Accessing Information in "A System that Wasn't Really Optimized for Me": A Qualitative Study of Autistic University Students

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Abstract

More autistic adults pursue higher education each year, but the graduation rates and qualitative accounts of autistic university students suggest they are not being adequately supported. Contributing to this inadequate support is our limited understanding of the factors that influence how autistic students learn about the resources and opportunities that may facilitate their success. We interviewed 14 autistic university students about their university experiences in order to provide informed recommendations about support to their university. Using reflexive thematic analysis, we constructed themes that focus on 1) how participants experienced difficulty when navigating the interactions that often hold the key to information, and 2) university expectations that informed practices and policies that impeded participants' access to information. By better understanding the multiple, interacting factors that influence autistic university students' access to information—and subsequently, resources and opportunities—we can move towards informed, structural changes in higher education that will provide more equitable access to autistic people.

Accessing Information in "A System that Wasn't Really Optimized for Me": A Qualitative Study of Autistic University Students

Autistic people are enrolling in higher education at increasing rates (Cox, 2017), but our understanding of how to support their success is limited (Cox et al., 2020). Resources and supports are only helpful if they are a) informed by the needs of the intended population and b) accessed by them. In the study here, we seek to understand the barriers autistic students face to accessing information about the resources and opportunities available during their time at university. We begin with a brief introduction to autism and autistic university students, including factors that indicate a need for support. We then introduce how institution-related knowledge is necessary to successfully move through higher education (Lessky et al., 2021; Liou et al., 2016). We propose that access to this institution-related knowledge occurs in part via the individual behaviors through which people engage with information (Bates, 2010). Finally, we discuss the reciprocal processes between individual and institutional practices that can negatively affect marginalized groups' access to information and thus resources and support.

Autistic University Students

Autism is a lifelong neurodevelopmental disability characterized by differences and difficulties with social interaction and communication, repetitive behaviors and intense interests, and sensory hyper- and hyposensitivities (American Psychiatric Association, 2022). Autistic people perceive and interpret the world around them differently from non-autistic people. In the United States, 1 in 44 children are estimated to be autistic (Maenner et al., 2021), and most research focuses on autistic children. But of course, most autistic people are adults (Dietz et al., 2020). In a review of 2,857 studies published from 1994 to 2014, Jang and colleagues (2014) found that only 21% of the articles included autistic participants over the age of 20. Here we

focus on autistic university students, a group whose numbers have been growing over the last two decades (Cox, 2017) and which is estimated to comprise about 1-2% of college and university students in the United States (White et al., 2011).

Autistic people perceive and interpret the world around them differently from non-autistic people, and this influences their university experience. In a positive vein, many autistic people have cultivated a wealth of knowledge about a specific topic (e.g., Klin et al., 2007; Grove et al., 2018). The pre-existing knowledge and the skills that autistic people have cultivated through researching their passions can be helpful in selecting a major (e.g., an interest in renaissance paintings may point one towards an art history major; Briel & Getzel, 2014). Subject matter expertise can also support passionate engagement with courses related to this interest and positive interactions with classmates (Gobbo & Shmulsky, 2014). We believe it is important to begin with this note about strengths, given that we will subsequently focus on difficulties autistic university students face when embedded in an environment that does not meet their needs.

Autistic people also face numerous challenges in transitioning to, engaging with, and graduating from university. Some autistic university students feel that the transition planning they received while in high school was inadequate (Cai & Richdale, 2016), and a significant portion of autistic university students do not receive any formal transition planning services at all (Newman & Madaus, 2015). The literature examining this population's academic adjustment reports mixed findings. Some studies have found that autistic students have greater difficulty adjusting academically to university than non-autistic students (e.g., McLeod et al., 2019; Trevisan & Birmingham, 2016). However, when controlling for demographic and mental health characteristics, academic success as measured by grade point average may not differ between autistic and non-autistic university students (Baczewski et al., 2021).

Autistic university students also consistently report finding the campus sensory environment to be challenging. Classrooms have been described as "noisy and crowded" and autistic students can find it difficult to "process the content above the background noise" (Gurbuz et al., 2019, p. 625). Due to these overwhelming sensory environments, autistic students report needing a refuge from the noise and chaos of campus. However, as many university students in the United States live on-campus with roommates, autistic students can find themselves without access to any private, quiet space (Cage & Howes, 2020; Grabsch et al., 2021; Knott & Taylor, 2014; Madriaga, 2010).

Differences between autistic and non-autistic communication—for example, differing preferences regarding directness (Sutherland, 2022; Wilson & Bishop, 2021)—can contribute to reciprocal difficulties in cross-neurotype interactions (Crompton, Sharpe, et al., 2020; Milton, 2012). In academic settings, autistic university students have reported that they found feedback from instructors to be unclear and that group work was particularly difficult (Cai & Richdale, 2016; Cox et al., 2020; Gurbuz et al., 2019). Socially, autistic university students often report feeling lonely (e.g., Jackson et al., 2018; Van Hees et al., 2015; Vincent et al., 2016) and express a desire for more close friendships (e.g., Vincent et al., 2016; Gurbuz et al., 2019). Non-autistic students report desiring more social distance from autistic compared to non-autistic peers (Stockwell et al., 2021; Underhill et al., 2019), which presumably contributes to the lack of social support autistic university students' experience (Cage & Howes, 2020). Particularly concerning is that autistic students are more likely than non-autistic students to report being bullied and socially excluded by peers (McLeod et al., 2019).

Unfortunately, autistic university students do not seem to be receiving the kinds of support they need to flourish. Autistic university students' graduation rates are generally lower

than their non-autistic peers' (Newman et al., 2011; Chown et al., 2016; but see Bakker et al., 2022). To understand the factors that influence the decision to 'drop out', researchers need to engage with and learn from autistic people who left university without completing their degree. Cage and Howes (2020) interviewed autistic university-leavers who described university as an overwhelming change. They experienced difficulty managing expectations (both their own and those placed upon them by others), struggled to manage the sensory overwhelm caused by high levels of noise and activity on campus, and felt there was a lack of relevant, proactive support that could have prevented their difficulties from becoming overwhelming. Influencing participants' challenges were systemic influences such as being unable to access a diagnosis or being unaware that they were autistic, a lack of autism understanding at the university level, and feeling as though they were "positioned as an outsider" (Cage & Howes, 2020, p. 1669).

One reason autistic students do not receive the kinds of support they need to flourish in university is that administrators, faculty, and staff at an institution may not have an accurate sense of the actual number of autistic students who are enrolled and could benefit from support. For example, because of the stigma associated with autism, not all autistic university students disclose their diagnosis to their institution's disability resource office (e.g., Anderson et al., 2018; Newman et al., 2011). Additionally, some students who would likely qualify for an autism diagnosis and could benefit from support may not know that they are autistic (e.g., Anderson et al., 2018; Cage & Howes, 2020; White et al., 2011), experience difficulty receiving a diagnosis due to narrow view of how autism presents (including gender and race; Lewis, 2017; Jones et al., 2014), or do not pursue a formal diagnosis because of the expense associated with doing so (Lewis, 2017).

Underestimating the number of autistic students that a university serves can result in policies and practices that do not acknowledge, consider, or support this historically excluded population. For example, limited dedicated resources are devoted to supporting autistic university students. Only 2.2% of the colleges and universities in the Unites States offer support programs specifically designed for autistic students (Nachman et al., 2022). Some of these dedicated programs charge students an additional fee to participate (Barnhill, 2016; Viezel et al., 2020), limiting who is are able to benefit. Disability resource offices at institutions that do not have dedicated autism support programs have been found to conduct minimal outreach efforts to connect students with their support (Collins & Mowbray, 2005). Indeed, autistic people who left university prior to completing their degree felt they did not know where to go for support or that support was not made available to them until it was "too late" (Cage & Howes, 2020, p. 1671).

