Wrong Planet, Right Library: College Students with Autism Spectrum Disorder and the Academic Library

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This dissertation is dedicated to my wonderful family. Thank you for the values you instilled in me, for encouraging a love of learning, and for your unending support.
ACKNOWLEDGMENTS

There is absolutely no way I could have completed this journey without the continual guidance and support from my advisor, Dr. Nancy Everhart. Thank you for the opportunity to assist with Project PALS and, more than anything, thank you for being an amazing role model.

Thank you to my committee members for offering encouragement throughout this process. You are all such amazing women, and I feel so lucky to have the opportunity to learn from you. Dr. Lustria, I will never forget all of your “teachable moments” during the STEER project and beyond! Thank you for taking me under your wing and giving me my first true research experience. Dr. Kazmer, thank you for all of your guidance during the first year of my doctoral program, as well as sharing your qualitative expertise through both coursework and collaborative research projects. And Dr. Woods, thank you for introducing me to so many important concepts and connections, allowing me to tag along with you at ASHA, and otherwise providing insight into a population in which I was previously uninformed. Your willingness to share your incredible knowledge quickly helped me get over the learning curve.

Dr. Christie Koontz – thank you for your positivity and all around “goodness,” and for being the one to bring me back to FSU. Twice now! And thank you to Dr. Bradley Cox for his contagious enthusiasm and willingness to collaborate on the project that ultimately led to the idea for this dissertation.

My family has been an incredible source of support throughout this process, and I can’t thank them enough. Thank you Mama for always offering supportive words and providing beach weekends when necessary. Thank you Carrie and Henry for sending dissertation writing cookies and cute pictures along the way! And thank you Dad for providing me with weekly lunchtime pep talks – “dissertating” is so much better when discussed over enchiladas. Thank you also for sharing your office space when it came time for Chapter Four and Five (sorry for eating all of your snacks!).

Brent, here is your whole paragraph. Yes, you earned it. Thank you for being my person. Thank you for putting up with the Spotify playlists that fueled this dissertation, and thank you for actually reading this beast the whole way through. I appreciate your love and support.

Thank you to the Library Chapter. Our weekly-ish meetings helped me to maintain somewhat of a work/life balance. And finally, my fellow doc students have been a tremendous source of support throughout the past three years, and I couldn’t have done it without them. My cohort in particular – how lucky we are to have each other!
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ABSTRACT

Autism Spectrum Disorder (ASD) has steadily increased in prevalence in recent years, with a current estimate of 1 in every 68 children eligible for such a diagnosis. Prevalence within the general population is reflected in the growing number of college and university students with ASD, with more students registering for services than ever before; this growing number registered for services does not include those who do not have a formal diagnosis or attempt to forge the academic journey without targeted support. College attrition rates are higher for college students with ASD than for neurotypical college students due to lack of previously available supports, along with characteristics of this population including challenges during periods of transition and difficulty adapting to social and behavioral norms. Academic library usage correlates to college retention for college students as a whole; however, no studies have yet been done to explore how college students with ASD use their academic libraries and, in turn, how this might play a role in their ultimate college success.

The purpose of this study is to explore the experiences of college students with ASD in academic libraries. It seeks to understand their questions and concerns, as well as their experiences in utilizing the library and library resources. We know that individuals with ASD use the library, but there is little firsthand evidence to describe their experiences and barriers they face in accessing library services. By addressing these concerns, campus libraries and librarians can ultimately help to support ASD student retention.

This exploratory study used a qualitative content analysis design to collect discussion board posts to the online forum Wrong Planet (wrongplanet.net). Wrong Planet, a robust forum with more than 80,000 members, was designed by individuals with ASD for individuals with ASD. Collecting these discussion posts allowed for an unobtrusive research design in which accounts from college students with ASD could be gathered and presented in their true, unedited language as they conversed with their peers in an unmediated online environment. Collecting data from this online forum was particularly important; there is evidence to support the hypothesis that individuals with ASD thrive in communicating online, as it removes some of the social barriers of face-to-face communication. Using the social model of disability studies, this
study allowed for voices of students with ASD to be presented in their own words, not as mediated by parents, caregivers, or through the perceptions of faculty and staff. The social model also provides the framework in that librarians and libraries should be the ones to adapt services—not students with ASD adapting to suit neurotypical-centric services. Coding and analysis was both inductive and deductive and based on the research questions, emerging themes, and concepts from the Theory of Information Worlds.

Findings demonstrate that when students with ASD go to the library it is often for the same purposes as neurotypical students—to study. However, students with ASD especially describe using the library as an escape from sensory overload. This study’s findings reveal many contradictions that call for further research in this area. Students with ASD use the library as an auditory escape, yet many still find the library to be too loud or chaotic to suit their needs. They use the library for solitary pursuits, and yet many Wrong Planet members describe a longing for interaction. Wrong Planet members even provide one another with advice about initiating relationships with other library users, both platonically and romantically.

This work fills a gap within the literature, allowing college students with ASD the opportunity to describe their experiences in the academic library as never before. While there is a growing body of knowledge about children with ASD and the library, this is potentially the first glimpse into the experiences of college students in their academic libraries.

This study has particularly important implications for the role of academic libraries in ASD college student retention. We know that there is a high rate of attrition for college students with ASD, and that academic library use correlates with college student retention. The findings from this study demonstrate that college students with ASD use the library for a variety of reasons, including for solitary study, as an escape from overwhelming sensory environments, and for pursuit of interests. Academic libraries can address these needs and uses, and adapt services and supports to better serve the needs of this growing student population, thus contributing to their ultimate college retention and success.
CHAPTER 1
INTRODUCTION

Autism spectrum disorder (ASD) continues to increase in prevalence, and individuals with ASD are entering institutes of higher education (IHE) in increasing numbers as well (Adreon & Durocher, 2007; Barnhill, 2014; Gelbar, Smith, & Reichow, 2014; Pinder-Amaker, 2014). Though characteristics of ASD vary in every person, individuals on the autism spectrum typically face communicative and social challenges, and tend to have fixed interests and display repetitive behaviors (American Psychiatric Association, 2013).

Much of the previous study of individuals on the autism spectrum focuses on children with the disorder. In the library and information science (LIS) field, very few studies mention adolescents or adults with ASD. One librarian who also has ASD says that this is not specific to LIS studies, but reflective of writings and research as a whole (Lawrence, 2013). As she states, “this systematic focus on children renders Autistic adults invisible” (Lawrence, 2013, p. 103). When studies are concerned with adolescents or adults with ASD, “it is clear that parents and caregivers are seen as the primary seekers of information on autism to the exclusion of actual Autistics” (Lawrence, 2013, p. 103).

Though some individuals will outgrow certain manifestations of the disorder, ASD is not curable (Autism Speaks, 2014). Children with ASD will grow up into adults with ASD, and individuals who received adequate care as provided though the school system often find themselves lacking such support as they graduate from high school.

Many individuals with ASD use, appreciate, and even work and volunteer for libraries (Garry, 2002; Grandin, 1997; Halvorson, 2006; Strub & Stewart, 2010), and one individual with ASD has described his school library as a “sanctuary” (Garry, 2002, p. 3). If the library truly is a “sanctuary” for students with ASD, better understanding and, thus, better services for these students could help support them as college students in general. There are numerous barriers for students with ASD in attending and graduating from college successfully (Barnhill, 2014). If the library can serve as a safe and welcoming place for these students, it will help contribute to their ultimate college success.
One way to ensure this success is to get input from members of the community involved. Community members of the website www.wrongplanet.net (Wrong Planet) are those who are considered in this study. These Wrong Planet members self identify as having ASD, and a preliminary keyword search revealed that the members do discuss their experiences in libraries with one another. This research focuses on the information exchanged among members of this population as they describe their experiences with the academic library.

**Problem Statement**

Popular literature implies that libraries are welcoming spaces for individuals with ASD, and that individuals with ASD themselves enjoy using the library (Garry, 2002; Grandin, 1997; Halvorson, 2006; Strub & Stewart, 2010). However, there is no empirical evidence to describe how college students with ASD feel about or describe their experiences in an academic library. Without comprehending how this growing population actually perceives, uses and experiences the library, librarians are likely unable to provide appropriate services for them.

**Purpose and Research Questions**

The purpose of this study is to explore the experiences of college students with ASD in academic libraries. It seeks to understand their questions and concerns, as well as their experiences in utilizing the library and library resources. We know that individuals with ASD use the library, but there is little firsthand evidence to describe their experiences and barriers they face in accessing library services.

**Research Questions**

This study will be guided by two main research questions, along with related sub-questions.

RQ1: How do individuals with ASD describe their experiences in the academic library in an online community of their peers?

- How do members of this population describe the library’s physical environment?
- How do members of this population describe their interactions with library resources?
How do members of this population describe their social and communication experiences at the library and with librarians?

RQ2: What barriers to library use do students with ASD describe that, if addressed, would make their library experience more positive?

**Significance**

This study holds significant implications for the library community, the academic community, and members of the ASD population themselves. By studying the experiences of individuals with ASD and the library, academic librarians will be better able to understand and address this population’s specific needs. Librarians will understand how members of this population experience the library’s physical and virtual environments, as well as its collections and services. With this knowledge, librarians can adapt services and environments to better support these students, thus making the library a more inclusive environment and ensuring adherence to the Americans with Disabilities Act (ADA) as well as suggested policies as recommended by the American Library Association (ALA) (American Library Association, 2015). As academic libraries’ value for students with ASD will be illuminated, this research can also help to inspire continued or increased funding and support for these community spaces.

The population of young adults with ASD is only beginning to be studied in depth. As such, public librarians, middle and high school librarians, and those working for other similar public institutions such as museums or archives will also benefit from a better understanding of how members of this population experience the library.

Members of the academic community will benefit from this study as well, including both practitioners and academic researchers. Challenges in college such as peer rejection can lead students with ASD to depression and ultimately withdrawal from postsecondary education (Drake, 2014; White et al., 2011). Higher education administration will find the results of this study to be an unprecedented look at how college students with ASD use campus spaces such as the library to supplement their college experience, and find how these spaces support their campus routines. This study describes how the library plays an important role in providing services to students with ASD, both through targeted programs and by their very nature of being a comfortable and welcoming environment for these students. By visiting or using the library, these students find themselves in a safe haven during their college experience.
The library as a safe space is crucial in helping these students through their college experience, thus giving them one more reason to feel comfortable at college in general. In turn, this helps to ensure that they successfully graduate – a victory for the students, their families, and higher education administration alike.

The idea of the library as a safe space which helps students with ASD ultimately graduate from college also has implications for other academic departments, including counseling centers and centers for disability services. By understanding what these students appreciate about the library environment, other academic departments can work to replicate and support similar environments to better support these students’ college success.

This work is groundbreaking in that the voices of members of this population are studied and presented in an unedited manner. Researchers can take this model and replicate it, ensuring that future work in this area includes the original voices from these individuals themselves.

**Theoretical Framework**

This study operates using the social model of disability studies, as well as the theory of information worlds. The following sections offer an introduction to how this model and theory are particularly well suited to answering the research questions.

**Social Model of Disability Studies**

The social model of disability emphasizes disability as a social construct as opposed to a problem that an individual needs to fix. Instead of seeking to treat college students with ASD or asking them to modify their behaviors, this study approaches the research with the view that, instead, one should view ASD as a difference, not a deficit. Creating inclusive environments is one approach that fits within this model, as is raising awareness and acceptance about the differences that those with ASD might display. The medical model, in comparison, operates under the primary goal to cure or prevent ASD in entirety, while the educational model suggests instructional approaches for individuals with different abilities. This study does not intend to disregard the medical model in entirety. However, the social model is presented in this study as a lens through which ASD might be seen, understanding that individuals with ASD are given valid diagnoses and benefit from individualized supports as well.
The social model is emphasized here because this study is not an examination of how to diagnose or treat individuals with ASD. As one ASD self-advocate describes:

Autistic people cannot reasonably be expected to exhibit personal qualities and behavior identical to that of their typically developing peers. When difficulties arise, intelligence, compassion and humility are in order, not arrogance, negative judgment and contempt. An autistic person should no more be held at fault for eccentric or challenging behavior in a social environment than should a visually impaired person be held at fault for difficulty navigating an unfamiliar environment. (Seidel, 2004, para. 3).

This study uses the social model to explore and describe students’ experiences in the library. This is with the understanding that librarians and higher education administrators should be the ones to adapt services to better suit these students, as opposed to the students adapting their behavior to conform to the norms of the established institutions.

Furthermore, the social model of disability suggests that work not be done without including members of the population themselves. This study uses these guidelines in collecting data from members of the ASD population in their own words.

**Theory of Information Worlds**

The theory applied to this research is the theory of information worlds. The theory of information worlds is based in the library and information science (LIS) field, and builds largely from theoretical work done by Elfreda Chatman, a scholar in LIS, with additional concepts drawn from the work of Jurgen Habermas, a philosopher. Chatman’s work in developing theory around the idea of “small worlds” is used mostly by those within the LIS community, while Habermas’ “lifeworld” work, though not largely used in LIS, has been explored across many disciplines (Jaeger & Burnett, 2010).

From Chatman’s work comes many of the concepts used in this theory, but perhaps most importantly is the notion of small worlds, which Jaeger and Burnett summarize as that which “can be defined as the social environments in which an interconnected group of individuals live and work, bonded together by common interests, expectations, and behaviors, and often by economic status and geographic (or ‘virtual’) proximity as well” (2010, p. 21). From Habermas comes the idea of a public sphere in which information can freely flow. Related to this concept is that of lifeworlds, which Jaeger and Burnett describe as “the collective information and social
environment that weaves together the diverse information resources, voices, and perspectives of all the members of a society” (2010, p. 26).

The theory of information worlds is guided by five key concepts. These concepts are (1) social norms; (2) social types; (3) information value; (4) information behaviors, and (5) boundaries (Jaeger & Burnett, 2010). Of particular interest to this study are the concepts of social norms and social types, both of which are used to support data analysis.

**Research Design Overview**

This study uses a qualitative content analysis design to collect and analyze data. Data was collected from Wrongplanet.net (Wrong Planet), which is an online discussion forum created both by, and for, users with ASD.

Qualitative methods were used to focus on the participants’ meaning, not meaning assigned by the researcher (Creswell, 2014). Much of the current research about individuals with ASD does not allow for their own voices to be reflected. Instead, the data is often quantitative in nature, or is conducted with family members, caregivers, or service providers to members of this population, instead of with the individuals themselves.

The content analysis was a naturalistic methodology in which to obtain communication between members of this population about a particular topic – libraries. By observing and recording, the researcher had no opportunity to control or steer the conversations. Instead, the conversations took place in an unobtrusive online environment, which allows for “participants to directly share their reality” (Creswell, 2014, p. 192).

Discussion board posts were collected from Wrong Planet members as they related to college students and library experiences. These posts were analyzed both inductively and deductively. Inductive analysis occurred through open coding, with themes emerging from the data itself. Deductive analysis occurred in addressing the theory of information worlds as well as the research questions.

Data is presented in a rich, descriptive narrative, using much of the language of the participants. Participants’ user names were changed to help protect their identities. Otherwise, all data collection information is reported such that the study might be replicated.

In data presentation, this study uses person-first language. As described in a document presented by the national advocacy organization Autism Speaks, “A disability descriptor is
simply a medical diagnosis; People First Language respectfully puts the person before the disability” (Snow, 2013, p. 11).

Assumptions

This study makes several assumptions. First, this study makes multiple assumptions about Wrong Planet and the users of Wrong Planet. The assumption is made that every user who posts on Wrong Planet has ASD. While this should be true, as Wrong Planet was designed primarily for use by those with ASD, there are also instances of parents or researchers posting on the site as well. However, those posts appear to be clearly identified, and the study assumes that the data used for this research is, in fact, generated by individuals with ASD.

The study makes the assumption that individuals on Wrong Planet that are discussing issues in higher education are not only those with ASD, but with high functioning autism (HFA), formerly diagnosed as Asperger’s syndrome, in particular. Studies show that Wrong Planet users skew towards those with HFA in general (Jordan, 2010). This is not to say that those individuals with ASD who do not have HFA do not attend institutions of higher education; however, this study assumes that those interacting on Wrong Planet about higher education are, more likely than not, those with HFA.

Furthermore, the study assumes that the information posted is true. As data is self-reported, there is no way to verify this. However, the study operates under the assumption that a person would not seek community on Wrong Planet with falsified information.

While there are programs and supports for college students with more severe manifestations of ASD, when this study describes students with ASD it is assumed that the students are high functioning, or those formerly diagnosed as having Asperger syndrome. In using the social model of disability, this study makes the assumption that individuals with ASD do not want to be cured. Under this model, individuals with ASD are instead more likely to be accepting of their diagnosis. While this might not always be the case, this study uses this assumption.

Similarly, the study uses person-first language to describe individuals with ASD as is common in the current literature. The assumption is made that this is the preferred language for researchers to use in this area; however, it is understood that some individuals with ASD still
prefer to be called “autistic” (Sinclair, 2013). Nevertheless, the study is conducted with the assumption that the most correct way to address this population is with person-first language

**Operational Definitions Used in the Study**

These abbreviations and relevant terms are used throughout the study, and are operationalized as such:

- **AS** – Asperger’s syndrome; AS was formerly given as a separate diagnosis from ASD. In 2014, the diagnostic process changed, and those who were formerly diagnosed with AS are now simply diagnosed under the umbrella term ASD.
- **ASD** – Autism spectrum disorder; ASD is the umbrella term given as a diagnosis for all individuals on the autism spectrum, from very low to very high functioning. Individuals with ASD typically have challenges with social skills and communication, though characteristics manifest differently in every person with ASD.
- **Aspie** – This term is commonly used with the HFA community to describe themselves, though would likely be derogatory if used by an outsider. It is short for “person with Asperger’s syndrome.”
- **Disability** – This word will be used to describe ASD, though it is understood that ASD is not viewed as lack of ability. Instead, this study views it as a difference. However, disability is the term commonly used (e.g., for disability services) for individuals with ASD, especially when they require individualized services and supports.
- **Discussion board** – An online forum, in which members can interact asynchronously by posting topics and replies to one another.
- **Discussion board post** – A member-submitted comment published on a discussion board. This may be an initial comment or question, or in response to another post.
- **Discussion board thread** – The collection of posts associated with one initial post, including the initial post and all replies. This typically includes posts from multiple discussion board members.
- **HFA** – High functioning autism; Individuals with HFA also have ASD. HFA is the term currently used to describe those who were formerly diagnosed with Asperger’s syndrome. Since 2014, the diagnostic properties have changed and those with HFA are simply
diagnosed on the autism spectrum (with ASD). HFA is not a formal diagnosis, but instead is used to refer to those with ASD who are high functioning.

- **IHE** – Institutions of higher education; IHE might refer to a college or university of any type, whether for or nonprofit, public or private, two year, four year, or otherwise.
- **LIS** – Library and Information Science
- **NT** – Neurotypical; this term is used to describe any person who does not have ASD.
- **Person-first language** – In disability studies, this is used to emphasize the person instead of the disability. An example frequently used throughout this paper is “individual with ASD” instead of “autistic person”.
- **Postsecondary Education** – A term to describe education after the K-12 environment; see entry for “IHE” for institutional examples.
- **Wrong Planet** – www.wrongplanet.net; an online community created by and for individuals with autism spectrum disorder. In particular, users tend to be those with high functioning autism, formerly diagnosed as Asperger’s syndrome.

**Summary**

This study explores the experiences of college students with high functioning ASD in the academic library. Using qualitative content analysis and through the lens of the social model of disability, as well as the theory of information worlds, the researcher analyzed online information exchanged between members of this population through the site Wrong Planet.

From this study, more insight is gained about the experiences of college students with ASD in libraries. In turn, library practitioners and higher education administration can use this information to inform future practices and policies.
CHAPTER 2
LITERATURE REVIEW

This chapter details the available literature related to autism spectrum disorder (ASD), and how individuals with ASD experience postsecondary education, the online environment, and libraries. The chapter concludes with an exploration into the literature that describes the proposed theoretical framework used, including the social model of disability and the theory of information worlds.

Autism Overview

ASD is a neurodevelopmental disorder largely characterized by communication and social challenges, as well as fixed interests and repetitive behaviors (American Psychiatric Association, 2013; Janzen & Zenko, 2012). Current data suggest that as many as one in 68 eight-year-old children in the United States have ASD (Developmental Disabilities Monitoring Network Surveillance Year 2010 Principal Investigators, & Center for Disease Control and Prevention, 2014). There are multiple reasons why the prevalence in ASD is increasing, including improved diagnostic and reporting procedures, an increase in public awareness of the disorder, and an expanded definition of ASD. Finally, it is likely that the number of individuals with ASD is simply increasing as well.

Until 2014, Asperger’s syndrome (AS) or Asperger disorder was ascribed to individuals on the upper end of the autism spectrum, marked by no significant verbal delays and less severity in characteristics (American Psychiatric Association, 2013; Gobbo, 2014). However, in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), a change was made to incorporate AS into the autism spectrum as a whole. At that point, autism spectrum disorder (ASD) became the umbrella term to describe individuals who were formerly diagnosed with autistic disorder, Asperger disorder, childhood disintegrative disorder, or pervasive developmental disorder not otherwise specified (PDD-NOS). ASD is a broad spectrum, and symptoms manifest in each individual in unique ways (American Psychiatric Association, 2013).

Though symptoms manifest quite differently in every individual on the autism spectrum, there are also many common shared characteristics within this population. The American
Psychiatric Association (APA) lists some of these common characteristics as communication deficits, dependence on routines, and showing sensitivity to change (American Psychiatric Association, 2013). Further, individuals on the autism spectrum might display difficulty making eye contact, lack of tone or correct pitch in speech patterns, difficulty in auditory, visual, or intellectual processing, high anxiety, challenges in interpreting senses of humor and figures of speech, and general difficulties with social interaction (Remy & Seaman, 2014). Anxiety and exhaustion is heightened when these individuals constantly work to model their behavior to reflect that which is expected in typical communication, such as forcing eye contact or struggling to manage hand gestures, body language, or speech patterns (Remy & Seaman, 2014).

