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Developing a Tool to Analyze Communication Access in Restaurants for Individuals Who Use Augmentative and Alternative Communication

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DEVELOPING A TOOL TO ANALYZE COMMUNICATION ACCESS IN RESTAURANTS FOR INDIVIDUALS WHO USE AUGMENTATIVE AND ALTERNATIVE COMMUNIATION

by

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ABSTRACT

DEVELOPING A TOOL TO ANALYZE COMMUNICATION ACCESS IN RESTAURANTS FOR INDIVIDUALS WHO USE AUGMENTATIVE AND ALTERNATIVE COMMUNIATION

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Communication accessibility has been defined by many scholars and organizations, but it is generally described as clear communication that everyone can access and understand. The objective of this research thesis is to create a tool for assessing communication accessibility for people who use augmentative and alternative communication (PWUAAC) within a variety of restaurant settings. Through a two-part study, researchers interviewed 5 adults who use AAC (Study A) and created a survey rated by an additional 10 adults who use AAC (i.e., Study B). The interviews from Study A were qualitatively coded and revealed common communication accessibility themes that restaurants and restaurant staff were not implementing, such as direct communication, respect, and ample wait and response time. This information from the interviews, alongside current AAC research literature and communication accessibility guidelines from organizations in other countries, was used to create a checklist to evaluate the communication accessibility of restaurants. In Study B, a survey was created for participants to evaluate the content of the checklist. Results from Study B indicated communication accessibility topics of high and low priority, which were utilized to scale down the length of the checklist. The implications of the final checklist from the survey include its potential usage in training restaurant staff and management to utilize

communication accessibility tips and features to increase the communication accessibility of the restaurant patrons they serve, especially for individuals who use AAC.

Note: Person-first language was used throughout the entirety of the paper for consistency.

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Introduction

Participation

Participation is a key aspect of being fulfilled and finding enjoyment in life. All people search for ways to participate in society to varying capacities, which can range from visiting a local library or the grocery store, to volunteering, dining in a restaurant, or holding a position of power. Due to the intrinsic and extrinsic benefits that participation generates, people from all backgrounds and cultures can relate to the health, wellness, and psychosocial skills built from participating in one's community. Community participation is also beneficial because it can allow people to create a sense of belonging to a shared group, share personal interests with others, and find social opportunities involving new and familiar people (Hajjar & McCarthy, 2021). The connectedness and acceptance that people strive for can be found by participating in one's community (Balandin, 2011), making this an important piece for all individuals to freely enjoy.

The Communication Bill of Rights (Brady et al., 2016) states that every person has the right to "affect, through communication, the conditions of their existence" (p. 123). This document was developed and published by the National Joint Committee (NJC) for the Communication Needs of Persons with Severe Disabilities in 1992 and was revised in 2016, and it ensures the basic right of communication for individuals with disabilities to use and have access to communication to manage their own lives (Northwest Augmentative and Alternative Communication Society, 2022). The Communication Bill of Rights fits into the International Classification of Functioning, Disability, and Health (ICF) model that the American Speech-Language-Hearing

Association (ASHA) endorses. The ICF framework was established by the World Health Organization (WHO) for measuring health and disability at the individual and population level to ensure full inclusion of persons with disabilities in society, which includes people who use AAC (PWUAAC; WHO, 2001). ASHA incorporated the ICF model as the framework for the field in the Scope of Practice for Speech-Language Pathology the same year it was published in 2001, yet surveys 12 years later reveal that half of the SLPs had never heard of the ICF model and less than 3% reported they “know a lot about it” (Huer & Threats, 2016, p.83; ASHA, 2013). In 2016, the Scope of Practice for Speech-Language Pathology more fully explained the use of ICF as the framework for diagnosis and intervention (Huer & Threats, 2016), but Diepeveen et al. (2020) in a recent study about SLP daily practice stated that “SLPs rarely collect information at all the levels of the ICF, especially on participation in everyday life determined by parents/caregivers” (p. 1541) and “most of the selected assessments are on the level of body functions” (p. 1537) in the ICF. ASHA expects practicing SLPs to implement functional participation in communities for PWUAAC, but research demonstrates this is not the reality of intervention practices.

As stated by the United Nations, in the United Nations Convention on the Rights of Persons with Disabilities (2006), participation and inclusion are fundamental for all people, including individuals with disabilities. This international human rights treaty “establishes legal obligations to promote and protect the rights of people with disabilities and specifies equal accessibility for all within the community” (United Nations, 2006, as cited in Collier et al., 2010, p. 48).This, among other legal documents over the years, proves that community participation is a right, alongside inviting individuals with

disabilities to build competence, increase their confidence, be more independent, and increase positive attitudes towards people with disabilities (Dattilo et al., 2008). Yet, as stated in two separate research studies (Dattilo et al., 2008; Felce et al., 2001), adults with lifelong disability, including PWUAAC, are more likely to stay at home participating in solitary activities rather than going out in the community. Participation is important for an individual's personal wellness and a right that everyone should enjoy, yet this is not the case for PWUAAC.

Augmentative and Alternative Communication

Defined by the American Speech-Language Hearing Association (ASHA, 2023a), augmentative and alternative communication (AAC) "describes multiple ways to communicate that can supplement or compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders" (para. 3). In recent estimates, 3.5 million Americans experience significant challenges being understood by others (AAC Institute, 2015), and over 2 million people who present with significant expressive language impairment use AAC (ASHA, 2023a). The need to acquire AAC stems from congenital and/or acquired disabilities that occur across the lifespan and cause difficulty communicating utilizing speech, which can include several disabilities such as autism, cerebral palsy, dual sensory impairments, genetic syndromes, intellectual disability, multiple disabilities, hearing impairment, disease, stroke, and head injury (ASHA, 2023a). AAC encompasses unaided communication that utilizes natural communication and manual signs, such as facial expressions, body posture, gestures, or sign language, but it also includes aided modes that involve physical equipment and can range from low-

technology to high-technology options, such as a communication book (i.e., low-technology) or a tablet (i.e., high-technology) (ASHA, 2023b). As stated by the International Society for AAC (ISAAC; 2011b), communication can take many forms and can be as simple as a shared glance or as complex as a speech-generating device, but the modality should not be valued more than the successful understanding of the message.

Participation For Individuals Who Use AAC

Participation for PWUAAC can look different for each person, but there are similarities among them that make it possible to measure participation across the general AAC population. AAC intervention should be personalized to best fit the unique needs, goals, and skills of PWUAAC (Babb et al., 2021). However, researchers have identified factors that support successful communication by PWUAAC. Specialized training on how to functionally use an AAC system by a speech-language pathologist or communication specialist is key for PWUAAC, as their device is how they communicate. Learning to use AAC is not intuitive for either PWUAAC or communication partners interacting with them, which can lead to AAC abandonment (Kent-Walsh et al., 2015). Research has addressed this issue by investigating the direct instruction of skills to communicate with PWUAAC, such as setting up contexts for communication, providing AAC models, and asking questions to facilitate communication with this population (Nunes & Hanline, 2007; Binger et al., 2010). These strategies have been proven as ways to facilitate a variety of communication responses, from a variety of communication partners, and in a variety of situations.

Furthermore, research on recreational participation for PWUAAC can be applied to the overarching AAC population. In a study on community recreation for adults with developmental disabilities by Hajjar & McCarthy (2021), many themes were identified to highlight both barriers and facilitators in supporting communication for PWUAAC. Barriers to successful communication included personal motivation to participate, the facilitator's skills and knowledge about AAC, and the availability of adaptive recreation programs. Intrinsic factors from the PWUAAC that were beneficial in supporting successful recreational participation included motivation, multimodal communicating, and maintaining a positive attitude. Overall, though, the adults primarily mentioned the importance of external supports that augmented their communication interactions when participating in the community, such as how the communication partner interacts and facilitates conversation with the PWUAAC. Although this study focused on the importance of promoting recreation and leisure in the lives of PWUAAC, there is evidence on how to facilitate multimodal communication across PWUAAC's experiences. This will be further described in a later section.

It is important for communication partners of PWUAAC to follow general guidelines to help facilitate successful communication interactions. This is especially true when PWUAAC are within the community, as they are not in their natural home environment. Kent-Walsh & McNaughton (2005) reviewed the literature and identified implementing conversational pause time, asking open-ended questions, providing physical prompts, modeling utterances, establishing eye contact, and responding to the communicative attempts of the individual as a few strategies to promote interaction for PWUAAC. Other helpful skills communication partners should practice when talking with

PWUAAC include tagged yes/no questions when appropriate, written choices in meaningful and appropriate situations, and utilizing a least to most cueing hierarchy (i.e., natural cue, expectant delay, point toward device, provided aided AAC model) (Binger & Kent-Walsh, 2012; Light and Binger, 1998).

Communication and participation are directly related to one another and make up pillars of participation, including self-expression and developing relationships with others through engaging in social opportunities (Hajjar & McCarthy, 2021). The correlation between communication and participation is more straightforward for individuals who communicate utilizing the same mode of communication (e.g., speech), but interacting with someone using an alternative or unfamiliar method, such as AAC, can make communication more difficult. Researchers have assessed ways that AAC users can interact with their community in a dynamic and efficient way. The Participation Model for Augmentative and Alternative Communication was established to guide assessment and intervention for PWUAAC (Beukelman & Mirenda, 1988, as cited by Beukelman & Light, 2020).

The Participation Model for AAC is used to identify participation levels among PWUAAC through a flowchart that leads professionals and stakeholders in assessment of participation barriers PWUAAC may encounter. The Participation Model is broken up into two larger categories that include opportunity barriers (i.e., policy, practice, facilitator skill, facilitator knowledge, attitudes) and access barriers (i.e., limitations in the individual's current communication).

Opportunity barriers are obstacles outside of the individual that limit their participation. A portion of opportunity barriers includes policy barriers, which is a lack of

awareness and enforcement of existing laws and regulations that require organizations and facilities to be accessible to PWUAAC. Facilitator skill barriers are explained as the ability for a communication partner to effectively communicate with PWUAAC. Part of this ties to the facilitator's knowledge about AAC and the necessary accommodations needed to be implemented for a successful communication interaction to occur, which is the third part found in the opportunity barrier category. Finally, attitudinal barriers for PWUAAC include awareness on what disabilities may necessitate AAC and how cognition may or may not be affected by the disability, which can affect the way communication partners interact with someone who uses AAC.

Access barriers are assessed through analyzing the individual's abilities (i.e., motor, cognitive/linguistic, literacy, sensory/perceptual skills), assessing their potential to increase their natural abilities, and utilizing AAC systems and devices. The potential for environmental adaptations is also considered in this part of the model. As stated by the Centers for Disease Control and Prevention (CDC) on Disabilities and Health Promotion (2020), society needs to step away from seeing disability as a personal deficit or shortcoming, but rather think of it as a "social responsibility in which all people can be supported to live independent and successful lives" (para. 4) to better recognize and address challenges this population may encounter. Unfortunately, opportunity and access barriers, such as those presented earlier, prevent PWUAAC from participating to the full capacity to which they are entitled.

Opportunity and access barriers can be addressed by planning and implementing interventions for "today and tomorrow" (Beukelman & Mirenda, 2013, para. 29), such as providing instruction to PWUAAC and facilitators, which leads to evaluating the

effectiveness of the intervention. The Participation Model for AAC was developed to aid speech-language pathologists in effectively implementing and evaluating participation for PWUAAC, but it has been unclear how often this model has been applied within public and professional spheres (Lund et al., 2017).

Barriers to Participation For PWUAAC

Due to many contributing factors that affect, influence, and contribute to communication for individuals who use AAC, participation can be a difficult feat for PWUAAC when the proper support is not present. For example, a study conducted by Johnson et al. (2009), assessing community inclusion among adults with severe disabilities, indicated that the maintenance and development of successful communication in the community has five requirements: (1) ongoing support from a communication specialist, (2) training for all individuals involved in the interaction, (3) a proactive manager or service coordinator who values person-centered approach, (4) time release for staff and community members to receive specialized training and develop aids, and (5) materials on site to construct communication aids on the spot. All people who use AAC should be given the opportunity to freely participate in local activities in their community, but many of the components necessary for a mutual communication exchange are missing from community members' and facilities' repertoires (Collier et al., 2012; Taylor et al., 2019; Hajjar & McCarthy, 2021; Kent-Walsh et al., 2015). Communication becomes significantly more challenging because of the various forms and degrees of physical adaptations and communication tools PWUAAC need to have a successful interaction in the community. The lack of

knowledge about different modes of communication and discomfort communicating with this population also contributes to these challenges (Batorowicz et al., 2006).

Policy Barriers

There are several federal laws in the United States and beyond that mandate businesses and organizations in the community remove barriers that discriminate against individuals with disabilities and provide accommodations for them. A few examples from the hundreds of laws passed to create a more equitable and free community experience for people with disabilities include, but are not limited to, the Americans with Disabilities Act of 1990 in the United States, the Disability Discrimination Act of 1992 in Australia, the Disability and Equality Act of 2010 in the United Kingdom (UK), the Accessibility for Ontarians with Disabilities Act in 2005 in Canada, and the Persons with Disabilities Act in 2011 in India (Collier et al., 2012). These regulations represent steps in the right direction to making communities more accessible for people who use alternative methods of communication, but barriers still exist. These laws have focused on the physical environment more than communication accessibility features, which doesn't comprehensively accommodate PWUAAC's communication needs when in the community.

Attitudinal Barriers

Community members' attitudes about people who use alternative modes of communication affect the outlook they have on interacting with PWUAAC. For example, when shopping, environmental barriers such as ignoring, patronizing, stereotyping, and not allowing sufficient time to respond were observed from retail customer service employees (Taylor et al., 2019). This is an explicit example of underestimating the

abilities of the PWUAAC. This same study on shopping identified ways that PWUAAC made accommodations to make the establishment accessible for themselves, versus the retail environment “delivering improvements” (Taylor et al., 2019, p. 234). For example, the PWUAAC in the study would choose dependency on others to overcome the communication barriers they encountered at the expense of the independence that could have been facilitated through the communication partner within the shopping experience. Other researchers have noted similar barriers related to the attitudes of community members (Beukelman & Light, 2020; Collier et al., 2010; Collier et al., 2012), with Collier et al. (2012) specifically stating that unfamiliar communication partners (e.g., members of the community) commonly talk over the top of the speaker with complex communication needs (CCN), control conversations by using directive questions, leave the speaker insufficient time to respond, ignore the person by talking to companions instead, or use other ways of communicating that exclude people with CCN.