Another reason that autistic university students do not receive the kind of support that would be helpful to them is that disability resource staff may not understand the range of supports needed by autistic people (Kim & Crowley, 2021). Autistic university students generally describe accommodations granted by disability resource offices as helpful, particularly in the academic realm (e.g., Anderson et al., 2018; Cai & Richdale, 2016; Kim & Crowley, 2021). However, they object to the "one-size-fits-all" approach to accommodations that some disability resource offices seem to have (Zeedyk et al., 2019). For example, some autistic university students found that, while the low-sensory environment of a separate exam room was helpful for their anxiety, being in a separate location deprived them of the opportunity to ask their professor clarifying questions during the exam (Kim & Crowley, 2021). Others felt that the available accommodations did not address their social, sensory, or mental health needs (Kim & Crowley, 2021; Sarrett, 2018).

Finally, autistic students may not receive necessary support in university because they are not aware of the availability of support or how to access it, and their ability to acquire this information is influenced by individual, interactional, and institutional factors. This is the focus of the study described here.

Institution-Specific Knowledge

Universities expect students to enter and acquire certain kinds of institution-related knowledge (Lessky et al., 2021; Liou et al., 2016). Explicit institution-related knowledge, also known as "functional information" (Cooper & Liou, 2007), includes knowing where buildings are located on campus, for example, and being familiar with the requirements for your major. Functional information is undeniably useful to students; it is difficult to graduate on time if you don't know which classes you need to take. Because student awareness of functional information is advantageous for the institution, it is likely to be explicitly conveyed to students, for example through orientations, websites, and syllabi statements. As autistic adults express a preference for explicit over implied information (Wilson & Bishop, 2021), the explicit nature of functional information likely presents relatively few barriers to autistic university students. Many more challenges are likely to arise in the context of information that requires implicature, for example, inferring whether a "recommended" review session is indeed optional or if it is actually essential to a student's performance on the exam.

Hidden Curriculum

University success is also facilitated through implicit, institution-related knowledge, sometimes called "hidden curriculum". Hidden curriculum involves social and cultural knowledge and expectations that may be conveyed intentionally or unintentionally, may be recognized or unrecognized, and may be hidden to some but not to others (Kentli, 2009; Lawson,

2010; Portelli, 1993). These unspoken norms are "baked into" the university's physical, social, and administrative organization and are taken for granted by students who learn in ways that meet institutional expectations (Koutsouris et al., 2021). The university experience—classes, residence halls, friends, research and work experiences—emphasizes and legitimizes a very specific way of learning, communicating with peers, and interacting with authority figures that serves to maintain the status quo (Jackson, 1968). Some students might, for example, know or intuit how to seek help during professors' office hours with little or no guidance and be able to navigate useful resources such as financial aid and disability services (Pfeifer, 2021).

Hidden curriculum reflects what those in power think it means to be a student, what counts as relevant knowledge, and the skills young adults are assumed to have. As such, these norms and expectations have historically not been stated in more formal information sources such as in syllabi or during university orientation, and they are not expressly discussed in more informal information environments, for example by roommates in residence halls or during student organization meetings.

Information Behavior

People gain access to functional information and hidden curriculum or other forms of implied knowledge, in part, through information behavior: searching and seeking behaviors that are used to resolve one's need for information (Bates, 2010; Krikelas, 1983; Kuhlthau, 1991; Wilson, 1981; Wilson, 1997). For example, a student may need to print out their homework at the university printing center for the first time. The student may visit the printing center's website to see if there are instructions before leaving their dorm. Alternatively (or additionally), they may watch how others use the printers once they arrive at the center. The student may also ask an employee for assistance. Ideally, all of these information-seeking activities would provide

the information needed for the student to both print out this specific homework assignment and leave with an understanding of the specific workings of their university's printing system.

In contrast to the expansive literature base of non-autistic people's information behavior (for an overview, see Bates, 2010), our knowledge about the information behavior of autistic people is extremely limited. The little research available has focused on autistic people's information behavior in the context of the library (e.g., Anderson, 2018; Braumberger, 2021; Everhart & Escobar, 2018; Pionke, 2017; Pionke et al., 2019; but see Mallary, 2022). For example, autistic library users share some commonalities with non-autistic users (e.g., understand the need for information but are often unsure how to locate it; experience library anxiety; make use of the library as a study space; Anderson, 2018; Pionke et al., 2019), but they also show differences (e.g., make use of the library as sensory respite; find that libraries do not meet their sensory needs; find librarians can misunderstand their disability; Anderson, 2018; Pionke, 2017). These differences suggest that the literature on non-autistic people's information behavior may inform an understanding of how autistic adults access and engage with information. Without dedicated research on the experiences and practices of autistic people, however, that understanding will be incomplete.

Formal Information Behavior

Formal information behavior involves seeking, using, and sharing information for a specific purpose or to accomplish a specific task (Williamson, 1998). One ethnographic study investigated the formal information behavior used by an autistic and a non-autistic university student in an academic library context (Everhart & Escobar, 2018). Using first-person video footage and both in-the-moment and retrospective accounts of participants' reasoning, the authors found that both students used existing institution-specific knowledge (e.g., experience

using the university library's online catalog), librarians and student employees, and the university website to complete several information-seeking tasks (e.g., find a specific physical journal article, check out a computer from the help desk, reserve a library study room). To the authors' surprise, the autistic participant readily sought assistance from library staff while the non-autistic participant relied more on the library's website and hesitated to seek assistance from staff members. Given the descriptive purpose of Everhart and Escobar's (2018) rich ethnographic method, it remains unclear how their findings may extend to other autistic university students or to formal information behavior in other contexts.

Informal Information Behavior

Much of our acquisition of information is informal: people incidentally encounter information while engaged in activities that are not focused on addressing a specific information need (Williamson, 1998). Anderson (2018) analyzed autistic library users' posts on Wrong Planet, an online forum used by autistic adults. These forum discussions indicated that autistic adults discovered new interests while browsing library materials or when they were distracted by library displays. Informal information behavior can be particularly important for addressing "unknown unknowns": information an individual didn't know they could benefit from until they acquired it (Grim et al., 2021; Williamson, 1998).

Socially mediated, informal information activities are particularly relevant to university students. Consider the example of group work. A majority of students' information behavior in this context will be specifically focused on addressing the goal of the assignment. Along the way, however, students may incidentally encounter and share information about resources and opportunities with each other (Gubbins & Dooley, 2021). This can provide access to institution-specific information—for example, aspects of hidden curriculum—that may have otherwise been

unknown to students (Grim et al., 2021). A crucial avenue to accessing "unknown unknowns" is interacting and building relationships with peers who share your identities. This is particularly true for university students who have been historically excluded and marginalized (e.g., first-generation students, Latinx students; Beard, 2021; Grim et al., 2021).

It is important to expand our understanding of autistic people's information behavior beyond the limited context in which it has been studied (i.e., the library). First, not all information can be found in the library, as different environments afford access to different kinds of information. Second, not all autistic students find the library to be accessible and may avoid the space (Anderson, 2018). Finally, the library environment does not afford all types of information behavior. A combination of formal and informal information behavior is necessary to acquire the institution-specific knowledge that can lead to accessing resources and support. To provide autistic students' with equitable access to these resources, we need to understand the factors that influence autistic university students' use of and success with information seeking activities.

Information Marginalization

Information behavior at the level of the individual is embedded within institutional power structures and expectations (Gibson & Martin, 2019). Autistic people, as noted above, can experience social and communication difficulties, particularly when interacting with non-autistic people (e.g., Bolis et al., 2017; Crompton, Sharpe, et al., 2020; Milton, 2012). Both individual and interactional (i.e., the combination of two interactants') characteristics may influence autistic university students' information behavior and, subsequently, their opportunity to acquire information about resources and support. However, institutional policies and practices can also influence these opportunities. For example, universities structure information environments in

ways that, intentionally or unintentionally, can reproduce existing power hierarchies and inequities between disabled and non-disabled people (Dolmage, 2017; Gibson & Hanson-Baldauf, 2019).

