</td>
<td>What happens to me in the future mostly depends on me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.7</td>
<td>I can do just about anything I really set my mind to do.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Support. **Please note: In these questions, “special person” refers to someone with whom you may consider a romantic relationship.**

27. [Multidimensional Scale of Perceived Social Support]

<table>
<thead>
<tr>
<th></th>
<th>Very Strongly Agree</th>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Neutral</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
<th>Very Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.1</td>
<td>There is a special person who is around when I am in need.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.2</td>
<td>There is a special person with whom I can share my joys and sorrows.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.3</td>
<td>My family really tries to help me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.4</td>
<td>I get the emotional help and support I need from my family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.5</td>
<td>I have a special person who is a real source of comfort to me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.6</td>
<td>My friends really try to help me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.7</td>
<td>I can count on my friends when things go wrong.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.8</td>
<td>I can talk about my problems with my family.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.9</td>
<td>I have friends with whom I can share my joys and sorrows.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.10</td>
<td>There is a special person in my life who cares about my feelings.</td>
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<td></td>
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</tr>
<tr>
<td>27.11</td>
<td>My family is willing to help me make decisions.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>27.12</td>
<td>I can talk about my problems with my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
15. Final Questions
   Just a few more questions, and then we’re finished. You’ve done wonderfully!

28. Where do you live?
   O Residence hall
   O Fraternity/sorority housing
   O On-campus apartment
   O Off-campus residence (house, apartment, etc.)
   O With parent(s)/family/relative(s)

29. What is the yearly combined total income of your parents or guardians (in thousands of dollars)?
   Not Applicable
   < $15,000
   $15 - $30
   $31 - $44
   $45 - $59
   $60 - $74
   $75 - $89
   $90 - $104
   $105 - $119
   $120 - $139
   $140 - $154
   $155 - $169
   $170 - $184
   $185 - $199
   $200 - $299
   $300 - $399
   $400 - $499
   Greater than $500,000

30. On average, how many hours per week are you employed while taking classes?
   I am not employed while taking classes.
   1-5
   6-10
   11-15
   16-20
   21-25
   26-30
   31-35
   36-40
   41-45
   46-50
   51-55
   55-60
   61+
31. On average, how many hours per week are you involved with extracurricular activities while taking classes?
   - I do not participate in extracurricular activities.
   - 1-5
   - 6-10
   - 11-15
   - 16-20
   - 21-25
   - 26-30
   - 31-35
   - 36-40
   - 41-45
   - 46-50
   - 51-55
   - 55-60
   - 61+

32. What is your cumulative grade point average? If you are a first semester student, please provide your cumulative high school grade point average. The response choices are out of a 4.0 scale.
   - O A (3.84-4.00)
   - O A- (3.50-3.83)
   - O B+ (3.17-3.49)
   - O B (2.84-3.16)
   - O B- (2.50-2.83)
   - O C+ (2.17-2.49)
   - O C (1.84-2.16)
   - O C- (1.50-1.83)
   - O D or below (< 1.50)

33. What is your United States citizenship status?
   - O United States Citizen – born in the U. S.
   - O United States Citizen – naturalized
   - O Permanent resident (immigrant)
   - O International (F-1, J-1, H1-B, or other visa)

34. What were your college admissions standardized test scores? If you didn’t take the test, just leave it blank.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>34.1</td>
<td>ACT Composite</td>
<td>enter score</td>
</tr>
<tr>
<td>34.2</td>
<td>SAT Math</td>
<td>enter score</td>
</tr>
<tr>
<td>34.3</td>
<td>SAT Verbal</td>
<td>enter score</td>
</tr>
<tr>
<td>34.4</td>
<td>SAT Writing</td>
<td>enter score</td>
</tr>
</tbody>
</table>
35. How would you categorize you and your family’s political views?

35.1 You
- Very Conservative
- Conservative
- Moderately Conservative
- Moderately Liberal
- Liberal
- Very Liberal

35.2 Your Family
- Very Conservative
- Conservative
- Moderately Conservative
- Moderately Liberal
- Liberal
- Very Liberal

36. Approximately how often do you use the following?

<table>
<thead>
<tr>
<th></th>
<th>Never tried it</th>
<th>I’ve tried it, but that’s it</th>
<th>A few times in the past year</th>
<th>Once a month</th>
<th>A few times in the past month</th>
<th>Once a week</th>
<th>Every few days</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.1 Alcohol</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.2 Pot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.3 Other illicit drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

37. Please type in the full name of your college or university. This allows researchers to look at the influence of institutional characteristics and will be used for analysis purposes only. Your school will not be identified in any reports.
16. Incentive

Thank you for participating! As an incentive, you may enter a drawing for a $100 Visa Gift Card by providing your email address in the box below. The email address will be confidentially stored as a separate file from your responses, so they aren’t linked.
17. Thank you!!!
Thank you for participating in this survey.
Please click the “Finished!” button below to submit your responses. Have a nice day 😊
APPENDIX B
FIGURES AND TABLES

Path Model from Outness to Academic Development
### Lower Diagonal Correlation Matrices for the Measurement Model