Skill Barriers

There is considerable research on participation within recreational activities from Hajjar and McCarthy (2021) that outlines challenges of participation for PWUAAC, as well as what is necessary for successful communication from the perspective of people who use alternative methods of communication. Although a lack of available recreation programs certainly posed a challenge to engagement in recreational activities, study participants identified a lack of facilitator skills, knowledge, and maintenance of personal motivation from the PWUAAC as challenges. The participants from the study emphasized the importance of multimodal communication methods (e.g., using multiple forms of communication such as gestures, paper-based communication systems, high-

technology AAC, verbal and nonverbal communication). Educating communication partners about techniques in promoting conversation also was rated with high importance, such as wait time, modeling, and the use of open-ended questions. The information gathered from research in recreation directly relates to issues in societal engagement for PWUAAC, as the participants were seeking increased involvement in their community and running into barriers that limited them from fully participating in the activity.

The lack of knowledge and skill when interacting with PWUAAC from people in the community is another concern that creates an obstacle when people with CCN attempt to participate in their communities. Knowing how to facilitate interactions with PWUAAC is not intuitive for most communication partners (Kent-Walsh et al., 2015) due to the public not knowing about AAC in general and being reluctant to acknowledging AAC as a valid form of communication (Murphy et al., 1996; McNaughton & Bryen, 2007). Even with this need to educate people on AAC and how to interact with PWUAAC, training in this area within community establishments is not extensively offered (Taylor et al., 2019; Taylor et al., 2022). There is little emphasis in research literature on communication with “casual communication partners” (Taylor et al., 2019, p. 229) that PWUAAC would interact with in the community. Most attention has been given to training the PWUAAC themselves and the people they interact with the most (Taylor et al., 2019; Light and McNaughton, 2014; McNaughton & Bryen, 2007). There is also a lack of compensation to teach and train communities and employees within educational, medical, and private sector service-delivery environments, which limits the training people could receive due to the absence of compensation for time spent on

increasing skills in this area (Amundsen, 2014; Kent-Walsh et al., 2008; Kent-Walsh et al., 2015). The lack of awareness, knowledge, and skill on the part of others may cause PWUAAC increased stress and decreased confidence when participating in their communities, which could reduce their desire to take part in society.

Research has shown that communication partners can learn to use these skills in communication with PWUAAC. In a study on in-person communication partner instruction in AAC, Kent-Walsh & McNaughton (2005) describe 8 stages that lead communication partners from making a commitment to the instructional program to generalizing the targeted strategy into a range of settings. These stages include (1) pretest and commitment, (2) strategy description, (3) strategy demonstration, (4) verbal practice of strategy steps, (5) controlled practice and feedback, (6) advanced practice and feedback, (7) posttest and commitment to long-term usage, and (8) generalization. This method focuses on long-term intervention methods to train communication partners in applying interaction skills and strategies with PWUAAC. More recently, Collier et al. (2012) demonstrated that e-learning modules can also be effective for teaching communication partners how to effectively interact with PWUAAC from a business and organization perspective. The modules include (1) learning background information on communication access for people with CCN, (2) initiating conversation with people with CCN, (3) communicating with people with CCN, (4) supporting comprehension, and accommodating people with CCN (5) facilitating communication in public, (6) facilitating communication on the telephone, (7) facilitating communication via text, print, and the Internet, and (8) facilitating communication in writing. These 8 modules differ from the in-person learning modules of Kent-Walsh & McNaughton (2005), but they have the

similar outcome measures of increasing the communication accessibility for people with CCN or PWUAAC.

Knowledge Barriers

Understanding the need for people to use AAC is an additional barrier that is highlighted in the AAC literature. Research has substantiated that accommodations for PWUAAC are not well understood or practiced by businesses and organizations, which creates accessibility barriers for many PWUAAC (Collier et al., 2012; Taveres & Peixoto, 2003). There is a mix of people who both underestimate (Blackstone, 1999; Collier et al., 2010) and overestimate (Tavares & Peixoto, 2003; McNaughton & Bryen, 2007) the abilities of PWUAAC, which creates unrealistic expectations for this population and can create frustration across both parties in the communication interaction. People who use AAC contribute to successful communication interactions, but a sense of understanding and accommodation from the other communication partner is essential to ensure they don't control the conversation and respect the AAC user (Collier et al., 2012). The goal of AAC is to achieve the most effective communication possible while maximizing individuals' potential and quality of life (AAC Institute, 2015), but this cannot be achieved when there are environmental and personal factors among communities and communication partners that make obtaining these outcomes difficult.

There are laws designed to remove policy barriers that have been mentioned previously in this report, but these don't address how community members respond to PWUAAC. Negative attitudes affect the motivation for PWUAAC to participate in society, which is a communal right that is taken away from them. The Participation

Model for AAC clearly demonstrates how to respond to attitude, skill, and knowledge barriers that community members may exhibit, which can help address these instances among PWUAAC but cannot fully avoid them. It is up to the individual to change their thought processes and ideas revolving around the AAC population, but this will not occur until direct services in shifting attitudes and stereotypes to a more positive light ensues (Hajjar et al., 2016). Knowledge barriers, as well as skill, attitude, and some policy barriers, affect PWUAAC and are not addressed or mandated within current facilities or organizations.

Communication Access

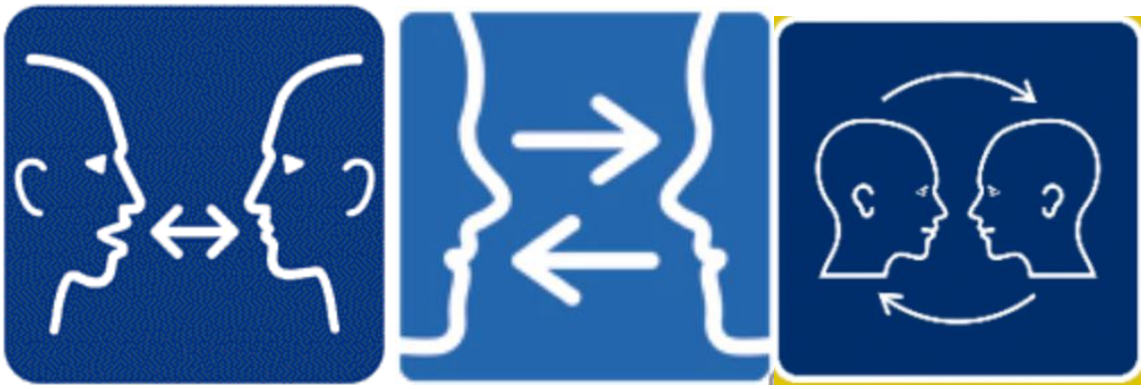
Communication access refers to all people having the opportunity to communicate and be communicated with, regardless of an individual's identity or disability. As stated in the Communication Bill of Rights (Brady et al., 2016) by the National Joint Committee (NJC) for the Communication Needs of Persons with Severe Disabilities, every person has communication rights. Fundamental communication rights to community access include the right to (1) access environmental contexts, interactions, and opportunities that promote participation as full communication partners with other people, (2) ask for and give information, (3) have clear, meaningful, and culturally and linguistically appropriate communications, and (4) be addressed directly and not be spoken for or talked about in the third person while present (Northwest Augmentative and Alternative Communication Society, 2022). As further explained by Scope Australia (2011), communication access "aims to create a world where people who have communication difficulties are able to communicate successfully with everyone" (para. 3).

The Universal Declaration of Human Rights (1948) is an additional human rights law that mandates a common standard of achievement and enjoyment for all people and communities. Articles 2 and 19 from this document state that everyone has a right to freedom of opinion and expression without distinction of any kind (e.g., race, color, sex, language), yet recent studies exhibit the opposite. Communication disability is felt by many PWUAAC due to barriers that limit opportunities to participate in society on an equal level with others (Carroll et al., 2018). Excluding PWUAAC from the community due to a lack of communication accessibility goes against the concept of communication access that society is mandated to implement and claims to uphold.

In attempts to bridge this communication accessibility gap, several communication access symbols have been created in many countries that individuals, businesses, and organizations can display to promote the best communication supports possible. This includes helping people that may need support understanding what others are saying, having others understand their message, using communication methods that work best for them, receiving adequate time to communicate their messages, reading and understanding written information, utilizing website and social media of the organization, accessing telephone services, and signing and completing documents in ways that are accessible to the individual (Communication Disabilities Access Canada, 2014). These symbols (Figure 1) have been implemented in Canada (Communication Disabilities Access Canada, 2014), Australia (Scope , 2011), and the UK (Communication Matters , 2021) and illustrate similar images of an equitable communication interaction between two people, with arrows indicating a back-and-forth exchange between them. Businesses can acquire these symbols through the

completion of training that is unique to communication accessibility to ensure services are communication accessible, which could include, but is not limited to, welcoming staff that treat everyone with dignity and respect, successful communication with people with communication difficulties, and communication tools that are readily available to help people get their message across and understand what people are telling them (Scope , 2011). These symbols meet the ISAAC's standards of communication accessibility to fully participate in the communities in these countries (ISAAC, 2011a), but the United States has not developed nor implemented a communication access symbol (CAS) or communication access guidelines for public entities.

Figure 1. Examples of communication access symbols in other countries.



(1) (2) (3)

From left to right, these are the (1) Canadian, (2) Australian, and (3) British communication access symbols described above.

Limited research exists on how "communication accessible" businesses and organizations are, especially within the United States. As discussed earlier, there is some research on community accessibility within recreational activities that present participation limitations in terms of lacking programs and skilled and knowledge partners (Hajjar et al., 2016; Hajjar & McCarthy, 2021). Specific research to community

participation among people living with aphasia (PLWA) identifies characteristics that determine the degree to which a shop is accessible for this population, but the conclusions and results primarily emphasized how SLPs can prepare PLWA for active community participation post-rehabilitation (Anglade et al., 2019). Proficient research exists for communication assistants and how skills and strategies of partners can augment communication interactions by reducing anxiety among and negative attitudes towards PWUAAC (Collier et al., 2010; Kent-Walsh & McNaughton, 2005; Hajjar et al, 2016), but performance in the community of PWUAAC, as well as the performance of community-based partners, was not extensively measured.

There are individual studies on communication access of some public services, but these cannot be generalized to other businesses within the community. For example, to improve access to legal services for PWUAAC, Togher et al. (2006) developed a communication training program for legal personnel. The training package provided in this research offered video vignettes to explain CCN, dispel myths about PWUAAC, present types of AAC, present strategies for and barriers to effective communication with PWUAAC, and improve the quality of communication interactions between staff and PWUAAC. Similarly, Shepherd and McDougall (2008) analyzed communication access in libraries for PWUAAC and created a program called *Libraries for All* that provided resources and instruction on communicating with this population. The researchers implemented communication boards in libraries in the community of London, Ontario, and promoted a facilitator training program for librarians to use when communicating with PWUAAC. Communication access for legal services and libraries are fundamental steps in increasing communication access to public buildings and

organizations, but these cannot be generalized to other places that PWUAAC have access to in the community due to the unique nature of each facility and its associated training program.

One study by Collier et al. (2012) titled “Communication Access to Businesses and Organizations for PWCCN” (people with CCN) starts to explain some PWUAAC’s opinions on ways to augment their communication experience in the public, but it does not detail how to make the business better or implement these practices. Face-to-face communication to enhance expression and comprehension is outlined as important requirements needed for successful communication, but how businesses can meet these accommodations is still missing. A gap within the literature between the relationship of PWUAAC and staff behavior, values, and performance has been noted by researchers (Hatton et al., 2004; Johnson, 2009) in a general sense, with one of the most common social activities of dining in restaurants being excluded from research.

The purpose of this study was to develop an assessment tool for evaluating communication access in restaurants for PWUAAC. This research could provide restaurants with a checklist to make their business more accessible to patrons who use alternative methods of communicating, which may, in turn, provide PWUAAC with newfound confidence in eating out at restaurants that uphold the ideas in the checklist. To meet these objectives, the project was divided into two parts, Study A and Study B. Study A defined and conceptualized what it means for a restaurant to be communication accessible through interviews with PWUAAC and a review of augmentative and alternative communication (AAC) research. A checklist to rate the communication accessibility of restaurants was developed based on these results. Study B aimed to

establish the content validity of the checklist. The methods, analysis, results, and discussion for each study are described in the separate sections that follow.

Study A: Interviews with PWUAAC

Methods

Study A involved interviewing five individuals who used AAC as their primary mode of communication and frequented restaurants at least once a month. This information was necessary to gather comments and opinions from a representative population of PWUAAC and compare them to recent AAC literature on communication accessibility. Below are the participants, materials, procedures, and analysis of this part of the investigation.

Participants

Five PWUAAC from a variety of racial, cultural, and linguistic backgrounds were recruited to take part in the study. The researchers endeavored to ensure the participants were representative of the population of PWUAAC. Participants were recruited through the primary investigator's personal networks, university social media, and posts to the ASHA special interest group for AAC. The snowball effect for recruitment was also utilized, meaning eligible participants were asked to pass on information about the study to people they knew who met the selection criteria.

To be eligible for the study, participants had to be 18 years of age or older and able to provide their own consent to participate in the study. The PWUAAC had to reside within North America (i.e., USA and Canada) and be fluent in English, including the ability to read in English. Access to a computer, the Internet, and a videocall platform (e.g., Zoom, Microsoft Teams) was mandatory to conduct the interviews. The

participants had to use AAC as their primary mode of communication and had to communicate independently. They had to also frequent a variety of styles of restaurants (e.g., fast food, sit-down, fast casual) at least once every 1-2 months prior to the Covid19 global pandemic. The pandemic affected how often many people dine out; therefore, this criterion was evaluated on dining rates pre-pandemic. Although participants did not have to identify with a specific diagnosis or be of a certain physical condition, the individuals had to eat orally, but not necessarily independently. Participants were excluded from the study if they were fed through a feeding tube because dining experiences were significantly different for these individuals.