Some groups are constructed as having more difficulty finding, accessing, and using information than others (Chatman, 1996). This is often discussed in essentializing terms, but in reality, partially reflects contextual factors and systemic processes whose effects are to relegate certain groups to the margins of society (Gibson & Martin, 2019). In the context of information access and university success, students who are able to acquire both functional information (e.g., knowledge of institutional resources, such as writing centers and disability services) and hidden curriculum (e.g., there is a funding mechanism to subsidize the cost of students' disability assessments) are likely to have a more complete picture of the system in which they exist. An understanding of how the institution operates—when rules can be bent, who holds power, where to apply pressure—can be used by students to access resources that are only offered informally, that the institution expects few students to need, and to push for resources that do not yet exist (Elmore et al., 2018; Yosso, 2005).

Current Study

We began this study with the goal of providing recommendations for improving the supports and services for autistic students at the participants' large, mid-Atlantic, public 4-year university. As such, we probed a range of topics that had the potential to inform these recommendations and our questions were not specifically focused on information behavior or information access. Interestingly, all participants explicitly or implicitly indicated that they had experienced difficulty accessing information during their time in university. As we developed familiarity with the data, we came to the question addressed in this study: What are the factors

that influences autistic university students' access to information about resources and opportunities? Despite calls across a range of disciplines to investigate the influences on autistic people's access to information (e.g., Byrne, 2020; Braumberger, 2021; Gibson & Hanson-Baldauf, 2019; Everhart & Escobar, 2018), we currently have an insufficient understanding of the individual, interactional, and institutional factors that impede autistic students' full access to university information environments. Addressing these topics is the focus of the analyses reported here.

Method

Participants

Participants were 13 undergraduates and one graduate student who were presently or recently enrolled at a large, mid-Atlantic public 4-year university. They ranged from 18 to 28 years in age, 36% of the sample identified as male, and 71% identified as White. Further characteristics of the sample are presented in Table 1. Participants were recruited using flyers posted on campus, emails distributed by clubs and by the university's disability resource office, emails to individuals who had endorsed identifying as autistic through a psychology department participant pool, and word of mouth. Eligibility requirements included 1) identifying as autistic (both self and professional identification were accepted) and 2) being currently or recently enrolled as a student at the university.

Table 1.

Participant details

Participant Identifier	Gender	Age in Years	Race	Registered with Disability Resource Office?	Transfer Student?	Interview Format
Participant 1	Male	22	White	Yes	Yes	Group 1
Participant 2	Male	21	White	No	No	Group 1
Participant 3	Female	20	White	No*	Yes	Individual
Participant 4	Non-binary	20	White	No*	No	Individual
Participant 5	Agender	19	White, Asian	Yes	No	Individual
Participant 6	Male	20	Asian	Yes	No	Individual
Participant 7	Male	21	White	Yes	No	Individual
Participant 8	Female	20	Asian	No*	No	Individual
Participant 9	Non-binary	22	White	No	No	Group 2
Participant 10	Male	28	White	Yes	No	Group 2
Participant 11	Female	20	Not Disclosed	No	No	Group 2
Participant 12	Female	18	White	No	No	Text-based
Participant 13	Non-binary	19	White	No	No	Text-based
Participant 14	Female	22	White	No	Yes	Individual

Note. The * indicates that the participant was, at the time of the interview, attempting to register with the disability resource office.

Design

Semi-Structured Interview

A semi-structured interview guide was developed to allow for consistency between interviewers. This guide was created collaboratively with a neurodiverse team of researchers. One member of the team had been an autistic undergraduate at a different institution, and another team member was an autistic undergraduate at the participants' university. The other members of the research team identify as non-autistic people. Guiding questions (see Appendix A) were developed to address a combination of a) previously identified areas of difficulty in the literature on autistic university students, b) topics identified as potentially meaningful by autistic members of the research team, and c) changes in instructional methods related to the COVID-19 pandemic.

Interview Format. We provided participants with three interview options, with the invitation to develop alternatives with interested individuals if the provided options were inaccessible. Participants were offered a choice between a synchronous group-based, synchronous individual, or asynchronous text-based semi-structured interview. No participants requested an alternative to these three interview formats. As shown in Table 1, most of our participants participated through an individual interview, though this was due to scheduling constraints rather than preference in several instances.

Interviewers. Of the nine synchronous interviews, five were conducted by AJL, three were conducted by KMS, and one was conducted by ZSR. One interviewer was an autistic person and the other two were non-autistic people. Interviewer autism status was not explicitly shared with the participants, though from our recruitment materials, participants were informed that the project was being co-designed and co-conducted with autistic researchers.

Questionnaires

Following the semi-structured interview, participants completed a demographic questionnaire and additional measures related to autistic characteristics, sense of autism identity, anxiety, depression, and knowledge of several resources specific to the participants' university. These additional measures will not be discussed here. Several months following completion of the interviews, all participants were contacted with a follow-up question about the highest level of education attained by their parents(s)/guardian(s).

Procedure

Synchronous interviews were conducted using the videoconferencing platform Zoom between March and June of 2022. Participants first completed a consent form, the link to which was shared with them through the Zoom's chat feature (synchronous interviewees) or through email (asynchronous, text-based interviewees). During the group-based interviews, a graduate student conducted the interview, and an undergraduate research assistant took notes, monitored for any technical difficulties, and provided the participants with links as needed. During the individual interviews, only the graduate student interviewer was present. The asynchronous text-based interviews were conducted by emailing the participant the interview questions in a Word document. The participants typed their responses to the questions in the document and returned it to the research team. If we needed more detail about any of the participant's responses, we replied to the email with clarifying questions.

On average, synchronous interviews lasted approximately one hour. Participants who selected the asynchronous text-based format were asked to spend about an hour on their responses. Following the completion of the interview (or receipt of the text-based responses), participants were supplied with a link to the questionnaires described above. They were advised the questionnaires would take approximately 30 minutes to complete and that they would be able

to complete the measures on their own time (i.e., after the Zoom call ended, in the case of the synchronous interviewees). Following the receipt of the completed questionnaires, each participant was compensated with a $50 gift card.

All interviews were transcribed using an automatic transcription software. The automatically generated transcripts were compared against the interview recordings and corrected as needed by undergraduate research assistants. Participant names were removed and replaced with participant numbers for confidentiality. The transcripts were then uploaded into Dedoose version 9.0.46 (2022), a web-based software designed for qualitative and mixed-methods data analysis. After uploading all of the transcripts, the interview recordings were destroyed.

Data Analysis

The conceptualization and design of the study and the collection of data were led by a neurodiverse research team. Data analysis, however, was conducted by KMS, an autistic graduate student, with input and feedback from non-autistic and autistic members of the team.

I used reflexive thematic analysis (RTA) to identify patterns of meaning across the dataset (Braun & Clark, 2006, 2021a) and provide a theoretically informed interpretation of autistic university students access to information about resources and opportunities. RTA was selected as it allows for both deductive and inductive theme generation. This was important given that a) my existing familiarity with the literature focused on autistic university students, and b) my own experiences as an autistic university graduate inform my theme construction. Practically, RTA was also appropriate given the number of participants we interviewed and the project's intention to deliver actionable recommendations to the participants' university (Braun & Clark, 2021b).

I began an experiential thematic analytic approach that shifted between more inductive and deductive approaches, initially with a primarily semantic orientation to the data. During data familiarization, I identified several points of analytic interest informed by the data and shaped by my perspective as an autistic university graduate. Two of the undergraduate research assistants who had co-developed the project and assisted with the interviews also familiarized themselves with the data. We then met to discuss the points of analytic interest we had separately identified and how our own unique relationships to the topic informed our construction of these points. From these discussions and my knowledge of the literature, I chose to focus my research question the factors influencing autistic students' access to information about resources and opportunities during their time at university.