Though characteristics in each person will vary, individuals with high functioning autism (HFA) typically display mild symptoms on the autism spectrum. Individuals who fall on the high-functioning end of the autism spectrum frequently have difficulties in social engagement and communication, and show repetitive behaviors and fixed interests, though typically have not shown a delay in language development (Adreon & Durocher, 2007).

**Autism and Higher Education**

As the prevalence in ASD diagnoses increases, so does the prevalence of individuals with ASD entering into institutes of higher education (Adreon & Durocher, 2007; Barnhill, 2014; Gelbar, Smith, & Reichow, 2014; Pinder-Amaker, 2014). Though these students face many challenges, the literature reflects a trend of increasing awareness and acceptance of students with ASD on college campuses (Gelbar, Smith, & Reichow, 2014). This literature review, as well as the proposed study, will focus in particular on individuals with high functioning autism.

The transition from high school to higher education can be a particular test for individuals with ASD, particularly with social skills and communicative issues, which are some of the biggest challenges these individuals face (Adreon & Durocher, 2007; Pinder-Amaker, 2014; Shogren & Plotner, 2012; VanBergeijk, Klin, & Volkmar, 2008; Zager & Alpern, 2010). Students are expected to learn the norms and cultures of a new institution, meet new people, abide by a new set of rules and policies and, in many cases, live on one’s own or with roommates for the first time in their lives. All of these changes can be difficult for any new college student, and those difficulties are even greater for students with ASD, who often struggle during periods of transition (Barnhill, 2014).
Many educational supports are in place to assist college students with disabilities including those with ASD. Legislation such as the Individuals with Disabilities Education Act (IDEA) and the Americans with Disabilities Act (ADA) has made the college experience more accessible to students with ASD (Barnhill, 2014). However, institutes of higher education are still learning how to best provide services for this population, as students with ASD differ from many other students with special needs. That is, they require more social and emotional support than academic support, and characteristics of the disorder are often invisible, leading to challenges in offering targeted support (Barnhill, 2014).

Though identifying students with ASD who may need targeted services can be complicated, supports from college and university offices of disability services are available, by law, to students who disclose their diagnoses. Examples of these services include note-takers, extra time for exams, and alternate locations for exams in a less distracting environment (Sinclair, 2013). However, they must disclose their ASD and request assistance for these targeted services.

In contrast, if a student feels uncomfortable sharing about his or her diagnosis, even with the Office of Disability Services, he/she will not have access to said services (Van Hees, Moyson, & Roeyers, 2014). As one student with an invisible disorder reports:

> Probably, had I done what I was told by my disability services counselors and disclosed my disability to the professor, I would have gotten accommodations for extended test time…I’m sure I would have done better, but I didn’t want the professors and the other students to think I was trying to get away with something. And I didn’t want to admit I needed any more help. (Crawford & Silver, 2002, p. 102).

Some college students try to make it on their own without any supports, so they fail to notify the disability office of their diagnosis or their potential need for support. Other college students are unable to receive targeted supports because they are undiagnosed, though displaying characteristics of and self-identifying as having ASD (White, Ollendick, & Bray, 2011).

One college student with an undiagnosed invisible disability describes being terrified while registering for classes without any support from disability services. As she says, “because I had not yet been diagnosed, I could not take advantage of the services provided by the university for students with disabilities” (Crawford & Silver, 2002, p. 86).
Training and education is crucial for the campus community to better provide these services for students with ASD (Breakey, 2006; Chown & Beavan, 2012; Morrison, Sansosti, & Hadley, 2009; Tipton & Blacher, 2014; Zeedyk, Tipton, & Blacher, 2014). The more a campus community is knowledgeable about ASD, the more likely they will be able to help students’ success (Tipton & Blacher, 2014). It has also been shown that student relationships with faculty members contribute a great deal to student success (Tipton & Blacher, 2014). Thus, it is especially important that faculty members are knowledgeable about ASD.

Students with ASD are aware when their teachers are uneducated about the disorder, and these same students are concerned that if their teachers are not knowledgeable about ASD, supports and accommodations are not likely to be implemented appropriately (Van Hees et al., 2014). Students themselves have suggested “an awareness program could contribute to breaking down the perceived stigma and could at the same time highlight the talents of students with ASD” (Van Hees et al., 2014, p. 10).

All departments need to understand how to best serve this population, as collaboration across campus has been shown to be an important factor in ASD student success (Barnhill, 2014; Dillon, 2007; Fleury, Hedges, Hume, Browder, Thompson, Fallin, ... & Vaughn, 2014). Recommendations have been made to not only provide professional development for all departments campus wide, but also to also ensure that they have a clear understanding of practices that go along with including and supporting students with ASD, such as the basic principles of universal design (Hart, Grigal, & Weir, 2014, p. 145).

When neurotypical (NT) peers receive inclusion training, children with ASD are more likely to spend less time alone, and are more likely to be considered a friend (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; Lawrence, 2013). This theme is reflected in the higher education literature as well, in that “increased openness toward ASD on college campuses is likely necessary and possible” (Matthews, Ly, & Goldberg, 2014). College students are more accepting of their peers’ idiosyncrasies when they understand that the individual has ASD or Asperger’s syndrome (Butler & Gillis, 2011; Matthews et al., 2014). One study in particular surveyed college students about hypothetical students with ASD (Matthews et al., 2014). Undergraduate students took three different versions of a questionnaire complete with vignettes about a fictional college student: one which was labeled as an individual with high functioning autism (HFA), one which was labeled as a typical college student, and one which had no label. In
this study, college students responded more favorably to the individuals with a clear ASD diagnosis. A similar study of college students states “social behaviors commonly observed in AD significantly impacted stigmatization scores, while the label, “Asperger’s Disorder,” did not” (Butler & Gillis, 2011, p. 741). This suggests that accepting and disclosing the ASD diagnosis might actually lead to less stigmatization for college students with the disorder.

As stated by Emily Lawrence, a librarian with ASD, “educating neurotypical individuals about Autistic people is an effective means to improving well-being for Autistics” (Lawrence, 2013, p. 105). The literature seems to support the idea that the more a campus community is knowledgeable about ASD, the more likely they will be able to help students with ASD succeed (Tipton & Blacher, 2014). Students are also more understanding and accepting of their peers when they knew that their communication and social difficulties were due to high functioning ASD (Matthews et al., 2014).

With education and training, the campus community will learn that students with ASD can display many strengths in the higher education environment. Faculty members have described them as having passionate interests, a strong desire to achieve the right answers, and strict adherence to rules and policies (Gobbo & Shmulsky, 2014). College students with ASD themselves describe their strengths in the higher education environment as having strong memory skills, dedication, analytical skills, impartiality, and a willingness to listen to others (Van Hees et al., 2014).

Without education and training, members of the campus community might misinterpret common characteristics displayed by students with ASD as intentional misbehavior. In a survey by Zager et al., faculty members described behaviors of students with ASD as rude, uninterested, disorganized, or inattentive (2013). These behaviors included demonstrations of language and communication deficits such as students interrupting others or engaging in long monologues, to concerns of executive functioning such as inappropriate body language or a lack of eye contact.

A properly trained educator would understand that these are common characteristics for individuals with ASD, and that the students are not displaying “rude” behavior on purpose. As such, “understanding the nature of ASD can help professors interpret the above behaviors in a more useful way, which can lead to more effective strategies for helping these students succeed” (Zager et al., 2013, p. 24).
There is little research about the college experiences of students with ASD themselves, instead focusing on the experiences or impressions of parents, teachers, or administration (Gelbar et al., 2014; Morrison, et al., 2009; Van Hees et al., 2014; Gobbo & Shmulsky, 2014). A recent research synthesis came to the conclusion that there is a lack of peer-reviewed literature describing experiences of college students with ASD, and that further research should be done to describe firsthand accounts of college students with ASD (Gelbar et al., 2014).

Dawn Prince-Hughes, an academic as well as a person with autism, suggests that such firsthand accounts of individuals with ASD are typically not sought or published, as readers not on the spectrum, also known as neurotypicals, are not familiar with following the train of thought of those with ASD (Prince-Hughes, 2002). She notes that, traditionally, accounts from individuals with ASD have been heavily edited.

As more students with ASD enter post-secondary education, more research is being done to better understand and support their unique experiences. While there are many barriers and concerns for students with ASD, they also display many strengths. The subsequent section explores the potential of online communication for college students with ASD to discuss and describe these experiences in more detail.

**Communication, ASD, and Online Environments**

Face-to-face communication can be a challenge for those on the autism spectrum, as some might have difficulties with making eye contact, using excessive gesturing, and misunderstanding body language or social cues. Internet technologies, such as Social Networking Sites (SNSs), might be a solution to facilitate communication for individuals on the spectrum (Brownlow, O’Dell, & Rosqvist, 2013).

Though studies of college students with ASD and online communication are limited, it is clear that many individuals with ASD as a whole are using the Internet to communicate and connect with others. According to Davidson, “the (i)nternet has been shown to be an appropriate and unusually accommodating medium for those on the spectrum” given their communication styles and needs (2008, p. 802).

Difficulty with face-to-face communication is not reflective of holistic communicative abilities, or a lack of want or need to communicate (Brownlow, O’Dell, & Taylor, 2006). Individuals on the autism spectrum are using the internet to connect with one another, giving
them not only mutual social support but also allowing them to form groups and have a greater societal presence and voice (Giles, 2013; Davidson, 2008). In a study of an online Asperger’s syndrome (AS) discussion group, researchers found that the group of those with AS, in connecting with others like themselves, were able to describe the diagnosis in a positive light and regarded those without AS as atypical (Brownlow et al., 2006). Asperger’s syndrome first became a diagnosis in 1994, and one might say that AS culture “has grown up hand in hand with the internet” (Giles, 2013, p.193). Allowing individuals on the autism spectrum to present themselves in online communities with no gatekeeper allows researchers to better understand experiences of this population better than ever before (Brownlow et al., 2013; Giles, 2013).

Some individuals with ASD view online forums of their peers as “safe spaces.” In one study, researchers examined interactions in discussion groups shared by those with AS and those without, as well as online spaces only used by those with ASD (Rosqvist, Brownlow, & O’Dell, 2013). The majority of the AS groups created rules that only those with AS could join, preferring to keep their online space separate. Further, they placed emphasis throughout discussion postings that non-AS spaces, in the physical realm, were not safe spaces for them. Instead, the only safe spaces for them were the online, AS only groups (Rosqvist et al., 2013).

While some assume that the online environment is already accessible and “do not need any adaptation in order to be accessible for many with autism” (Rosqvist et al., 2013, p. 376), others believe there is work to be done to create more welcoming online spaces for members of this population, in particular those with more severe manifestations of the disorder (Hong, 2014; Hong, Yarosh, Kim, Abowd, & Arriaga, 2013; Hong, Kim, Abowd, & Arriaga, 2012). Multiple studies are being done to determine which characteristics in a social networking site are most important for individuals on the autism spectrum. These works in progress suggest that successful use of closed communication, or “circles” of trusted network members, within an online site might help to facilitate communication and collaboration, and potentially support independence into adulthood (Hong, 2014; Hong et al., 2013; Hong et al., 2012).

Other studies claim that individuals with ASD simply do not utilize online communication at all. Based on data from the National Longitudinal Transition Study, youth with autism between ages 13-16 use screen-based media primarily to watch television or play video games instead of engage with social media (Mazurek, Shattuck, Wagner, & Cooper, 2012; Mazurek & Wenstrup, 2013). Only 13.2 percent reported using social media during their free
time, which was less than their siblings and less than any other disability category. However, the concept of engagement is difficult to measure. For example, research done on individuals on the autism spectrum and online social networking sites suggests that those who passively engage in these sites still take in information, even when not posting content themselves (Hong et al., 2013). Additionally, these studies operationalize social media to only include email and chat rooms, leaving out sites such as Facebook, Twitter, online discussion forums, or blogs. Finally, the data is not self-reported. Parents of the youths were surveyed to collect this data, instead of asking the teens with ASD to describe their own Internet usage.

One way to understand how individuals with ASD use online communication networks is by studying interactive websites designed especially by and for members of this population. Frequently described in the literature is Wrong Planet (www.wrongplanet.net), a website which hosts public discussion forums, blogs, and news for individuals with ASD (Brownlow, O’Dell, & Taylor, 2006; Clarke & van Amerom, 2007; Giles, 2013; Jordan 2010; Jordan & Caldwell-Harris 2012; Linton, Krcek, Sensui, & Spillers, 2013). Wrong Planet has proven to be a rich source of data particularly from young adults and adults with high functioning autism (HFA).

Wrong Planet was founded in 2004 by two high school students with ASD as a community space for and created by individuals with ASD. Since 2004, the site has grown to more than 80,000 registered members, most of whom describe themselves as having Asperger’s syndrome, or high functioning autism (HFA) (Jordan & Caldwell-Harris, 2012). Users of Wrong Planet live primarily in the United States, followed by Europe and Australia (Jordan, 2010).

Studies using Wrong Planet discussion board data have examined how individuals with ASD describe their obsessions or interests, interact with their peers online, and receive social support from other Wrong Planet members with ASD (Jordan, 2010; Jordan & Caldwell-Harris, 2012). Multiple studies used Wrong Planet data to explore how members of the ASD community reacted to the new criteria of the DSM-V in incorporating Asperger’s syndrome into the larger ASD umbrella (Giles 2013; Linton et al., 2013). Though not all users list their age, one study found that of posts sampled, the mean age of users who disclosed their age was 25.5 (Jordan, 2010). By studying these Wrong Planet discussion forum posts, researchers are able to collect and analyze the points of view of young adults with ASD.

More individuals with ASD are making the shift to online communication, and in turn having the opportunity to speak for themselves. This leads to the potential for socialization,
emotional support, and opportunities for self-advocacy. Historically, caregivers, family members, and researchers have spoken for individuals on the spectrum. “Mommy blogs” are still a common way for parents to share information about their children. Among so called “mommy bloggers” on Twitter, autism is one of the topics with the highest retweet percentage (Burton, Tew, & Thackeray, 2013). The Wrong Planet studies are unique in that at least one researcher identifies posts made by parents, teachers, or caregivers, and excludes them from the study, thus ensuring the only voices heard are those of the individuals with ASD themselves (Jordan, 2010).

**Autism and Libraries**

This literature review has explored college students with ASD and their communication through online environments. Next, the review will look at students with ASD and what is currently known about their experiences in libraries.

Policies are in place for academic librarians to provide support for students with special needs, both through professional organizations such as the American Library Association (ALA) and through legislation such as the Americans with Disabilities Act (ADA), and Section 504 of the American Rehabilitation Act (American Library Association, 2015; Cassner, Maxey-Harris, & Anaya, 2011; McNulty, 1999). Labeling ASD as a disability is a controversial practice, as many with this disorder take ownership of their diagnosis and do not wish to be “fixed” (Clarke & van Amerom, 2007), which is representative of the social model of disability. However, though ASD might be considered as a difference as opposed to a disability, it is important to note that while the ADA does not list accommodations by specific diagnoses, “the individualized assessment of virtually all people with ASD will result in a determination of disability under the ADA; given its inherent nature, ASD will almost always be found to substantially limit the major life activity of brain function” (Whetzel, 2013, p. 4).

Libraries are typically well organized, quiet environments, and are possibly ideal environments for individuals with autism spectrum disorder (ASD). The American Library Association advocates for library use by individuals with disabilities, saying: “ALA, through its divisions, offices and units and through collaborations with outside associations and agencies is dedicated to eradicating inequities and improving attitudes toward and services and opportunities for people with disabilities” (American Library Association, 2015). However, there are very few first person accounts of this population and their experiences in the library environment.
Personal narratives suggest individuals with ASD appreciate and find comfort in the library environment (Garry, 2002; Grandin, 1997; Halvorson, 2006; Strub & Stewart, 2010). One adult with ASD, for example, describes how she always found comfort in the library, and the interests she pursued at the library as a child led her to pursue similar research as a graduate student (Susan, 2002). Typical library organizational structures provide support for those with ASD who thrive with consistent practices (Jim, 2002; O’Leary, 2011). One individual with ASD describes his high school library as a “sanctuary” (Garry, 2002, p. 3), which led to this student pursuing future employment opportunities in a library environment.

Temple Grandin, a well-known autism self-advocate, describes her experiences in the library and how she found critical information about medication from library resources in a narrative otherwise unrelated to libraries (Grandin, 1997). In Aquamarine Blue 5, narratives were collected about general life experiences of college students with ASD. Each individual contributor was allowed to “decide the length and content of their essays” and no other guidance was provided (Prince Hughes, 2002, p. xiii). Interestingly, a number of contributors made unprompted mention of the library in one sense or another, and sometimes in multiple contexts (Garry, 2002; Jim, 2002; Susan, 2002).

These narratives within Aquamarine Blue 5 suggest that individuals with ASD appreciate and find comfort in the library environment. Jim, an adult with ASD, for example, has fond memories of the library and describes how it supported his interests. He describes how reading books from the library took him down various paths of interest, and in better understanding the world around him. He also describes how he used the card catalog at the library to make better sense of different genres within the fiction works (Jim, 2002).

Another individual with ASD, within his Aquamarine Blue 5 narrative, describes spending a good deal of time in his school library, largely as a safe space in which to seek refuge away from the other teenagers (Garry, 2002). The idea of the library as a safe space for individuals with ASD is reinforced throughout the Prince-Hughes text, as well as supported throughout other relevant literature. In one dissertation study, for example, students on the autism spectrum chose to study alone, in quiet spaces, some describing quiet sections of the library as being the location most conducive for studying for them (Schlabach, 2008).

Sensory overload, which could include overstimulation from noise, visuals, or other experiences, can occur for individuals with HFA when the environment poses many distractions
(Janzen & Zenko, 2012; Remy & Seaman, 2014). Libraries then seem to be an ideal environment for members of the ASD population, as they are typically quiet spaces with logical layouts, clear signage, and organized collections (Bress, 2013). College students with ASD often choose the library as a place to escape such sensory distractions and to study in a quiet environment (Schlabach, 2008).

According to Janzen and Zenko, for individuals with ASD “planning movement through space is often difficult…when learners have difficulty scanning, selecting, and making sense of the relevant and important details in the environment, they try to keep the arrangement of details the same” (2012, p. 138). Change in the layout of furniture or interior design might present a challenge to members of this population, who value “sameness” (Adreon & Durocher, 2007, p. 273). Again, consistent layout and interior design is typical of most library environments, with designated spaces for various collections, computer labs, meeting rooms, common spaces, and classrooms.

Individuals with ASD also appreciate having a quiet space away from the action in a community setting (Janzen & Zenko, 2012). Most libraries, if not all academic libraries, have quiet areas already designated for study and reflection. Similarly, students with ASD appreciate having an individual work area, which serves as both a familiar space where new ideas can be introduced with less conflict, as well as an information focal point in which calendars, signs, and other pieces of information can be posted for easy access to the student (Janzen & Zenko, 2012). Academic libraries often offer study carrels for students upon request, fulfilling this need as well.

In an award winning paper for the American Society for Information Science and Technology (ASIST), one researcher describes information seeking in the context of an individual with ASD’s fixed interest. Alex, a twenty-three-year-old with Asperger syndrome (AS), was interviewed and observed to better understand his information seeking habits in regards to his particular interest – hockey. Alex described going to the library, where he uses the Internet to seek information. He described the library as a “joy,” a “haven,” and “like a home” (O’Leary, 2011). He sought information about this interest, hockey, because he found value in becoming an expert, and in gaining knowledge. Information seeking about hockey was a non-stressful activity, which made him feel passion and confidence. Learning more information about his strong interest, hockey, helped him engage in conversation in other social situations as well,
such as at the grocery store (O’Leary, 2011). As such, gaining information from library resources actually provided engagement in social opportunities for this individual.

Though exact figures are unknown, some individuals with ASD also appreciate the library as a place for employment. Individuals with more severe manifestations of ASD might find success in working or volunteering as shelvers, while individuals with high functioning autism (HFA) might choose to pursue advanced degrees in librarianship. The American Library Association itself supports individuals with disabilities in the library workforce, stating that “ALA must work with employers in the public and private sectors to recruit people with disabilities into the library profession, first into library schools and then into employment at all levels within the profession” (American Library Association, 2015)

The literature indicates that individuals with more severe manifestations of ASD are most comfortable with organized, structured tasks, in which shelving books according to a library classification scheme certainly fits. Further, one common characteristic of individuals with ASD is that they are comfortable with repetitive tasks, which, again, is a characteristic of shelving books at the library (Grandin, 1997).

One case study describes the work done by an individual with ASD as a shelver at a public library, and how the library employee and administration all viewed this opportunity to be a success (Strub & Stewart, 2010). Temple Grandin also describes the library as an ideal working environment for those with ASD, suggesting that the job would “make use of inborn talents of memory for numbers” (Grandin, 1997, n.p.).

Another individual with ASD describes about how upon receiving his Associate of Arts degree, he was placed in a work-in-training situation through a rehabilitation service at a library, where he was then hired as a staff member. As he describes it, “they knew of my condition and this was the happiest time of my life” (Garry, 2002, p. 7).

Even more relevant, however, is the data available about individuals with ASD working in positions of responsibility as degreed librarians (Wyss, 2014; Lawrence, 2013). Librarian Paul Wyss publishes and presents about his journey earning a masters degree in library science, a Ph.D., and working as an academic librarian with ASD (Wyss, 2014). Wyss is not alone in his journey. In fact, it is likely that many individuals with ASD have completed graduate studies and are thriving in the library profession. As noted by librarian and autism self-advocate Emily Lawrence, “the notion that all Autistics are well suited to certain kinds of repetitious labor but ill
suited to complex, demanding professional practice is false,” and many individuals with ASD can also find challenging and rewarding work in positions of responsibility within the library field, as she herself did (Lawrence, 2013, p. 106). Though Lawrence suggests that there are many librarians with ASD, she also posits that many of them are reluctant to disclose such information as their diagnoses and, as a result, there is “virtually nothing in the LIS literature discussing Autistic librarians or information professionals” (2013, p. 103).