Table 1: Study A Participants

Pseudonym	Age in Yrs	Gender	Race/ Ethnicity	Modes of Communication	Restaurant Frequency	Restaurant Types
Teresa	40+	Female	White	Speech, gesture, low-tech, chat box on Zoom, high-tech iPad and Android tablet	Weekly	Fast-food, sit-down restaurants, drive-in restaurants
Kyle	40+	Male	Black	Speech, gestures, high-tech AAC device	Once a month	Fast-food, sit-down restaurants, at-home delivery, drive-in restaurants
Mason	25-30	Male	White	Gestures, high-tech AAC device	Once a month	Fast-food, coffee shops, sit-down restaurants, drive-in restaurants

Jude	40+	Male	White	Low-tech communication board, high-tech computer	Weekly	Coffee shops, sit down restaurants, at-home delivery
Amber	22-24	Female	Black	Speech, gesture, vocalizations, high-tech AAC device, auditory scanning, live voice assisted scanning	Once a month	Fast food, coffee shops, sit down restaurants, drive-in restaurants

Table 1 presents demographic information summarizing the five participants interviewed for Study A can be found. All participants identified as having cerebral palsy as their disability type, and it was therefore not included in the table.

Materials

A demographic screening survey was sent to all individuals who expressed interest in participating in the study. This form included demographic information about the participant based on the “Demographic/Background Information” form from Bruckbauer’s (2020) study on sensory accessibility needs in Deaf and low vision populations, as well as questions regarding their modes of communication, their disability status, their restaurant frequency, and their familiarity and access to videocall platforms (e.g., Zoom). The questionnaire was in the form of a Qualtrics survey that went through an accessibility check and provided the participants multiple choice options for responses to the form. This survey can be found in Appendix A.

Procedures

An email was sent to potential candidates that expressed an interest in participating in the study. This email provided candidates with a brief overview of the study, why they would be an asset to the study, information about the stipend they would receive for participating, availability to meet virtually over a videocall, and a unique link to the demographic screening survey. If the candidates didn't respond within 2 weeks, a follow-up email was sent reiterating the content of the first email. Participants who declined participation in the study received a short email thanking them for their time and consideration. Individuals who met inclusion criteria based on their survey responses were sent a digital consent form to complete in Qualtrics that ensured their compliance with participation, being videotaped, and being audio recorded.

Interview

Questions about the individual and their experiences with restaurants, both good and bad, were provided to the participant before the date of the interview so the PWUAAC had the option of preparing answers in advance. The interview questions were then emailed to the participants at least two weeks in advance to allow them time to look over the content and create answers in advance, which was highly encouraged to maximize time during the videocall. The questions sent to the individuals covered a variety of topics about their experiences and opinions in restaurants as PWUAAC, including questions regarding general good and bad personal stories about restaurant experiences, their opinions on the current level of communication accessibility within restaurants, their thoughts on communication access symbols present in other

countries, and their definition of communication accessibility. Interview questions were based off previous AAC research on communication accessibility of other public entities (Hajjar & McCarthy, 2016; Hajjar & McCarthy, 2021; Taylor et al., 2019; Shepherd & McDougall, 2008), as well as national communication accessibility guidelines set in other countries (Communication Disabilities Access Canada, 2014; Scope (Australia), 2011; Communication Matters (UK), 2021). These questions can be found in Appendix B.

Individuals who met the selection criteria based on their survey responses were invited to participate in the study. An interview via Zoom was then scheduled with the PWUAAC at a time that they, as well as any other supports needed to complete the interview (e.g., communication assistant), were available. Two participants had communication partners to help them during the interview, with Jude utilizing a communication assistant to vocalize what he was pointing to on his low-tech AAC system, and Amber utilizing auditory scanning by her communication assistant to communicate her message. After five participants were recruited, a mutual time was found between the participant, any requested support personal by the participant, and the researcher for a 2-hour time block to ensure initial and probe questions were answered during the interview. All participants prepared at least some responses to the interview questions. One participant, Amber, had a communication assistant facilitate answers through auditory scanning by being provided three choices or adjustments to choose from, while the other four participants independently wrote their answers to the questions.

All five interviews took place over Zoom and were audio and video recorded for transcription. The primary focus of the interviews was on good and bad experiences participants have had when eating in restaurants, but other areas of discussion included what they considered to be a positive restaurant experience, what accommodations were necessary for participants to be independent within a restaurant setting, their feelings and reactions on eating out in restaurants, and what they wanted to see changed within restaurants. After the interview, the participants were thanked for their time and asked about their interest in participating in the second part of the study (i.e., Study B). The recordings of the interviews were then deidentified and transcribed by the researcher for analysis.

The total time to participate in the interview, including preparation time, was approximately 4 hours. This varied depending on the length of the participants' answers, how much they prepared ahead of the interview, and how long it took them to prepare messages within the interview time. Preparation time for interviews took participants an estimated 1-2 hours, and the virtual videocall with the researcher took between 54 minutes and 1.75 hours to complete. The interview was guided by questions previously sent via email to the PWUAAC, with further explanations and follow-up questions asked as deemed appropriate by the researcher as the interview progressed. The accepted participants received information about the stipend they would receive for participating. This was a $100 stipend for their time, which is approximately $25/hour for the time it took them to prepare and participate in the study.

Analysis

The researcher transcribed the interviews verbatim while including all communication modalities, including spoken responses, voice output from aided AAC systems, gestures, and any messages typed into the chat function of the video conferencing platform. The interviews were coded qualitatively to identify topics and themes that captured what PWUAAC deemed to be the important characteristics for dining in restaurants. Qualitative analysis allowed for the subjective ideas from the interview process to be reflected in a broader and richer way than quantitative research allows. These coding procedures were initially adapted from the Lund & Light (2007) study that qualitatively analyzed long-term outcomes for individuals who use AAC, but these researchers originally adopted the quantitative coding procedures from Strauss (1987) and Vaughn et al. (1996). The five transcripts were divided into “meaningful units” that were the “smallest amount of information that was informative by itself” (Vaughn et al., 1996, p. 106). Each unit was assigned a code that captured the meaning of the response; this is referred to as open coding (Strauss, 1987). The open codes were then grouped into categories and the categories were organized into themes and sub-themes (i.e., axial and selective coding) (Strauss, 1987).

The two main categories of “Communication Accessibility” and “Physical Accessibility” were initially identified to separate physical accessibility concerns from communication accessibility specifically, as communication accessibility was the main interest for the interviews. Units of information regarding physical accessibility were coded and given to an OT professor at the University of Wisconsin-Milwaukee, Dr.

Roger Smith and colleagues, for analysis within their research on physical accessibility of restaurants.

Themes identified for the coding scheme were identified based on the significance and objectivity of the data presented from the data in the interviews. This procedure was used for each open code from the interviews to determine if codes were common or unique in nature, in conjuncture with its subjectivity and presence in the AAC literature. Topics of the PWUAAC's communication partner, negative patron interactions, and positive patron interactions were not included in the coding scheme. Many participants also talked about their dining experiences having to be planned due to their disability affecting their physical and communication abilities. Although a portion of the survey covers restaurants' websites explaining the accessibility features of their restaurant, other preparation steps that reduce the spontaneity of eating out cannot be fully controlled by restaurant staff; therefore, they were not considered for the Study B survey. Other characteristics of the restaurant, such as being "local" (Jude, Teresa), being "family owned" (Mason), or having "familiar staff" (Teresa), were also not considered due to the subjectiveness of the statements that can't be controlled by restaurants.

Results

The initial themes identified within Communication Accessibility included (1) Communication accessibility recommendations, (2) Definition of communication accessibility, (3) Communication breakdowns, (4) Communication partner, (5) Menu accessibility, (6) National communication access standards, (7) Negative experiences, (8) Ordering on an app or online, (9) PWUAAC characteristics, (10) Positive

experiences, (11) Questions, (12) Response and Wait time, and (13) d/Deaf community. Many of these themes held opposing statements that identified the positive and negative aspects of the same feature. For example, Teresa said, “they will listen to me” versus Jude said, “I felt totally ignored.” Therefore, a new organization scheme was made to categorize the data more efficiently. Thus, the information from the interviews was reorganized into 10 main themes. These included (1) Staff Initiatives, (2) National Communication Access Standards, (3) Staff Training, (4) Staff knowledge, (5) Menu, (6) Exposure to PWUAAC/people with disabilities, (7) Ordering Online/On an App, (8) Multimodal Communication, (9) Restaurant Website, and (10) Restaurant Accessible to All. These finalized themes along with their subthemes can be found in Table 2. Many themes were big enough to create subthemes within them based on the plethora of applicable responses among interviewees, while other ideas were emphasized to a lesser degree.

Table 2 highlights themes and subthemes used to organize the Study A data. Each category is organized by the number of times the idea was mentioned by participants. The higher the theme or subtheme on the list (i.e., Main Theme #1 is high and Main Theme #10 is low), the more times it was said by an interviewee.

Table 2: Study A Themes and Subthemes

Main Theme	Subtheme
1. Staff Initiatives	Direct communication
	Assume Abilities of PWUAAC
	Questions for staff to ask PWUAAC
	Respect
	Patience
	Acknowledge fast-paced nature
	Humility
	Nice/Happy demeanor

		Inclusive Open mindset Environmental accommodations Communication with staff
2.	National Communication Access Standards (Communication Access Symbol, or CAS)	Pro-CAS Con-CAS
3.	Staff Training	Length Unconscious bias Including PWUAAC in training Seeing all patrons for who they are Disability training Discrimination Compartmentalize each patron interaction
4.	Staff Knowledge	Know about AAC/ different communication abilities Know about different disabilities Learn etiquette of talking with PWUAAC Reduce stigma around disabilities (physical vs. cognitive)
5.	Menu Ideas	Listening option for menu Menu visibility Options for holding menu Food options
6.	Exposure to People with Disabilities/ PWUAAC	Increases comfort around people with disabilities/PWUAAC
7.	Ordering on an App/Online	Picture menu
8.	Multimodal Communication	Acknowledge all forms of communication Ask patrons their preference for communication
9.	Restaurant Website	State competency responding to high- and low-tech AAC Option for customer feedback opportunities Follow-up after negative feedback Restaurants accessibility features described
10.	Restaurants Accessible to All	No subthemes required

Main Theme #1: Staff Initiatives

By far, Staff Initiatives was the biggest talking point among interviewed participants. Many interviewees were concerned about how they and other people with

disabilities were treated by service staff, such as hosts, servers, bartenders, cooks, or support staff. This theme was broadly described as any positive or negative interaction interviewees have had with restaurant staff, as well as positive or negative characteristic traits of restaurant personnel. Within this theme, there were many subthemes identified to better organize the data.

Direct Communication. Direct communication as a subtheme under "Staff Initiatives" was brought up 42 times and was the biggest category within the data. This section was defined as any instance where participants were not directly spoken to during their restaurant experience, or when the PWUAAC were not verbally or physically acknowledged during their restaurant experience. Subthemes were identified to break up this category into smaller meaningful units, such as talking to PWUAAC directly, acknowledging their presence, and making eye contact with them. Several quotes from participants epitomize the subcategories, including Amber stating, "[waitstaff] looks to another adult at the table to communicate on my behalf," and Teresa saying that when she has someone with her, "frequently staff ignore me."

Many participants noted negative interactions among restaurant staff who did not talk directly to them or other PWUAAC at some point during their restaurant experience. In many instances, participants complained about restaurant staff ignoring the PWUAAC and asking other people at the table to order on their behalf. The participants' concerns in this category can be fully encompassed by the quotes "no acknowledgement of my existence" said by Amber and "the waitress looked to [my girlfriend] to make my order" said by Kyle. This notes the absence of initiative from restaurant staff to communicate with the PWUAAC they serve.

Assume Abilities of PWUAAC. By default, most restaurant staff who were referenced in the interviews did not assume that the PWUAAC they served were independent, aware of their surroundings, or could communicate. This subtheme was categorized by the 34 instances where the PWUAAC talked about restaurant staff who appropriately or inappropriately assumed they couldn't order, communicate, or make decisions for themselves. Most participants expressed negative experiences about restaurant staff wrongly assuming an inability to independently order or communicate for themselves, as represented by the quote "there's like this stigma with people who are, have more visual disability than people who are dealing with an internal disability of some sort" by Amber. Specific instances include Amber saying "choosing to have a margarita can be second guessed for lemonade," Kyle saying "they always hand [his girlfriend] the check when most of the time I am paying for dinner," and Teresa saying "they don't give me a menu," all implying that the staff made incorrect assumptions about their ability to consume alcohol, pay the bill, or read a menu, respectively. This presumptuous attitude found among restaurant staff can be represented by the quote from Jude who said staff "equate being an AAC user with not being able to understand."

Questions For Staff to Ask PWUAAC. This category encompasses questions that the PWUAAC would want staff to ask them to make their restaurant experience more enjoyable and accommodating. Most ideas brought up around this idea included specific questions the interviewees wished restaurant staff would ask them, or a missed opportunity for a staff member to ask a question to avoid a communication breakdown. For example, within a section of the interview focusing on what communication accessibility should look like within restaurants, Jude mentioned that in-person

communication with staff members should including asking “for clarification if required” to ensure understanding of what people are telling them. Additionally, Jude specifically stated other questions that would be beneficial in a communication interaction with restaurant staff that encompass concerns brought up by the rest of the interviews, such as “Is there anything about your communication approach that is helpful for me to know to serve you better?,” “Do you need any more information about our menu?,” “Can I just check what you communicated to make sure I have your order correct? (Repeat order.) Did I miss anything?,” or “I want to respect your screen privacy. If you would like me to look at your screen just let me know.” Other quotes that represent the need for clarifying questions to enhance PWUAAC’s dining experience include the “simple fix” (Kyle) of “kitchen staff cutting up my food” (Teresa), “pour drinks in my special cups with handles” (Teresa), “put my order on my wheelchair tray” (Jude), and “read what I point to on my communication board” (Jude).

Respect. In a variety of different excerpts, the topic of respect was brought up by all individuals interviewed. This category encompassed all topics about being considerate of the PWUAAC’s thoughts, feelings, restaurant experience, disability status, personal space, and physical equipment. Respect for all people, differing communication modalities, and a high- or low-tech AAC device were noted by at least one participant. Some participants mentioned the specific need for restaurant staff to “respect the methods in which people choose to communicate” (Teresa) and “respect the space of the AAC user” (Jude), while others noted the importance of having “respectful” staff in restaurants in general (Teresa).

Patience With PWUAAC. Restaurant staff's inability to be patient with the interviewees and other PWUAAC was noted by all participants. This category included passages about fully attending to the PWUAAC and providing participants with ample wait and response time during a communication interaction. Teresa broadly included being "patient with the communication process" as a necessary part of an accessible communicate interaction. Other participants noted the importance of wait time (i.e., the entire time it takes from initiating a message to sharing a message) and response time (i.e., the time it takes for a PWUAAC to compromises a message) to accommodate using AAC. As stated by Kyle, response time can depend on "the question," "what [he] wants," or "if [he is] by [himself] or with somebody," and the need for staff to be prepared to have patience with all patrons was acknowledged.