Following data familiarization, I began coding the transcripts using Dedoose. Initially, this resulted in over 150 codes capturing minute differences in the dataset; this number was reduced through clustering. Codes were clustered into five ideas relating to: information access, (not) belonging, desire for universal design, sensory experiences, and autism knowledge and understanding. For this thesis, I decided to develop the analysis of data relating to the potential 'information access' pattern of meaning, realizing that the data relating to the belonging and sensory experiences clusters would likely inform my analysis. Following this decision, I noted some initial patterns related to social difficulties influencing information access, information being provided in a way that was difficult to understand, sensory difficulties limiting information access, and initiative being necessary to locate information.

After reviewing these early potential themes in relation to the codes, the data excerpts, and the entire dataset, some were identified as too broad, and many were reevaluated within the framework of the double empathy problem (i.e., that interaction and communication difficulties

are reciprocal rather than solely due to the autistic person's assumed "social deficits"; Milton, 2012). Here, it became clear that the themes I was developing would also address latent aspects of the data that participants did not always explicitly recognize. In becoming more familiar with the literature surrounding theories of information behavior, I shifted to a more deductive perspective shaped by this body of research. Writing and discussions with VKJ shaped and refined the final analytic structure comprised of two themes, which were developed until submission of this thesis. These themes explore how participants' access to information about resources and opportunities is influenced by individual and interactional factors and the institutional expectations, policies, and practices they are embedded within.

Results and Discussion

We constructed two themes that were evident across the experiences shared by our participants. The first theme, *Navigating the Interactions Required to Acquire Information is Challenging*, focuses on participants' accounts of difficulty navigating the interactions that are often required to acquire information. In the second theme, *Access to Information is Limited by University Expectations,* we discuss the university structures information access and what these policies and practices imply about how the university's expected student.

Navigating the Social Interactions Required to Acquire Information is Challenging

University students have to navigate daily interpersonal interactions to access useful and necessary information and resources. These interactions were challenging and required significant effort and accommodation from participants. Many attributed their difficulties to what might be considered 'core autistic characteristics' (American Psychiatric Association, 2022). In this theme, we first describe two characteristics participants spontaneously raised—processing speed, interpreting body language—and construct the difficulties participants described as a

reciprocal misalignment of the interactants' characteristics. We then turn to examples of how incomplete information impacted participants' engagement with university resources and opportunities. Finally, we describe factors that may make it difficult for participants to seek information when it is unclear.

Processing speed does not have a single definition in the literature. However, the construct can be broadly understood as how quickly one can understand and respond to external stimuli within a specific context (Shanahan et al., 2006; Zapparrata et al., 2022). Experimental evidence suggests that autistic people's processing speeds are slower than those of non-autistic people (e.g., Velikonja et al., 2019; Zapparrata et al., 2022). For example, autistic adults who completed a battery of standardized tasks received significantly lower processing speed composite scores than non-autistic adults who completed the tasks (Haigh et al., 2018). A meta-analysis of more basic measures of processing speed (e.g., simple response time, choice response time) found small to medium effects. This indicates that, compared to non-autistic people, autistic people demonstrate slower processing speed across cognitive domains (Zapparrata et al., 2022).

A misalignment between an individual's processing speed and the speed with which interaction is expected to occur can prevent autistic students from accessing information and (in this participant's case, social) resources:

> ...sometimes I feel like I don't fit in just because I'm not catching on as quickly as other people... because I [take] a little longer to process.... ...some things [like sororities and meet-ups] happen so quickly where if you don't get the message, you're missing the event or you're not making the ride and it's like "Woah". ...I feel like it's easier for

> people that aren't autistic to catch onto those things quicker and expect them and respond and decide what they're doing. (Participant 3)

Here, information access is impeded at two levels. First, the amount of information being conveyed may make it difficult to differentiate between important and irrelevant details, a point made by Participant 1: "I'm very detailed oriented. I try to pick up as many details as I possibly can... I just don't know what to not focus on or what to focus on." We can imagine a group message (like the one reflected in Participant 3's experience) where multiple people are texting, sometimes simultaneously, in order to coordinate a group event. Additionally, some are "liking" previously sent messages or sending unrelated, but amusing, images. For some individuals, navigating this interaction may require only limited effort; they easily read the messages, contribute and seek clarification when needed, and arrange to carpool to the event with one of the other group members. For someone who processes information more slowly, it may be difficult to identify what information is important to deciding if you would like to attend and, if so, how you will get there. Further complicating this is that new messages continue to add information, making some of the older messages irrelevant or inaccurate.

A second challenge associated with this misalignment is that a constant influx of information and the pressure to reply before the conversation has "moved on" may be overwhelming for those who process information more slowly. For people who process information more slowly, the amount and speed of incoming information required to induce overwhelm may be lower than for those who process information at a speed aligned with most interactions (Jackson & Farzaneh, 2012). Feeling overwhelmed may lead a person to disengage and not return to, in this example, the group message until there is no more room in the carpool or event has already begun. When interactants expect a certain speed of engagement, information

and subsequent resource access may be limited to those who process information in alignment with this expectation (Jones, 2022).

When an individual's processing speed is misaligned with those of conversational partners, it will influence how quickly they are able to respond during an interaction. This can make interactions feel stressful and frustrating (Sturrock et al., 2021). Further, in research with non-autistic participants, slower response times during a conversation (regardless of whether it is with a friend or stranger) are associated with feeling less connected to the slower partner (Templeton et al., 2022). This can have cascading negative consequences to information access, as peers are unlikely to share their resources or let you know about beneficial opportunities if they do not feel close with you (Asscheman et al., 2020; Pilerot & Limberg, 2011).

Group projects are a formal information space that can be negatively affected by the differences in processing speed between autistic and non-autistic peers. Verbally exchanging information through live, in-person interactions usually involves an extremely short turn around between the processing of incoming information and the production of a response. In fact, the average time between the end of a conversational turn and the beginning of a response in English is less than 250 milliseconds (Stivers et al., 2009). This becomes even more complicated during multi-person interactions.

It was clear that many participants found the dynamics of group work to be opaque, with several explicitly noting their difficulty with knowing when to speak:

> Participant 14: When we were paired up or put in groups in other classes where we didn't really know each other... I don't know if it was a conscious thing or not, but I would tend to get talked over or ignored....

> Participant 8: If there's a group project and everyone else is talking... I don't know how to chime in, and I feel bad about that.

In both of these experiences, participants were unable to provide comments and insights that may have positively contributed to the project. Particularly at the beginning of group-based projects, misalignment with a group's dynamics can prevent a student's integration into the discussion, exchanging, and sharing of information–important components of collaborative information behavior (Hyldegård, 2009). This poses a significant problem in the context of learning, as students who do not perceive themselves as equal contributors learn less from cooperative work (Borgnakke, 1999). By being spoken over, Participant 14 lost the opportunity to ask questions and clarify points of misunderstanding. Unsurprisingly, asking a question and receiving no response is detrimental to learning (Webb, 1984). Difficulty engaging in group conversations is a barrier to the formal information behavior that contributes to project-based learning. It is also a barrier to the informal information behavior that provides access to the tacit information (environment specific, practical knowledge acquired indirectly, e.g., knowing how to replace a lost student ID; Sternberg et al., 1995) exchanges that can occur during group work (Gubbins & Dooley, 2021).

Another common experience of autistic people is difficulty interpreting others' body language (e.g., Cook, 2019; Centelles et al., 2013; Müller et al., 2008). Non-verbal cues are components of nearly all in-person interactions and have the potential to provide recipients with information about the sender's cognitive, attentional, emotional states (Hall et al., 2019). Our participants described interpreting the information provided by non-verbal cues and body language as challenging: "...sometimes I may not pick up on cues or emotions that other people may be giving off... that can be fairly hard for me..." (Participant 7). Taken together, being able

to “jump in” to the conversation at the expected moment so as to be listened to rather than spoken over requires complex coordination at both an individual and an interactional level (Hadley et al., 2021; Herrera, 2010). For autistic students in majority non-autistic spaces, this combined misalignment of processing speed and communication signals may contribute to difficulties in collaborative information seeking and incidental learning through peer-to-peer conversations.