While specific research on individuals with ASD in the academic library is limited, much can be learned from studies about individuals with ASD in similar institutions such as public libraries, K-12 school libraries, or museums, and studies about individuals with other disorders or special needs in the academic library environment (Bodaghi & Zainab 2013; Bress, 2013; Cassner, Maxey-Harris, & Anaya, 2011; Ennis-Cole & Smith, 2011; Guder, 2012; Langa, Monaco, Subramanian, Jaeger, Shanahan, & Ziebarth, 2013; Mates, 2012; Mates, 2011). Academic libraries, in particular, are making efforts to support individuals with special needs through principles of Universal Design, Assistive Technologies (AT), instructional strategies, and more (Guder, 2012; Mulliken & Atkins 2009; Remy & Seaman, 2014). At a major research university in Malaysia, one study explored how visually impaired students made use of their academic library and, in particular, the study carrels within the library (Bodaghi & Zainab, 2013). Many of those visually impaired students referred to their study carrels as second homes, and described the carrels as places where they could socialize both with one another and with students with no impairment. Given what is known about how individuals with HFA value individual work areas (Janzen & Zenko, 2012), it is likely that similar success might be found with students with HFA using study carrels in the academic library.

In multiple institutions of higher education, academic librarians have found success in applying Universal Design for Instruction (UDI) principles when working with college students with learning disabilities (Chodock & Dolinger, 2009; Hoover, Nall, & Willis, 2013). At Landmark College, an institution for college students with learning disabilities, the librarians adopted an approach to information literacy instruction based on the principles of Universal Design for Instruction (UDI). They refer to their approach as the Universal Design for Information Literacy (UDIL). It is likely that many academic librarians are already using the principles of UDI, if perhaps not consciously, as there is some overlap with the Association of
Similarly, librarians at East Carolina University’s (ECU) Joyner Library provided strategic library instruction to college students with learning disabilities using the principles of UDI. Techniques used included repetition, slower paces, multimedia presentations, active learning, and individual follow-ups. After working with two separate cohorts of students and through a series of pre and posttests, the authors determined that with targeted instruction, these students were able to meet the same library-oriented learning goals as other students (Hoover et al., 2013). Methods of inclusive, universal design instruction might be replicated for use with college students with ASD in the library; however, studies specifically done with members of this population have yet to be conducted.

Though the academic library seems an ideal situation in terms of environment and instruction opportunities for individuals with ASD, the literature has yet to reflect this. Reasons for this void could be that individuals with ASD have difficulty with communication, so capturing their narratives or interviewing them is not often attempted; ASD is an invisible disorder, and perhaps more visible disabilities get more attention; and much of the ASD research focuses on children or other similar institutions such as public libraries, K-12 libraries, or museums. However, the data that is available indicates those with ASD find success in the library through information searches, employment, and as a “sanctuary,” and that many other special needs populations have been studied in the academic library and have reported success.

**Theoretical Framework**

This research was conducted and reported in accordance with the social model of disability studies, and used the theoretical framework of the theory of information worlds for structuring data analysis. Both frameworks, and their applications to the study, are described next.

**Social Model of Disability Services**

As stated by Bogden and Biklen, some qualitative researchers are “…guided by particular theories about, say, power or genre or conflict. These theories are influential before the data are collected, and researchers working in this mode frame their project in the light of these views”
This is true with this study, as the social model of disability studies was applied as a lens through which the research was guided.

The social model of disability studies underlies this research study, as opposed to the medical model of disability studies. The social model assumes that ASD is not something to be fixed or treated. Instead, “this approach emphasizes that the extent to which one is ‘disabled’ is the result less of factors residing in the individual and more of the interaction between the individual and the environment” (Renty & Roeyers, 2006, p. 521).

Studies concerned with individuals with ASD in the online environment find that such self-advocacy websites “challenge the medical model approach to defining AS as a pathology, instead re-positioning the condition as a valid and even interesting difference from the neurological norm” (Molloy, p. 668). Though some parents, caregivers, and activists are concerned that the social model disregards the fact that individuals with ASD do have a legitimate diagnosis and individualized needs, most of the ASD advocacy literature supports the social model as a “guiding consideration that enhances our appreciation of the role society plays in the definition and actuality of disability” instead of a more extreme, polarizing view that disregards the medical model in entirety (Autism & Oughtisms, 2011).

This understanding of the social model in collaboration with aspects of the medical model is a development scholars within disability studies have called for throughout at least the past 20 years (Crow, 1996). The initially established use, as one concept in direct opposition to the other, was referred to by one self advocate as “the ultimate irony: in tackling only one side of our situation we disable only ourselves” (Crow, 1996, p. 6). Thus, this study recognizes the value in both approaches, while using the social model as a guiding factor for data analysis and discussion. As the study seeks to understand the experiences of those with ASD rather than provide specific instructional services, the educational model of disability studies is not addressed.

Within the social model of disability studies, it is common to use disability-first, as opposed to person-first, language. That is, many individuals with ASD prefer to refer to themselves as autistic (Kenny, Hattersley, Molins, Buckley, Povey, & Pellicano, 2015). In this sense, this study detours from the traditional sense of the social model of disability studies and uses person-first language. This is a deliberate choice due to considerations within the current
body of knowledge, and it is done with the understanding that there is no one clear, correct approach.

This study draws from research across disciplines including information studies, communication sciences and disorders, and education, and has broad interdisciplinary implications. As suggested within the Journal of TASH, a leading source for disability advocacy since its founding in 1975, interdisciplinary work based on the social model “can allow us to develop a deeper and much broader understanding of disability as a part of our shared, human experience, as well as position disability as a difference that is a potential source of interest and intrigue” (Ferguson et al., 2012, p. 75). Rather than limiting the study of disability to one discipline, instead the social model suggests that “the study of disability be as broad as culture itself” (Ferguson et al., 2012, p. 74). In using the social model within this study, disability studies are thus incorporated into the library and information studies body of knowledge.

The social model is often used as a framework in self-advocacy works; this study uses the model to provide guidance in analysis and discussion of the findings. In doing so, the study frames findings in an approach based on factors which can be controlled by librarians and higher education administrators – not in making suggestions for the students with ASD to change or modify their behavior, but in making environmental modifications to make for a more inclusive environment.

**Information Worlds**

The theory of information worlds, developed by Burnett and Jaeger, and initially influenced by the work of scholars Chatman and Habermas, also provides theoretical framework for this study. There are five key concepts associated with the theory of information worlds, the first four based largely in part from Chatman’s work, building up to her theory of normative behavior (Burnett, Besant, & Chatman, 2001; Chatman, 2000; Jaeger & Burnett, 2010). These concepts are (1) social norms; (2) social types; (3) information value; (4) information behaviors, and (5) boundaries.

The concept of social norms refers to a shared understanding of what is right, and what is wrong within observable social behaviors (Jaeger & Burnett, 2010). As stated by Burnett, Besant, and Chatman, “social norms point the way to acceptable standards and codes of
behavior” (2001, p. 537). This concept is one of three that Jaeger and Burnett (2010) borrowed directly from Chatman’s work.

The concept of social types refers to shared perceptions of individuals’ roles in context (Jaeger & Burnett, 2010). This concept grew from the initial description posed by Burnett et al. that a social type is an “absolute definition” assigned to a person within his or her world (2001, p. 537). This is another concept that Jaeger and Burnett borrowed “as is” from Chatman (Jaeger and Burnett, 2010, p. 32)

Information value refers to a shared understanding of what is worth a person’s attention, and what information is meaningful (Jaeger & Burnett, 2010). This is a variation from Chatman’s concept of worldview (Jaeger & Burnett, 2010). What information value shares with the concept of worldview is that “within a world, it designates a shared sense of a relative scale of the importance of information” (Jaeger and Burnett, 2010, p. 35). Information value expands on this concept in that it also allows for different types of value attached to information, according to individuals within a world. Information value, according to Jaeger and Burnett, can be broken down into two different parts: (1) content, and (2) control (Jaeger and Burnett, 2010). While narrowing information value into two parts might seem an over simplification, these two components are at the core of library and information services in supplying information for a user (Jaeger and Burnett, 2010).

Information behavior refers to the full range of normative behaviors related to information (Jaeger & Burnett, 2010). Burnett et al. describe this concept as “a state in which one may or may not act on available or offered information” (2001, p. 537), and state that this behavior goes beyond information seeking. Within the theory of information worlds, Jaeger and Burnett build upon that conceptual definition and add that information behavior deals with how information is, and is not, used within a small world (2010). Information behavior is the third concept borrowed “as is” from Chatman, and the fourth concept borrowed at least in some part from her work (Jaeger & Burnett, 2010, p. 32).

Finally, the concept of boundaries refers to interfaces between worlds, and points at which worlds come into contact with each other. Through these boundaries, information might have the opportunity to be exchanged, but it does not necessarily have to be exchanged (Jaeger & Burnett, 2010). This concept is a necessary addition, because the theory of information worlds
assumes interaction between and among worlds, not worlds existing in isolation (Jaeger & Burnett, 2010).

Building on the idea of concepts are propositions. A proposition often takes the form of an “if, then” statement, builds upon established concepts, and can typically be restated as a hypothesis in conducting research (Grover & Glazier, 1986). Propositions are much more than linking concepts together.

Fully described propositions associated with this theory are, as of yet, unpublished. However, theory building is not linear. Instead, the process of identifying concepts, defining propositions, and making assumptions might continue cyclically (Meleis, 1991). In this case, concepts were first identified and published. Propositions have since followed, though the work is currently unpublished (Burnett, 2014).

The propositions are as follows, taken verbatim from Burnett’s current work:

1. Members of a specific social setting (an information world) tend to share a collective sense of “the appropriateness – the rightness or wrongness – of social appearances and observable behaviors” (Jaeger and Burnett, 2010, p. 22). Thus, behaviors and practices of members of the information world tend to resemble each other.

2. The functional roles of individuals within an information world are related to the ways in which such individuals are typed or perceived by other members of that world.

3. Members of an information world tend to share an understanding of which aspects of their world (and the wider world) are important enough to deserve attention and which are not, as well as an understanding of the information value and meaning of the objects and practices that make up that world.

4. Members of an information world tend to share an understanding of what behaviors, practices, and activities are most appropriate in relation to information use, exchange, and storage.

5. Information worlds do not exist in isolation from one another, but interact with each other in a variety of ways. Multiple information worlds are both connected to and separated from each other by the boundaries between them; information and associated values and behaviors may or may not move easily across these boundaries. Interactions between worlds may result in either reinforcement and agreement or conflict (Burnett, 2014, n.p.).
According to Meleis, “propositions are the crux of a theory,” and they shape the questions necessary for research (1991, p. 218). These propositions can help shape future research according to the information worlds’ theoretical framework.

Data coding and analysis arises from both the data itself, as well as “from the perspective the researcher holds” (Bogden and Biklen 1998, p.177). As such, theoretical frameworks can influence coding and data analysis. In this qualitative study, an inductive approach was used for open coding, while the theory of information worlds along with research questions were used to provide a deductive coding and analysis structure.

In this study, the theory of information worlds provides structure in learning about the information behavior in an online social context for students with ASD. Rather than predict, this research helps to illuminate the information worlds of individuals with ASD and what information is exchanged across these worlds in the online social context of Wrong Planet.

In their text, theory authors Jaeger and Burnett describe the application of the theory of information worlds in terms of four key contexts: the conceptual, the social, the technological, and the political contexts (Jaeger & Burnett, 2010, p. 143). The social context, according to the authors, encompasses libraries and other public sphere entities. As the research proposed in this paper focuses on information behavior within a social, online environment, and in regards to experiences within a library, the theory of information worlds is most relevant when applied in the social context.

For the purposes of the research topic, the theory of information worlds is especially applicable. Consider the broad lifeworld, made of all of the information behaviors and social contexts from intersecting small worlds (Jaeger & Burnett, 2010). Within this context, Wrong Planet could be seen as a communication channel within the public sphere.

These public spheres allow for members of small worlds to be exposed to the information and ideas held in other worlds. In this research, the information worlds of students with ASD are studied in the context of both Wrong Planet and academic libraries, functioning as channels for information flow (Figure 1).

These mediating channels are of particular importance to individuals with ASD, who already have difficulty navigating themselves through space and experiencing sensory overload in over stimulating environments (Janzen & Zenko, 2012). As “the lifeworld can be seen as the totality of communication and information options and outlets available culture wide,” Burnett
and Jaeger describe this social information environment as “dizzying” (Burnett & Jaeger, 2011, p. 166). One might imagine such a lifeworld of information as being only more amplified and perhaps more dizzying to an individual with difficulty in sensory processing.

Figure 1. Potential information worlds of college students with ASD. This figure illustrates the micro world of college students with ASD, the mezzo world of those students on an online discussion forum such as Wrong Planet or within an academic library, and the macro world of the World Wide Web or a university as a whole.

**Access to information and information behavior.** Burnett and Jaeger describe three levels of access to information according to the theory of information worlds: physical, intellectual, and social (2011). These levels of access to information can be explored with the population of students with ASD in the academic library, exploring the access, as well as limitations to access, that these students have in this setting. Information in this sense is not limited to the written word; instead it encompasses all potential for information exchange, including verbal, social cues, and more.

**Physical access.** Physical access is just that – the ability to have tangible or electronic access to resources. However, this is not enough to ensure complete access if an individual is unable to access information intellectually or socially.
**Intellectual access.** Intellectual access is “the ability to understand information” (Burnett & Jaeger, 2011, p. 168). This poses a problem for individuals with ASD, as they commonly face challenges in information processing (Zager et al., 2013). This includes difficulties in understanding language, how to interact with people, and responding to sensory stimuli (Janzen & Zenko, 2012). Burnett and Jaeger describe intellectual access to information as “the means through which the information is categorized, organized, displayed and represented” (Burnett & Jaeger, 2011, p. 168).

**Social access.** Social access, according to Burnett and Jaeger, is “the ability to communicate and use the information in social contexts” (Burnett & Jaeger, 2011, p. 186). Again, this poses a challenge for students with ASD, given that one of this population’s common characteristics includes difficulties managing social situations (Janzen & Zenko, 2012).

**Information worlds of students with ASD.** It might be said that every individual with ASD is, him or herself, a small world. Common characteristics of individuals on the autism spectrum include challenges with social situations and communication, leading to potential isolation for these individuals (Gobbo & Shmulsky, 2014). Further, every person with ASD manifests symptoms in different ways. There is a common saying that if you meet one person with autism, you’ve met one person with autism. Again, this is another way of saying that despite a shared diagnosis, every individual displays symptoms uniquely.

As described by Burnett and Jaeger, small worlds are “the social environments in which an inter-connected group of individuals live and work, bonded together by common interests, expectations and behaviours, and often by economic status and geographic (or ‘virtual’) proximity as well” (Burnett & Jaeger, 2011, p. 163). In this sense, one might think immediately of the fixed interests of individuals with ASD contributing to or defining their small worlds. A parent or caregiver might understand the deficits an individual with ASD has in reciprocal communication, and as a result show patience and listen to continual talk of an individual’s fixed interest (Zager, Alpern, McKeon, Maxam, & Mulvey, 2013). Others, however, might not show the same interest. This could limit and define an individual with ASD’s small world, in essence making it even smaller. The communication and information channels provided within Wrong Planet – a channel through the public sphere – provides the opportunity needed by these individuals to cross boundaries and interact with other, and within greater, information worlds.
Individual members of different small worlds have the opportunity to interact within the Wrong Planet community, functioning as a public sphere channel. Similarly, the academic library could function as a channel within a public sphere in which students with ASD might feel comfortable to communicate and exchange information with one another. For students with ASD, these opportunities are invaluable given the social and communicative challenges faced by this population. Having a place where interactions can occur in a comfortable environment is crucial. These settings for socialization and information exchange across boundaries present a valuable opportunity for students with ASD.

Summary of Theoretical Framework

According to Bogden and Biklen (1998), “being theoretically engaged does not mean that gathering data is simply a process of filling in the blanks. Theory helps us to work through the contradictions we learn about” (p. 181). In this study, the social model of disability studies and the theory of information worlds help to make sense of the information exchanged within the Wrong Planet community about a particular topic: libraries.

Summary of the Literature

While there are studies about what colleges and universities are doing to support the ASD population, there is little research focusing on the college experiences of the students with ASD themselves, but rather relating to the experiences or impressions of parents, teachers, or administration (Gelbar et al., 2014; Morrison et al., 2009; Van Hees et al., 2014). Further, there is very little literature to suggest that academic libraries and librarians are aware of, or are currently working to, support this growing population of college students, despite evidence to suggest that these students find comfort in the library environment. The theoretical framework of the social model of disability studies, along with the theory of information worlds, are utilized to further study this library user group and the information they exchange, in an ASD specific online environment, about their experiences with academic libraries and librarians.
CHAPTER 3

METHODOLOGY

This chapter describes the methodology selected to explore the chosen topic, as well as the relationship of the proposed methodology to the research questions and chosen theoretical framework. The chapter concludes with a discussion of the data analysis procedures, a discussion of validity and reliability in qualitative research, and limitations and ethical considerations of the research.

Research Purpose

This study explores information exchanged between individuals with high functioning autism spectrum disorder (ASD) in an online community, Wrong Planet, about academic libraries and librarians. In referring to members of this population, the term ASD is used with the understanding that these individuals are “high functioning.” Specifically, the study explores how these individuals describe their knowledge of, and experiences with, using academic libraries. The study takes a naturalistic approach, is based in the social model of disability studies, and uses the theory of information worlds as a theoretical framework.

Research Questions

The research questions that guide this study are:

RQ1: How do individuals with ASD describe their experiences in the academic library in an online community of their peers?

- How do members of this population describe the library’s physical environment?
- How do members of this population describe their interactions with library resources?
- How do members of this population describe their social and communication experiences at the library and with librarians?

RQ2: What barriers to library use do students with ASD describe that, if addressed, would make their library experience more positive?
Method Selection

Rubin and Rubin give the following example about quantitative versus qualitative methods:

You can count income in dollars to measure the amount of poverty, but to understand the impact of low income on people, the stress they feel and the adaptations they make, you need descriptive, qualitative information. (2012, p. 3)

This study is interested in understanding the experiences of college students with ASD as they use the academic library – not how many books they check out, or how many students with ASD use the library per year. Instead, rich, detailed information about their experiences is the research goal, which suggests that a qualitative approach is the best research design.

Qualitative Approach

One strength of qualitative research is that the focus is not on researchers’ meaning, but instead of participants’ meaning (Creswell, 2014). This means that throughout the research process, researchers do not imply or infer their own meanings into the research, instead understanding meaning from the participant’s point of view. As with all research, the methodology should match the research questions asked (Mason, 1996). As such, qualitative document analysis is used here as it generates appropriate data for the study at hand, especially when taking in consideration communication challenges of members of the population studied.

While there are many anecdotal accounts of why or why not these students spend time at the library or with library resources, the empirical data in this area is lacking. As Patton states, “qualitative data tell a story” (Patton, 2002, p. 47). This research is an attempt to fill the void in the current literature, and provide library practitioners and higher education administrators with one story of how students with ASD experience the library. In turn, these practitioners and administrators will have a better understanding of what materials and services are working, and where they might seek improvements in order to better serve this growing population.

This study takes a naturalistic approach in looking at a behavior in its natural environment with no attempt to provide an intervention (Horvat, 2013). Specifically, the researcher observed online communication by participants after the communications had concluded. This naturalistic approach to research “makes no effort whatsoever to manipulate
variables or to control the activities of individuals, but simply observes and records what happens as things naturally occur” (Fraenkel, Wallen, & Hyung, 1993, p. 391). In the online environment, the researcher was able to observe firsthand accounts of the experiences of individuals with ASD without intruding and thus influencing the data.

**Firsthand Accounts**

Due to the challenges in communication that many individuals with ASD face, it is then no surprise that individuals with the disorder have difficulty conveying their experiences, and that first-person accounts are not more common. First-person, unedited accounts are uncommon for this population altogether, in any context – not just in describing library experiences. In the compilation Aquamarine Blue 5, Dawn Prince-Hughes, a professor who also has autism, published unedited essays provided by other individuals with ASD about their life experiences (2002). In the text’s introduction, Prince-Hughes references previous studies, including one by Francesca Happe, a professor of cognitive neuroscience, that claims autobiographical writings of those with ASD are not coherent and do not follow a logical structure. Those who are not on the autism spectrum, or neurotypical (NT), might have a hard time reading and comprehending such text, according to previous literature (Prince-Hughes, 2002; Happe, 1991). Happe’s work, analyzing selected writings of individuals with ASD, describes autism expert Temple Grandin’s writing as “hard to follow in some places,” (Happe, 1991, p. 209), and contrasts this instead with the more conventional style of Grandin’s work that has been edited or collaborated on by an NT individual.

The previous way of thinking, as advocated by Happe, is one example of why there are not more first-person accounts from individuals with ASD. However, the paradigm appears to be shifting. Prince-Hughes disputes the idea that first-person accounts by those with ASD should be edited, though she does admit that their writing patterns and tendencies might be confusing for the NT reader. As she describes it:

It is true that the word choices and sentence structures of autistic writers often make it difficult to follow their thought processes. I believe that this is because most people are used to following one ‘logical’ train of thought to what amounts to foregone conclusions. Autism spectrum people do not think this way. (Prince-Hughes, 2002, p. xii)
Many studies instead rely on parents and caregivers for relevant data. Prince-Hughes describes participating in face-to-face interviews as an “overwhelming intensity” for some individuals with ASD (2002, p. xiii). To note is that many studies in the disability and accessibility literature do not actually include the participation of individuals with disabilities, suggesting more input from these populations is needed (Hill, 2013). Furthermore, it appears from the literature that no research has been done yet specifically about individuals with ASD and the academic library. As such, it is unsurprising that there are such few first-person accounts of individuals with ASD and their experiences with academic libraries. Despite this lack of targeted research, the library frequently comes up as a topic or point of conversation in the narratives and anecdotal evidence that are available from individuals with ASD.