Acknowledge Fast-Paced Nature. Many participants voiced concern with the fast-paced nature of restaurants that affected their restaurant experiences in negative ways. Words used to describe restaurants in this section included "crowded" and "high paced" by Teresa, "fast" and "efficient" by Jude, and "busy" by Kyle. Some participants mentioned the fast-paced environment of restaurants without attributing an opinion about it, while other stated how it negatively affected their communication as a PWUAAC. This can be seen by quotes such as "if the service is high paced or if the restaurant is crowded, then restaurant staff ignore you" or "the struggle becomes harder when it comes to busy restaurants," both indicated by Teresa, or Kyle's quote that states "in a busy environment like that by myself, I'm always a little apprehensive as an Augmented Communicator." Whether stated factually or with a negative connotation, all participants discussed the downsides of restaurants having an expectation to be fast

and efficient, which can be summarized by Teresa's quote that affirmed that "[speed] shouldn't be at the sacrifice of treating the person with respect."

Humility. Within the study, humility encompassed staff's acknowledgement of potential mistakes or misconceptions made during a communication interaction with PWUAAC. This includes asking the patron to repeat themselves if staff can't understand them, versus pretending to understand the message. For reasons of intelligibility or audition, Teresa attested to the importance of staff owning up to their inability to comprehend the message from the PWUAAC, as seen in the quotes "don't pretend they understood me" and "when it's in that loud, noisy environment, you find that people struggle to hear [the AAC devices]" because "those can only get so loud," respectively. As stated by Jude, this is where it is important to train staff to ensure patrons' orders are correct by asking if they "minded repeating the word" or message, which can only be accomplished in the absence of arrogance or pride.

Nice/Happy Demeanor. Restaurant personnel who are nice and lively towards all patrons was a topic brought up by a few participants. Staff who were "nice" (Amber, Teresa) and "friendly" (Teresa) stood out to participants and were included in their overview of their positive experiences during the interview. Amber also noted the staff at her favorite restaurant "always have smiles on" and "talk with everyone that was there," which made it a positive restaurant experience for her.

Inclusive. Staff who are inclusive to all guests was a topic brought up by a few different participants. This category was explicitly described as "inclusive" by Amber, but it was also described as "welcoming" by Jude. Teresa stated that her favorite restaurant reminds her of the television series Cheers, quoting their theme song "*'Where*

everybody knows your name and they're always glad you came.' You wanna be where everybody knows your name," due to its welcoming and inclusive nature.

Open Mindset. Open-mindedness can be defined as being receptive to new ideas. Within the realm of this study, having an open mind includes a positive and rational outlook on all potential communication interactions, regardless of how the patron presents themselves. As stated by Teresa, being "openminded" is a necessary ability "for staff to have for a restaurant to be communication accessible." In Jude's reflection on necessary attitudes for staff to have for a restaurant to be communication accessible, he stated that "an open mindset is key from staff."

Environmental Accommodations. Environmental accommodations are aspects of the environment that can be changed to decrease communication breakdowns and increase success in communication interactions. Two separate aspects about restaurant environments and affected communication were emphasized by two participants, but both related to the ability to hear an individual's voice output from high-tech AAC systems. As summarized by Mason, "a lot of restaurants like to play music or have TVs on in the background, so they have background noise. That make visiting with a communication device harder." Teresa brought up the decrease in people's ability to hear her AAC system when staff don't "move from behind counters and barriers" that are often found at host stands, counters for ordering, or buffets. Teresa also stated, "when it's in that loud, noisy environment, you find that people struggle to hear," while Mason recommended a "quiet area for people to eat." Mason further noticed that "when in a noisy restaurant, [he] just listen (sic) to the discussion that is going on around me," making it a passive and lonely dining experience.

Communication With Staff. Communication is a broad category that is narrowed down for the purposes of this study on communication with restaurant staff specifically. Communication with staff includes clear, easy to understand, and positive speech that is not mutually exclusive to one communication partner. Teresa's comprehensive statement encompasses this subcategory nicely by referring to communication accessibility as "a good conversation with staff that ensures both parties needs are met."

Main Theme #2: National Communication Access Standards (Communication Access Symbol (CAS))

As described in the Introduction section, many countries such as Australia, the UK, and Canada have communication access standards, while the United States does not. In these three countries, a CAS has been developed, based on these standards, for businesses to train, apply for, and display after proving communication accessibility competency. All five participants had never seen a CAS, which is noteworthy for Jude due to his residence being in Canada. When brought up in the interviews, there were different opinions expressed about the necessity and clarity of the symbol and what it represented. Below describes this controversy among three participants that presumably reflects thoughts on CASs among the PWUAAC community and thus necessitated a subcategory.

Pro-CAS. Mason affirmed a strong opinion about how the United States is lacking in creating standardized communication access guidelines like other countries. Specifically, he stated that "as a country, we are behind the ball on communication accessibility guidelines so much" and that the U.S. "need[s] to have accessibility

guidelines for communication." Mason was a strong advocate for Canada's communication accessibility guidelines and declared "I believe that they have the best information out there." He supported the CAS and its usage in facilities to encourage and promote the communication accessibility of restaurants.

Con-CAS*.* On the other hand, Jude and Kyle had differing opinions from Mason on the CAS. Even though Jude lived in a country where CASs are actualized, he does not stand by its postage in facilities. Jude believes that "a restaurant (or any other business) [should be] accessible and inclusive of everyone, regardless of their abilities and unique characteristics." To further summarize this long discussion held about CAS, Jude's communication assistant helped explain the situation by stating "every marginalized group is wanting a symbol on a restaurant," and that "because the symbols aren't explained, really as well as they could be, it caused a bit of issues" due to their ambiguity. Kyle agreed that there is a better solution to accessibility than CAS, but this is due to "the high turnover rate of staff and the chances they have to put that training into use right away." He also noted that CAS might not be a "practical" solution to alleviating the lack of communication accessibility within restaurants for similar reasons. In short, both participants agreed on the unproductiveness of implementing a CAS into facilities due to its arbitrary and ineffective nature.

Main Theme #3: Staff Training

Throughout the interviews, many participants brought up general aspects of the training process that were necessary to prepare staff to interact with PWUAAC while making it practical enough for restaurants to implement. For example, Kyle stated that training would have to accommodate the "high turnover rate of staff and the chances

they have to put that training into use right away," with Jude supplementing this idea by stating training should "provide practical strategies to foster accessible communication." Staff engaging in general disability training was emphasized by Amber too. Jude stated that trainings should include the topics of "unconscious bias," "discrimination," "clear language," "why accessibility and inclusive practices are key to the success of the restaurant," and include "a customer who is an AAC user for staff training (or create a video) so that they can learn," while Kyle considered other topics such as "break(ing) the habit of generalizing every patron as a patron" or training to "see the individual."

Main Theme #4: Staff Knowledge

Staff knowledge includes the knowledge base of staff within restaurants that will make them successful communicating with PWUAAC. As stated by Mason, many people in the AAC community "would be more happy if [staff] would go back home and educate themselves on AAC" to increase "AAC awareness," but it would also be a "great start" for staff to learn about AAC and "have training on different types of communication disabilities" as part of their onboarding process. Amber stated it would be beneficial for staff to be aware of "different communication abilities one can have," with Teresa elaborating on this idea by stating staff should "learn about new technologies available for interaction." In Kyle's opinion, "after the staff realize [PWUAAC] communication with either my Speech Generating Device or through an app on my phone the service has been good," which is similar for Jude who explained, "once they see I can respond, they relax a bit." In their own words, all participants agreed that staff need to know "a little about...AAC" (Mason).

Main Theme #5: Menu Ideas

Although not true for all PWUAAC, some people in this population have comorbidities that make it more difficult to hold, read, and order from a traditional restaurant menu. All participants noted their primary motivation to eating out were the food choices on the menus, but this becomes a null point if participants can't access the menu. For example, all five interviewees had cerebral palsy, which is a physical disability that affects their fine motor skills to engage in tasks such as holding a menu. This necessitates Mason asking "someone to read it to [him]." Mason also talked about his reading disability that limits his ability to read a menu, while Teresa noted that "reading them in dim light" makes it more difficult for her to read the menu. Every barrier presented strips away independence from PWUAAC, which is important to promote for PWUAAC who depend on others for alternative tasks. Recommendations presented by participants included "a menu so everyone can see it" (Mason) or "menu recording that reads it aloud or available on the website prior to arriving" (Amber) so PWUAAC can "listen to it by themselves" (Mason), because the "accessibility of reading or ordering from a menu is important" (Teresa).

Main Theme #6: Exposure to People With Disabilities/PWUAAC

Increasing exposure of people with disabilities, including PWUAAC, through creating opportunities for interaction was brought up by Jude and Amber. This section included statements that discussed how comfortable staff were in communicating with PWUAAC or other people with disabilities, which is endorsed by a quote by Amber stating, "people can be uncomfortable or unfamiliar with the form of communicating like the way I do." Amber's communication assistant stated that "once [staff] see how [our

family] communicates with her, it makes it easier for them to feel more comfortable," demonstrating the power of acknowledging the adequate nature of using auditory scanning to communicate. Similarly, Jude explained that "the more time [he goes] to a restaurant, people get more comfortable with the way [he] communicates" due to the increased exposure to his high-tech AAC device and low-tech communication board. As carefully stated by Jude, "the more staff are comfortable about serving me as a person with a disability who is an AAC user, then the more patrons see my dining experience as typical rather than an exception," which is an important aspect of increasing awareness of different communication modalities.

Main Theme #7: Ordering on an App/Online

This section, containing data about ordering on an app or online through restaurants, was greatly emphasized by one participant and reinforced by other participants. Kyle noted that "the service in a restaurant is predicated on quick and efficient communication between multiple consumers to a single staff," and Teresa stated that "the struggle becomes harder when it comes to busy restaurants," which makes it more enticing to place takeout orders or order from a non-human. In Teresa's opinion, the popularity of ordering ahead was "one of the few good things that came of Covid" because it is a "more efficient and convenient ordering process" and is "quick, convenient, and asynchronous way to place orders without having to call or ask staff." Teresa also mentioned that "a computer knows exact what I want and doesn't have a time limit." Teresa confirmed that ordering online or using takeout is preferable due to the current lack of communication and physical accessibility of restaurants, making it an "easier" and "more independent" dining experience for her.

Main Theme #8: Multimodal Communication

As described on ASHA's website (2023a), AAC is "truly multimodal, permitting individuals to use every mode possible to communicate." Most participants brought up the importance of utilizing all forms of communication to promote successful communication and included multimodal communication in their personal definitions of communication accessibility (e.g., "available in multiple formats" by Teresa or "use a different form or part to communicate" by Amber's communication assistant). Kyle noted the different communication types "for [him] than someone with eye gaze," which may necessitate communication systems that differ than his own. People of all abilities use multimodal communication in their everyday lives in the form of verbal, facial, or gestural expression, but this often doesn't transfer to other forms of communication such as AAC systems. Teresa noted that staff "view [her] AAC device as the only way [she] should be communicating," when she believes "devices used with other techniques are the most efficient style for [her] to communicate with others." As quoted by Teresa, "I have encountered a number of people who, even before trying to understand my natural speech or gestures, will insist on me using my device," which doesn't respect her communication preferences. Ideas for mitigating this issue that were voiced in interviews includes staff who "always ask individuals about their [communication] preferences" (Teresa), "remember there are multiple methods of communicating" (Teresa), and ask patrons "Is there anything about your communication approach that is helpful for me to know to serve you better?" (Jude).

Main Theme #9: Restaurant Website

Quotes for this subcategory were considered if they specified information about the restaurant website apart from online ordering or menu accessibility. Jude brought up various ideas for what should be included on a restaurant's website, including "a statement that they have the competency to respond to low- and high-tech communication approaches," "communication accessibility features of the restaurant described on their website," "opportunities for customer feedback on their dining experience," and "follow-up when there is a negative experience." This is an important element to consider when making restaurants accessible to PWUAAC, as there is ample planning that goes into eating out for individuals with disabilities. As described by Jude and Teresa, eating out is "rarely spontaneous," requires PWUAAC to "Google a menu before [going] somewhere," and necessitates PWUAAC to "check-out the accessibility, layout, and menu beforehand," which makes planning more difficult when restaurants don't have their accessibility features clearly outlined online.

Main Theme #10: Restaurants Accessible to All

Restaurants that are not exclusive to patrons of any presentation are considered accessible and available to all communities. Jude believes that "any restaurant (or other business) should be fully accessible and inclusive of everyone," because "it's just good business." Mason added that "if we can get people to understand [accessibility], we'll make an impact on the d/Deaf community and older people who need hearing aid(s)," implying restaurants that are accessible to the AAC community will start a positive trend for increased accessibility among other marginalized groups.

Study B: Survey for PWUAAC

Methods

The themes and subthemes from Study A, along with information from the literature, were used to aid the development of a checklist to rate the importance of communication accessibility recommendations for restaurants. The aim of study B was to establish the content validity of the checklist. Below are the participants, materials, procedures, and analysis of this part of the study.

Participants

The five individuals who participated in Study A were invited to participate in Study B and all agreed to participate. An additional five PWUAAC were recruited to participate, utilizing the same methods from Study A (i.e., personal networks, social media, ASHA special interest groups, snowball effect) for a total of ten participants. These additional participants were necessary to ensure the survey outlined communication accessibility in restaurants for PWUAAC who did not provide answers in the interview, as participants may be more apt to validate items on the checklist because of the presence of their own ideas. The inclusion and exclusion criteria for the survey were similar to Study A, which included (1) being 18 years of age or older, (2) having the ability to provide their own consent to the study, (3) residing in North America, (4) having the ability to comprehend oral and written English, (5) having access to a computer and the Internet, (6) using AAC as their primary mode of communication, (7) communicating independently, (8) eating orally (i.e., not fed by a feeding tube), and (9) frequenting restaurants at least every 1-2 months pre-Covid19.

Demographic information summarizing the additional participants who completed the survey for Study B is located in Table 3. Participants 1, 3, 5, 6, and 7 were repeating participants from Study A. Pseudonyms were not given to Study B participants, so participants are labeled anonymously with assigned participant numbers.