In some instances, participants had learned about or obtained initial access to a resource or opportunity. However, they were unable to fully engage with it because the details available to them did not contain enough, or the “right kind” of information:

> ...there aren’t as many opportunities to be social as I would like. The club listing doesn't really say any specific examples of how to reach out and things like that... I felt like I don't really know how to reach out.... (Participant 1)

Participant 1’s social goals were frustrated by was we construct as “incomplete information” at two levels. First, an explicit explanation of how to initiate involvement with a club is missing. Can you just show up to a meeting, or do you need permission? To resolve this information need, a student might reach out to the club organizer or a peer who is a member of the club. But here lies the second level of incomplete information: *how* does one seek clarification in the first place?

Participant 4 was similarly frustrated by incomplete information in their efforts to obtain accommodations for their dietary needs:

> [The heads of the dining halls] gave me their phone number so I could request specific [allergy friendly] food from them. The only thing I didn't enjoy about that is that I don't

> have any guidelines for what food I could request and therefore I felt uncomfortable asking for anything more than a grilled cheese. (Participant 4)

Again, we can identify two levels of incomplete information: specific guidelines for what food can be requested and how to seek clarification with the heads of the dining halls. We propose that scenarios such as these represent a potential "Catch 22" of help-seeking: you need a certain amount of information to be able to effectively seek information (Kuhlthau, 2004; Warwick et al., 2009).

For autistic people, information may be more useable when it is explicit and specific (Müller et al., 2008; Wilson & Bishop, 2021). Wilson and Bishop (2021) found that autistic adults are more likely than non-autistic adults to first respond that they "do not know" when interpreting implied information. When asked about the implied information again, participants who had initially responded "do not know" were correct over 90% of the time. This suggests autistic people do not necessarily find that that implied information is uninterpretable, but that specific, explicit information is preferred. Indeed, autistic people have also been found to be more risk averse than non-autistic people when there is the potential for a negative outcome and the likelihood of that outcome occurring is unknown (Fujino et al., 2017). Together, this suggests that autistic people may be reluctant to act on, from their perspective, implied or imprecise information to reduce their risk of experiencing a negative outcome.

Research with non-autistic people suggests that other factors may influence help-seeking, as well. When non-autistic adolescents and young adults face high levels of uncertainty, their information seeking strategies become conservative and suboptimal (Kuhlthau, 2004; Warwick et al., 2009). In some cases, they even avoid the source of uncertainty rather than seek information to resolve it (Warwick et al., 2009). In other studies, non-autistic adults are reluctant

to seek help because they do not want to bother the knowledge-holder (Swope & Katzer, 1972), even though people tend to be much more willing to help than help-seekers estimate them to be (Flynn & Lake, 2008).

Of particular relevance to our participants is that help-seeking is less likely when it is seen as non-normative to need help in that situation. Tessler and Schwartz (1972) primed participants to think that either most (65%) or only a few (10%) of the previous participants needed help completing an experimental task. When it was their turn to complete the task, participants asked for help 88% of the time when they believed that most previous participants had needed assistance. Only 44% of participants asked for help when they believed that needing help to complete the task was uncommon (Tessler & Schwartz, 1972). Across our dataset, participants expressed feeling like they "don't know how to talk to people" (Participant 8) and regarded their peers as "good social [people]" (Participant 7) who had access to "secret social scripts" (Participant 9) and who very quickly found their "social niche" (Participant 6). Underlying these sentiments may be that participants viewed their difficulty navigating the social interactions required to acquire information as non-normative, making them disinclined to ask for help.

One might consider autistic participants' responses to the scenarios described above to represent a failure on their part to take initiative to seek out the missing information. However, further context provided by the participants indicates they did indeed take it upon themselves to seek out information about resources and opportunities that could benefit them. Participant 1 spent time looking for further information about clubs and social opportunities after he was unable to access that information at the university's club fair, and while Participant 4's dietary needs were not fully addressed, they did attempt to meet their needs by going through the

effortful process of registering for accommodations through the disability resource office in the first place. In these experiences and others across the dataset, we propose that it was not a failure of individual-level information behaviors that prevented participants from fully engaging with various resources and opportunities. Instead, the primary barrier to participants' information access seemed to be a misalignment between their information needs processing abilities and the expectations that structure university practices and policies, which we turn to next.

Access to Information is Limited by University Expectations

The second theme we constructed focuses on the university's expectations of a typical university student and how these expectations are illustrated by participants' difficulties accessing information about resources and opportunities. Historically excluded and minoritized students are often aware of the university's "implied student" and the ways in which they feel misaligned with these expectations (Koutsouris et al., 2021):

> ...it definitely feels like there is an assumption of neurotypicality[1]... in [the university's] policy and structure for everything. The presumed standard [university] student is someone that I don't really identify with or I'm not evidently similar to. So, it does kind of feel like... I'm trying to integrate myself into a system that wasn't really optimized for me. (Participant 2)

All aspects of higher education are organized according to this "assumption of neurotypicality". Students who more closely align with the university's expectations about students will more easily move through the university context (Stephens et al., 2012). In this theme, we first describe the expectations that inform classroom practices and informal academic spaces. We

[1] Neurotypical: an individual who perceives and interacts with the environment and the people around them in a way that is considered socially and developmentally normative; sometimes used to mean non-autistic.

then turn to how university-sanctioned events are organized to assume that large-scale approaches to sharing information about resources and opportunities will be accessible to all students. Finally, we describe how expectations of abledness influence how the university shares, or does not share, information about disability-related resources.

Information Access in Academic Spaces[2]

Underlying many classroom practices is the expectation that all students can learn effectively through the same kinds of social interactions. University classrooms represent rich information environments that afford a variety of formal and informal information behaviors (Given, 2002); models of student engagement suggest enhancing this by exposing students to highly interactive, often unfamiliar, contexts (e.g., first year seminars, service-learning courses; Kuh, 2008). The classroom practices stemming from this expectation of learning through engagement present a barrier to autistic students' full access to this information environment:

> I'm someone who has a lot of difficulty in social situations and a lot of our class structures assume that it's not an issue, that there won't be any significant barriers in interacting with and cooperating with other people in the classes. For me, that can actually be a pretty significant challenge and it's not something that's ever reflected in class policy. (Participant 2)

Being surrounded by educational practices that suggest you are not the student the university expects can impede students' ability to demonstrate academic competence and to access resources that could facilitate their success (Hurtado & Carter, 1997; Mamiseishvili & Koch, 2011; Walton & Cohen, 2007). Given (2002) found that when the implied university student was

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[2] We use subheadings to assist with readability, but do not intend these subheadings to indicate the construction of subthemes.

tacitly positioned to be a young, recent high school graduate, older students (ages 23 to 55 in this study) felt less able to ask questions during class or engage with peer study groups, two crucial aspects of information seeking (Mamiseishvili & Koch, 2011; Webb, 1984).

Highly interactive classroom practices (e.g., group work, think-pair-share activities) were frequently positioned by participants to be challenging and engendered feelings of misalignment between university expectations and autistic ways of interacting:

> Participant 6: ...when things are not structured for me—like pretty much whenever I had to structure things on my own—that's when things didn't go so hot.
>
> Participant 11: I have a lot of group work and group interactions. ...it does get a lot more exhausting with things like science labs... which are very, very collaborative group environments where I feel like it does take a lot of work for me to maintain composure....

One might interpret interactive classroom practices as relatively structured: generally, activities involving multiple students have a specific purpose, a specific topic to be discussed, and a tangible outcome to work towards (e.g., a presentation, paper, or developing a comment to share with the larger class). While these academically oriented interactions are considered to be more structured than social interactions outside of class, they may still be uncomfortable and highly effortful for autistic students. When interactions are more effortful, fewer cognitive resources may be available for information seeking and sharing (Williams et al., 2021).