The lack of literature and study in this area might also be attributed to the age group of the population. Individuals with ASD that visit an academic library are typically college or university students, as this is the population such libraries serve. However, much of the previous study of individuals on the autism spectrum focuses on children with the disorder. Indeed, in the library and information studies (LIS) field, very few studies mention adolescents or adults with ASD. One librarian who also has ASD says that this is not specific to LIS studies, but reflective of writings and research as a whole (Lawrence, 2013). As she states, “this systematic focus on children renders Autistic adults invisible” (Lawrence, 2013, p. 103). When studies are concerned with adolescents or adults with ASD, parents and caregivers are often asked for their thoughts and opinions, instead of communicating with the person with ASD themselves (Lawrence, 2013).

Given the lack of first-person accounts from college students with ASD about their library experiences, an exploratory, naturalistic, qualitative approach is most appropriate to the proposed research design. This will be described in detail next.

**Research Design**

This study utilizes a naturalistic, qualitative approach to collect and analyze data. Over the past ten years, empirical research with members of this population, though limited, has relied heavily on quantitative methods. In particular, survey research has been used perhaps the most frequently, and quantitative content analysis also has been popular for study in this area. Focus groups and interviews have also been used as methods in the literature, though not in as many
cases, and not typically involving those individuals with ASD themselves. To fill this void in the literature, this study gathered first-person accounts from individuals with ASD themselves in a rich, descriptive qualitative study. What follows is a guide as to how the research was designed and implemented.

**Qualitative Content Analysis**

This research uses qualitative documents, or visual materials in the form of publicly available online discussion board posts. Qualitative documents are described by Creswell as being public or private documents, while qualitative visual materials include website main pages, e-mails, text messages, or social media text (2014, p. 190). Advantages of using these materials include that the researcher can study information in the participants’ own words and language, that the information can be accessed at a time convenient to the researcher, that the information “represents data to which participants have given attention,” and that the researcher does not need to transcribe the information as it is already written down (Creswell, 2014, p. 192). Further, the information can be collected unobtrusively, and it allows for “participants to directly share their reality” (Creswell, 2014, p. 192).

Content analysis is often used as a form of quantitative research. However, this study uses qualitative methods to collect and analyze data. Instead of establishing categories and counting codes, “In qualitative research, small numbers of texts and documents may be analysed for a very different purpose. The aim is to understand the participants’ categories” (Silverman, 2000, p. 128). Qualitative researchers are typically “more concerned with the processes through which texts depict ‘reality’ than with whether such texts contain true or false statements” (Silverman, 2000, p. 128).

This study seeks to understand categories as described by the individuals themselves; thus, a qualitative approach to content analysis is appropriate. Additionally, qualitative content analysis has already successfully been used to study online communications, as evidenced by the literature (Pfeil & Zaphiris, 2010).

**Procedures**

To answer the research questions, the principal investigator gathered data from an online discussion forum designed for the sole use of individuals who self-identify as having autism. The
discussion forum, Wrong Planet (www.wrongplanet.net), claimed more than 80,000 users as of 2015, is public, and all posts are viewable by anyone who visits the site without requiring a member account or login address. The researcher did not make any posts to the site, but instead collected and analyzed those that were already there and available for public viewing. Wrong Planet members can choose to post private content that is only viewable with a member account, and these posts were not collected or analyzed in this study. All content was collected from the interactive community discussion forums.

Participants

Participants of this study are not people, but instead messages posted from members of Wrong Planet who post either topics or responses within the Wrong Planet discussion forum. The researcher did have any direct contact with Wrong Planet members; instead, the data were collected unobtrusively from previously posted conversations.

Sampling

This study utilizes purposefully selected documents (Creswell, 2014). The discussion board posts sampled were those that fit the keyword criteria within the Wrong Planet discussion board threads. The Wrong Planet site can be searched using an advanced Google search. Boolean searches used are the following:

“library OR librarian OR lib AND college OR university OR uni OR campus”

Google does not use search functions in the same way as academic databases, and it does not use truncation for search terms; instead it utilizes a smart search. As described within a libguide:

Google Scholar doesn’t recognize truncation symbols. Instead, it uses automatic stemming, and looks for the word you type in, plus any additional letters on the end of that word. To work properly, what you type in must be a complete word, not a truncated one such as societ. As an example, military would find the words military/military’s, but not militarism/militaristic. (University of Regina, 2011, n.p.)

For this study, by searching for “library,” Google also searches the plural, or “libraries.” As such, the keyword searches were only done for the singular of each term, with the understanding that the plural also appears in the results. The informal terms “lib” and “uni” were
searched to ensure that data was gathered from those who refer to libraries and universities in an abbreviated or casual way.

**Inclusion and Exclusion Criteria**

This study utilized the following inclusion criteria. Discussion threads were included from the most current five years (2011-2015), and then broadened to include all threads posed since the inception of Wrong Planet in 2004. Though there is an individual forum for “school and college life,” this study includes data from all Wrong Planet forums, as discussion about libraries and college might happen elsewhere as well. The word, or reference to, “library” or “libraries” was a requirement for inclusion. That is, every thread included had to have one of these words within the conversation. The word, or reference to “library” or “libraries” did not need to be included in the initial post, but it did need to be included in the conversation as a whole.

Discussion threads also had to refer to higher education. This could be through keywords such as “college,” university,” or “uni.” The researcher examined every thread to ensure they meet this criteria following the initial Wrong Planet keyword search. Keywords synonymous with “college” and “library” must appear in the same thread, though not necessarily the same post.

Discussion threads that met these criteria were included whether the posters were current or former college students. While this information is not readily available, many users may choose to disclose this in their conversations. Similarly, this study includes data from all ages of users, and in all stages of their experience as a college student. This takes into account the opportunity for nontraditional college students, which is not uncommon for young adults with ASD.

As long as the keyword criteria was met, discussion threads were included if the initial poster identifies as being in high school and is discussing future college plans. These conversations can lead to rich discussion in the form of advice from current or former college students and their lived experiences.

All conversations were included which met these criteria, regardless of whether the initial poster is from the United States or abroad. As Wrong Planet is a website accessed by international users, it is expected that some conversations will include international posters.
However, if the entire conversation applies to an international situation with no relevance to the United States’ educational or library systems, this data is excluded.

Exclusion criteria were as follows. Data was collected during the final week of November of 2015. As such, any posts made in December of 2015 or later were not included in the analysis. Discussion threads were excluded if the conversation did not relate to the United States’ library or educational systems.

Some Wrong Planet members used the word “library” to refer to their personal book collection. If a thread contained the word “library” or “libraries” and was not in reference to a library as it relates to this study, it was excluded from analysis.

This study makes the assumption that, in a thread that includes discussion of both college and libraries, Wrong Planet users are discussing academic libraries. However, if a user specifically mentioned a public or other type of library, this data was excluded from analysis.

Each of these threads was read individually to determine relevance to the study. Those with irrelevant subject matter were excluded from the final sample for analysis. Each relevant post within selected discussion threads was included for analysis.

Instrumentation

In qualitative research, the researcher is the instrument used (Creswell, 2014, p 185). The researcher in this case collected the data herself from online published documents.

The researcher in this study discloses the following, in order to increase her credibility to the study: The study itself is unfunded, though the work draws from a previous grant opportunity from the Institute of Museum and Library Services, which both funded the researcher and inspired her work in this area. The researcher has no personal connections to the topic aside from interest. Though she did work as a public librarian, she has no paid experience in academic libraries and has no knowledge of ASD in family members or loved ones. The researcher does have a trusted peer who identifies as having ASD, and is a sounding board for many of this study’s considerations. Though there is “no definitive list of questions must be addressed to establish investigator credibility” (Patton, 2002, p. 566), the information reported above should serve to reveal any potential negative or positive biases the researcher might display in data collection and analysis.
Data Analysis Procedure

Units of analysis were determined by message. That is, each post within a discussion thread was considered a unit of analysis. As described by one qualitative content analysis researcher, “by coding the whole message into one code, important information about the different themes within that message might be lost” (Pfeil & Zaphiris, 2010, p. 9). To protect against loss of information, multiple coding was allowed within each unit or discussion post.

Data were coded using inductive methods, in which “findings emerge out of the data” (Patton, 2002, p. 453), as well as through deductive methods, in using both the theory of information worlds and the research questions as guiding factors. A codebook was created using emerging themes, the research questions, and the theoretical framework. The research incorporated the codebook developed, in part, by one of the theory of information worlds’ authors, Gary Burnett (Burnett, Lee, Skinner, & Hollister, 2014). Open coding was utilized for units of analysis that did not fit within the codebook so that the data is represented in participants’ own words. As described by Patton, “what people actually say and the description of events observed remain the essence of qualitative inquiry” (2002, p. 457). As such, this study relies on presenting the findings in language used by Wrong Planet members, and provides many descriptive examples throughout the narrative using participants’ own terms, also known as in vivo coding (Bernard & Ryan, 1998, p. 608, in Patton, 2002, p. 455).

Software

This study utilized QSR International’s Nvivo 11 for Mac qualitative data analysis software to organize data during coding and explore initial commonalities for analysis, though coding categories and conclusions were drawn from the researcher alone. Nvivo 11 for Windows was used to create data visualizations. In Nvivo, codes are entered as “nodes.” In this study, all nodes were aggregated before analysis, as when the software compiles references, it includes all references from the “parent” node itself, as well as any first-level “child” nodes. In aggregated format, nodes that are coded at multiple levels are counted more than once. In this study, child nodes were only coded once, not at both levels so that all references were only counted once – unless, of course it was relevant at multiple levels. For example, one unit related to both the sensory environment and the overall physical environment was coded at both the parent-level “physical environment” and the child-level “sensory environment” and would be counted twice.
as representative of the physical environment. However, a unit that only described the sensory environment would be only coded at “sensory environment,” not the broader code “physical environment” and would only be counted once as representative of the physical environment.

**Summary of Data Collection and Analysis**

Qualitative content analysis allows for a firsthand account of individuals with ASD describing their own experiences. Often, in ASD studies, it is common to find others speaking for this group. That is, caregivers, parents, or educators are asked their opinions of these students, while the students themselves are not allowed to speak for themselves. Additionally, many individuals with ASD face challenges in face-to-face communication and deal with social struggles. Some research shows that the online environment allows these individuals to communicate without the additional social barriers that face-to-face or even verbal communication could entail (Brownlow et al., 2013; Giles, 2013). Finally, collecting and analyzing this data unobtrusively allows for unmediated communication among individuals with ASD and their peers – perhaps allowing for more uncensored information to emerge. One strength of unobtrusive research is that the researcher does not intrude into that which is being studied (Babbie, 2007). This is a benefit for studying a sensitive population such as that of students with ASD, and has been used as an approach in studying the online communications of other populations brought together by a shared, incurable condition (Kazmer, Lustria, Cortese, Burnett, Kim, Ma, & Frost; 2014).

**Validity and Reliability**

Though typically used to describe accurate and reliable methods in quantitative studies, the concepts of validity and reliability can also be applied to qualitative methods (Mason, 1996). The following describes how concerns of validity and reliability are addressed within this study.

**Validity**

A simple way to describe validity is stated by Silverman: “’validity’ is another word for truth” (2000, p. 175). As described by Denzin and Lincoln (2000, p. 393), “validity in qualitative research has to do with description and explanation and whether or not the
explanation fits the description.” Furthermore, Denzin and Lincoln state that “there is no one ‘correct’ interpretation” (2000, p. 393) to establish validity.

One source of validity is that this study avoids the “reactivity” measurement (Patton, p. 191). That is when participants are affected by the research process, and artificial results are produced. As stated by Patton, “the less formal and less obtrusive nature of some qualitative strategies can reduce or even eliminate distorting reactivity” (Patton, 2002, p. 192). Unobtrusive content analysis certainly fits this profile, and the method itself provides a source of validity to the study as a whole.

Validity is also typically strong in content analysis as researchers can return to the data to recode as many times as they need, thus leading to extremely consistent coding (Babbie, 2007). The data is available for multiple fact checks, and any discrepancies can be resolved by simply reviewing the website data at any point in the process.

Reliability

Reliability refers to the consistency of data being assigned to the same categories when analyzed by “different observers or by the same observer on different occasions” (Hammersley, 1992, p. 67; in Silverman, 2000, p. 175). To establish reliability, this study leaves “audit trails” (Denzin & Lincoln, 2000, p. 393) by describing the procedures used to collect data, so that it might be collected in the same way again. Content analysis as a method lends itself to the study’s reliability, as “replication of a content analysis by another researcher is relatively easy” (Fraenkel, Wallen, & Hyun, 1993, p. 390).

The study used an iterative process of coding and coding consistency checks, utilizing one volunteer to help code multiple data sets of online conversations. This strategy, triangulating analysts, involves “having two or more persons independently analyse the same qualitative data and compare their findings” (Patton, 2002, p. 560).

Limitations of the Research

First, when gathering data from Wrong Planet, one cannot be sure that all site users have ASD, as they are self identifying. However, from the data collected, it seems highly unlikely that members would identify falsely. Furthermore, researchers, family members, and caregivers on this site appear to identify themselves when posting and asking for assistance or advice.
It also is not always clear that those who post about libraries are talking specifically about academic libraries. For example, a person might post in a higher education thread about using the library, but it is possible that they could be referring to the public library or other library instead. However, this still provides insight into the library experiences of college students with ASD, which will be valuable for librarians in all settings.

Though discussion board threads were read and analyzed in entirety; that is, posts from all contributors within a thread were included, it is possible that some of these threads have since been revisited. This data was not included in the study, as it would be unrealistic to continually revisit each thread to look for new information, as has been noted in studies with similar methodology (Kazmer et al., 2014).

Qualitative content analysis itself presents a few limitations that must also be considered. As this study is qualitative in nature, the results are not generalizable to the population at large. However, this is understood in qualitative research, and with rich, descriptive details in analysis and the discussion section, the data should be transferrable to similar studies and/or populations. In this study, participants are only those who are active on the site Wrong Planet. The findings cannot be transferred to all college students with ASD; only those who are engaged in this study.

Though an unobtrusive method has many benefits, there are some who believe them to be unethical, in that the participants are not informed of the nature of the research (Marshall & Rossman, 2014, p. 125). However, “…when direct observation would be impossible or would bias the data… this method permits her to be quite creative” (Marshall & Rossman, 2014, p. 125), which is true for this study. Other similar studies have been done using content analysis with members of the ASD population, and those authors addressed this concern by changing bloggers’ names and making the posts anonymous to further protect this population (Clarke & van Ameron, 2007). The researcher would not otherwise have access to conversations between members of the ASD community in an unmediated environment.

Similarly, some believe that documents should not be used “as stand-ins for other kinds of evidence” (Denzin & Lincoln, 2000, p. 640). Instead, text-based documents should be used to supplement other methodologies, as alone, “they are not transparent representations of organizational routines, or of decision-making processes. They are situated constructions, particular kinds of representations shaped by certain conventions and understandings” (Denzin & Lincoln, 2000, p. 640). Again, however, this study does not claim that the findings are reflective
of decision making processes or routines of all college students with ASD. Instead, it is reflective of the conversation that occurs between users of an online discussion forum about a specific topic.

Additionally, content analysis relies on content that has already been created. As such, there is no opportunity to ask participants for clarification or elaboration on topics.

Finally, despite the potential of application of the theory of information worlds to the proposed research, the theory will not adequately describe all aspects of the academic library experience for students with ASD. Perhaps the biggest limitation of applying this theory to the proposed study is that, as it focuses on information behavior in a social context, there is no room for understanding cognitive behaviors. That is, the individual information processing that takes place by an individual student with ASD is likely to be overlooked when using this framework. Information processing, or “the ability to register, decode and comprehend abstract patterns and sequences,” poses a particular challenge for many individuals with ASD, and these internal breakdowns in information processing might be lost or obscured when this population is studied in the social context (Zager et al., 2013, p. 12). Cognitive behaviors might be addressed in future studies of college students with ASD.

**Ethical Considerations**

Though this research does not involve human subjects per se, institutional review board (IRB) approval was nonetheless sought and granted by the Florida State University office of human subjects. The data itself might be seen as potentially sensitive material, as it was created by and for individuals with ASD, and might contain personal or challenging information. It is unlikely that any content will be generated from children, as the study is only looking for posts from current or former college students. However, participants self-report their age as they sign up for the Wrong Planet site, so there is no way to be sure that minors will not be posting to the site.

Three major ethical considerations are described in a paper specifically about online qualitative content analyses: informed consent, the difference between public/private records, and anonymity (Pfeil & Zaphiris, 2010). These considerations are addressed next.
Informed Consent

Participants were not required to sign an informed consent form, as data was collected from a public, online forum. Frankel and Siang (1999) note there are three major questions that must be asked concerning informed consent in internet research: when is it required, how can it be obtained, and how can it be validated (Pfeil & Zaphiris, 2010)? With observational data, such as that which is gathered from public online forums, these questions can present a challenge. Pfiel and Zaphiris note that asking for informed consent is a given when conducting survey or interview research, but is more challenging when simply making observations in an online setting (2010). Some research has been conducted in which the researcher follows up with all individuals who posted messages to the message board in order to receive informed consent. However, this process could be time consuming and it might not be possible to contact every participant as they may have since become inactive, changed their contact information, or simply left the online site (Pfeil & Zaphiris, 2010).

Gathering informed consent from the entire community is not feasible, as Wrong Planet had more than 80,000 members at the time of this study. However, the researcher did personally reach out to the founder and owner of the Wrong Planet website, Alex Plank, and he granted permission to use data from the site with the requirement that it is attributed to Wrong Planet.

Public and Private Records

The issue of public versus private records also relates to the idea of informed consent, and contributes to the understanding that informed consent might be waived for this study. Pfeil and Zaphiris (2010) say that “researchers agree that consent is not required for every research project, as the distinction whether the data collected is private or public has a great influence on determining whether consent is required or not” (p. 4). In the case of Wrong Planet, there is a clear distinction between public and private content. That is, the site allows users to post to public boards or to private boards. Users can log in to access content visible just to them. Visitors to the site can view all of the public content without logging in. This study only used content that was made publicly available and viewable without logging in to the site. Though Pfeil and Zaphiris state that the distinction between private and public information in online
communications can be “difficult to judge and the boundaries are not clear,” (2010, p. 4) the Wrong Planet site clearly defines which forums and posts are private and which are public.

**Anonymity**

In this study, anonymity cannot be guaranteed, as the researcher viewed user names while collecting the data from Wrong Planet discussion posts. While many user names are unrelated to given names, this is not always the case and it is impossible to ensure that personal identities are not revealed by Wrong Planet users. That being said, all user names were changed and pseudonyms are used in the findings and discussion to help protect users’ identities, as has been done in previous content analyses with the ASD population (Clarke & van Ameron, 2007). If there is any identifying information within the data, this was edited or removed to further protect users’ identities.

As stated by Pfeil and Zaphiris:

Ethics in Internet research is a further highly debated topic among researchers and no consensus on this issue could be reached so far. However, it is important to be aware of existing guidelines and to think about ethics when choosing a community to be studied and the methodology to use. (2010, p. 4)

This study made every consideration to avoid unethical situations according to common standards and practices.

**Conclusion**

A common saying in disability activism is “nothing about us without us,” which suggests that marginalized groups be involved in the planning and consideration of their services. The last ten years of the literature suggests that individuals with ASD have not enjoyed such inclusion in studies about their college experiences. Recently, however, the literature indicates more of a trend toward inclusion. A 2014 study which did, in fact, interview college students with ASD advocates for future use of first-hand accounts, stating that “taking into account the recommendations of students with ASD will not only benefit other students with ASD, but can also contribute to a better, more accessible and inclusive education” (Van Hees et al, 2014, p. 14). Qualitative research taken from the students themselves might provide more rich, detailed
information to better understand the experiences of college students with ASD and their experiences, particularly in the academic library.

This study uses a qualitative approach to content analysis in order to better understand the information exchanged by students with ASD about libraries. Using a social model of disabilities to frame the study, coding and data analysis were guided by the theory of information worlds to make sense of the data. Qualitative content analysis was the most appropriate method for this research, as it allowed the researcher to hear from participants in their own voices, while doing so in an entirely unobtrusive manner.

Findings of the research reveal how college students with ASD use the academic library as a physical space, how they utilize library resources, and how they experience social and communicative experiences in that setting. Finally, the study provides practical implications as to the barriers these students face in using the academic library, and how these challenges might be addressed and ameliorated.
CHAPTER 4

FINDINGS

The purpose of this research is to explore how college students with ASD describe their experiences in academic libraries among their peers. This study is unique in that it takes an unobtrusive look at how students with ASD communicate with one another about this specific topic. It is based in the concept of the social model of disability, which carries the idea of ‘nothing about us without us,” and the theory of information worlds, which lends in particular the ideas of social types, social norms, and conflicts and synergies among members of separate groups, or information worlds. This chapter reviews the data collection procedures, and then describes the study’s findings. It is organized first by research question, and thematically within each research question. Finally, the chapter concludes with a brief summary of the study’s findings. Research questions are included here for reference:

• RQ1: How do individuals with ASD describe their experiences in the academic library in an online community of their peers?
  o How do members of this population describe the library’s physical environment?
  o How do members of this population describe their interactions with library resources?
  o How do members of this population describe their social and communication experiences at the library and with librarians?
• RQ2: What barriers to library use do students with ASD describe that, if addressed, would make their library experience more positive?

Sampling

Following procedures as described in Chapter 3, 170 discussion threads contained information that met the sampling criteria. Each thread was read in entirety to determine relevance to this study. From this examination, 72 of these discussion threads were determined to be irrelevant to the topic in entirety, leaving 98 discussion threads included for analysis. Within these threads, only the posts in which libraries were discussed were analyzed. For example, in one discussion thread entitled “I Wanna Live In A School Library Or a Mall,” some Wrong
Planet members only discussed hypothetically living at the mall. These posts were not relevant to the study, and were not included for analysis.