#### Table B.1
**Item Correlations for Academic and Intellectual Development**

<table>
<thead>
<tr>
<th></th>
<th>AID1</th>
<th>AID2</th>
<th>AID3</th>
<th>AID4</th>
<th>AID5</th>
<th>AID6</th>
<th>AID7</th>
</tr>
</thead>
<tbody>
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<td>AID1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>AID2</td>
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<td>AID4</td>
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<td>.103</td>
<td>1.00</td>
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<tr>
<td>AID5</td>
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<td>.717</td>
<td>.636</td>
<td>.083</td>
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<tr>
<td>AID6</td>
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<td>.355</td>
<td>.018</td>
<td>.524</td>
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<td>AID7</td>
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Correlated Errors: AID6 with AID5

#### Table B.2
**Item Correlations for Interactions with Student Affairs Staff**

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<th>ISA1</th>
<th>ISA2</th>
<th>ISA3</th>
<th>ISA4</th>
<th>ISA5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA1</td>
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<tr>
<td>ISA2</td>
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<tr>
<td>ISA3</td>
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<tr>
<td>ISA4</td>
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<tr>
<td>ISA5</td>
<td>.762</td>
<td>.765</td>
<td>.737</td>
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Correlated Errors: ISA4 with ISA5, ISA1 with ISA3

#### Table B.3
**Item Correlations for Interactions with Faculty**

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<tr>
<th></th>
<th>IWF1</th>
<th>IWF2</th>
<th>IWF3</th>
<th>IWF4</th>
<th>IWF5</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWF1</td>
<td>1.00</td>
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<td>IWF3</td>
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<tr>
<td>IWF4</td>
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<tr>
<td>IWF5</td>
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<td>.620</td>
<td>.698</td>
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Correlated Errors: Scaled by constraining IWF1, IWF5 with IWF4

#### Table B.4
**Item Correlations for Peer Group Interactions**

<table>
<thead>
<tr>
<th></th>
<th>PGI1</th>
<th>PGI2</th>
<th>PGI3</th>
<th>PGI4</th>
<th>PGI5</th>
<th>PGI6</th>
<th>PGI7</th>
</tr>
</thead>
<tbody>
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<td>PGI6</td>
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<td>PGI7</td>
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<td>.177</td>
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Correlated Errors: Scaled by constraining PGI3, PGI6 with PGI5, PGI2 with PGI1
Table B.5
Item Correlations for Internalized Homophobia

<table>
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<tr>
<th></th>
<th>IH1</th>
<th>IH2</th>
<th>IH3</th>
<th>IH4</th>
<th>IH5</th>
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<tbody>
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<td>IH3</td>
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<td>IH4</td>
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<tr>
<td>IH5</td>
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<td>.600</td>
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Correlated Errors: Scaled by constraining IH1
IH5 with IH4

Table B.6
Item Correlations for Social Support from Friends

<table>
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<tr>
<th></th>
<th>FRND1</th>
<th>FRND2</th>
<th>FRND3</th>
<th>FRND4</th>
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<tbody>
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<td>FRND3</td>
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Correlated Errors: Scaled by constraining FRND3
FRND2 with FRND1
### Table B.7
Item Correlations for Self-Esteem

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<th>ESTEEM2</th>
<th>ESTEEM3</th>
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<th>ESTEEM5</th>
<th>ESTEEM6</th>
<th>ESTEEM7</th>
<th>ESTEEM8</th>
<th>ESTEEM9</th>
<th>ESTEEM10</th>
</tr>
</thead>
<tbody>
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<tr>
<td>ESTEEM3</td>
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**Correlated Errors:**
- ESTEEM6 with ESTEEM2
- ESTEEM4 with ESTEEM3
- ESTEEM7 with ESTEEM3
- ESTEEM7 with ESTEEM4

**Scaled by constraining ESTEEM10**
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Correlated Errors: OUTNESS3 with OUTNESS2

Scaled by constraining OUTNESS5

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Correlated Errors: Scaled by constraining OUTNESS5
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Correlated Errors: OUTNESS 3 with OUTNESS 2
Scaled by constraining OUTNESS 5
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Path Model Covariances for All Participants (n = 1125)

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### Table B.12
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Table B.14
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</table>
CARL H. SORGEN IV

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Port Clinton, Ohio 43452

kipsorgen@yahoo.com

(419) 341-5550

EDUCATION

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Psychometric Analysis Specializations:
- Covariance Structures Analyses
  - Structural Equation Modeling with continuous and categorical data
  - Hierarchal Linear Modeling with continuous data
- Multiple Regression Analysis
- Logistic Regression
- Exploratory Factor Analysis
- ANOVA/MANOVA/ANCOVA

Graduate Certificate in College Teaching, December 2008
Teaching Specialization: Student Affairs Courses

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New York University ~ New York, New York

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Ohio University ~ Athens, Ohio

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THE INFLUENCE OF SEXUAL IDENTITY AND PSYCHOLOGICAL CHARACTERISTICS ON HIGHER EDUCATION OUTCOMES.
College of Education ~ The Pennsylvania State University
  Robert Reason, Dissertation Chair
  Anthony R. D’Augelli, Cognate Advisor

STUDENT-ATHLETES’ ASSESSMENT OF THE CLIMATE IN INTERCOLLEGIATE ATHLETICS.
Center for the Study of Higher Education ~ The Pennsylvania State University, Present
  Sponsored by the National Collegiate Athletic Association
  Susan Rankin, Supervising Professor

IDENTITY DEVELOPMENT OF FEMALE-TO-DIFFERENT GENDER INDIVIDUALS.
College of Education ~ The Pennsylvania State University, Fall 2007-Spring 2008
  Susan Rankin, Supervising Professor