Like older students who felt different from the university's expectations (Given, 2002), autistic students notice this distinct feeling of difference and effort. In a study of how marginalized students construct the university's 'ideal' student, an autistic participant described common classroom practices as privileging non-autistic ways of interacting by "...putting a grade on [non-autistic social skills] we can't do" (Koutsouris et al., 2021, p. 143). By expecting that all

students learn effectively through the same kinds of social interactions, the university encourages classroom practices that impede autistic students' access to formal and tacit information, both through the nature of the practices and through feelings of misalignment with the underlying expectations.

Access to informal academic spaces is also shaped by expectations of reciprocal clarity: that information that is clear and complete to the professor is also clear and complete to students. As a result of this expectation, autistic students may not be able to access opportunities to engage with course-related content:

> If I were to be confused [about a class concept], I was too scared to go to office hours because I did not enjoy joining a [virtual office hours meeting] that was not in the normal times. ...I didn't know what to expect. I didn't know if other people were going to be there. So, I didn't want to show up. I didn't know the expectation. (Participant 4)

Office hours are an aspect of hidden curriculum that can influence the experiences and outcomes of historically excluded students (Covarrubias et al., 2022; Khoury, 2021; Mamiseishvili & Koch, 2011). Only recently have professors begun explicitly discussing that office hours are a time for professor-student interaction, as the name suggests to some students that this is a time during which the professor should not be disturbed. From our participants' responses, we saw that even when students understand that office hours are a dedicated time when they can go to the professor for course-related assistance, how that time is structured can remain opaque.

This expectation of reciprocal clarity can prevent autistic university students from accessing course-related information and support. The consequences of being unable to access informal academic spaces like office hours extends beyond course performance: not meeting with professors outside of class time is associated with lower rates of persistence for disabled

students (Mamiseishvili & Koch, 2011). One path through which this might operate is that office hours provide an opportunity for students to develop "warm" information sources. "Warm" information sources are typically representatives of the university—for example, professors—with whom the student has developed rapport (Slack et al., 2014). These sources of information are more trusted than university representatives with whom the student has only a distant relationship, and student are more likely to actually use information received from "warm" sources (Ball & Vincent, 1998). In addition to being unable to access information immediately relevant to a specific course, assuming that the structure of informal academic resources is already clear limits autistic students' opportunities to develop relationships with knowledgeable university representatives who may 'open doors' to additional resources and opportunities.

Information Access through University-Sanctioned Events

Universities also provide students with information about resources and opportunities outside of the classroom. Built into the organization of university-sanctioned events is the expectation that students should be able to tolerate and process information in loud, crowded spaces. However, many of our participants indicated that these events—aimed at mass social connection and information transmission—did not allow for their full participation:

> Participant 6: Yeah, [the club fair] was really noisy. It was extremely crowded.... it was definitely a little overwhelming and it was just too much to look at and there were so many sections that you had to keep track of.
>
> Participant 14: I've gone to one [club fair] but there were just a lot of people, so I stuck to the outer booths. I didn't really make my way in to see what all the other clubs and opportunities were. So maybe there would have been something that I would have liked, but I just was not comfortable with that.

Autistic people commonly experience sensory stimuli differently from non-autistic people (e.g., Jones et al., 2003; Rogers & Ozonoff, 2005; Sibeoni et al., 2022), and in ways that make it difficult to process information in loud, crowded spaces. For example, while many non-autistic people report that sounds in the 80 decibel (e.g., garbage disposals; "Noise Sources", 2000) and above range are uncomfortable, autistic people report experiencing this discomfort 10-15 decibels sooner (e.g., television audio, office conversations; Khalfa et al., 2004). University orientation events and club fairs are particularly inaccessible information environments to autistic students as they involve high-intensity sensory input across multiple domains (e.g., loud, unpredictable noises, bright sunlight, crowds of people pushing against you; MacLennan et al., 2022). By making these events the primary sources for some types of information, the university expectations informing the events' organization enact a barrier that can limit autistic students' access to the same information as their non-autistic peers.

Even more serious is that some autistic students simply will not attend events that they expect to find painful and anxiety inducing and will begin the semester unaware of resources and opportunities that may benefit them:

> Orientation events at the beginning of the year were difficult for me because of the sheer number of people and the noise level of several events/activities... I think I could have gone if I wanted to, but high volume and highly populated events are difficult for me because of my sensory issues. (Participant 12)

Avoiding overwhelming sensory environments is not an uncommon coping strategy for autistic people (Parmar et al., 2021). Autistic students in the United Kingdom have reported similar barriers to accessing information through university events. Of 10 interviewed autistic university students, only three attempted to attend orientation week events and two quickly left due to the

overwhelming sensory environment and associated anxiety (Goddard & Cook, 2022). Orientation activities have been found to support non-autistic students' successful transition to university (Farrell et al., 2020). Students who do not attend welcome events attain lower grades after their first year (Murtagh et al., 2017); this is unsurprising, as it is difficult to learn about resources and support if one is unable to access the events at which information about these resources is conveyed.

Not attending or being unable to fully access these university-sanctioned events has downstream effects on autistic students' ability to access information in the future. As we have discussed, the expectations resulting in inaccessible club fairs reduce autistic students' immediate access to information about student-led organizations. For non-autistic students, student organization involvement is an important contributor to university success (Glass & Gesing, 2018) and facilitates the development of close friendships. These friendships are considered "hot" information sources (Ball & Vincent, 1998): the people students are most likely to trust and come to for information and support (Grim et al., 2021). Without information about how to join student-led organizations, autistic university students have fewer opportunities to develop the relationships that can provide long-term support through their roles as "hot" information sources.

Information Access Regarding Disability-Related Resources

The experiences participants shared about their understanding of and interaction, or lack thereof, with disability-related resources suggest that the university expects that most students

are non-disabled. For the few students who are disabled, the expectation is that they will already be familiar with how to navigate available resources to meet their "additional"[3] needs:

> ...it feels like I'm assumed to be a normal student that doesn't need [disability-related resources], so [the university] never really spent a lot of time and effort explaining to me that I might still be able to make a lot of effective use out of [disability-related resources]. (Participant 2)

When university administrators do not expect a group to be significantly represented at their institution, they do not spend a significant amount of time developing or advertising targeted resources to a student body they interpret as generally not needing these resources.

We can see evidence of this this through budgetary allocations: at universities in the United States, the average disability resource office has an annual budget of just under $240,000 (Harbour, 2009). The amount of funding dedicated to serving all disabled students registered with the office is less than the median annual salary of a university president ("Median Salaries", 2021). Even if disability resource staff want to provide support to *all* disabled university students, providing individualized support for up to 20% of the student population (Snyder et al., 2019) would be impossible for an office with an average of six staff members (Harbour, 2009). When disability resource offices are underfunded and their staff overworked, restricting who is able to access disability-related resources by way of limiting information is one way to maintain a more manageable caseload (Dolmage, 2017). Indeed, disseminating information about the resources available to disabled students is one of the least commonly endorsed activities by disability resource offices (Collins & Mowbray, 2005).

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[3] Note that the authors do not think of disabled peoples' needs as additional needs. We use this term to emphasize the ableist university expectation we have constructed.

Without easy access to information about disability-related resources, several of our participants were left with misconceptions about who the disability resource offices serves: "...my perception is that [the disability resource office] was more of a learning disabilities type of organization..." (Participant 14). Being unable to access disability-related resources has negative consequences for disabled students' outcomes: delayed registration with the university's disability resource office is associated with lower grades and taking longer to graduate (Blasey et al., 2022). Degree completion for students with non-physical disabilities (including autism) is particularly impacted by institutional processes (e.g., grading related to attendance policies, which can differentially impact disabled students) compared to background characteristics or academic preparation prior to university (Carroll et al., 2020). When universities do not expect significant numbers of disabled students, information about disability-related resources—and subsequently, disabled people—are relegated to the margins.