A pilot test was conducted to ensure that there was sufficient data to collect that would be effective in answering the stated research questions. The pilot revealed that data from previous years should be included, as valuable information would otherwise be lost. As such, the sampling frame was expanded to include all years from Wrong Planet, which was established in 2004, which otherwise met the sampling criteria.

Analysis

Data was analyzed using both inductive and deductive coding. Themes were determined by codes that commonly occurred in the data, as well as topics and codes that commonly appeared together (Figure 2). This study used an iterative process of coding sample texts and revising coding rules until coding consistency was achieved.

Data is presented in the manner in which it was created, which is to say that passages are unedited. This is in an attempt to provide students with ASD the opportunity to use their own voices, in accordance with the social model of disability studies. In the cases in which the raw data is hard to understand, brackets [] are used to provide clarification. Grammar and spelling mistakes in the raw data remain untouched, and presented as is.

Results

Research Question 1.1: Physical Library Environment

The physical environment of a library encompasses many aspects. That is, it is not just in reference to the library building itself. This section considers, also, how materials are arranged, why students choose to physically go to the library, what they do while they are there, and the sensory experience students with ASD experience while in the library building itself (Figure 3). Table 1 summarizes some of the overlapping variables within this data, and the following section explores prominent themes that address this research question.
Sensory environment. In discussions about the library, many Wrong Planet members described both sensory inhibitors as well as positive sensory experiences. In particular, they described sound, or noise, and often, how they do or do not navigate around the explicit and implicit social norms that go along with this topic. Some stated they had a very noisy library environment, while others described the quiet library that they used. Though many of the discussions described being uncomfortable in a library that is too loud, multiple students also described discomfort in a library that is too quiet. The data shows that Wrong Planet members who visit the academic library often either think it is too loud and distracting, or they do not know how to adapt to social norms in an environment that is too quiet. Both situations present challenges, of which these students are keenly aware of and seem to be sensitive to.
Table 1

*References to the physical environment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Physical Environment of the Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social/Communicative Experiences</td>
<td>27</td>
</tr>
<tr>
<td>Library Resources</td>
<td>22</td>
</tr>
<tr>
<td>In House Resources</td>
<td>16</td>
</tr>
<tr>
<td>Engagement with Students</td>
<td>13</td>
</tr>
<tr>
<td>Special Interests</td>
<td>10</td>
</tr>
<tr>
<td>Engagement with Librarians</td>
<td>5</td>
</tr>
<tr>
<td>Online Resources</td>
<td>4</td>
</tr>
</tbody>
</table>

One student in particular started two different discussion threads about being particularly uncomfortable with noises from other people around her in the library. As she states:

I seriously swear I am about to lose my nutts at the rude Indian and Asian people at the university library who keep sniffing!! I have already asked them nicely to go and blow their noses, and they just wont... argh... I cant concentrate n this assignments due today... i feel like going to the bathrooms n grabbing a whole pile of hand towels and plonking them on the desk for everyone!! ! earphones n music arent helping either..

Her second discussion thread begins in much the same way, but with her irritation focused on a different set of noisemakers. She says:

Anyways how do you, ask a person to stop humming especially if theyre on the other side of the building, no where near you and still are annoying with their actions? And how do you explain that to a person... seriously.. "I am sorry could you please stop humming, i can hear you from my location in the library?" aaah i just feel soo irritated n have no idea what to do...

In both cases, it appears as though the noisy library users are likely not making excessive noise that would typically bother another student. It seems as though this student is particularly sensitive and aware of the sensory environment around her. This poses an additional challenge, in that she is unaware of how to deal with the situation(s).
Figure 3. Prominent codes describing students with ASD descriptions of the physical environment of the library.

In response to this problem, another user responds that she cannot adapt to the implied social norms of simply ignoring another person’s sniffing or humming, she should find another place to go:

The point is that if you have a sensory problem, it is impractical, potentially rude and conflict-generating to try to remove the offending stimulus from the world. Noises
bothering you in the library? Find another place to study. It's your problem and it won't work to try to make it the world's problem.

This comment makes it seem as though the student responding has gotten used to having to modify his or her behavior or practices to fit the environment, instead of expecting others to adapt to his or her unique sensory concerns. However, it seems that she is not the only student with ASD that describes being disturbed by minor noises. Another student says: “…the slightest noise drives me mad - and there's at least one sneezing, coughing persona. And it's supposed to be quieted [quiet] at libraries!”

From the data, there seems to be a nearly universal belief that the library is supposed to be quiet, as reinforced by one student who wears headphones to mute the background noise at the academic library “even though in a library, everyone is supposed to remain quiet.” This topic emerges throughout the discussion posts, and students with ASD who expect a quiet library seem frustrated when there is, in fact, noise. They describe the noise in different levels, from the aforementioned student who cannot bear the sound of sniffling or humming, to those who claim the entire library is a noisy chaos.

The students who depict the noise level as particularly loud typically ascribe this to other students, and tend to describe these students in terms of an “us-versus-them” mentality. As one Wrong Planet member describes: “The university library where I attend is filled with unruly people and much noisier than it should be.”

Other students describe the library quite oppositely, as being too quiet. Though often described in a positive way, some students have trouble adapting to the quiet environment. One student says: “Yeh, if you drop a pencil at the University library, all the students glare at you like "really dude, wtf?" This sense of nonconformity in the particularly quiet environment is echoed by another student, who describes the following conflict: “I have a really loud voice and the more excited I get the louder it gets. I'm not aware of it until I get shushed, I've been kicked out of the college library loads of times.” This student seems to have challenges in regulating his or her vocal level. Whether or not this is unique to his ASD diagnosis, or is something a neurotypical student might experience as well is unclear. However, the fact that he is unaware of the loudness of his voice indicates that he or she is not adjusting to the social norms of the library’s volume until being made aware of it in a rather negative way – perhaps leading to a negative connotation of the library.
And finally, a student describes the academic library as being quiet, but in a positive way. This more optimistic view of the noise in the academic library comes at the expense of public libraries in comparison:

Public libraries have turned into the 10th ring of hell. The days of quiet reading are over. My supermarket is quieter than my library. It's morphed into a Barnes and Nobles with a Starbuck. Most of our librarians are English Language Arts elementary school teachers who got their MLS. So they are used to the kid zoo noise. The only library I've been to lately that was actually quiet, was the Science and Engineering Library at my university. These positive mentions of sound and noise are few and far between, and usually seem to be in comparison with a contrasting negative experience with noise. Other positive descriptions of the quiet library environment also seem to come from discipline-specific academic libraries, as well as students using study rooms, which will be described next.

**Study rooms and private carrels.** Many students describe the positive sensory experiences in study carrels or private study rooms, which tend to be quiet and distraction free. Students often describe study carrels or private rooms when giving advice to other students that are having challenges in finding a quiet place to study. One student gives the following suggestion about finding a study spot on campus: “My best suggestion would be a study cubicle at the library. University libraries often have sound-proofed rooms for group work. You could reserve one for yourself and have utter quiet.”

However, many students discuss how it is not enough to simply find a quiet space in the library. Instead it seems that the physical boundaries of a study room are necessary for a positive experience, to completely remove distractions. As one student said: “And all these 'quiet, private corners' are not too private either ;/ I think I always need at least a cubicle. Also add some anxiety of being watched.” Even if the student found a private corner in a common room, he or she felt like someone was watching. Without the privacy of a “cubicle,” this awareness of other people sharing the same space serves as a constant distraction for this student.

**Awareness of social types.** Spending time at the library seems to come with discussion of social types, particularly those that are implicit (Table 2). Some users mention that you can find similar social types at libraries. As one student said: “You'll find that many good Universities have quite a high concentration of people with AS Especially if you hang out in the Engineering library!” Another student narrows the environment even further, in suggesting that a
student with ASD might find similar people in a specific section and at specific times: “Have you tried carousing the Logic/Philosophy section of your school's library, specifically on Friday and Saturday nights? (those who are in the library at those times are just as socially awkward as you or they wouldn't be there).”

There is a sense of “us versus them,” in terms of how students with ASD describe themselves at the library as compared to neurotypical students. This is reflected in one student’s description of how he hangs out at the library, while other students, presumably neurotypical students, do not: “As I understand it, sometimes people at college interact with each other rather than hanging out in the library with headphones on and their head buried in a book. This somehow leads to relationships.” It is unclear here if the student prefers his current routine, or if he or she would rather be one of those people who establish relationships through interaction with others.

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Social Norms</th>
<th>Social Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social/Communicative Experiences</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Library Resources</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Barriers to Library Use</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Library as place.** One major theme to emerge through open coding is the library as place. Captured within this theme are students who physically go to the library for academic purposes, such as studying, or students who simply use the library as an escape. Less often, students described going to the library just to hang out, and this was reflected not in specific mentions, but instead in broad statements such as: “the library is my second home,” followed by “who needs a home I have the library.”

**Library as place for studying and academics.** As might be anticipated, students describe using in-house materials, such as computers, when they utilize the library as a place for studying. One student says: “I'm relaxing, settling in, not focusing on socializing at all and just using all my free time in the library either working or on the computers.” Many other students mention
studying in the library without stating whether they bring their own materials or utilize those from the library.

**Library as escape.** Perhaps one of the most commonly mentioned uses of the library as place is in referring to it as an escape. The students on Wrong Planet use words like “hide out” and “get away.” Library as escape is often mentioned in advice that one user will give to another, typically in offering suggestions as to how to get away from a roommate or other unpleasant living situation. The theme of escape also relates to the theme of sensory experiences and, in particular, noise. Many students describe how their living situations are too loud or distracting in general – sometimes in reference to studying or getting academic work done, but often just in reference to noisiness in general. In the following example, a student gives advice that describes escaping to the library just to get away from the noise of roommates or dorms in general, and studying or completing academic work is not specifically described:

> From my experience dorms were often really noisy if you're with other first year students. I know some colleges have dorms with 24hr quiet sections or ones with grad students or other people who are typically quiet. you could escape to quiet sections of the library on occasion.

This type of advice seems common. From this data, it seems that Wrong Planet members often advise one another about using the library as a getaway or escape. One member provides this advice to a college student with ASD: “Look around the campus and find a comfortable place to escape from stress and wild kids. When I went I stayed in the library most of the time.” Another Wrong Planet member offers similar advice to a college student with ASD who is worried about living with roommates: “You need to secure some solitary hangout spots in and around campus. A hidden nook of the library, a café off-campus that's open late, etc.. Make it so you don't need to come back until your roomie(s) are asleep.”

**Library as place for escape and academics.** Using the library as an escape is not always described as simply an approach to avoid a negative experience. Sometimes students talk about going to the library as an escape, while at the same time they use the opportunity to study or otherwise accomplish academic work. In this sense, going to the library has multiple functions, and serves both purposes. Here’s one student talking about her friends who had to live with roommates: “Based on how they described it, they limited their interaction with the roommates by going to other places on campus (e.g. the library, subject-specific tutoring labs, empty
classrooms) to get away and get work done.” In this situation, the students are using the library as an avoidance tactic, but they are also using the situation to get academic work completed.

Another Wrong Planet member offers similar advice based on his or her own experiences:

If you do end up living in the dorms, remember that the gym and library can be your best friends! Gyms have showers and the library has peace and quiet... I spent the first year of my college career in the library, lol. It was a lot easier to concentrate on studies or sleep if I needed it when I was in my obscure corner of the library away from distractions and people.

Though this Wrong Planet member is essentially describing using the library as an escape from noise and distraction, as well as a place to sleep, he also mentions using the opportunity of being there to study.

**Research Question 1.2: Interactions with Library Resources**

This section will explore the themes that emerged when Wrong Planet members described their interactions and experiences with library resources (Figure 4). Included is a discussion of special interests, advice with both online and in-house resources, and checking out materials compared to browsing the stacks (Table 3). To note is that library resources can be those accessed both “in house,” that is at the physical library building itself, and online. There is a grey area in which there can be both, such as a student being physically in the library building but using online resources – for example, a student going to the library to access its freely available wi-fi. These occurrences are considered both online and in-house resources to cover both options.

**Table 3**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Library Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment</td>
<td>22</td>
</tr>
<tr>
<td>Social/Communicative Experiences</td>
<td>13</td>
</tr>
<tr>
<td>Engagement with Librarians</td>
<td>4</td>
</tr>
<tr>
<td>Engagement with Students</td>
<td>7</td>
</tr>
</tbody>
</table>
**Special interests.** One of the diagnostic criteria for individuals with ASD is to display fixed interests, and this can manifest in a narrow interest in particular topics. These interests can range from the practical to the highly impractical, and individuals with ASD often work hard to learn all that they can about their interests. The data in this study shows that students with ASD use library resources to dig even deeper into their chosen topics, as well as to explore potential new interests.

Some students in this study described focusing narrowly on their own interests, and using library materials to research the interests extensively. Though not describing his own interest, one student mentions how the library is useful for this type of research: “the library is good—there is a book there on anything and besides being useful for uni work its good for indulging special interests.”

A former college student echoes this idea, stating: “I used the university library mostly for exploring my esoteric interests.” However, this Wrong Planet member again makes the assumption that everything is now available online, without using library resources, and qualifies his comment with “This was in the "Dark Ages" (pre-Internet) when libraries were really the ultimate source for information, both in terms of extent and diversity.”

**Browsing, Serendipity and Exploration of New Interests.** Some students describe a less intentional experience with materials. These students describe using the library as a place to explore or discover new interests from a broad array of resources. This might also be seen as a contrast to those students who go to the library specifically to explore their fixed interests.

One example is a Wrong Planet member who describes casually browsing shelves for materials while spending leisure time at the library: “Between classes I spend virtually all my time in the library. I know several very quiet spots and I will walk down the aisles until I find a few interesting books and just go to one of my favorite corners and immerse myself in reading.” This sentiment is reinforced by another Wrong Planet member, who states: “The library is an awesome place; I like just being able to read about random things once in awhile.” These students are not indulging any particular interests but, instead, seem to be open to serendipitous experiences in obtaining information.
One particular positive experience, though a unique case, is the student who says that a book he checked out essentially changed his life: “It wasn't college that's changed me. I've made the decision to change myself. Especially after signing out a book on Popular Culture from the College Library for a few weeks.” However, this student does not specify if he stumbled upon the title, or if he went to the library specifically to obtain this resource.

**Resources as a distraction.** Students typically either describe their experiences with library resources in a positive way, or they dismiss materials altogether, such as in the case of those who believe the internet has replaced the need for library materials. However, an interesting finding came from those who went to the library to study or complete academic work,
yet found themselves distracted by the resources available to them. As one Wrong Planet member describes, in his typical day as a college student:

Apart from lectures and tutorials, my days tended to consist of being in the library, alone, struggling to find the motivation to study while my head was buried in books that were of interest to me but irrelevant to my actual course…

Being surrounded by books of interest seems to be a distraction for another Wrong Planet member as well: “Sometimes I still get distracted by all the books. I have a few subjects I’m really interested in and I have a hard time not reading about them on my laptop or even reading the books in the library.” In both of the previous instances, the students describe focusing on a specific interest or interests at the expense of schoolwork.

**Resources and advice.** The data suggests that Wrong Planet members often offer advice to one another about getting resources from the library. In both online and in-house situations, they recommend library resources to each other, sometimes describing their own experiences in accessing said material.

**Online materials.** When accessing online resources, it typically seems like the students from this study are looking for sensitive material and they have a specific topic in mind for which they seek information. Additionally, Wrong Planet members are quick to give advice to other students about their online searches and what they found, as well as tips to use their own library databases.

Interestingly, the Wrong Planet members who describe accessing online library resources more often than not discuss health information seeking. In one example, in an extensive discussion about ASD and transgenderism one student gives information to his or her peers, and qualifies it as such:

anyhow found this on my uni library website. dunno if you've tried searching on databases and stuff or if your educational institution(if you are still in education) has stuff like that. try your library. i think i've seen stuff to this effect in mine.

A very similar piece of advice occurs in a discussion about the Diagnostic and Statistical Manual of Disorders (DSM):

I just talked to my online university librarian. Right now in the online university library I can access the entire DSM 4-TR electronically, including the option to download. I asked her when it would update to the DSM 5 and she said in about 2-3 weeks from now, or
whenever they receive the new electronic version. So if you have access to an online school library, you may be able to get the new DSM for free. Just thought I would let others know.

In both of the previous situations, the Wrong Planet members had a positive experience in retrieving information from online library resources or databases. In turn, the students describe their experiences positively, and recommend that their peers also try to access materials from online library resources.

**Physical materials.** Wrong Planet members also often suggest a visit to the library for library books. One student tells another that he could access more information about Asperger’s syndrome (AS) from the library: “You could probably get some books at the library about AS. If your library doesn't have the book, then they might be able to borrow it from another library.” The library is also mentioned as a source for career information, as one Wrong Planet members recommends: “You should check out the books in your career/reference section of your college library...there are books that show specific companies that offer internships and business opportunities throughout the USA, not just New York City.”

Though many students with ASD describe going to the library and spending time there, others are simply interested in getting the resources they need and not spending additional time at the library. As one student states:

I'll go to the library for books I need, but I can't work in there, mostly out of paranoia that other students will look at my work and be judgemental about it. Also, most of the people at my school aren't really there for the education, if you know what I'm saying.

This student has trouble lingering in the library largely due to concerns about other social types (people), and how they will perceive her. Interestingly, she also avoids spending time at the library because of her own perceptions of other people, typecasting other students as not being there for the education. This again reflects the “us-versus-them” theme, in which students with ASD describe themselves in contrast to neurotypical students.

Some students have the belief that most resources are available online anyway, and the library is unnecessary in obtaining materials. Though this theme is not as common in the data, it is mentioned. One student who attended a university that likely served individuals with developmental disabilities, which he describes as “(not) this hypothetical aspie college, but…
closest college to it in the world,” describes his experiences as this: “The library was not the campus hotspot, and few people regularly visited the library, since most things were online.”

Another student reflects this thought, though interestingly seems to contradict it with the following sentence: “Now that I have my own personal computer, I have no need for the library ☺ Unless, of course, I need research materials for a school project, in which case the library is remarkably useful.” This also reflects the perception that the library is unnecessary, as everything is online, though the student clearly still uses the library to access resources for academic work.

**Resources and sensory processes.** Interestingly, Wrong Planet members spoke less of negative sensory experiences associated with library resources and, instead, of positive ones. In particular, indulging in library books’ smells was mentioned multiple times, with one user describing “that nice musty smell that I always associate with old tomes,” and another stating: “Yeah that library is like really cool. I always like to go to the 3rd or 4th floor of Evans and smell the books.” In this instance, the student mentions a positive association with the library, but mentions no reasons for this association except for the smell of books. This is clearly a sticking point for this particular student.

**Research Question 1.3: Social and Communicative Experiences**

As individuals with ASD face challenges in communication and social interaction, it is important to know if their experiences in the library help to support these types of interactions, or whether there is more work to be done to facilitate these students’ needs (see Figure 5). This section describes how students on Wrong Planet discuss communication and social interaction in the library, and specifically in regards to the major themes which emerged: knowledge of libraries and materials to support interaction; engagement with others within the library building, and interaction with librarians (Table 4).

**Familiarity and knowledge to support interaction.** Wrong Planet members describe their interactions in using library materials collaboratively, and even for flirting and attracting the attention of potential dates. One user first started communicating with another student that he was attracted to by helping her locate a library resource: “She asked me during the first week of school where a book in the library could be found. We began to chat a little more after that...”
Familiarity with library resources allowed for this individual to share his knowledge in a positive social exchange.

Table 4

Social and communicative experiences

<table>
<thead>
<tr>
<th>Variable</th>
<th>Social/Communicative Experiences</th>
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<tbody>
<tr>
<td>Physical Environment</td>
<td>27</td>
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<tr>
<td>Library Resources</td>
<td>13</td>
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<td>In House Resources</td>
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<td>Auditory Environment</td>
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<td>Special Interests</td>
<td>4</td>
</tr>
<tr>
<td>Online Resources</td>
<td>3</td>
</tr>
</tbody>
</table>

This was not the only mention of using knowledge of the library to initiate conversation with a potential date. Another Wrong Planet described how his familiarity with the actual location of the library helped him begin communication with a female classmate:

Back in the beginning of the Fall semester of 1996 I met this girl in a Sociology class that we were taking. I started a conversation with this girl while showing her where the college library was. She was a transfer student from another college and this was her first day taking classes over at my college. After this conversation I really felt good.

And finally, in one case, a student described how he used a library book to improve social interaction with members of the opposite sex: “I found research on dating (books at library) helped me to develop a lie system and playbook to at least emulate someone with a basic level of social skills.”

**Interaction in the library building.** Opportunities for communication and the opportunity for socialization do occur in the library building itself, though these interactions are not always well received. Wrong Planet members described situations of both positive and negative interactions.

First, to address the positive interactions, one student described how he used his special interest to engage socially with a group of other students in the library, among other places: when you get to college you will find pokemon is usually more accepted. I'm 22 years old and I sometimes play pokemon in the halls and library of my community college. I often
get other adults wanting to hook up Nintendo DS's and play together or just talk about pokemon.

![Social Communicative experiences at the library](image)

*Figure 5. Prominent codes describing students with ASD descriptions of their social/communicative experiences at the library.*

This post is particularly interesting, in that it is a response to a high school student who is worried that he will never have a person or people with whom to share his interest in Pokemon, a media franchise based on fictional cartoon characters.

Another student, in describing his typical day, says that his days consist of “(g)oing to the library and asking questions mostly. And going on internet on my laptop..” It is unclear of whom he is asking questions, but this implies that while at the library, he is engaging in communication with other library users or possibly librarians.