Table 3: Study B Participants

Participant Number	Age (Yrs)	Gender	Ethnicity	Modes of Communication	Restaurant Frequency	Restaurant Types
1	25-30	Male	White	Gestures, high-tech AAC device	Once a month	Fast-food, coffee shops, sit-down restaurants, drive-in restaurants
2	40+	Male	White	Speech, gesture, high-tech AAC system accessed via direct selection with toe	Weekly	Fast-food, sit-down restaurants, at-home delivery
3	40+	Female	White	Speech, gesture, low-tech, chat box on Zoom, high-tech iPad and Android tablet	Weekly	Fast-food, sit-down restaurants, drive-in restaurants
4	40+	Male	White	High-tech ECO2 AAC device with Minspeak	Once a month	Fast-food
5	40+	Male	White	Low-tech communication board, high-tech computer on wheelchair	Weekly	Coffee shops, sit down restaurants, at-home delivery

6	40+	Male	Black	Speech, gestures, high-tech AAC device	Once a month	Fast-food, sit-down restaurants, at-home delivery, drive-in restaurants
7	22-24	Female	Black	Speech, gesture, vocalizations, high-tech AAC device, auditory scanning, live voice assisted scanning	Once a month	Fast food, coffee shops, sit down restaurants, drive-in restaurants
8	31-35	Male	White	High-tech NuPoint system via eye gaze	Once a month	Fast-food, sit-down restaurants
9	40+	Female	Asian	Speech, gesture, low-tech AAC like spelling and writing, high-tech AAC like EZKeys, iPad apps, or typing	Weekly	Fast-food, coffee shops, sit-down restaurants
10	31-35	Male	White	Gestures, high-tech AAC system	Weekly	Fast-food, coffee shops, sit-down restaurants, drive-in restaurants

Materials

Individuals who did not participate in Study A were sent the demographic questionnaire in Appendix A to ensure they met the inclusion criteria for the study, with the exception of Question 9 “What videocall platforms do you have access to?” due to its insignificance to completing the survey in Study B. The content gathered from the five interviewees was the backbone of the checklist, and it included topics such as personal definitions of communication accessibility, the importance of direct communication, and barriers to communication accessibility in restaurants. The checklist was copied into Qualtrics, an online survey platform and rating scales and comment boxes were added so participants could rate and comment on the appropriateness of each item. Exact verbiage of the introduction and survey questions can be found in Appendix C.

Some excerpts that were meaningful units taken from the interviews were not included in the coding scheme for various reasons. All participants explained things about themselves, such as Jude who “requires feeding assistance” or Mason who feels its “embarrassing for [them] to ask for help in public.” These were characteristics that were significant to their dining experiences but could not be controlled within restaurant settings, and they were therefore not considered for the checklist. The idea encapsulating the quote “people with disabilities are a great form of revenue” is a subjective comment made by Jude and was not mentioned in the literature; thus, this unique code was eliminated from the Study B survey.

Procedures

Once individuals accepted the offer to participate in Study B and were deemed eligible to participate, they received information about the stipend they would receive for participating in the study. Participants received a $15 stipend after completing the survey. Each participant was sent a unique link to the Qualtrics survey to rate the appropriateness of the items for the finalized checklist. The survey started with an introduction to the survey and its purpose for participants to review before starting. The items from the survey were separated into seventeen categories with a total of 65 items. Participants rated each statement on a Likert type scale that used the following statements: *very necessary*, *necessary*, *indifferent*, *unnecessary,* or *very unnecessary* for the item to be included in the final checklist. This was formatted in a multiple-choice format to maximize accessibility for individuals with physical disabilities that may limit their computer access. At the end of each section, participants had the option to type “optional comments” to clarify their rating, especially if they felt passionate about a certain topic or statement (i.e., rated the statement as either “very necessary” or “very unnecessary”).

At the end of the survey, participants were asked if they had any suggestions for the survey to make it align more with what a communication accessible restaurant should look like from their perspective as a PWUAAC. Participants were sent a reminder email if they had not started the survey after 1 week of receiving the initial email. When the surveys were returned, an email thanking them for their participation in the study and information on acquiring their compensation was sent. The anticipated

timeline of the study and how to access the results of the study once it was completed were also outlined in the closing email.

The second and final draft of the checklist was comprised of modifications made after analyzing the responses from the Qualtrics survey. The researcher automatically kept any items rated as “very necessary” or “necessary” by at least 79% of the participants. Items that fell below the 79% threshold for these two positive categories were candidates for revision, as described in the following section. After the survey went through these validation processes, the checklist was considered complete.

Analysis

After all surveys were returned to the researcher, the participants’ answers were analyzed within Qualtrics for consistencies or discrepancies that would influence the development of the second and final draft of the checklist. Analysis of the first draft of the survey was determined via relevance ratings from the participants. For each item, an individual content validity index (I-CVI) was identified. This was found by dividing the number of participants who rated the relevancy of an item as “very necessary” or “necessary” by the total number of people judging the relevance of that item, which was ten for this study. If the I-CVI was higher than 79%, the item was deemed relevant and was used in the final draft of the checklist (Zamanzadeh et al., 2015). Statements that fell below the 79% threshold for these two responses were further analyzed for revision or elimination by the researcher.

To determine a statement’s relevance that fell below the 79% threshold, the researcher analyzed participant comments for the respective item on the Qualtrics survey. This included additions and revisions to survey items based on participant

comments to make it more representative of a communication accessible restaurant. These comments were considered in respect to AAC literature and research, such as necessary features of a communication accessible business or organization in other countries or barriers to communication accessibility that have already been assessed.

The survey was also bolstered with reputable AAC literature and websites advocating for communication accessibility within society and how to accomplish this goal. The researcher consulted the AAC literature to supplement the participants' survey responses. Research on communication accessibility in other activities were reviewed, such as PWUAAC in recreation (Hajjar & McCarthy, 2016; Hajjar & McCarthy, 2021), while shopping (Taylor et al., 2019), and in libraries (Shepherd & McDougall, 2008). Reputable organizations that created communication access symbols for facilities were also analyzed to determine if a statement that received below 79% on "very necessary" or "necessary" ratings aligned with what they believed to be a supportive establishment of people with CCN (e.g., Scope Australia, Communication Disabilities Access Canada, Communication Matters (UK)). If there was no research to validate the statement in the survey and no comments were made to refute its subtraction, the item was removed from the final draft. The item remained on the final checklist if there was group consensus and substantial research to determine a statement's relevance.

After the content of the items in the survey were validated, the modified checklist was organized in an intuitive fashion and divided into themes (e.g., worker attitudes, menu format). The checklist was combined into a single document that was functional and quick to fill out to accommodate the fast turnover of staff in the restaurant business.

The checklist was then considered adequate for implementation within a restaurant to determine its communication accessibility, or lack thereof.

Results

The I-CVI scores for each item in the checklist are presented in Table 4. Items in plain text had I-CVI scores of 0.8 or higher. These scores indicated that the items had sufficient content validity and were kept intact. Items with two asterisks had I-CVI ratings of 0.8 or higher but were edited based on the comments from the participants, such as combining with another question or rewording the statement. Bolded items are questions that were below the 79% threshold and were deleted from the survey. These two categories of alterations or deletions are explained in more detail in the following section.

Table 4: I-CVI Ratings from Study B Survey

Survey Question	I-CVI
Staff training: General	
1. Training for communication accessibility in restaurants will be short, efficient, and practical to accommodate for the high turnover rates in restaurants.	0.9
2. Training will cover the topic of unconscious bias, which is social stereotypes about certain groups of people that form outside their own conscious awareness, such as people who use AAC.	1.0
3. **Training will cover the topic of discrimination, which is the unjust treatment of different categories of people, such as people who use AAC.	**0.8
4. **Training will include people who use AAC so staff can learn from individuals with differing communication modalities and ask them questions.	**0.9
5. Training will include exposure to people with disabilities to increase staff comfort when interacting with people with disabilities.	0.9

6. Training will cover the topic of seeing all customers as individuals versus generalizing patrons, including people who use AAC.	0.9
7. Training will cover that each interaction with patrons is unique to increase inclusivity of all customers, including people who use AAC.	0.8
Staff training: Direct Communication	
8. Staff are trained to talk directly to the person who uses AAC and not the people they came with.	0.9
9. Staff are trained to acknowledge the presence of everyone at the table, including people with disabilities and/or people who use AAC.	0.9
10. **Staff are trained to make eye contact with everyone at the table, including people with disabilities and/or people who use AAC.	**0.8
Staff training: Assume Abilities	0.9
11. Staff are trained to assume the abilities of people who use AAC, including their independence.	
12. **Staff are trained to assume the abilities of people who use AAC, including their knowledge about the world around them.	**0.8
13. Staff are trained to assume the abilities of people who use AAC, including their ability to communicate with others.	1.0
14. Staff are trained to assume that people who use AAC can pay the bill.	**0.7**
15. Staff are trained to assume that people who use AAC can understand others, until staff hear otherwise.	0.9
16. Staff are trained to assume that people who use AAC can order for themselves (e.g., read menu, order) by giving everyone a menu, until staff hear otherwise.	1.0
17. **Staff are trained to assume that people who use AAC can independently choose what they want to eat, until staff hear otherwise.	**0.8
Staff training: Questions	
18. Staff are trained to ask people who use AAC about the best way to support them in their dining experience, such as beneficial communication approaches, best place to stand, pointing to aid communication, etc.	**0.6**

19. Staff are trained to ask clarifying questions about their order to make sure it is right.	**0.6**
20. **Staff are trained to ask people who use AAC about special requests that may be needed during the dining experience, such as pouring drinks into personal cups, cutting up food, putting food in a specific place or on a tray, etc.	**0.7
21. Staff are trained to ask if more detail about the meal or menu is needed by anyone at the table.	0.8
22. If curious, staff are trained to ask respectful questions to people who use AAC if they want to know more about them.	**0.7**
23. Staff are trained to give choices for question types to people who use AAC, with closed-ended or yes/no questions being used if staff are having difficulty understanding the person who uses AAC.	1.0
Staff training: Respect	1.0
24. Staff are trained to respect all people they serve, including people who use AAC.	
25. Staff are trained to respect differing communication modalities from mainstream verbal communication, including all forms of AAC.	0.9
26. **If applicable, staff are trained to respect an individual's AAC device (e.g., asking before touching, asking before looking at their screen).	**0.8
27. **Staff are trained to respect an individual's personal space (e.g., ask before touching/moving wheelchair).	**0.7
28. Staff are trained to value all individuals they serve, including people who use AAC.	0.9
Staff training: Patience	
29. Staff are trained to listen to all individuals they serve, including people who use AAC.	1.0
30. Staff are trained to adequately wait for all individuals to finish composing and stating their message, including people who use AAC.	0.9
31. **Staff are trained to adequately wait for all individuals to respond, including people who use AAC.	**0.8

Staff training: Acknowledge fast-paced nature of restaurants	
32. Staff are trained to <u>be honest about the busyness</u> of a restaurant while stating that they will try their best to <u>communicate with everyone effectively</u>, including people who use AAC.	0.9
33. Staff are trained to <u>be honest about the expectation of the restaurant to be fast and efficient</u>, while stating that they will try their best to <u>communicate with everyone effectively</u>, including people who use AAC.	0.9
Staff training: Humility	
34. **Staff are trained to <u>ask people who use AAC to repeat their message if they did not understand them</u>, versus pretending to understand them.	**0.8
35. Staff are trained to <u>ask people who use AAC to repeat their message if they can't hear the message due to the loud atmosphere</u> of the restaurant.	1.0
36. If staff make a mistake, staff are trained to <u>acknowledge their mistake and apologize</u> to all contributing parties, including people who use AAC.	0.9
37. If necessary, staff will <u>acknowledge areas they are still learning and growing in</u>, including experience working with people who use AAC.	0.8
Staff training: Nice/Happy demeanor	
38. Staff are trained to have a <u>nice, happy, and pleasant demeanor</u> when interacting with all individuals, including people who use AAC.	**0.7**
Staff training: Inclusivity	
39. Staff are trained to <u>include all people</u> in communication interactions, including people who use AAC.	0.9
40. Staff are trained to <u>treat people who use AAC the same as everyone else</u> at the table.	0.9
41. Staff are trained to <u>welcome all guests</u> through greeting and being interactive with everyone, including people who use AAC.	0.9
Staff training: Open mindset	
42. Staff are trained to be <u>flexible</u> during customers' dining experiences, including people who use AAC.	0.9

43. Staff are trained to be relaxed during customers' dining experiences, including people who use AAC.	**0.6**
44. Staff are trained to be willing to understand customers and their differences, including people who use AAC.	0.9
Staff training: Environmental accommodations	
45. Staff are trained to move from behind counters or barriers to communicate with people who use AAC to ensure effective communication.	**0.6**
46. Restaurants have a quiet area option for customers with less background noise (e.g., music, TVs) to accommodate people who use AAC with voice output systems.	**0.5**
Staff training: Communication	
47. Staff are trained to communicate using clear and easy-to-understand language during all communication interactions, including communication with people who use AAC.	0.8
48. Staff are trained to have mutual conversations with all guests where both parties' needs are met (i.e., the staff and customer), including people who use AAC.	0.9
49. Staff are trained to communicate in a positive manner in all communication interactions, including when communicating with people who use AAC.	0.8
Staff training: Knowledge	
50. Training will include knowledge about AAC and different communication abilities.	0.8
51. Training will include general disability training for interacting with various populations, including people who use AAC.	0.9
52. **Training will include knowledge about the etiquette of talking with people who use AAC, including direct communication, waiting for their entire message before responding, respecting all communication modalities, etc.	**0.7
53. Training will include knowledge about the negative stigma around people with disabilities to prevent these stigmas from persisting.	**0.7**
Communication Access Symbol	

54. Restaurants in the United States will display a clear, non-arbitrary communication access symbol if they meet the requirements of being communication accessible, as compiled from other communication symbols in other countries such as Canada, UK, or Australia.	**0.7**
55. Restaurants that meet the requirements of this checklist will be considered as communication accessible, regardless of displaying a formal communication access symbol.	**0.6**

Menu

56. Restaurant menus will have an option to listen to the menu in person and/or on their website to increase independence for ordering in people with varying disabilities, including people who use AAC.	0.8
57. Restaurant menus will have an option to order based on pictures of the menu in person and/or on their website to increase independence for ordering in people with varying reading and literacy disabilities, including people who use AAC.	0.8
58. Restaurant menus will be visibly accessible to all people, including people who use AAC that may not be able to see above a counter and/or see a menu posted up too high.	0.9
59. Restaurant menus will include an accessible menu for people who can't physically hold a menu, including stands for menus to lean up against.	**0.6**
60. Restaurant menus will have a variety of food options to accommodate a soft diet or diet restrictions for any applicable people, including people who use AAC.	**0.5**

Online ordering/Website

61. Restaurants will have a strong and accessible platform for online ordering to accommodate people who would rather eat at home versus in a restaurant, including people who use AAC.	**0.7**
62. Restaurants' websites will state their competency in responding to high-tech and low-tech communication modalities.	**0.7**
63. Restaurant websites will state their accessibility features in detail online so people with varying abilities can plan their dining experience, accordingly, including people who use AAC.	**0.6**

64. Restaurants' websites will have customer feedback opportunities for people to rate their dining experience.	0.8
65. Restaurants will follow up after receiving negative feedback from customers to address, apologize, and potentially alleviate negative experiences.	0.8

Note: Numbers in **bold** were items removed from the final checklist. Numbers with two asterisks (**) were items edited but kept in the final checklist, whether they had an I-CVI score above or below 0.79.