Also contributing to the lack of effective outreach about disability-related resources (Collins & Mowbray, 2005) is the university's expectation the relatively few disabled students who *are* present will already know how these resources can support them. Several of our participants' responses indicate that this expectation does not reflect their experience:

> ...I probably have a lack of understanding of what [the disability resource office] can actually do for me... I feel like the main thing that they do is help students get extra time on tests... and that's something that I personally do not need and so I just haven't pursued it.... (Participant 9)

This expectation means that disabled university students' prior experience—or lack thereof—with receiving accommodations will heavily influence their understanding of and thus access to disability-related resources. Indeed, disabled students who received accommodations in high

school are more likely to have access to disability-related resources in university than those who have never received disability-related resources before (Newman & Madaus, 2015).

For disabled university students who have not previously received disability-related resources and who succeed in registering with their university's disability resource office, it may be unclear how to actually use their approved accommodations:

> Another [issue] that I found with that difference between broader accommodations in the class and [my formally approved disability] accommodations, is that I don't really know where the line is, in terms of asking for my extension through [my formally approved disability accommodations] for a class versus asking as a normal student.... (Participant 5)

Participant 9's experience represents an interaction between expectations of reciprocal clarity, as discussed above, and the expectation that disabled students will be familiar with navigating disability-related resources. For disabled students who received disability-related resources prior to university, the combination of a) knowing that this type of support exists and that you are likely eligible for it, and b) first-hand experience using academic accommodations can be a significant advantage when university expectations about disabled students impose barriers to accessing information about disability-related resources.

The university's expectation of disability-related resource familiarity extends to non-academic disability-related accommodations and supports (e.g., single dorm room, allergy-friendly dining hall options, transportation assistance). However, even students who received disability-related resources prior to university may not be knowledgeable about this type of support, given that nearly one third of disabled high school students do receive higher education focused transition planning (Newman et al., 2011). Participants, who generally did not have

access to disability-related resources prior to university, expressed a need for housing accommodations in ways that indicate they were unaware that this type of non-academic accommodations is available:

> Participant 9: ...[with a single room] you can control your lighting and when you wake up... I feel like when you live with someone, especially if you don't know them, there are a lot of uncontrollable stimulus that can enter your life because of that.
>
> Participant 12: My dorm can sometimes be difficult for me to be in because it's somewhere that I go to get away from other people when I'm feeling very overwhelmed and there is often a lot of noise that sometimes contributes to my particularly bad reactions.

Indeed, a single room is non-academic accommodation that exists at the participants' university. This specific accommodation was even granted to one of our participants. When universities do not provide information about disability-related resources because they expect disabled students to already know what resources are available and how to navigate accessing them, universities significantly limit the number of disabled students who will be able to fully engage with all aspects of university life.

Summary and Further Discussion

This thesis responds to calls to investigate the factors that influence autistic people's access to information (e.g., Byrne, 2020; Braumberger, 2021; Gibson & Hanson-Baldauf, 2019; Everhart & Escobar, 2018) by analyzing the first-person perspectives of autistic university students. Previous research on autistic peoples' information access and behavior has primarily focused on library information behavior (e.g., Anderson, 2018; Everhart & Escobar, 2018). By

focusing on contexts outside of the library, we provide a broader understanding of the factors that influence autistic university students' everyday access to and engagement with information.

Participants often identified individual autistic characteristics as barriers to accessing information about resources and opportunities, particularly when this information access was socially mediated. We considered their experiences through a reciprocal framework (Milton, 2012), as the characteristics they identified as causing difficulty (i.e., processing speed, interpreting body language) exist in inherently interactive contexts. Rather than residing in an individual characteristic, difficulty is experienced when there is a misalignment between interactants' communication styles (Bolis et al., 2017; Milton, 2012). The understanding we have developed here reinforces experimental research that has identified difficulties when autistic and non-autistic adults interact with each other (Crompton, Ropar et al., 2020; Crompton, Sharp, et al., 2020) and provides insight into the experiences of the communicative misalignment that can occur in real-word settings.

We extended the first theme's focus on misalignment by situating participants' experiences in the context of institutional-level expectations. Identifying how universities conceptualize the "expected" university student (Koutsouris et al., 2021) as neurotypical and non-disabled provides insight into the barriers enacted by the policies and practices stemming from these expectations. By moving beyond the level of the individual through Gibson and Martin's (2019) framework of information marginalization, we can begin to explore how these institutional-level factors contribute to structural inequalities (Archer & Leathwood, 2003) that limit autistic university students' ability to meet their information needs. When their informational needs go unmet, autistic students are unlikely to be able to access resources and support that could facilitate their success (Cage & Howes, 2020). Only through understanding

how higher education systems fail to support autistic university students can we move towards reshaping the systems that further marginalize this historically excluded population.

Recommendations

Rather than focus on how autistic students can "integrate [themselves] into a system that wasn't really optimized for [them]" (Participant 2), we instead consider how universities can become more inclusive of different ways of interacting, communicating, and learning. This research was conceived with the explicit purpose of providing recommendations to the participants' university on how to better support autistic university students. Several participants told us that the opportunity to provide feedback to their university was the reason why they wanted to share their experiences with us. Here we share some of the recommendations participants gave us in the context of our analyses and the existing literature base.

University students often prefer to seek information from familiar and trusted others—individuals we've previously described as "warm" and "hot" information sources (Ball & Vincent, 1998; Grim et al., 2021). Relatedly, many autistic university students desire more opportunities and support to meet their social needs (e.g., Kim & Crowley, 2021; Cai & Richdale, 2016). Following our participants' recommendations for "more resources [and] opportunities to socialize" (Participant 1), universities should work with autistic students to create more frequent and accessible—for example, available through multiple modes of communication, in low sensory environments—opportunities for students to connect. With intentionally designed opportunities and spaces for connection, autistic students are more likely to develop trusting and supportive relationships. In addition to providing ongoing access to socially mediated information, social connection and positive relationships provide critical support to autistic people's wellbeing (e.g., Milton & Sims, 2016) and have been identified in

other studies as important to autistic university students' success (e.g., Cox et al., 2017; LeGary, 2017).

Many participants specifically expressed a desire to know other autistic students: "So I almost wished, if I was diagnosed as an undergrad, that I had some way of contacting other [autistic] people, because they could relate...." (Participant 10). One of our participants who did know peers who shared their identity indicated that they only found out about disability-related resources due to these relationships: "...my friends who are also neurodivergent individuals knew about [mental health and disability-related support]..." (Participant 5). Given our discussion of students' lack of access to information about disability-related resources, intentional efforts to facilitate these connections seem particularly relevant to improving autistic students' access to support.

Participants noted one way in which this might occur: while their university has dedicated spaces for LGBTQ+ identifying students and students from different cultural backgrounds, there is not an analogous community space for disabled students. Further, their university's disability-resource office (distinctly different from a community space) is literally on the campus margins. Community-based disabled spaces can be liberatory and can provide a fertile information environment through which autistic, and other disabled students, can share identity-based experiences and information (Chiang, 2020; Thomson, 2022). This kind of institutional support—commitment to and funding for dedicated community space—can contribute to reducing the inequalities autistic students' face when attempting to access information.

Indeed, some participants recognized the additional effort they had to exert to learn about the resources, supports, and opportunities available to them: "...it feels like we have to do a lot

more work to reach out, get these resources... just because we have a disability" (Participant 7). This can be constructed as a type of "disability tax" (Emens, 2020; Lund, 2021), costing autistic students time and energy that could be spent on academic, professional, social, and recovery activities (Lund, Andrews, & Holt, 2016). By changing policies and practices at the institutional level—for example, increasing outreach about disability-related resources, eliminating barriers that delay or prevent disabled students from registering with disability resource office, incentivizing inclusive and accessible teaching practices—universities can reduce some of the structural barriers that negatively impact autistic students' academic success (Carroll et al., 2020; Naylor & Mifsud, 2019).