**Advice about interaction.** Wrong Planet members often give one another advice about social interaction when going to the library for academic purposes, such as in forming study groups. One student says:

Get acquainted with the other students in your classes. Form a study group with your student classmates and meet somewhere (the school library, a classroom not being used by another class, a study lounge on campus or some other place) to help each other learn the course material and do well on exams...it has been proven that study groups help to increase your grades, too.
In this instance, the student with ASD is advised to create a study group, possibly meeting in the library to accomplish two goals: creating opportunities for social interaction, and improved grades. Another Wrong Planet member advises a college student to invite potential friends from class to the library. He suggests the following:

For example, in a class sit toward the front where the better students tend to sit (the more serious students, let's put it that way). And maybe after a particularly hard class, ask one of your fellow students. 'Would you like to hit the library and go over some of this stuff?'

Another student offers advice to a fellow Wrong Planet member that he might try to approach potential dates at the library. This advice is met with confusion. “I might try that, but the impression I got was that it was rude to interrupt people in the library,” is the response, indicating that the library is not seen as a place for communication or social interaction.

Despite the advice given to one another, there is little conversation of Wrong Planet members who actually successfully initiated social interactions such as those described. Conversation instead is offered as potentially helpful suggestions.

Avoidance of interaction. Many of the conversations describe actual avoidance of social interaction and communication by spending time at the library. Again, one might refer back to the discussion of “escape” as a theme. Many students describe going to the library specifically to avoid these interactions.

One student enjoys studying at the library, just not having to engage with the people there. She states:

I am alright with being in a library, I can concentrate with noises around me. The only thing that bothers me is people around me everywhere looking at me or interacting with me. I hate it. So I go to the 5th or 6th floor in the cubicles where no one will bother me.

Another student talks about how a visit to the library plays a major role in her typical daily routine, and she tries to keep to herself, but “if the person next to me initiates conversation with me then I talk to them.....but it usually turns out to be a very awkward conversation....”

Again, the topic comes up that the library is not seen as a place for socializing for one student who goes there to study: “And various people sneaking behind, trying to be friendly. Libraries, as with every public place, unfortunately turns into socializing opportunity for some.” This is a pretty clear indication that this is not a student who welcomes opportunities for communication and social engagement in the library.
**Interaction with librarians.** Throughout the discussions about academic libraries, there is not much discussion about interactive experiences with librarians. Instead, the librarian appears in these conversations as a hypothetical figure, or described as a group. For example, when one student describes going to the academic library, she first describes the librarians as a whole, and then mentions a previous experience as a child in comparison:

I don't like it though, the librarians are really strict. You have to whisper so quiet that you are literally touching the other person's ear with your lips, otherwise, you will get shushed. I get worried that I am going to talk too loud in there and I talk louder when I am nervous. Also, I had a really mean school librarian when I was in grade 1, so I didn't like going back than either.

This student describes multiple concerns with visiting the library, all of which are related to interactions with librarians. The academic librarian is portrayed as strict, and the student has had bad experiences with librarians in the past; the student appears to be transferring these prior negative feelings toward her current situation at the library.

Another student describes the librarian as not having a significant impact on the library environment itself. The student feels that he is being “watched” by others at the library, which the librarian can do nothing about, and that the librarian’s presence does nothing to stop background noise:

The librarian here usually isn't around while the lower years are in lessons and while I am free to go to the library, so there are usually people talking. Not that her presence can completely remove background noise, or stop me feeling as though I am being watched.

One way that Wrong Planet members discuss their interactions with librarians is in advising one another to seek help from them, in both information searching and in navigating the library itself. One student found helpful information online with the help of his librarian, and suggests that other students might do the same. Another student recommends that, for one Wrong Planet member who is having trouble with the noisy environment, she should: “Ask your librarian if any of these private study rooms are available in your library.”

Though not explicitly stated, one student suggests that he dislikes approaching librarians at the circulation desk. As the student says: “I feel that on a regular basis I find myself rendered inert by anxiety when faced with a choice (every one of which feels more like a dilemma than just a choice).” He continues with a list of all of the places where he feels anxious, including
“going up to the god**** circulation desk at my library.” The library is included as just one of many social situations in which the student feels anxious. From this example, we might assume that there is a librarian or library staff member sitting on the other side of that anxiety inducing circulation desk.

Librarians are described as not being present to provide help, and are also described as being authoritative figures that will shush and kick out students who cannot control their voices. Even when librarians attempt to help, sometimes these interactions are not perceived in a positive way. One student discusses being uncomfortable with overly friendly people, including her college librarian:

I've always had this thing where if a person is nice to me or is friendly towards me, I start feeling I have to do everything possible to avoid that person... Mind you it is mostly employees that work at the shopping mall or restaurants I always go to... Or someone at my college, like the librarian or someone in my class for example. I don't know why I do it. I guess I feel like I don't know if they're being nice to me just because it's a part of their job or if they actually want anything to do with me... I think I'm like this because I've had bad experiences in the past where a person is kind to me and I start to think maybe they want to be my friend or something...which was never the case and I'd end up feeling like an idiot for believing so.

Summary of Research Question 1

Through the process of both inductive and deductive coding, the study found that there is much to explore about how college students with ASD describe academic libraries with their peers. In particular, the theme of the library as a place emerged as prevalent, as did the theme of the library as an escape, and noise as a sensory distraction. These three themes are all encompassed in the first sub-question: How do members of this population describe the library’s physical environment? While students did discuss library resources, as well as social and communicative experiences, the overarching theme was discussion of the physical environment.

Barriers to Library Use

Just as themes emerged in the first research question based heavily on the environment, so is this a common theme for the second research question (Table 5). Barriers to library use for
students with ASD in the environment included concerns with the building and structure itself, the organization of materials, and most commonly, as present in the sensory environment, noise. Interestingly, other students themselves are barriers as well, as discussed by the students on Wrong Planet.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Barriers to Library Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment</td>
<td>20</td>
</tr>
<tr>
<td>Social/Communicative Experiences</td>
<td>7</td>
</tr>
<tr>
<td>Library Resources</td>
<td>5</td>
</tr>
</tbody>
</table>

**Building and physical environment as a barrier.** Library buildings, though all different, do typically share some characteristics, such as having places to study, having places to read casually, and having shelves of materials. How these spaces are arranged does appear to be a concern for some Wrong Planet members. One student described how he did not go to the library because it was “way to chaotic in there and usually people already were sitting in all the comfortable spots.” For people who are most at ease with a predictable routine, having a seat, and perhaps more importantly, the same seat every time, is likely important in finding a level of comfort.

**Organization of materials as barrier.** Libraries are typically well organized, with materials in designated places. This should be of comfort to individuals with ASD as, again, they value sameness and typically face challenges with change or new situations. However, organization of materials is also described as a barrier for college students with ASD, with one stating:

> I spent quite a lot of time over Friday crying over frustration. I was trying to find a library at an unfamiliar university. I got so turned around, it took me a long time to find it, then once I got there I couldn't get the items I needed easily. I ended up going home empty-handed and then returning a couple of days later when I was better prepared. I feel incredibly silly now, but it was all just frustration.”

This student began her trip to the library already frustrated, as she could not find her way to the building. These feelings were only exacerbated when she then could not locate the
materials she needed. Instead of asking for help or taking the time to regroup and search again, she simply left.

There are also those who are familiar with one type of library organization, and the switch to academic libraries organizational system is a source of frustration. One student says: “Our library uses a really confusing cataloging system, too! Why can't we just have the Dewey Decimal System?” From this post, it is likely that the student is familiar with the organizational structure used by public libraries and many K-12 school libraries, and is finding it challenging to understand the academic library’s system, likely the Library of Congress classification.

Finally, some students see the organization of materials as only one of many barriers. As one student says:

No I don't like using the library on campus. It's really confusing to try and find books for a start. Plus it's quite a busy one and people seem to use it as a place to hang out and chat. This insinuates that a trip to the library begins with a frustrating experience of not being able to find materials, followed by the discomfort of a chaotic environment.

**Noise as a barrier.** Libraries are often associated with quietude along with the stereotypical shushing librarian. However, this stereotype does not always reflect the current academic library environment, and many libraries have both quiet and also more collaborative, noisy sections. This seems to be both a blessing and a curse for students with ASD, who often face challenges from the sensory environment and are acutely aware of their surroundings. Perhaps it should not be a surprise then, that one of the most commonly described barriers, in terms of the environment, is noise. Students who expect a quiet library explain their dismay when it is, in fact, a loud experience, and students who need the ability to verbally express themselves describe their concern at being shushed in an overly quiet environment. Whatever the noise situation is, it seems that one way or another, this poses a major barrier for students with ASD in the library.

**Other people as a barrier.** Wrong Planet members often associate noise with other students, displaying an “us-versus-them” mentality. As stated by one student:

I love libraries, but our on-campus Undergraduate library is really loud, and most students view it as a hangout instead of as a quiet place to study. Our other library is a much more traditional library, and is much quieter and more study-centered.
The students who hang out at the undergraduate library, as described, lend to its noisy environment, which for this student, presents a challenge.

Just having many people around is overwhelming for some, even if no noise is generated. One student on Wrong Planet describes his academic library as such:

I feel odd around all those people. I hear some Aspies get lost in books there and so forth but not me. It's too busy. Sure people are quite [quiet] but all those people if I'm around people it's usually with a family member or get in/out.

In this case, it does not matter what the other people are doing, it is simply their presence that is a barrier for this student. Another student says that she feels “watched” when sharing the library with other students.

As challenges with social interaction and communication are core diagnostic properties for all individuals with ASD, it is not surprising that these are also sources of barriers for these students. Wrong Planet members describe how, if in an uncomfortable situation at the library, they do not know how to respond. This is mentioned in approaching the circulation desk, not asking for help when having trouble locating materials, and even not knowing how to approach the students across the table who are “sniffing” too loudly. Addressing these barriers is a challenge for students with ASD, who describe difficulties in understanding implicit social norms at the academic library.

**Positive and Negative Library Experiences**

Wrong Planet members described both negative and positive experiences with the academic library, with many expressing both in the same post (Table 6). Students described the auditory environment in negative terms, mentioning loud peers and an overall noisy library. One strongly worded post states: “I hate libraries and most books. The university library where I attend is filled with unruly people and much noisier than it should be.” In contrast, many other students described the auditory environment as a positive attribute when referring to the quiet spaces within the library. As described by one student: “I don't usually end up studying in the library, but it's quiet and nearly deserted, so it's very relaxing.”
Similarly, Wrong Planet members describe both negative and positive social and communicative experiences. Some students feel uncomfortable with others in the library, with the sense that it is too busy. Other students imagine the library as a good place to meet friends or interact with like-minded peers.

When discussing the use of library resources, Wrong Planet members seem largely satisfied, with the majority of posts reflecting a positive experience. As one student describes: “there is a book there on anything and besides being useful for uni work its good for indulging special interests. there arent many librarians to help though.” This is a clear example of having both positive and negative associations with the academic library, which is prominent in many posts.

**Summary and Conclusion**

The findings from this study highlight the unique experiences that some college students with ASD have in the academic library, and how they discuss these experiences among their peers. Through a process of inductive and deductive coding, the research questions were
addressed and findings described for each. Open coding revealed unanticipated themes. In particular, that students with ASD use the library as place – as a hangout, a study spot, and perhaps most poignantly, as an “escape.”

Though many students with ASD describe positive experiences with the library, many others note the barriers to library use. Some students even describe such experiences together; they love the library, but face particular challenges in accessing resources or actually visiting the library’s premises. Furthermore, students with ASD often describe negative experiences at the library with other library users and even librarians. What is clear is that addressing and potentially removing these barriers would make for a more positive library experience for this growing group of academic library users.
CHAPTER 5
DISCUSSION AND CONCLUSIONS

Within this final chapter is a discussion based on the findings from a qualitative content analysis of Wrong Planet discussion forums in order to investigate how college students with ASD use and communicate about the academic library. The chapter begins with a summary of the study as a whole, including the purpose, methods, procedures, and limitations. The chapter continues with a discussion of the significance of the findings, first by research question, and next by emergent themes, both in terms of significance and as they relate to the existing literature. This chapter concludes with implications for methodology, theory and practice, and recommendations for further research.

Summary

This study explores how college students with ASD describe their experiences in the academic library in an online discussion forum among their peers. The purpose of this study, restated here for convenience, is to explore the experiences of college students with ASD in academic libraries. It seeks to understand their questions and concerns, as well as their experiences in utilizing the library and library resources. We know that individuals with ASD use the library, but there is little firsthand evidence to describe their experiences and barriers they face in accessing library services.

Methods and Procedures

This study explored the primary research questions:

• How do college students with ASD use the academic library; and
• What barriers, if addressed, would lead to a more positive library experience?

These questions were addressed through a qualitative content analysis methodology that used the research questions, as well as concepts from the theory of information worlds, to provide a framework for coding and analysis. Open coding was also utilized as recurring themes emerged from the data. The social model of disability studies was used as a framework for data presentation, though not incorporated into data analysis.
Findings from the study began an exploration of answers to the two primary research questions, as well as related sub-questions. In discussing the academic library, college students with ASD largely talked about the library’s environment, including auditory concerns and using the library as a place for studying and escape. Barriers varied from student to student, but themes emerged including challenges with the sensory environment of the library, and with the presence of other students in various situations.

Limitations

There are several limitations associated with content analysis for data collection and analysis that must be addressed. First, the researcher is relying on Wrong Planet members to truthfully identify themselves. It is possible that a Wrong Planet member included in this study might not be a college student or might not have ASD at all. This appears to be unlikely, though, as there are individual discussion threads for loved ones of those with ASD, and Wrong Planet members typically identify themselves as neurotypical in those situations.

Furthermore, some discussion threads include posts that are unclear as to whether the Wrong Planet member is referring to an academic or other type of library, such as a K-12 or public library. However, these posts are uncommon, and are only included if there is strong evidence to support reference to an academic library.

Finally, as the methodology used is qualitative and exploratory in nature, the findings cannot be generalizable to the entire population of college students with ASD. However, the findings can be used to better understand Wrong Planet members and their experiences with academic libraries, thus laying the groundwork for much needed future work in this area.

Discussion

Discussions of the findings are detailed first by each research question, and finally by unexpected findings and noteworthy themes. Findings will be discussed in the context of the current body of knowledge, as well as to address any potential commonalities between academic library uses by students with ASD as compared to neurotypical students. These findings are summarized in Table 7. The first step in this study addressed how individuals with ASD use the academic library. The second step in this study addressed barriers that should be addressed for members of this population to more successfully access the library and library resources. As the
first research question incorporates three sub-questions, each sub-question will be discussed in detail, followed by a comprehensive discussion of Research Question 1.

Table 6

Commonalities in academic library use

<table>
<thead>
<tr>
<th>Shared Theme</th>
<th>Neurotypical Literature</th>
<th>Wrong Planet Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive Noise</td>
<td>“The group study area, while popular with some students, also drew criticism from others: ‘too many people,’ ‘don’t use because of congestion,’ ‘Avoid. Noisy. Kids playing around,’ and ‘too loud and dirty’ were a few comments about this space” (Khoo et al., 2015, p. 62).</td>
<td>“I also do not particularly like the libraries, Scitech for example... Too noisy”</td>
</tr>
<tr>
<td>For Browsing</td>
<td>“anecdotal evidence from students and faculty confirms that serendipitous discovery is a common and treasured experience in libraries” (Demas, 2005, p. 32).</td>
<td>“I know several very quiet spots and I will walk down the aisles until I find a few interesting books and just go to one of my favorite corners and immerse myself in reading.”</td>
</tr>
<tr>
<td>For Escape</td>
<td>All dorms are noisy and messy, and the library is an escape for all students (Demas, 2005)</td>
<td>“Look around the campus and find a comfortable place to escape from stress and wild kids. When I went I stayed in the library most of the time.”</td>
</tr>
<tr>
<td>Material Arrangement</td>
<td>“nobody’s ever talked to me about” the Library of Congress classification system (Gross &amp; Latham, 2011, p. 172).</td>
<td>“Our library uses a really confusing cataloging system, too! Why can't we just have the Dewey Decimal System?”</td>
</tr>
<tr>
<td>Study Carrels and Study Rooms</td>
<td>“…study carrels, installed mainly along the perimeter of the second floor between the stacks and the windows, and with individual power outlets built into the carrel frame, were particularly valued. They were noted for being quiet and relaxing places for concentrated study” (Khoo et al., 2015, p. 63).</td>
<td>“Ask your librarian if any of these private study rooms are available in your library. Then you can shut yourself away and maybe use an ipod to block out residual noise from the outside.”</td>
</tr>
</tbody>
</table>
Table 6 continued

Commonalities in academic library use

<table>
<thead>
<tr>
<th>Shared Theme</th>
<th>Neurotypical Literature</th>
<th>Wrong Planet Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying</td>
<td>“For students on this campus, the Library is ‘one of the only places to go to study’” (Khoo et al., 2015, p. 62).</td>
<td>“I spent the first year of my college career in the library, lol. It was a lot easier to concentrate on studies or sleep if I needed it when I was in my obscure corner of the library away from distractions and people.”</td>
</tr>
</tbody>
</table>

Discussion of Research Question 1.1

Research question 1.1 asks: How do individuals with ASD describe the library’s physical environment? The findings reveal that Wrong Planet members particularly described the sensory environment, both as a reason to go to the library and as a barrier to using the library. A negative sensory environment compelled some students to seek solace in the physical building of the academic library, while other students describe challenges within the physical library itself. It seems that there is no one-size-fits-all escape from sensory challenges for students with ASD, whether escaping to or escaping from the library as a result of sensory concerns.

Library as escape from sensory overload. Individuals with ASD of all ages use libraries as a safe haven, with one person even referring to it as a “sanctuary” (Garry, 2002). In a compilation of narratives from young adults with ASD, the idea of the library as a safe space is mentioned repeatedly (Prince-Hughes, 2002). Though evidence and anecdotal accounts suggest that individuals with ASD use the library as a safe haven, there are very few current studies to support this finding. Even more specifically, there are even fewer studies about young adults with ASD in the library, suggesting that the current Wrong Planet study plays a significant role in filling this gap in the literature.

Without actually labeling it as such, Wrong Planet members describe the library as a safe space. Though the term “safe space” is commonly associated with the LGBT community, these spaces can provide refuge for any diverse group within the student population. Safe spaces are important, as research shows there is a correlation between students feeling welcome and safe, and student retention (Napa Valley College, 2015).
Wrong Planet members often discuss the library as an escape, in particular, from their dormitories or other shared living situations. This aligns also with the literature for neurotypical college students, not just those with ASD, who view the library as a “welcoming place of serious academic purpose” in contrast to dorms, which are “messy, noisy, and full of distractions” (Demas, 2005, p. 29). It is possible that neurotypical students also use the library as an escape, though it is not stated explicitly in the literature.

**Library as contributor to sensory overload.** While some students with ASD use the library as an escape from sensory overload, many of these students face challenges in finding a quiet setting at the library as well. Therefore, their escape is no escape at all if they are simply relocating to just another overwhelming environment.

Many students with ASD choose to study alone, and prefer private, quiet places; solitary corners within the library are described as often meeting these study requirements (Schlabach, 2008). However, the Wrong Planet findings are not congruent with that thesis. In fact, many students in this study describe how the common areas of the library are too loud, and even that having other people around makes them uncomfortable. For the Wrong Planet students, a quiet corner within the library is often not enough of an escape from sensory overload.

This noisy library, as described by Wrong Planet members, often coincides with the presence of other students, often described as undergraduates or simply “kids,” and typically described with a sense of disdain. An example of this is one student who says that the loud students are not in college for the right reasons, referring to the idea that they simply there to socialize. Though the presence of other students is most commonly associated with auditory concerns, some Wrong Planet members also describe feeling uncomfortable when other students look at them or try to engage them in conversation.

Sensory overload, including with auditory, olfactory, gustatory, tactile, vestibular, proprioceptive, and visual concerns, can be an incredible distraction for students with ASD (Janzen & Zenko, 2012; Remy & Seaman, 2014; Heflin & Alaimo, 2007). Though this study found minor mentions of other sensory distractions, disruption of the auditory environment were overwhelmingly discussed. Many Wrong Planet members have the assumption that libraries are always quiet. Though this was once collectively true, the modern library typically has areas for both quiet study and louder collaborative spaces. These more modern academic libraries allow for optional interaction and typically provide some comfortable, lounge-style seating (Demas,
The assumption held by Wrong Planet members that all library spaces are supposed to be quiet leads to dissatisfaction when they visit a library that has more collaborative spaces.

**Neurotypical students and the noisy library.** Auditory concerns in the library are not unique for students with ASD. Neurotypical students also dislike certain areas of the library for being too loud though, of course, many others appreciate the environment in which they can freely talk with one another. Group study areas, while popular for some, are described by others as being too noisy and, in a reference similar to one found throughout the Wrong Planet data, full of “kids” (Khoo et al., 2016, p. 62). Neurotypical students also describe how they choose their favorite study spots within the library based on quiet areas (Brown-Sica, 2012; Regalado & Smale, 2015).

Just as with the Wrong Planet students, neurotypical college students associate academic libraries with “quiet study and contemplation,” and consider this to be a “valuable attribute of their campus library” (Regalado & Smale, 2015, p. 905). Both neurotypical students and students with ASD seem to expect and value a quiet environment within the academic library; there are fewer appreciative mentions of collaborative spaces both within the Wrong Planet data and the available neurotypical college student literature.

Students also stated that the library was a chaotic space, from which we might assume that they are not utilizing the quiet study rooms, and instead are finding themselves in the main, more active areas of the library. Wrong Planet members did not discuss navigating one space to get to another. This could easily be addressed by librarians with the addition of signage about available spaces and expectations for behavior in each space. This information should also be made available online, so students can prepare themselves with navigating library spaces prior to their visit. Though some Wrong Planet members gave advice to one another about finding quiet study spaces within the louder library, many students are still unaware that there are often various study spaces within the same library building. Quiet floors should be designated with verbiage to clearly indicate that conversation is strictly prohibited. As individuals with ASD are typically logical thinkers, these norms need to be clearly posted.