Scores >0.79

No Edits. Thirty-eight of the 65 items in the survey had I-CVI scores exceeding 0.79. The survey statements in this category encompass the largest group within the data set. Many participants made optional comments on these questions that confirmed their desire for certain statements to remain in the final version of the checklist, such as "YES," or "all of this is soooo important. Everyone in the world should have training like this" by Participant 10, "I like the last two questions on here" by Participant 1, "this is awesome" by Participant 8, or "Number 8 is key!" by Participant 5. Some participants made comments on items to emphasize the importance of a specific aspect of the statement, such as Participant 5 who stated that restaurants should "just focus on treating every individual with dignity and respect" or Participant 10 who stated, "wait time is always difficult, but very necessary." Items with these high ratings were kept in the finalized checklist.

Minor edits. Based on participant feedback through making optional comments on the survey, some items with I-CVI scores of 0.79 or greater were candidates for revision if remarks from participants suggested combining items with other items in the survey or rewording questions to better reflect communication accessibility. These items are presented with two asterisks in Table 4.

Items in the survey were combined with other items to make the final checklist more efficient and emulate opinions from participants. For example, item 12 (i.e., Staff are trained to assume the abilities of people who use AAC, including their knowledge about the world around them) and item 17 (i.e., Staff are trained to assume that people who use AAC can independently choose what they want to eat, until staff hear otherwise) had I-CVI scores of 0.8 but covered similar concepts of assuming the competence of the person who uses AAC. Participant 10 commented, “The assumption that the person will be able to communicate independently is the most important,” which solidified the decision to group these items together with item 11 (i.e., Staff are trained to assume the abilities of people who use AAC, including their independence). To better encapsulate the ideas of item 12, item 11 was edited to state, “Staff are trained to assume the ability, competency, independence, and orientation of people who use AAC.” Item 17 was inherently intertwined with item 11 with its central topic of independence, so no further edits to the statement were necessary, and item 17 was combined with item 11.

Similarly, item 52, “Training will include knowledge about the etiquette of talking with people who use AAC, including direct communication, waiting for their entire message before responding, respecting all communication modalities, etc.,” had components of the survey that covered communication accessibility, such as items 8, 30, and 25, respectively. This made number 52 redundant and unnecessary to include in the survey when it could be combined with other items. Additionally, item 3 that stated “Training will cover the topic of discrimination, which is the unjust treatment of different categories of people, such as people who use AAC” was determined to have a negative

connotation. Participant 6 stated that “the positive ‘what to do’ and negative ‘what not to do’” might get confusing to future trainees, and that items on the checklist should be “kept positive.” Discrimination can be taught in a positive light through treating all patrons equitably. This was covered in item 40 which outlined “Staff are trained to treat people who use AAC the same as everyone else at the table.” Thus, item 3 was combined with item 40.

Some items on the survey were reworded to enhance clarity in the finalized checklist. For example, item 4 addresses the inclusion of a PWUAAC in the training schema, however, a quote from Participant 5 illustrated a potential problem with this item. They stated, “it might be difficult to always have an AAC user in the staff training sessions. A training video might be a good idea.” Therefore, this item was revised to “Training will include people who use AAC through a training video so staff can learn from individuals with differing communication modalities” to clarify the physical or virtual presence of a PWUAAC for training restaurant staff. Item 20 states, “Staff are trained to ask people who use AAC about special requests that may be needed during the dining experience, such as pouring drinks into personal cups, cutting up food, putting food in a specific place or on a tray, etc.” was also revised due to Participant 5’s comment about special requests being “included on menu or sign for all people” to have access. This statement then read, “Restaurants will display the option of making a special request that may be needed during the dining experience, such as pouring drinks into personal cups, cutting up food, putting food in a specific place or on a tray, etc.” to adjust to their comment and was moved to the “Menu” subheading to better organize the final checklist.

Item 26 (i.e., If applicable, staff are trained to respect an individual's AAC device (e.g., asking before touching, asking before looking at their screen)) had an I-CVI score of 0.8 and included comments that indicated strong negativity. Even though Item 27 that read, "Staff are trained to respect an individual's personal space (e.g., ask before touching/moving wheelchair)" had an ICV-I score of 0.7 and was below the 0.79 threshold, comments made by participants in relation to item 26 required further assessment and related to this high-scoring item. When referring to item 26, Participant 5 made the comment that it is "easier for people to comprehend" an individual's message when reading an individual's AAC device. Similarly, Participant 6 believes that "looking at screen and touching chair is natural human instinct" when referring to items 26 and 27. Both participants inferred that touching someone's equipment or reading someone's AAC system was not a breach of an individual's privacy. On the contrary for these participants, Participant 10 passionately stated that "the question about reading the screen, touching the device and moving a wheelchair is huge. Ask first." Due to the inconsistent viewpoints amongst participants, items 26 and 27 were combined into a single item that read, "Staff are trained to ask about an individual's preferences on AAC device and equipment privacy (e.g., asking before touching, asking before looking at their screen, asking before touching/moving wheelchair)" to respect all participants' opinions.

Participants rated question 31 that stated, "Staff are trained to adequately wait for all individuals to respond, including people who use AAC" as necessary, but the PWUAAC had many suggestions for revision. Participants recognized that the busy nature of many restaurants doesn't allow for staff to give PWUAAC undivided attention

while they compose messages. Participants 5, 6, and 10 all concluded that multitasking is part of working in a restaurant, which can be reflected by quotes from Participant 5 stating, “it is ok [for staff] to say ‘keep composing...I’ll come back when ready’ then tend to other tasks and return with full attention” and quotes from Participant 6 stating, “Staff can say keep typing and will be right back. Especially if they have a busy night.” As a result, this item was revised to read “Staff are trained to let PWUAAC know they will return when their message is fully prepared.”

Item 34 that said, “Staff are trained to ask people who use AAC to repeat their message if they did not understand them, versus pretending to understand them” needed an addition to the statement before being added to the finalized checklist. Participant 6 stated that “staff can repeat message as customer is composing to confirm what they are saying,” meaning that staff can repeat words and phrases they hear out of the AAC system to confirm more efficiently what they are hearing. To adjust to this comment, the short phrase “as the PWUAAC composes the message” was added to the statement to clarify ambiguity.

Item 10 that read, “Staff are trained to make eye contact with everyone at the table, including people with disabilities and/or people who use AAC” also necessitated an addition to address participant comments. This item on the survey initiated a conversation centered around the expectation placed on individuals with disabilities to mold to the status quo of society, which includes looking directly at your communication partner. Participant 7 stated that “communication should be addressed verbally” because “it’s not just eye contact when addressing disability inclusion” in reference to populations where not making eye contact is a characteristic of their disability, such as

individuals with autism spectrum disorder (ASD). Participant 6 and 10 bolstered this idea by commenting “not everyone give eye contact when speaking or acknowledging people” and “staff should always TRY to make eye contact even if the patron does not,” respectively. Participant 1 disagreed with Participants 6, 7, and 10, stating that “teaching [restaurant staff] that all behaviors are communication” are important, which is reflected in item 21 that addresses multimodal communication. Thus, this item added the phrase “but not expect it from everyone” to encourage staff to acknowledge their presence at the table with other guests while respecting their decision to engage in eye contact or not.

On average, item 65 was rated as necessary, but the statement “Restaurants will follow up after receiving negative feedback from customers to address, apologize, and potentially alleviate negative experiences” needed to be altered to reflect participant comments. Participant 5 and Participant 10 both had similar sentiments about review systems of businesses on online platforms, such as Yelp or Google Review. Participant 5’s quote encapsulates their opinions on this topic, stating that “yelp, google reviews are adequate for giving reviews good and bad,” with Participant 10’s comment “yelp can be a powerful thing. Learn from mistakes” to bolster this idea. Item 65 was modified to read, “Restaurants will follow up after receiving negative feedback from their website, Yelp, or Google Review to address, apologize, and potentially alleviate negative experiences” to address these comments.

Scores <0.79

Text that was bolded within Table 4 were items below the required 0.79 I-CVI threshold and were deleted from the final checklist. Even though these items were

developed based on Study A participants' interviews in conjunction with AAC literature, they were rated lower by Study B participants and were removed from the finalized checklist.

Item 46 regarding restaurants providing the option for a quiet area had differences in opinions between participants. Participant 1 thought "having a quiet area will be a benefit for everyone," while Participants 5 and 6 agreed that "I don't think a restaurant can be expected to maintain a quiet room option" (Participant 5) because "people who use AAC have choices on whether they like the ambiance or not" (Participant 5), "ambiance is part of the dine in experience" (Participant 6,) and "quiet areas are not inclusive" (Participant 6). Ultimately, the item was deleted based on its I-CVI score and the discrepancies between participant comments.

Items 54 and 55 referred to the Communication Access Symbol (CAS). Participant 10 believed that "ALL restaurants should be AAC friendly (whether they display the symbol or not)," as well as Participant 6 who believes "communication accessibility shouldn't be a choice for a business to have or advertise" because it's more about "knowing how to serve people, which doesn't need a badge of achievement." However, participant 1 wanted to "think about ways to let the public know that this is available," demonstrating his desire to display CASs in restaurants in the United States. Due to the low I-CVI scores, negative comments that outweighed the positive comment, and the lack of consistency between responses, and the lack of a CAS in the United States, these items were removed.

The final checklist based on these revisions is presented in Appendix D.

Discussion

As a result of the survey being altered through additions, subtractions, and modifications, the document was reduced by 21 items to have a total of 44 items on the finalized version of the checklist. Reducing the amount of information on the checklist would not only increase buy-in from restaurant establishments, but it would encourage employees to engage with and utilize the information on communication accessibility. This parallels ideas from Jude and Kyle in Study A that emphasize the importance of implementing a “practical” (Jude) training that accommodates the “high turnover rate of staff” (Kyle). The shortened checklist will benefit both the trainers and trainees when utilized in a restaurant setting that values efficiency.

The interview data from Study A and the survey data from Study B were compared to the AAC research literature for cross-reference. In general, participants expressed frustration with their basic communication needs not being met in most restaurant encounters, which is contrary to statements by national and international human rights organizations. The Communication Bill of Rights by the NJC for Communication Needs of Persons with Severe Disabilities (Brady et al., 2016) defines communication accessibility as using and having access to communication in all environments. Additionally, Articles 2 and 19 from the Universal Declaration of Human Rights (1948) state that everyone has a right to freedom of expression within distinction of any kind. Many of the negative experiences conveyed by the five interviewees was divergent from these legal statutes seemingly implemented into society, with statements such as “no acknowledgement of my existence” said by Amber and “they view my AAC device as the only way I should be communicating with them” said by Teresa in Study

A, and Participant 10's comment that "following ADA guidelines should be easy in 2023" which invalidate PWUAAC's communication within restaurant settings.

Attitudinal and knowledge barriers found in society and described in other research aligned with negative interactions from participants in both studies. For example, societal attitudes such as ignoring, patronizing, or stereotyping PWUAAC was noted by Taylor et al. (2019) in their study about customer service for customers with disabilities and was additionally brought up by all five interviewees. Other overlapping societal attitudes and initiatives from the literature includes, but is not limited to, underestimating abilities of people with disabilities (Taylor et al., 2019; Blackstone, 1999; Collier et al., 2010), increased expectations for individuals who uses AAC and their communication systems (Tavares & Peixoto, 2003), talking over PWUAAC (Taylor et al., 2019, as cited in Collier et al., 2012), controlling conversations with directive questions (Taylor et al., 2019, as cited in Collier et al., 2012), leaving the speaker insufficient time to respond (Muller & Soto, 2002), ignoring the person by talking to companions instead (Taylor et al., 2019, as cited in Collier et al., 2012), and the PWUAAC having to accommodate to the environment instead of the environment itself delivering improvements (Taylor et al., 2019). These were all ideas conveyed by participants throughout both parts of the study, which can be exemplified by one quote from Amber in Study A stating, "no acknowledgement of my existence" in relation to the absence of direct communication, and one quote from Participant 5 stating, "training for restaurant staff in most cases is not comprehensive" in respect to the current insufficient training in restaurants.

Knowledge and skill barriers were other topics raised by the participants which are also reflected in other research. Improving communication through training was a key point brought up by many PWUAAC; however, there is a lack of available training for impromptu communication partners in public facilities, such as customer service centers while shopping (Taylor et al., 2019). Other knowledge and skill barriers such as lack of awareness of PWUAAC, their systems, and their abilities (Collier et al., 2010; McNaughton & Bryen, 2007), an inability to communicate with PWUAAC (Collier et al., 2010), or not acknowledging multimodal communication (McNaughton & Bryen, 2007) were also mentioned by at least one participant within Studies A and B.

Many themes in this study paralleled topics emphasized in the research for other businesses such as information provided via the research by Shepherd & McDougall (2008) on communication access for libraries in Canada through *Libraries for All* including three objectives: learning about AAC in general, identifying different types of AAC communication systems and strategies, and practicing typical interactions through role-play with others and with PWUAAC. All three of these topics were addressed in the interview process, which can be demonstrated through quotes such about staff such as “know a little about...AAC” (Mason), “learn about new technologies available for interaction” (Teresa), and “invite a customer who is an AAC user to staff training (or have create a video) so that they can learn” (Jude). Including a PWUAAC within the training schema was an important consideration emphasized within the survey data as well. As Participant 5 stated, “it might be difficult to always have an AAC user in the staff training sessions. A training video might be a good idea.” This parallels the multi-media training package from Shepherd & McDougall’s (2008) study on communication access

within libraries that includes role play with a person who uses AAC, in addition to other countries' communication access guidelines, such as the communication access videos available to the public by Communication Matters (UK; 2021) and Scope (Australia; 2011). The consistency between findings from Shepherd and McDougall (2008) and perspectives of participants from this current study demonstrate the importance and validity of points brought up by Study A and B participants.