Limitations and Future Directions

Our participants were all current or recently graduated students at the same public, research-intensive university in the Mid-Atlantic region of the United States. Despite efforts to include a range of perspectives, a majority of our participants were White, from highly educated families[4], and of expected university age[5]. These characteristics and backgrounds likely influence their experiences with both marginalization and privilege. The experiences of Black autistic people are particularly neglected in research (Malone et al., 2022), and their perspectives were absent from our dataset. Further, all participants communicated using spoken language and thus their experiences may not represent the experiences of nonspeaking autistic university students or those who rely on a mix of alternative augmentative communication and speech.

[4] We asked participants to report if they were a first-generation college student several months after we interviewed them. Of the eleven participants who responded, one indicated that neither of their parents/guardians had completed postsecondary education.

[5] The oldest participant (28 years) was of an expected age for a graduate student.

Indeed, several participants commented that they would likely have a very different experience (i.e., more negative) if "[their] autism wasn't as mild as it was" (Participant 12).

Our sample was relatively diverse and evenly represented in terms of gender identity, with four participants identifying non-binary or agender, five as female, and five as male. Autistic people are more likely than non-autistic people to identify as transgender or non-binary (George & Stokes, 2018), and attending to the experiences autistic people of minoritized genders is a relatively recent development in the scope of autism-related history (Eckerd, 2020; Moore et al., 2022). There were opportunities in participants' responses to examine to role of gender, diagnostic bias, and sexism. For example, four of the five male-identifying participants were registered with the disability-resource office and shared that they were formally identified as autistic. This contrasts with the experiences of our female-identifying (none registered, two formally identified) and non-binary-identifying participants (one registered, none formally identified). Future engagement with this dataset and others should take a more intentional focus to the potential role of gender identity in participants' experiences.

The literature focused on autistic university students, including this study, falls prey to "survivor bias": most studies include current students but do not follow them longitudinally or their participants have graduated from university (but see Anderson et al., 2020; Cage et al., 2020; Cage & Howes, 2020; Cage & McManemy, 2022). If we base our support efforts and attempts to change institutional policies and practices solely on information obtained from current autistic university students and graduates, we will miss the barriers that are most influential in autistic people leaving university before completing their degree. Concerted efforts need to be made to reach out to autistic people who have left university, including provisions for follow-up support in the event that sharing their reasons for leaving university causes distress.

Researchers should also prioritize longitudinal designs that follow autistic students over the course of their university career.

As we have noted, this study was not designed with a specific focus on information access or information marginalization. In developing the themes described above, we recognized several important ideas that, had our questions been focused on information access, likely would have supported additional themes. For example, many participants spoke of feeling like they did not belong and that they felt different from their peers. With more targeted questions, it is possible a theme focused on the role of belonging uncertainty in information seeking may have been constructed. But as the data stand, developing this theme felt like an overinterpretation participants' experiences. Future research should explicitly focus on autistic people's perceptions of social and non-social information seeking and access across a variety of environments. This will lay the groundwork to further understand the role and mechanisms of information marginalization (Gibson & Martin, 2019) in the lives of autistic adults.

Conclusions

As more autistic children are identified and provided access to appropriate education, support, and opportunities, it is important to proactively evaluate the existing structures of higher education and reorganize them to be more accessible and inclusive. This will better support the increasing number of autistic people who pursue higher education (Cox, 2017) in addition to benefitting other marginalized student populations impacted by structural inequality and information marginalization (e.g., first-generation students, Grim et al., 2022).

In an effort to understand how to better support autistic university students, this thesis explores the individual, interactional, and institutional factors that influence their access to information. Support that focuses solely on autistic students at an individual level is likely to be

inadequate and inappropriate given the role of misalignment at interactional and institutional levels. Access to individual disability-related resources that are informed by the insights and needs of autistic students will likely remain important, but these must be paired with structural change. We also provide insight into the consequences that occur when information about resources and opportunities is inaccessible. The experiences participants shared with us spanned multiple domains of university life, indicating that the need for change extends beyond the academic space. Future research is needed to extend our analysis of factors that impede autistic university students' full access to university information environments. For this research to be effective, it is important that autistic university students themselves are engaged in the development and implementation of this research and in the efforts to shape more equitable access to higher education.

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Appendix A: Guiding Questions

Note. Bolded questions were asked to all participants. Non-bolded questions were asked when relevant and were up to the interviewer's discretion if time was running short or the participant's response required extensive follow-up or outlined a new idea. Identifying names and terms have been changed for masking purposes. Questions were asked in approximately the order they are presented below.

Overall Perceptions of the Climate at [University] for Autistic Students

On the whole, what would you say your experience at [UNIVERSITY] has been like as an autistic student?

Do you think other students at [University] are accepting of autistic students? Why or why not?

Have you run into any specific policies (e.g., requiring first years to live on [campus]) **that make your experience as an autistic student easier or more difficult?**

Specific Programs and Learning Experiences at [University]

Are you registered with the [Disability Resource Center (DRO)]?

- **If registered with DRO**, has your experience with DRO been mostly positive or mostly negative? Can you describe a specific positive/negative experience?
    - How easy or difficult was the process of initially registering for DRO? Why was it easy/difficult?
    - How easy or difficult has it been for you to get your accommodations approved by DRO?
    - Have your professors seemed ready and willing to implement your DRO accommodations? Or have you run into difficulties? Can you provide examples?
- **If you're not registered with DRO**, is there anything preventing you from doing so?
- Have you requested any accommodations from professors that were not already approved by DRO? Can you tell us about how you arranged that and how things have gone?

One particular thing we're interested in is autistic students' experiences with research assistantships and internships at [University]. Have you ever applied for these kinds of positions?

- **If so**, how did you find out about the position(s)?
    - Was the opportunity readily accessible and relatively easy to find?
    - If the research assistantship or internship was outside of the [University] network, did you access it through [University]? Were there staff that helped you find the position(s)?

    - If the position was at [University], was there anything in that experience (e.g., finding the opportunities, applying, interviewing, and/or actually being an intern or RA) that you found easy or difficult?
- **If not,** is there a particular reason that you haven't?

Were you attending [University] while classes were virtual?

- **If so,** how did virtual learning promote or hinder your learning?
    - How has the return to in-person classes promoted or hindered your learning?
    - How flexible have professors been about syllabus policies, like attendance and assignment due dates, during virtual learning versus in-person? How has their flexibility (or lack thereof) helped or hindered your learning?

Sense of Belonging at [University] as an Autistic Student

What are some things that have made you feel like you belong as an autistic student at [University]?

- Is there anything specific that [University] as an institution has done to make you feel like you belong here?
- Some people feel like their relationships, their group involvements, their classes, and/or other extracurricular activities help them feel like a part of their university community. Do any of these things ring true for you? If so, can you provide a specific example?
- Is there anything in your coursework that you've taken that made you feel welcomed as an autistic student?

What are some things that have made you feel like you don't belong at [University]?

- Have there been any barriers or specific instances where you wanted to attend an event but it was inaccessible to you as an autistic student?
    - For example, some people have expressed that the activities fair can be noisy and have a lot of people in one space at one time, which could dissuade someone from going.
    - If so, could you describe as much as you feel comfortable sharing?
- Have you had an experience with a personal relationship, involvement in a group, experience in a class, and/or experience in other extracurricular activities that has made you feel excluded on the basis of being autistic?
- Has there been anything about your residential experiences at [University] that has been difficult for you?
- Is there anything in your coursework that you've taken that made you feel uncomfortable or unwelcomed as an autistic student?

Thoughts and Advice for the University

What should the University administration, including the administrators of your specific school or department, know about your experience as an autistic student at [University]?

What could [University] change about housing policies and/or dorm life to improve your residential experiences as an autistic student?

What are some things that [University] could change to better support your academic experience as an autistic student?

- Is there anything in specific that [University] could improve about classes to promote your success?

What are some things that [University] could change to help improve your social experience as an autistic student?

- For example, have you attended the activities fair? Was that a helpful/beneficial experience for you, and/or is there something that could have made it more helpful?

Closing Thoughts

Are there any other ways that [University] could help improve your experience at the University outside of what you already answered above?

Is there anything else you'd like to share with us?

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