Clear signage would benefit not just students with ASD, but also all college students seeking a particular auditory environment. Neurotypical students also benefit from appropriate signage, ensuring awareness among students that there are alternate places to go in the library aside from the common areas, which are more congested and noisy. The library’s common areas
can be a noisy distraction for all students, who describe one library’s ground floor as “heavily trafficked;” and “Good for people watching, BAD for any kind of work. People are SO LOUD.” (Khoo et al., 2015, p. 63). Any “serious study” in the library is impossible on the ground floor, according to neurotypical students, due to distractions, and individual study areas such as study carrels are typically in high demand (Khoo et al., 2015, p. 63).

The addition of clear signage not only would assist in all students being able to find an area most conducive to their sensory needs, but also would help students find library items. Neurotypical students have expressed a desire for increased signage for both of these purposes, indicating that signage would benefit all academic library users (Khoo et al., 2015; Brown-Sica, 2012).

Positive mentions of noise in this study were typically in contrast to a negative experience with noise or in regards to no noise at all. In one example, a student describes her public library as being unbearably loud, so she seeks refuge in the quieter academic library instead. It might be that the negative experiences have given the students more to discuss. A person is more likely to talk at length online about a bad experience than to discuss a positive or even an uneventful experience as “negativity is the key sentiment to start and sustain online discussions,” Chmiel, Sienkiewicz, Thelwall, Paltoglou, Buckley, Kappas, & Holyst, 2011, p. 72).

**Study carrels as safe space within the library.** In response to the sentiments about the library’s sensory environment, students with ASD might need even more than the library as a whole as a safe space. These students need a safe space within their safe space. The academic library is often more noisy than they want, instead preferring a quiet, private space to themselves. Many libraries already have these individual rooms or study carrels; however, it is not enough for libraries to simply have study carrels or private rooms available. Instead, they need to make the presence of these rooms very obvious. From the literature, it is recognized that many individuals with ASD appreciate having a personal work space which serves as a familiar constant. Some libraries have private carrels that can be reserved by the semester. This has proven to be a successful model for some college students with disabilities, in which the study carrels allow them to both socialize and study, as they are in close proximity to many other students, while also offering them a constant, quiet, private workspace (Bodaghi & Zainab, 2013).
This finding is not unique just to students with ASD; quiet study carrels are valued by all groups of academic library users. Neurotypical students also seek quiet, private areas for uninterrupted, distraction-free library experiences, particularly when they need to study. However, neurotypical students describe using study carrels, as they are both private and have a “public” functionality or aspect. Neurotypical students like study carrels with a view of other students, as “they [are] individual spaces that afforded a view over the floor below for people watching,” though others find semi-private study carrels to still be too noisy for serious work (Khoo et al., 2015, p. 63). This idea of semi-private space as a valuable commodity is not reflected in the findings from Wrong Planet students, who generally prefer a more solitary environment.

From the data collected in this study, prearranged study carrels seem an obvious service to offer for college students with ASD. One student actually gives the advice that another one should ask their librarian about finding a private study room. This indicates that some of the students on Wrong Planet are aware of these services, and perhaps understand that they are available – the next step is removing the barrier of requiring the “ask.”

Signage and student education is crucial to inform college students, particularly those with ASD who might turn away from the noisy library without investigating other spaces, that private study areas are available. This should be done through both clear labeling within the library, and through printed and online library materials. First year experience courses are common for freshmen college students; within these classes librarians should make it a priority to inform incoming students about the library’s services, including exactly where to find quiet spaces, accompanied by a handout with the information and a detailed map of the library building.

Commuter college students, themselves seeking a quiet refuge on campus, have requested in previous studies for libraries to provide a reservation system for private study spaces. Students suggest that these spaces could be reserved online and through mobile devices (Brown-Sica, 2012).

Perhaps the best way to ensure that students with ASD are able to know that when they arrive at the library they will have a specific place to go, an online reservation system for study spaces seems especially relevant. As study carrels are in demand by many, librarians should work in conjunction with the office of disability services to offer priority reservations for these
premium spaces to those with sensory disorders such as ASD. Individuals with ASD prefer advanced knowledge about their plans and they would be reassured to know with certainty that upon entering the library, a study carrel or room would already be available.

**Discussion of Research Question 1.2**

Research question 1.2 asks: How do individuals with ASD describe their interactions with library resources? The findings reveal that Wrong Planet members did not typically describe using library resources for use with academic work. Instead, these students described, in particular, using library resources to support their special interests as well as browsing the library stacks.

**Special interests.** Individuals with ASD do pursue their special interests using library materials, in some cases leading to sophisticated research opportunities and even graduate school (Susan, 2002). This study elucidates the idea that students with ASD might use their research on specific interests to build their social skills, whether applying them directly or indirectly. Some students found social support from engaging in the same interests with their peers, and other students described using tips from library books to improve social skills. One group that shared an interest in playing Pokemon at the library was not part of a librarian-created program or group to specifically target social skill building; instead, the students organized the group themselves, according to shared interests. It is possible, and even likely, that the Pokemon playing students have opportunities for building social skills by participating in this gaming gathering.

**Browsing the stacks.** Wrong Planet members enjoy using the academic library to browse resources, and discover new interests, which aligns with the literature (Jim, 2002). This is a common library use in general, and something that students with ASD have in common with neurotypical students, with whom “anecdotal evidence from students and faculty confirms that serendipitous discovery is a common and treasured experience in libraries” (Demas, 2005, p. 32). However, some students with ASD describe having a hard time understanding the Library of Congress classification system when browsing for materials. This might be because they are used to a different organizational structure such as the Dewey Decimal system, and transitioning to an unfamiliar method can pose a challenge for individuals with ASD who appreciate being prepared for new situations. Some libraries are experimenting with the bookstore model of organizing materials topically rather than according to a classification system, which has been shown to
better facilitate browsing the stacks (Fister, 2010). However, it is possible that this practice would introduce even more confusion for a student with ASD looking for structure and a logical arrangement of materials. Instead of restructuring the organizational system, librarians should focus on educating students about classification schemes already in use.

Neurotypical students also report struggles when faced with navigating the Library of Congress classification system, even those who are considered information literacy proficient. One such college student described how she can find anything in a public library because “everybody knows about the Dewey Decimal System” but that “nobody’s ever talked to me about” the Library of Congress classification system (Gross & Latham, 2011, p. 172).

To address this concern, librarians might not only label items by classification number, but also provide a map of the library by topic. Interactive touch-screen kiosks could be made available at the library’s entrance, allowing students to easily access directional information and independently navigate the building (Ho & Crowley, 2003). Visuals with Library of Congress numbers and associated materials should be posted on the library walls, and provided as a brochure that students can take home to prepare for their library visit. A virtual tour could be made available on library websites, and an even more advanced application could include a library app, developed for students to take a self-paced tour while learning about the organization of materials.

This information should also be addressed when librarians present information within First Year Experience courses, as it is likely that most college students are unfamiliar with the Library of Congress classification system upon beginning college or university. Librarians could also provide information on their website, including detailed instructions of how to read the classification systems used. A good example of this can be found at the University of Illinois’ library website, indicating that is a feasible solution for increasing usability at all libraries (University of Illinois at Urbana-Champaign, 2016).

It is clear from the findings of this study that students with ASD come to the academic library to utilize various resources, including exploring specific interests as well as browsing the stacks – not just to use the library as a safe haven. As such, it is not enough for academic libraries to simply provide a few ASD friendly, safe spaces in the library. Just as with any other college student, students with ASD use the academic library for a multitude of reasons, and librarians need to strive for accessibility to all resources by the entire student population.
Discussion of Research Question 1.3

Research question 1.3 asks: How do individuals with ASD describe their social and communicative experiences at the library? Wrong Planet members discussed how knowledge of the library environment and materials could support interaction, as well as their specific encounters with both peers and librarians or library staff.

**Knowledge of materials.** As many Wrong Planet members noted, they were able to engage socially based on knowledge of the library – both its materials and physical structure. This presents a rich opportunity for librarians to support interaction and communication engagements for these students based on their knowledge. Librarians could work with the Office of Disability Services to recruit students with ASD to serve as peer leaders for class credit, thus giving them structured communication and social opportunities while sharing library knowledge that they already have or are interested in learning.

**Engagement with peers.** Though the findings reveal that Wrong Planet members engage with their peers by sharing their own library knowledge, there are few other mentions of specific instances of socialization. Instead, Wrong Planet members give one another advice about how they should engage in conversation with a peer at the library, or how they might invite study groups or even dates to their college libraries.

Though Wrong Planet students feel like they go to the library alone, in contrast to other students who have robust social interactions there, NT students also report going to the library specifically to be alone. One study of college students, of which one might assume are predominantly neurotypical, actually reveals that students with ASD seem to access the library for similar purposes, though perhaps different reasons (Gardner & Eng, 2005). Most college students describe going to the library to study alone. In fact, this was the number one reason that college students in the study reported visiting the academic library (Gadner & Eng, 2005). This is reflected in the data from this study as well, in that students with ASD often describe going to the library to study by themselves, though the students on Wrong Planet also describe visiting the library in need of an escape.

Neurotypical students describe visiting the library alone as an implicit social norm, or entirely socially acceptable. “Students clearly appreciate the fact that it is socially acceptable to be alone in the library. Interacting with others is possible, but optional” (Demas, 2005, p. 29). The Wrong Planet students in this study also visit the library alone. However, some of them
express concern that this is in opposition to spending time with friends when, in reality, this behavior is a norm for most college students.

This aligns with the literature in that college students with ASD often feel like they are left out of social situations, though not for a lack of desire to socialize (Barnhill 2014). Though social engagement is not really happening, the students on Wrong Planet are talking about it. They want it to happen, as they suggest it to one another and provide specific examples of how to engage with other students. It seems to be a common dream of many Wrong Planet members that a big group of students will gather together and go to the library. But in reality, it is either not occurring, or it is going unreported on this discussion forum. Perhaps this is where librarians can become involved and provide specific programming to support these potential gatherings. By creating a structured situation for engagement, fellow library enthusiasts can engage in the social interaction that they crave without having to initiate this interaction on their own – taking away the potential for failure if a self-initiated invitation is not accepted. However, as will be discussed in the following section, either these librarian-led initiatives don’t currently exist or Wrong Planet members are simply not utilizing them.

**Engagement with librarians.** The findings indicate that not only are students not attending librarian-led programs and classes – they hardly describe having any interactions with librarians. Instead, Wrong Planet members describe using the library for more solitary, student-driven purposes such as studying, exploring interests, and browsing the library stacks.

In most modern academic libraries, there is no dearth of instructional opportunities or library-supported informal groups, including targeted instruction such as those according to principles of Universal Design (Chodock & Dolinger, 2009; Hoover, Nall, & Willis, 2013). Many programs and classes are appropriate for all students, those with ASD and those without, yet there is no mention in the data of Wrong Planet members attending any of these sessions. These opportunities could be extremely important for students with ASD as they allow for personal access to engage with librarians and a small group of their peers in a less stressful environment.

Not only are students not attending librarian-initiated classes or programs, there is little mention of personal interaction with librarians at all. Of those who do mention librarians, some describe the help one might receive from a librarian, and some describe the librarian as strict, or making them feel anxious or uncomfortable. One student described a feeling of being watched
by the librarian while in the library, while another student is worried that librarians will be “too friendly” with her. Many students describe being uncomfortable around others in the library, both students and librarians, instead preferring their space and time alone.

It appears that students with ASD are less likely to approach a librarian than NT students. As Gross and Latham (2011) describe, both information literacy proficient and below-proficient students are unafraid of approaching librarians or other people they do not know for information within the library. However, they still prefer to go to their friends, or those they have previously established relationships with, than to authority figures such as teachers or librarians. (Gross & Latham, 2011).

**Approaching librarians at the desk.** Initiating conversation is described as a challenge for the students in this study, as is approaching the circulation desk. A current trend in librarianship is the “megadesk,” or information commons (Demas, 2005; Khoo et al., 2015) in which all services are available in one place. By approaching this desk, students have access to circulation, information, reference assistance and more. However, this trend may have negative repercussions for college students with ASD, who describe anxiety in approaching librarians or library staff behind the desk, suggesting that perhaps the desk should be removed altogether to better assist members of this population. Librarians could be roving, or could set up unobtrusive stations throughout the library, thus removing the desks with the impression of an authority figure sitting behind them.

What is clear from the findings is that students with ASD describe their own use of the library and library resources, not those that are led by librarians. Students create groups with one another based on special interests, research interests by themselves to actually increase social opportunities, and browse the shelves for interesting topics. During none of these activities do they describe turning to a librarian for help, or joining a librarian or library-established group or program.

This indicates that librarians need to be more approachable without being overbearing, and provide relevant programs and classes. Most of all, librarians need to ensure that students are aware of these programs and classes. Librarians also need to provide support for students’ own group formations, such as offering meeting room space for students who want to play games, study together, or otherwise gather together in a group.
Discussion of Research Question 1

Research Question 1 asks: How do individuals with ASD describe their experiences in the academic library in an online community of their peers? This question incorporates the previously discussed sub-questions, as well as examines the topic as a whole.

Within Research Question 1, we know that college students with ASD use the library as an escape and as a safe space away from sensory distractions. However, the library itself presents its own set of concerns, largely with either too great or too little noise. There is no clear consensus as to whether a library needs to have absolute quiet or room for collaboration; instead, it seems that Wrong Planet members need a library with designated spaces for each.

Students with ASD do not simply use the library as an escape; they also visit the library to browse materials based on special interests as well as through serendipity. These uses of library resources often occur based on where a student has chosen to situate him or herself within the library.

Finally, there is a clear lack of engagement from Wrong Planet members with peers and library staff or librarians within the academic library. However, this is often not for lack of desire for social interaction. While some students with ASD clearly state their wishes to be left alone, others seem to have grand ideas of friendships and even romantic relationships initiating within the library environment.

Discussion of Research Question 2

Research Question 2 asks: What barriers to library use do students with ASD describe that, if addressed, would make their library experience more positive? Table 8 lists these barriers and potential solutions. Many of the barriers described by Wrong Planet members are associated with the library’s physical environment, as analyzed in the discussion of Research Question 1.1, and include lack of predictability in places to sit at the library, confusing organization of materials and auditory concerns. Other prominent barriers described are navigating their way through situations with other people, and understanding social norms and social types within the academic library.

Environmental barriers. Many students in this study report concerns with the library’s physical environment, including predictability, organization, and noise. These environmental barriers align with the literature on neurotypical students as well, suggesting that members of all
student populations face similar concerns. This study revealed that barriers to library use, in terms of the physical library environment, are largely universal issues.

Table 7

*Barriers to library use and potential solutions*

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<tr>
<th>Barrier for Students with ASD</th>
<th>Potential Solutions</th>
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<tr>
<td>Predictability within Environment</td>
<td>Online study carrel reservation system</td>
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<td>Organization of Materials</td>
<td>Library of Congress workshops</td>
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<td>Signage</td>
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<td>Online information about classification system</td>
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<td>Distributed handouts about classification system</td>
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<td>Organization of physical spaces</td>
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<td>Online information about library spaces</td>
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<td></td>
<td>Distributed handouts about library spaces</td>
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<td>Noise within the Library</td>
<td>Signage</td>
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<td>Online information about expectations per location</td>
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<td></td>
<td>Distributed handouts about expectations per location</td>
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<tr>
<td>Social Barriers</td>
<td>Increasing librarian visibility and approachability</td>
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<tr>
<td></td>
<td>Providing clear roles through employment opportunities</td>
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<tr>
<td></td>
<td>Initiating groups based on special interests</td>
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<td></td>
<td>Providing meeting space for student-led groups</td>
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To address these concerns, first, librarians should provide study carrels that students, both neurotypical and with ASD, can reserve online prior to a library visit. Neurotypical students, in previous studies, have requested the ability to reserve study carrels in order to ensure a predictable study space at the library. Neurotypical students also have strong preferences about where they study within the library, and would likely also benefit from being able to reserve a favorite place (Regalado & Smale, 2015, p. 903). The ability to reserve a study space not only gives students with ASD a level of predictability, but it also addresses noise concerns by providing a consistent sensory escape. Students with ASD will benefit from this service in particular in that they can plan their library experience in advance, and know that there will be a designated place available just for them.
Organization of library materials is described as a barrier to use for Wrong Planet members and this also aligns with the neurotypical college student literature. By providing Library of Congress workshops in freshman orientation courses, as well as creating and posting clear, visual signage describing location of various materials, librarians can help to reduce this barrier to resource access for all students.

Signage would also help to address organization of spaces within the library itself, one more environmental barrier described by Wrong Planet members. Navigating library spaces is not a problem unique to students with ASD; the neurotypical literature reveals that many college students in general do not know about all of the spaces available to them in the library (Khoo et al., 2015). Signage and handouts, both in the library and online, to designate loud and quiet places, as well as indicate other campus libraries that provide different environmental options, would be a universal benefit to college students at the library, not just those with ASD. This would also address noise concerns, as students would have a clear description of what type of auditory environment to expect in each location.

The barriers associated with the physical environment can be addressed to the benefit of all library users, not just those with ASD. By improving services based on the findings from students with ASD, librarians are in effect improving services for all college students in the academic library.

**Social barriers.** While environmental barriers are largely universal to the college student population, students with ASD also describe unique barriers to access regarding social situations. While many Wrong Planet members describe their enjoyment of using the library and hypothetically connecting with peers while there, they also lack an understanding of the social norms to actually engage in these interactions. Some Wrong Planet members do not wish to understand social norms, and instead desire to be left alone completely. While it is common for neurotypical students to want a solitary study space at the library as well, this absolute concept of person avoidance is unique to Wrong Planet members.

Social norms, in particular, became a common theme from the data, particularly implicit social norms. Students with ASD described being unsure about how to act within a library, ranging from how to approach a librarian behind a circulation desk to whether or not it is acceptable to chat with a member of the opposite sex in the academic library. These rules are not explicitly stated, and understanding how to read between the lines presents a challenge for
students with ASD, as demonstrated within the Wrong Planet data. While one strength of individuals with ASD is that they are very literal and typically have no trouble in following rules and policies (Zager et al., 2013), norms that are socially constructed seem to pose particular challenges.

Throughout the study was an underlying theme of “us versus them,” in which students with ASD described themselves in opposition to, or in contrast to, neurotypical college students. This aligns with the concept of social types, as described within the theory of information worlds, in that though there is no clear distinction between students with and without ASD, Wrong Planet members describe their situation as such. Students with ASD described the other students in the library as loud, chaotic, and even there for the wrong reasons.

Addressing social barriers is more complicated than addressing environmental barriers within the library, in part because the college student population as a whole does not share these barriers. Further contributing to the problem is that every student with ASD is unique, and every person’s particular social barriers will be manifested in different ways.

To address these concerns, librarians could start by working to increase their own visibility to students, and become more approachable, so students know they can go to them if they have a concern. In one example from the data, a Wrong Planet member was unsure how to handle a situation with a peer who was sniffling loudly. If the Wrong Planet member was comfortable with the librarians or library staff, in this situation he or she could approach them for assistance in navigating this social situation.

Finally, students with ASD might be especially considered for employment or volunteer opportunities within the library, thus giving them a clear role in interacting with peers at the library. Individuals with ASD often report success in working in various roles at the library, and this seems a way for them to earn valuable work experience while exploring communication and interaction with other students (Prince-Hughes, 2002). Employment or volunteering also would provide students with ASD an insider’s access to socialization within the library in that they might be able to observe how other people in the library socialize without having to engage themselves. By becoming familiar with the social norms within the library, students with ASD will be better prepared to join into these interactions themselves.
Discussion of Unexpected Findings and Significant Themes

Apart from addressing the study’s research questions, the data also revealed both unexpected findings and significant themes that emerged from open coding. Unexpected findings include health information seeking as well as a lack of discussion of sensory concerns outside of noise. The most significant emerging theme is the similarities in library use by students with ASD as compared to their neurotypical peers.

**Unexpected findings.** The most prevalent unexpected finding was of the library as an escape, which has already been discussed in detail. A less prevalent, but nonetheless meaningful theme is that many of the resources Wrong Planet members describe using at the library are about health, and in particular, their own ASD diagnoses. From this, one might assume that academic libraries would do well to create a libguide or pathfinder to guide students to these resources, or clearly designate the section. Libraries might also collaborate with Offices of Disability Services to advertise these health resources to students with ASD.

Some findings that were expected never emerged. In particular, apart from noise, there were fewer mentions of sensory concerns in the library than anticipated. Lighting, smells, and other distractions were mentioned very little, if at all.

**Significant themes.** Outside of addressing the research questions, the most important findings are the experiences of students with ASD as compared to neurotypical students. Despite their perceived struggles within the library, or struggles that push them to the library, the literature suggests that these experiences are likely shared by many neurotypical students as well. Though there are some areas in which students with ASD describe particular difficulties in using the academic library, many of their experiences reflect what is known about college student academic library use as a whole. This is not to say that students with ASD do not have unique experiences in the library; however, many of the experiences of NT students in the academic library are likely shared, sometimes to a greater extent, by students with ASD. For example, enjoyment of browsing the library stacks, confusion over the Library of Congress classification system, and aversion to excessive noise in the library are all themes that emerged from this data, and are also reflected in the neurotypical student literature. With this knowledge, libraries should use the principles of Universal Design to address these concerns, creating positive changes that will benefit all students.
Despite the similarities, students on Wrong Planet do not view neurotypical students as sharing similar library habits. Instead, they tend to display negativity towards others, assumedly neurotypical students. They use a variety of terms to describe them, including “wild.” They separate themselves as being more studious, while “the other students” are just there to hang out. The students on Wrong Planet have an “us-versus-them” mentality as it comes across in their discussion posts. The Wrong Planet members state that many of the “other” students are there for the wrong reasons. Of course, there is no wrong reason to be at an academic library and, in fact, many libraries are now providing space specifically for students to socialize and collaborate. It would benefit all users, not just those with ASD or other sensory sensitivities to have clear designation of spaces and their explicit purposes made visible.