Research for communication access in the legal systems by Togher et al. (2006) also matched interviewees' remarks on their restaurant experiences. Parts of the research on communication access training within legal systems dispelled common myths about PWUAAC and improving the quality of communication interactions between staff and PWUAAC, such as the assumption of someone's cognition based on their physical presentation or proactively asking PWUAAC what their communication preferences are. Participant 7 in Study B stated, "disability is both visible and invisible by identifying only visibilities seems discriminatory," which directly correlates to Togher et al.'s (2006) study that highlights the commonality of the general public assuming cognitive abilities of people with a physical or visual disability. In parallel to the information identified in the study on the communication accessibility of legal systems, Participant 6 addressed the need to "always ask [about communication preferences] rather than assume" in Study B to improve communication with PWUAAC. Legal systems and libraries may have different atmospheres and needs than restaurants, but they still provide insightful information about communicating with PWUAAC within a public space that are bolstered by quotes that emanated from Study A and Study B.

Other opinions brought up by participants fall under the umbrella of communicating specific instructions to service staff at a restaurant, such as special requests mentioned in item 20, repeating messages mentioned in item 34, and implementing efficient wait time mentioned in item 31. This group of survey statements that needed to be adjusted relate to AAC literature on asking what supports a PWUAAC needs to be successful during their dining experience, such as following the person's instructions on their accommodation requirements (Collier et al., 2012) or not giving up on a communication interaction (Communication Matters, 2021). Asking PWUAAC to repeat their message is reinforced by Scope (Australia; 2011) who emphasized the importance of indicating when they had difficulty understanding the PWUAAC, which is similar to Participant 6's concerns that "staff can repeat message as customer is composing" to ensure the message was accurately transferred to the other communication partner.

As mentioned previously, other countries such as Australia, the United Kingdom, and Canada have substantially progressed their communication accessibility through offering a Communication Access Symbol for facilities to work towards and apply for, which permits facilities to showcase a symbol that denotes their communication accessibility. The CAS symbol also increases patronage due to the perception of communication accessibility, which would extend to people with and without disabilities. Each country presents similar yet unique guidelines that define communication accessibility. Many ideas presented within the preparation of facilities in these countries aligns with information that was discussed during Study A and Study B. Communication Access UK (2021) defines communication accessibility for others as mutual

communication that includes hearing understanding each other, which can be recognized by Scope Australia's (2011) program that outlines welcoming staff, treating everyone with dignity and respect, communicating with people with CCN, providing communication tools available to help people get their messages across, and understanding what people are telling them as guidelines for communication accessibility. All of these accessibility requirements were mentioned by the participants in both of the current studies, which were briefly demonstrated through a quote from Study A explaining the "welcoming" restaurant environment by Jude, and a quote from Study B asking for restaurants to, "just focus on treating every individual with dignity and respect" by Participant 5. For similar reasons, these general guidelines align with the requirements for displaying a communication access symbol in Canada through the Communication Disabilities Access Canada (2014) program, that align with responses from the interviews and survey data.

Items 54 and 55 from Study B include a wide range of statements made by participants about the CAS, which was a topic also brought up during the interviews. Similar to the debate between three participants in Study A, these two items in the survey highlighted the wide range of opinions on CASs and reflects the current topic of discussion within their community. One side of the debate can be summarized by Participant 10, stating "ALL restaurants should be AAC friendly" regardless of the presence of an CAS displayed in an establishment. Participant 6 furthers the conversation by stating restaurants should not need a CAS to be communication accessible, as facilities don't need a "badge of achievement" to showcase their ability to serve all patrons. This reflects comments made by Jude and Kyle in Study A, who both

agree that “a restaurant...[should be] accessible and inclusive of everyone,” regardless of displaying a communication accessibility sticker or not. On the other hand, Participant 1 aligns with the other side of the controversy, as indicated by his quote about letting the “public know that this is available” to spread the word about CASs. This aligns with Mason’s comments about CAS during Study A that supports the implementation of CASs in the United States, as depicted by the opinion that “we need to have accessibility guidelines for communication.” These starkly differ from the organizations that promote communication accessibility as a strictly positive addition to facilities, which demonstrates the dichotomy between the suppliers and consumers.

Implementing sufficient wait time is a common strategy to increase the effectiveness of communication interactions with PWUAAC that can be found in current and dated AAC literature (Kent-Walsh & McNaughton, 2005; Hajjar & McCarthy, 2021; Communication Disabilities Access Canada, 2014; Scope (Australia), 2011; Communication Matters (UK), 2021; Togher et al., 2006; Shepherd & McDougall, 2008). Collier et al. (2012) in their study on communication access of businesses, as well as PWUAAC’s opinions on ways to augment their communication experience in public, identified face-to-face communication through additional time for communication as both frequently desired and very important. Kent-Walsh & McNaughton (2005) studied the effects of implementing a 5-second wait time when communicating with PWUAAC as a strategy for decreasing communication breakdowns within an instructional partner training program. These recommendations for wait time align with Participant 1’s opinion on the essentiality of wait time, demonstrated through his comment in Study B

that read, “I think people know that restaurants are fast the server don't need to say that but the server need to wait until the communicator is done.”

Other comments made by participants push back on the idea of wait time and what it should ideally look like within a restaurant setting. Participants considered the additional caveat of the fast-paced nature of restaurants, compelling participants to offer the option of service staff coming “back when ready” (Participant 5) if “they have a busy night” (Participant 6). Items 30 and 31 reference wait time and its necessity, with participants demonstrating mixed opinions about the necessity of such. Participants during the Study A interview voiced impartiality of the busy atmosphere of restaurants, and they were therefore understanding that service staff might not be able to stand for the duration of composing their message when they could be using their time to complete other tasks. Study B participants exemplified stronger opinions on the topic, with Participants 5 and 6 agreeing that “restaurants are fast” and “staff can say keep typing and will be right back.” The multitasking present in restaurants needed to be taken into consideration for the checklist to increase endorsement from both the restaurant establishment and employees.

The ambiance of restaurants referenced in item 46 on the survey brings a stark divide to the surface among some participants. Participant 1 believed “having a quiet area will be a benefit for everyone,” which coincides with Mason and Jude’s remarks from Study A that explain the benefit of having “a quiet place to eat” or “a quiet section of the restaurant.” Participants 5 and 6 in Study B disagreed that restaurants can’t be “expected to maintain a quiet room option” and PWUAAC have “choices on whether they like the ambiance or not,” respectively. In a study looking at communication

accessibility of general businesses and organizations (Collier et al., 2012), a quiet place that is free from distractions is an element PWUAAC look for when thinking about augmented comprehension for face-to-face communication. This coincides with Participant 1's opinion, but Participant 5 and 6's opinions can be better understood from their personal narratives. While Collier et al. (2012) says it is positive to have a quiet atmosphere during communication interactions, it was deleted from the checklist because participants felt it wasn't realistic to expect a restaurant to be quiet.

Limitations

Although limitations were reduced to the utmost capacity, there were still disadvantages to the study that impacted the validity and reliability of the data. The five participants in Study A and 10 participants in Study B are small sample sizes that could have skewed results. This was limited by comparing participants' responses to AAC research literature in Study A and Study B, and individually analyzing the scores from participants to ensure that one low score wasn't affecting the reliability of the data, but a larger sample size would have been ideal. Additionally, the subjectivity of participants' responses during the interviews and survey ratings could not be fully representative of all PWUAAC. As previously stated, interview and survey responses were cross-checked with current literature about communication accessibility for PWUAAC to reduce personal opinions and responses, but the current literature on AAC accessibility in public settings is limited as well. There was also facilitative communication through communication assistants that two participants invited to support them through the interview process in Study A, which could have partially altered their statements or the intent behind what they were communicating through someone else. The diversity of

participants' diagnoses was a setback to the study. Many participants came from different racial, ethnic, geographical, and dialectal backgrounds, were between the wide age range of 21 and 40+, and used a variety of AAC systems to communicate, but all participants in Study A and Study B had Cerebral Palsy. One participant identified as having a learning and reading disability, but no other participants noted any other outstanding disability factors. This decreases the diversity of communication perspectives gathered for the study and reduces generalization to other disability groups who use AAC, such as acquired disorders or other disability types such as autism spectrum disorder (ASD). The sample size was representative of people who are mostly independent, so it did not assess people who use AAC and are not as independent due to additional cognitive impairments. Finally, a partner dependent communicator may exacerbate issues that the PWUAAC would not have emphasized as much, which would alter the responses for participants who have a communication assistant to help them communicate.

Future Directions

Researchers in the future should focus on continuing the progression of this study. A second round of validation for the survey from different and more eligible individuals would be beneficial. This would allow for more opinions from PWUAAC to come through and influence the content of the checklist to more closely approximate the AAC population. After another round of minor revisions, piloting the checklist in a functional restaurant environment would be important for ensuring that the checklist can be successfully implemented into a restaurant with positive effects on the communication accessibility of the facility. This could be conducted in many ways,

including having a PWUAAC go into a restaurant before and after the checklist has been incorporated by employees to trial the survey's effectiveness. A skilled AAC researcher could also observe in a sampling of restaurants to note how well they fair against the communication accessibility checklist before and after implementing it into the restaurant. Managers of restaurants could look over the checklist to determine if it is something they would use, as they would most likely be the individuals in charge of implementing the checklist. Finally, developing a solidified training schema that coherently explains the purpose and procedure of implementing the validated communication accessibility training would be important for restaurants to integrate into their already established training programs for their employees. Creating procedures for how to incorporate the checklist, including criteria for restaurants to meet for being considered communication accessible after the implementation of the checklist, would be necessary to ensure restaurants are generalizing information from the training to interactions they have with patrons.

As defined by the International Business Machines Corporation (IBM; 2023), artificial intelligence is a growing area of technology advancement that encompasses combines computer science and robust datasets to "mimic the problem-solving and decision-making capabilities of the human mind" (IBM, 2023, para. 1) based on input data. Even with the recent introduction of AI to the general public, AI offers restaurants with a unique opportunity to improve the communication accessibility for all patrons, regardless of communication needs or lack thereof. For example, Wendy's has announced an initiative to improve "customer and crew experience" (Wendy's, 2023, para. 8) via AI implementation, which could increase communicative participation for all

individuals. Future research could explore the communication accessibility of AI systems once AI comes to full fruition in restaurants. Integrating the finalized checklist from this study into AI systems or databases to increase the communication accessibility of this technology could also pose an interesting route for increasing the communication accessibility of restaurants.

Summary

In summary, this study proposed to initially evaluate what communication accessibility means to PWUAAC through the creation of a checklist. This checklist went through a series of validation processes to ensure it was representative of what communication accessibility should look like from the perspectives of a subset of PWUAAC who dined out on a semiregular basis. The study could help start conversations around the implementation of communication accessibility techniques, procedures, and training in restaurants so they are more accessible to PWUAAC. This could affect the amount of business restaurants get from this population, as PWUAAC may visit restaurants more often if they are more inclusive to their communication needs. With increased communication accessibility in restaurants through the implementation of a communication access checklist, such as the one presented in this study, people with CCN could have more faith in the restaurant industry, which may increase their presence in these establishments. This will help both the consumer and the business, as increased participation could encourage the benefits of community participation, and this population's increased presence could expand revenue for the business, respectively. The outcomes of this research also support the larger notion that

restaurants in the United States should prioritize accessibility in all forms to ensure their business is accessible to the entire public, and not just certain members of society.

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Appendix A

Study A and Study B Eligibility and Demographic form (based on Bruckbauer (2020))
Note: Question 9 was not used in Study B due to its insignificance to filling out the survey.

1. What is your age?
    a. 18-21
    b. 22-24
    c. 25-30
    d. 31-35
    e. 36-40
    f. 40+

2. I identify as:
    a. Man
    b. Woman
    c. Genderqueer/Non-Binary
    d. Other

3. I live in:
    a. In North America (US, Canada)
    b. Not in North America

4. I can fluently communicate and read in English:
    a. Yes
    b. No
    c. If no, please explain: _____

5. I am currently employed:
    a. Full time
    b. Part time
    c. Unemployed
    d. Other _____

6. Ethnicity (check all that apply)
    a. Caucasian
    b. Black
    c. Latinx or Hispanic
    d. Asian
    e. Indigenous or Native American
    f. Native Hawaiian or Pacific Islander
    g. Other _____

7. Education level

a. Some high school
b. High school
c. Bachelor's Degree
d. Master's Degree
e. Ph.D. or higher
f. Trade school
g. Other

8. Do you have access to a computer and the Internet?
    a. Yes, I have access to a computer and the Internet.
    b. I have access to a computer but not the Internet.
    c. I have access to the Internet but not a computer.

9. What videocall platforms do you have access to? (Please select all that apply)
    a. Zoom
    b. Teams
    c. Skype
    d. Facetime
    e. Google Meet
    f. I do not have access to a videocall platform
    g. Other: _____

10. What is your disability?
    a. Cerebral Palsy
    b. Autism
    c. Aphasia
    d. ALS
    e. Down Syndrome
    f. Other (please state): _____
    g. I do not have a disability

11. Do you use any assistive devices to communicate?
    a. Yes
    b. No

12. What does your typical mode of communication entail? (Please select all that apply)
    a. Speech
    b. Gestures
    c. Low-tech communication device (e.g., communication book/board, PECS)
    d. High-tech communication device (e.g., tablet, iPad)
    e. Other (please state): _____

13. In your own words, describe your current communication system below:
    a. Description: _____

14. Before the pandemic, I went to restaurants:
    a. Daily
    b. Weekly
    c. Once a month
    d. Once every 2 months
    e. Once or twice a year

15. What types of restaurants do you go to? (check all that apply)
    a. Fast-food (e.g., McDonalds, Burger King, Taco Bell)
    b. Coffee shops (local or chain)
    c. Sit down restaurants (local or chain)
    d. At home delivery (e.g., Uber Eats, Door Dash, Grub Hub, Postmates)
    e. Drive-in restaurants (e.g., Sonic Drive-In, A&W)
    f. I do not go to restaurants

16. Are you fed orally, by a feeding tube, or both?
    a. Oral
    b. Feeding tube
    c. Both

17. Comment section:
    a. Thank you for taking the time to complete this survey. Please feel free to add any additional comments below.