**Conclusions**

This study explored the experiences of individuals with ASD in the academic library, and how they discussed these experiences in an online environment of their peers. The findings of this study carry implications for methodology, theory, and practice, as well as recommendations for further study in both this and related bodies of knowledge.

**Implications for Methodology**

Content analysis is typically thought of as a quantitative methodology, though this study uses it in the context of a qualitative study. This has implications for future work, in that content analysis might continue to be used to collect rich, descriptive qualitative data when applied in certain situations. This method seems especially appropriate for studying online forums, and future work should use this method to continue study on discussion posts, particularly in which direct communication between researcher and participant could pose a challenge or would result in unreliable information. As in this study of a special population, open coding proves to be particularly valuable for discovering unexpected themes.

The social model of disability studies was used to apply sensitivity to the study of a disadvantaged population. The model guided the language used, as well as the frame of reference in which to thoughtfully and comprehensively analyze this study’s data. Even so, modifications were made, such as using person-first language, given what is currently deemed appropriate within the body of literature. In using a modified social model, the study can serve as a
foundation for future work in this area, inspiring further research to use firsthand accounts from individuals with ASD, as well as providing these accounts unedited in the findings and discussion. This study, from what can be determined, is a pioneering effort in giving a voice to the library user on the autism spectrum.

Implications for Theory

In applying the theory of information worlds, this study finds that Wrong Planet members describe minimal information exchange between worlds, or other groups, at the library. We know that there is some communication and social interaction between members of this population and others they encounter at the library, but the descriptions from this dataset are few and far between.

As individual members of different small worlds have the opportunity to interact within the academic library, this study sought to explore these interactions. The findings reveal that students with ASD are exposed to members of other small worlds, including neurotypical students; however, there is not enough data within this study to describe any interactions between worlds. Instead, what the data shows is that students with ASD describe neurotypical students at the library as a separate social type, and tend to avoid interaction.

Access to information. The theory of information worlds describes information access according to three categories: physical access; intellectual access, and social access. This study revealed that most of the concerns students had with using the library were related to physical access. Students with ASD describe avoiding the library due to sensory concerns, particularly noise. The sensory environment is enough of a barrier that some students describe avoiding the library altogether, in effect removing any opportunity for physical access to library resources.

Students also faced challenges with intellectual access to information. From this study, we know that some students with ASD describe challenges in navigating the library’s organizational system. Experiencing such confusion would certainly limit or discourage a student’s access to potentially important information sources.

As this study saw relatively little interaction between information worlds, there is not enough data to conclusively describe how students with ASD communicate and use information in the social context of the academic library. However, this is a topic which could be explored in future research that focuses on how information is communicated online through Wrong Planet
itself. While fixed interests and other idiosyncrasies might keep these students in a relatively small social world, it is possible that through the communication channel of the library, within the public sphere, these students would be opened up to more social access, with boundaries being crossed between information worlds within this channel. From the findings of this study, we now have a clearer picture about the access college students with ASD have to materials and information within the academic library.

**Social norms and social types.** Use of this theory as a framework helps “for investigating whether the norms and values embedded in the information worlds of libraries and in the services offered by libraries mesh with those of the communities they serve,” a theory application as suggested by Burnett and Jaeger (2011, p. 176). Understanding their experiences in the academic library through the framework of the theory of information worlds helps to shed light on whether academic libraries and librarians are providing appropriate services and supports for this population.

**Implications for Practice**

This study has broad significance, and includes implications for all who work with members of this population, academic librarians, and institutions of higher education. Within these institutes of higher education, the study provides further implications for counseling centers, offices of disability services, collaboration between college or university departments, and ultimately, retention of college students with ASD themselves.

**Transferrable information for others serving this population.** Other organizations that serve young adults with ASD can benefit from the findings of this study, as the study reveals how young adults with ASD use community spaces, and manage interactions with peers and authority figures in these spaces. The study’s findings about social norms are particularly of interest to anyone interacting with or serving members of this population. When discussing social interactions and communication, students do not understand implicit social norms in the library environment. Students do not know how to approach others in the library, either to ask them to be quiet, or even to instigate a flirtatious or romantic relationship, and they get reprimanded for making too much noise. These students instead join Wrong Planet discussion forums to ask their peers online how they should behave in these situations.
Implications here, for anyone working with members of this population, are that young adults with ASD typically do not act out on purpose (Zager et al., 2013). If this seems to be the case, it is important to remember that, as the data suggests, instead, some young adults with ASD have trouble understanding and adjusting to implicit social norms. To make sure that young adults with ASD are aware of what is expected or even acceptable, it is necessary to write these standards out explicitly.

An assumption from the data can be made that young adults with ASD use other libraries and community spaces as escapes from sensory distractions. Librarians, as well as those who work for other community organizations, should understand that their buildings might be used as a sensory escape, and have clear signage and designations of quiet study areas. If possible, these study areas should be private, and not simply a corner of the otherwise shared commons.

**Implications for academic libraries.** There is no single approach in which libraries can support members of this population. This is, of course, an anticipated result that aligns with the current body of knowledge, as all members of this population manifest the characteristics of ASD in individual ways. However, some themes emerged from which academic libraries can adapt services and processes to better suit these students’ needs. Additionally, the study has implications for the role of the academic library in justifying funding and support within the higher education structure.

**Addressing auditory concerns.** Students wish to escape to a quiet, sensory-friendly environment, and the data reveals that some see the library as exceptionally loud and chaotic. To address this concern, libraries should provide very obvious signage alerting students to which sections are quiet, and in which sections socialization and communication are allowed. Libraries also need to have handouts prepared, available both in the library itself as well as online, alerting students as to where they can find both quiet and also more collaborative spaces. These handouts will help students with ASD prepare for their visit to the library well in advance, thus allowing them to feel more comfortable in their experiences.

By specifically stating rules and policies according to library area, students with ASD will better understand what behavior is expected of them where. Adherence to rules or policies is considered by some to be a strong point of many students with ASD (Zager et al., 2013), and providing explicit instructions will help them better understand how to best use the library. Students will know that just because they walk into a library and the entryway or first floor is
loud, this does not mean the entire library is loud; there are quiet spaces for them to go. This is the same idea for libraries in which the initial point of engagement is quiet. Signage could alert the students to locations, either within the same library or elsewhere on campus, in which they will not be “shushed” or otherwise disciplined for raising their voices.

Signage, as well as information available both online and as a handout, will benefit all college students, not just those with ASD, in navigating to and within library spaces. The literature suggests that neurotypical students also value quiet study spaces, and alerting all students to these options is a benefit to the entire student population.

**Addressing communication and social interaction.** Wrong Planet members describe the difference between them using the library alone, and other students who are able to form relationships and make friends. Perhaps it does not have to be such a strong dichotomy. Librarians could provide opportunities for those who are hesitant to socialize, or who typically spend time in the library by themselves, to participate informally in groups. These could be organized by special interests, as we know from the data that many college students use their libraries to explore these interests. While we know that every student will be interested in different things, perhaps groups could be organized to suit a broad array of interests.

Some students are “fascinated” by many subjects, and even “distracted” by all of the many topics of books there are in the library. This indicates that gatherings or clubs need not be limited by one topic to the exclusion of other students – instead, many students seem to welcome the opportunity to learn about unknown subjects. From one example in the data, a student who has not yet played Pokemon might find the topic interesting and delve in, just as a student who has played Pokemon will likely want to share his or her deep knowledge of the topic, leading to rich opportunities for interaction and engagement.

**Education for neurotypical students.** Libraries have the unique opportunity to plan programs and events for the campus community, and should use this opportunity to further the campus understanding of students with ASD. This is of utmost importance, as neurotypical students are more accepting of students’ idiosyncrasies when they are aware that the individual has a potential ASD diagnosis (Matthews et al., 2014; Butler & Gillis, 2011). Librarians should invite panelists to present free presentations about the unique needs of students with ASD, and how other students can be aware of and supportive of their college experiences. Librarians have a
responsibility to provide educational opportunities for students, and this is an important topic that deserves considerable attention.

**Training opportunities for librarians.** Students are not the only ones in need of education about the unique experiences of students with ASD; librarians should be properly trained as well. Awareness is the first step towards tailoring the environment, providing access to resources, and creating opportunities for social interaction. As is evident within the literature, the more a campus community is knowledgeable about ASD, the more likely they are in helping students with ASD succeed (Tipton & Blacher, 2014). There is no one suggestion in how librarians can best serve their students with ASD, but understanding members of this population and their challenges, as well as the areas in which they excel, will lead to a better library experience both for the students themselves and the librarians who serve them in the academic library. Training opportunities are desired by librarians, and training materials are currently available in various formats, including asynchronous online modules specifically designed for busy librarians (Delehanty, Woods, Anderson, & Everhart, 2015).

**Funding and support for academic libraries.** Libraries of all types are continually called upon to prove their value to the communities they serve in order to ensure sustained funding and support. This is true for academic libraries in that they are increasingly being asked to demonstrate their contribution to student learning outcomes within the campus community (Brown-Sica, 2012, p. 218). This study helps academic libraries justify continued or increased funding due to demonstrated value for students with ASD.

Academic libraries are moving away from measuring themselves according to their peers (other libraries), and instead are shifting toward “initiatives supporting university priorities, even those that do not directly involve the library,” particularly as they need to “demonstrate their relevance in a performance-funding environment” (Murray et al., 2016, p. 4). Providing much needed support for diverse students certainly fits in with most, if not all, institutional priorities and libraries can use this data to reinforce their worth within their larger college or universities.

**Implications for institutes of higher education.** Though this study was designed with the goal of better understanding academic library use, perhaps the most significant implications might be for institutes of higher education as a whole. From the findings, implications can be made for campus departments such as counseling centers and offices of disability services, as well as in support of campus-wide departmental collaboration. Finally, findings from this study
suggest that academic libraries play a role in supporting ASD student retention – a goal for all institutions committed to student success.

**Counseling centers.** Not all students with ASD will have a diagnosis, and thus will not be eligible for services through the Office of Disability Services. These students might first turn to counseling centers for help and support. Counseling centers can use the information within this study to provide safe spaces for students with ASD according to these findings. They can use the findings from this study to create handouts, provided online, so that students with ASD can be prepared prior to their visit, and can ensure that their offices have quiet, private spaces in which students may have time away from sensory distractions. Counseling centers should also have information available about library services, and be ready to direct students there when in search of a safe space or quiet place to study.

**Offices of Disability Services.** For students who have registered with ASD through the Office of Disability Services, many services are already available to them. However, this study will inform such Offices that students are still in need of safe spaces to escape to across campus, or at least they need to know where they are. The Offices of Disability Services should also provide information to students about using the library as a quiet study space or place to escape, as well as informing students with ASD about potential employment or volunteering opportunities within the library.

Offices of Disability Services should also take the opportunity to inform students with ASD about library services, such that they might be better prepared before a library visit. Librarians should be invited in for special presentations within these Offices, and provide handouts for students to familiarize themselves with library resources and organizational schemes.

**Departmental collaboration.** Opportunities for collaboration across campus are abundant, and described throughout this discussion. Librarians should be invited to present resources and library introductions within Freshman Orientation, First Year Experience courses, and to events hosted through the Offices of Disability Services. Within these presentations, librarians will not only make students with ASD more familiar with them as potential helpers, but they will also inform students about the resources and services available to address concerns raised within this study. This should include maps of library spaces including where to find quiet, private rooms; information about study carrel reservation if this service is implemented;
and an introduction to organization of materials based on the Library of Congress classification system.

**Academic libraries and student retention.** Students with ASD are less likely than neurotypical students to successfully complete a college degree (Drake, 2014). As students with ASD are entering into institutes of higher education than ever before, retaining this growing population is more crucial than ever.

Though no work has yet been done exploring the connection between ASD student retention and libraries, studies through the last 50 years indicate that there is a connection between academic library use and college retention. Kramer and Kramer (1968) found that there was a correlation between number of books checked out from the library and college retention, “a metric appropriate for the time period” (Murray et al., 2016, p. 6). More recent studies show that use, even one time, of the library or library resources “were positively correlated with GPA and retention” (Murray et al., 2016, p. 10), and that “library use – of any kind – was predictive of freshmen-to-sophomore and sophomore-to-junior retention, with freshmen library users being nine times more likely to be retained than non-users” (Murray et al., 2016, p. 16). Of course, this may be a reflection of academic library users being more engaged students in general, thus indicating strong ties to campus support networks. Though previous studies cannot claim causation, there is a documented correlation between college success and students who use the academic library.

**Safe spaces and retention.** Safe spaces are important in education, even from an early age, for students with ASD, and students thrive when provided with an area set apart from environmental stressors (Belgarde & LoRe, 2003; Sciutto et al., 2012). There is also evidence that targeted programs for specific student populations, specifically in providing safe spaces, can improve college retention. One study describes these spaces as being located across a variety of campus services, including the library, as well as “centers that students can regard as homes away from home” (Lotkowski, Robbin, & Noeth, 2004, p. 18). As described by Wrong Planet students, the academic library certainly functions as a home away from home for some.

**Recommendations for Further Study**

Future research could employ this study as an entry point into further exploration of college students with ASD, online communication, and library experiences. Continued study of
young adults with ASD as presented in their own words, as guided by the social model of disability studies, is necessary and it is clear that there is much more to be learned within this realm.

**Modification within libraries.** Within the academic library is a rich opportunity for a quasi-experimental study, with practical applications, based on this study’s findings. Within the context of one academic library, researchers should first conduct interviews with students with ASD about their current library experiences. The findings from these interviews, along with recommendations made in this study, should be used to inform modifications to the library to better meet these students’ needs. Follow-up interviews should then be done with the same college students with ASD to determine if the modifications provided them with a better library experience. This quasi-experimental study would complement the current study and further our collective knowledge in providing library resources and services for college students with ASD.

**Continued tracking of Wrong Planet data.** As the number of college students with ASD increases, so does the study of members of this population as well as practical supports implemented within institutes of higher education. It is possible that some college and university libraries are already aware of the need to modify services to support these students, and are better accommodating their needs. By replicating this study in future years and tracking Wrong Planet data with the same search terms, research can be done to explore how, or if, the academic library experience has improved for college students with ASD.

**Employment in the library.** In collecting data for this study, a large body of information emerged which was not included for analysis: individuals with ASD working in libraries. In particular, many discussion threads involved posts about going to school to study library science, working in a local library, or even giving one another advice about potential careers in the library. This seemed to be a rich topic, though it was beyond the scope of this study. Further study might explore this topic more deeply, as the data appears to be robust. This proposed research could, in turn, lead to more targeted programs for librarians, including tailoring graduate school for librarians so that it is more conducive to the success of students with ASD.

**Online communication for young adults with ASD.** This study explored the content of what students with ASD were saying to one another in the online environment. What should be studied next is how these students communicate with one another in the online environment. There is much to learn about the communication patterns of young adults with ASD online –
particularly when it is with a group of their peers in which they likely feel more comfortable engaging in conversation.

Current research is examining how to design optimal social networking sites for individuals with ASD who need assistance with the transition to adulthood and independent living (Hong 2014; Hong et al., 2012; Hong et al. 2013). However, studies have not yet occurred to determine what information behaviors are already taking place in online communications between members of this population. There is evidence to support the hypothesis that individuals with ASD might thrive in communicating online, as it removes some of the social barriers of face-to-face communication. Future investigations should explore the information worlds of young adults with ASD and how they communicate through online channels such as Wrong Planet to supplement their daily lives.

There is also evidence to support the concept of online networks and communication to support first year college students as they transition from high school. Further study within this topic should explore this subject matter with college students with ASD in particular. Students with ASD have a particularly hard time with periods of transition, and it is possible that having access to a robust, supportive social network of their peers might help them during this period of change and personal growth.
APPENDIX A

PERMISSION LETTER

Previous PM in history | Next PM in history | Previous PM | Next PM

Message subject: Re: request for research- need confirmation!
From: alex
Sent: Yesterday, 1:40 pm
To: FsuLis

Message

You can use it if you credit wrong planet

FsuLis wrote:

Hi there admins,

I'm writing to ask your permission to use WP public forum data in my PhD dissertation. I am a doctoral student at Florida State University, and former librarian. I'm studying how libraries and librarians at colleges and universities can better provide support for autistic students/students with ASD. I plan to look at how young adults on Wrong Planet talk about the library – I've already found great support that autistic students appreciate the library environment (as reference by Dawn Prince-Hughes, Temple Grandin, and more) and want to explore this in more detail.

Usernames will not be used in my dissertation, and only public forum posts will be referenced. I will not change the language, grammar, or spelling used by any user, as I think it is so important to let everyone speak in their own voice. I have a close friend and colleague who was diagnosed with Asperger's syndrome, and is helping me review my work. I don't want to be involved in this research without actual contribution and buy-in from members of this population itself! This research has the potential to help libraries become an even more inclusive space for students with ASD, and I'm excited about sharing my work with you when it is complete.

Please simply respond whether or not you approve of my use of Wrong Planet public forum data, and if I can provide any additional information. I need written confirmation from this site's administrators (you) before I can proceed with my dissertation. I have read the Terms of Service, and do not wish to infringe upon your copyright in any way. Let me know if you have any questions!

Many thanks,

Amelia Anderson
APPENDIX B

HUMAN SUBJECTS APPROVAL LETTER

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742

APPROVAL MEMORANDUM

Date: 9/14/2015

To: Amelia Anderson

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Wrong Planet, Right Library

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.
If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 9/12/2016 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Nancy Everhart, Advisor
HSC No. 2015.16209
REFERENCES


Napa Valley College. About the safe space program and how to enroll. Retrieved from http://www.napavalley.edu/President/BIRT/Pages/SAFESPACEFrequentlyAskedQuestions.aspx


Schlabach, T. L. (2008). *The college experience of students with Asperger's disorder: Perceptions of the students themselves and of college disability service providers who work with these students*. Illinois State University.


**BIOGRAPHICAL SKETCH**

**EDUCATION**

**Doctor of Philosophy**, Information Studies  
Florida State University, Tallahassee, Florida  
2013 – Spring 2016  
*Committee Members: Nancy Everhart (chair), Michelle Kazmer, Mia Liza A. Lustria, and Juliann Woods*

**Master of Science**, Library and Information Studies  
Florida State University, Tallahassee, Florida  
2007 – 2008  
**Focus**: Leadership and Management

**Bachelor of Science**, Journalism and Communications  
University of Florida, Gainesville, Florida  
2002 – 2006  
**Focus**: Feature Writing  
**Outside Concentration**: Women’s Studies

**TEACHING**

**Lead Instructor**  
*Undergraduate Level*:  
Perspectives in Information Technology (Spring 2016)

**Teaching Assistant**  
*Undergraduate Level*:  
Perspectives in Information Technology (Fall 2015)  
Information Technology Project (Fall 2015)  
Social Media Management (Summer 2013; aide to Teaching Assistant)  
Introduction to Web Design (Summer 2013; aide to Teaching Assistant)

*Masters Level*:  
Storytelling for Information Professionals (Summer 2013; aide to Teaching Assistant)

**Guest Lecturer**  
*Masters Level*:  
Information Needs of Young Adults (Fall 2015)  
Practical LIS Exploration (Summer 2013)

**Curriculum Development**  
*Masters Level*:  
Assessing Information Behavior (Summer 2013)
Library Instruction
Technology Petting Zoo, Hernando County Library System (2012)
Citizenship Inspired: ESOL and Civics Preparation for the United States Citizenship
Examination, Orange County Library System (2011)
Introduction to Computers, Orange County Library System (2011)

PUBLICATIONS

Refereed Journal Articles:


PRESENTATIONS

Refereed Conference Papers:


Refereed Presentations:


Kazmer, M. M., Anderson, A., de la Cruz, J., & Glueckauf, R. L. (2014). Information, technology, and older adults: Creating information use environments that work. LRS VI: The Engaged Librarian: Libraries Partnering with Campus and Community, University of IL, Urbana-Champaign, IL.

Everhart, N., Small, R., & Anderson, A. (2014). Stepping up: Providing effective library and information services, programs and resources to students with disabilities. The American Library Association Conference, Las Vegas, NV.

Refereed Conference Posters:

Anderson, A. (2016). Wrong planet, right library: College students with autism and the library experience. Works in Progress Poster to be presented at the Association for Library and Information Science Education (ALISE) annual conference, Boston, MA.


Non-Refereed Conference Posters:


**PROFESSIONAL EXPERIENCE**

**Outreach Services Librarian**
Hernando County Public Library System, Brooksville, FL 11/2011 – 04/2013

**Branch Librarian**
Orange County Library System, Orlando, FL 01/2009 – 11/2011

**Intern**
Southwest Georgia Regional Library System, Bainbridge, GA 05/2008 – 08/2008

**Intern**
The Goldstein Library at Florida State University, Tallahassee, FL 05/2008 – 08/2008

**Intern**
Leon County Public Library System, Tallahassee, FL 01/2008 – 05/2008
SERVICE

**Elected Board Member**, *Literacy Volunteers of Leon County*, Tallahassee, FL. 2015 – 2018

**Chair**, *Public Relations Committee, Literacy Volunteers of Leon County* 2015 – 2018

**Invited Peer Reviewer**, *School Libraries Worldwide* 2015

**Committee Member**, *Student Experiences Committee*
School of Information, Florida State University 2015 – 2016

**Mentor**, *Sunshine State Library Leadership Institute* 2015 – 2016

**Member**, *Training, Orientation, and Leadership Development Committee* 2015 – 2016
American Library Association

**Chair**, *Awards Committee, Florida Library Association* 2015 – 2016

**Vice-Chair**, *Awards Committee, Florida Library Association* 2014 – 2015

**Mentor**, *Sunshine State Library Leadership Institute* 2014 – 2015

**Committee Member**, *Hernando County Chamber of Commerce Diplomats* 2012 – 2013

**President**, *Florida State University Student Chapter, American Library Association* 2008

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Library Association (ALA)

Library Leadership and Management Association (LLAMA)

Library Research Round Table (LRRT)

Association for Library and Information Science Education (ALISE)

The Association for Information Science and Technology (ASIS&T)

Florida Library Association (FLA)

Awards Committee