Appendix B

Study A Interview Questions

1. What is your favorite restaurant? What is it about this restaurant that makes it your favorite place to eat?
    a. Follow up questions: (food, environment, workers, positive experiences, etc.)?
2. What is it about a restaurant that makes you want to keep coming back to it?
3. Tell me about one of the most memorable experiences you have had in this restaurant, whether it be positive or negative. What made it memorable?
4. Do you believe restaurants to be accessible to you? To other people who use AAC? Why or why not?
    a. Probes: how employees interact with you, accessibility of reading or ordering from a menu, observed attitudes of people you interact with in restaurants
5. Tell me about a positive experience you have had in any restaurant. What made it positive?
    a. Probes: state the restaurant, who was with you, which workers were involved, and what part of the dining experience it occurred in.
6. Tell me about a negative experience that stands out in your mind that you have had in any restaurant.
    a. Probes: Please be sure to state the restaurant, who was with you, which workers were involved, and what part of the dining experience it occurred in.
7. Now let's talk about how communication affects your experience in restaurants. Tell me about a positive experience you had communicating with employees at a restaurant.
    a. Probes: What made it positive? During what part of the restaurant experience did this occur?
8. Tell me about a time you had a bad experience communicating in restaurants.
    a. Probes: What made it negative? During what part of the restaurant experience did this occur?
9. There are many countries such as Australia, UK, and Canada that have created a Communication Access Symbol to increase accessibility. When businesses and organizations display this, they are stating they are "communication accessible" and have trained their staff and employees in how to have successful communication interactions with people who have complex communication needs, such as those who use AAC.
    a. Do you know of any restaurants that display a communication symbol? If so and you have visited them, how was your experience? What are the restaurants?
    b. "Communication accessibility" has been defined as communication that is clear, easy to understand, and is available in multiple formats so all people have equal access. What would you consider to be communication accessibility within restaurants?

c. What types of attitudes do you usually come across when you eat out in a restaurant, from both other patrons and restaurant staff? What types of attitudes are necessary for staff to have for a restaurant to be communication accessible?
d. What type of knowledge or training is necessary for staff to have for a communication interaction to go smoothly?
e. What type of questions should be asked during a communication interaction? Examples could include yes/no questions, closed-ended questions, open-ended questions, etc.
f. How much time is needed for you to respond during a communication interaction?
g. Do you feel as though staff in a restaurant provide you with enough wait time to fully communicate your message?
h. Do you think restaurant staff ignore you when you are talking? If you have an additional person with you, do you feel as though staff ignore you and only talks with the person you came with?
i. Do you think restaurant staff overestimate or underestimate your ability to communicate with them? How so?

10. Where do you feel like the most communication breakdowns occur when trying to order or interact with someone in a restaurant? In other words, what is the hardest part about going out to eat in a restaurant?
11. What else should I know about what it is like for a PWUAAC to dine out at restaurants?

Appendix C

Study B Survey Questions

Thank you for taking the time to fill out this survey! After compiling information from interviews with people who use AAC in conjunction with AAC research literature, I am proposing the items on this survey to be used in a checklist that restaurants can use to evaluate the communication accessibility of their facility. You will rate each individual item on the checklist regarding how necessary it would be to include on the final checklist. Your ratings will be on a 5-point scale, "very unnecessary," "unnecessary," "indifferent," "necessary," and "very necessary."

Please consider these few notes while completing the survey:

1. Please think of accessibility for anyone using AAC, *not just yourself*, to make it more comprehensive (e.g., speech and/or hearing difficulty, cerebral palsy, autism spectrum disorder, Down syndrome).
2. The survey won't be able to evaluate every staff member, but it can evaluate restaurant policies and procedures in place. Thus, the training of staff members can be controlled in restaurants, but each individual staff interaction can't be accounted for.
3. There was a lot about physical accessibility said during the interviews that brought up important points. There is a separate study covering the physical accessibility of restaurants led by an occupational therapist (OT) in the University of Wisconsin-Milwaukee. I will pass this information to them, so physical accessibility remarks will be valued and accounted for.
4. The final checklist should be shorter than the survey I present to you today. I wanted to include everything gathered from the literature and interviews to get input from individuals who use AAC on all aspects of restaurant communication accessibility that got brought up.
5. Some of the items on the checklist look similar due to general ideas that were broken up into more specific items. Underlined portions of the question are imperative to understanding the main focus of the question.
6. Person-first language was used throughout the survey for consistency.

Staff training: General

1. Training for communication accessibility in restaurants will be short, efficient, and practical to accommodate for the high turnover rates in restaurants.
2. Training will cover the topic of unconscious bias, which is social stereotypes about certain groups of people that form outside their own conscious awareness, such as people who use AAC.
3. Training will cover the topic of discrimination, which is the unjust treatment of different categories of people, such as people who use AAC.
4. Training will include people who use AAC so staff can learn from individuals with differing communication modalities and ask them questions.
5. Training will include exposure to people with disabilities to increase staff comfort when interacting with people with disabilities.

6. Training will cover the topic of seeing all customers as individuals versus generalizing patrons, including people who use AAC.
7. Training will cover that each interaction with patrons is unique to increase inclusivity of all customers, including people who use AAC.

Staff training: Direct Communication

8. Staff are trained to talk directly to the person who uses AAC and not the people they came with.
9. Staff are trained to acknowledge the presence of everyone at the table, including people with disabilities and/or people who use AAC.
10. Staff are trained to make eye contact with everyone at the table, including people with disabilities and/or people who use AAC.

Staff training: Assume Abilities

11. Staff are trained to assume the abilities of people who use AAC, including their independence.
12. Staff are trained to assume the abilities of people who use AAC, including their knowledge about the world around them.
13. Staff are trained to assume the abilities of people who use AAC, including their ability to communicate with others.
14. Staff are trained to assume that people who use AAC can pay the bill.
15. Staff are trained to assume that people who use AAC can understand others, until staff hear otherwise.
16. Staff are trained to assume that people who use AAC can order for themselves (e.g., read menu, order) by giving everyone a menu, until staff hear otherwise.
17. Staff are trained to assume that people who use AAC can independently choose what they want to eat, until staff hear otherwise.

Staff training: Questions

18. Staff are trained to ask people who use AAC about the best way to support them in their dining experience, such as beneficial communication approaches, best place to stand, pointing to aid communication, etc.
19. Staff are trained to ask clarifying questions about their order to make sure it is right.
20. Staff are trained to ask people who use AAC about special requests that may be needed during the dining experience, such as pouring drinks into personal cups, cutting up food, putting food in a specific place or on a tray, etc.
21. Staff are trained to ask if more detail about the meal or menu is needed by anyone at the table.
22. If curious, staff are trained to ask respectful questions to people who use AAC if they want to know more about them.
23. Staff are trained to give choices for question types to people who use AAC, with closed-ended or yes/no questions being used if staff are having difficulty understanding the person who uses AAC.

Staff training: Respect

24. Staff are trained to respect all people they serve, including people who use AAC.
25. Staff are trained to respect differing communication modalities from mainstream verbal communication, including all forms of AAC.
26. If applicable, staff are trained to respect an individual's AAC device (e.g., asking before touching, asking before looking at their screen).
27. Staff are trained to respect an individual's personal space (e.g., ask before touching/moving wheelchair).
28. Staff are trained to value all individuals they serve, including people who use AAC.

Staff training: Patience

29. Staff are trained to listen to all individuals they serve, including people who use AAC.
30. Staff are trained to adequately wait for all individuals to finish composing and stating their message, including people who use AAC.
31. Staff are trained to adequately wait for all individuals to respond, including people who use AAC.

Staff training: Acknowledge fast-paced nature of restaurants

32. Staff are trained to be honest about the busyness of a restaurant while stating that they will try their best to communicate with everyone effectively, including people who use AAC.
33. Staff are trained to be honest about the expectation of the restaurant to be fast and efficient, while stating that they will try their best to communicate with everyone effectively, including people who use AAC.

Staff training: Humility

34. Staff are trained to ask people who use AAC to repeat their message if they did not understand them, versus pretending to understand them.
35. Staff are trained to ask people who use AAC to repeat their message if they can't hear the message due to the loud atmosphere of the restaurant.
36. If staff make a mistake, staff are trained to acknowledge their mistake and apologize to all contributing parties, including people who use AAC.
37. If necessary, staff will acknowledge areas they are still learning and growing in, including experience working with people who use AAC.

Staff training: Nice/Happy demeanor

38. Staff are trained to have a nice, happy, and pleasant demeanor when interacting with all individuals, including people who use AAC.

Staff training: Inclusivity

39. Staff are trained to include all people in communication interactions, including people who use AAC.

40. Staff are trained to treat people who use AAC the same as everyone else at the table.
41. Staff are trained to welcome all guests through greeting and being interactive with everyone, including people who use AAC.

Staff training: Open Mindset

42. Staff are trained to be flexible during customers' dining experiences, including people who use AAC.
43. Staff are trained to be relaxed during customers' dining experiences, including people who use AAC.
44. Staff are trained to be willing to understand customers and their differences, including people who use AAC.

Staff training: Environmental accommodations

45. Staff are trained to move from behind counters or barriers to communicate with people who use AAC to ensure effective communication.
46. Restaurants have a quiet area option for customers with less background noise (e.g., music, TVs) to accommodate people who use AAC with voice output systems.

Staff training: Communication

47. Staff are trained to communicate using clear and easy-to-understand language during all communication interactions, including communication with people who use AAC.
48. Staff are trained to have mutual conversations with all guests where both parties' needs are met (i.e., the staff and customer), including people who use AAC.
49. Staff are trained to communicate in a positive manner in all communication interactions, including when communicating with people who use AAC.

Staff training: Knowledge

50. Training will include knowledge about AAC and different communication abilities.
51. Training will include general disability training for interacting with various populations, including people who use AAC.
52. Training will include knowledge about the etiquette of talking with people who use AAC, including direct communication, waiting for their entire message before responding, respecting all communication modalities, etc.
53. Training will include knowledge about the negative stigma around people with disabilities to prevent these stigmas from persisting.

Communication Access Symbol

54. Restaurants in the United States will display a clear, non-arbitrary communication access symbol if they meet the requirements of being communication accessible, as compiled from other communication symbols in other countries such as Canada, UK, or Australia.

55. Restaurants that meet the requirements of this checklist will be considered as communication accessible, regardless of displaying a formal communication access symbol.

Menu

56. Restaurant menus will have an option to listen to the menu in person and/or on their website to increase independence for ordering in people with varying disabilities, including people who use AAC.
57. Restaurant menus will have an option to order based on pictures of the menu in person and/or on their website to increase independence for ordering in people with varying reading and literacy disabilities, including people who use AAC.
58. Restaurant menus will be visibly accessible to all people, including people who use AAC that may not be able to see above a counter and/or see a menu posted up too high.
59. Restaurant menus will include an accessible menu for people who can't physically hold a menu, including stands for menus to lean up against.
60. Restaurant menus will have a variety of food options to accommodate a soft diet or diet restrictions for any applicable people, including people who use AAC.

Online ordering/ Website

61. Restaurants will have a strong and accessible platform for online ordering to accommodate people who would rather eat at home versus in a restaurant, including people who use AAC.
62. Restaurants' websites will state their competency in responding to high-tech and low-tech communication modalities.
63. Restaurant websites will state their accessibility features in detail online so people with varying abilities can plan their dining experience accordingly, including people who use AAC.
64. Restaurants' websites will have customer feedback opportunities for people to rate their dining experience.
65. Restaurants will follow up after receiving negative feedback from customers to address, apologize, and potentially alleviate negative experiences.

Appendix D

Finalized Checklist

Staff training: General

1. Training for communication accessibility in restaurants is short, efficient, and practical to accommodate for the high turnover rates in restaurants.
   ☐Yes ☐No

2. Training covers the topic of unconscious bias, which is social stereotypes about certain groups of people that form outside their own conscious awareness, such as people who use AAC.
   ☐Yes ☐No

3. Training includes people who use AAC through a training video so staff can learn from individuals with differing communication modalities and ask them questions.
   ☐Yes ☐No

4. Training includes exposure to people with disabilities to increase staff comfort when interacting with people with disabilities.
   ☐Yes ☐No

5. Training covers the topic of seeing all customers as individuals versus generalizing patrons, including people who use AAC.
   ☐Yes ☐No

6. Training covers that each interaction with patrons is unique to increase inclusivity of all customers, including people who use AAC.
   ☐Yes ☐No

Staff training: Direct Communication

7. Staff are trained to talk directly to the person who uses AAC and not the people they came with.
   ☐Yes ☐No

8. Staff are trained to acknowledge the presence of everyone at the table, including people with disabilities and/or people who use AAC.
   ☐Yes ☐No

9. Staff are trained to make eye contact with everyone at the table but not expect it from everyone, including people with disabilities and/or people who use AAC.
   ☐Yes ☐No

Staff training: Assume Abilities

10. Staff are trained to assume the ability, competency, independence, and orientation of people who use AAC.
    ☐Yes ☐No

11. Staff are trained to assume the abilities of people who use AAC, including their ability to communicate with others.
    ☐Yes ☐No

12. Staff are trained to assume that people who use AAC can order for themselves (e.g., read menu, order) by giving everyone a menu, until staff hear otherwise.
    ☐Yes ☐No

Staff training: Questions

13. Staff are trained to ask if more detail about the meal or menu is needed by anyone at the table.
    ☐Yes ☐No

14. If curious, staff are trained to ask respectful questions to people who use AAC if they want to know more about them.
    ☐Yes ☐No

15. Staff are trained to give choices for question types to people who use AAC, with closed-ended or yes/no questions being used if staff are having difficulty understanding the person who uses AAC.
    ☐Yes ☐No

Staff training: Respect

16. Staff are trained to respect all people they serve, including people who use AAC.
    ☐Yes ☐No

17. Staff are trained to respect differing communication modalities from mainstream verbal communication, including all forms of AAC.
    ☐Yes ☐No

18. Staff are trained to ask about an individual's preferences on AAC device and equipment privacy (e.g., asking before touching, asking before looking at their screen, asking before touching/moving wheelchair).
    ☐Yes ☐No

19. Staff are trained to value all individuals they serve, including people who use AAC.
    ☐Yes ☐No

Staff training: Patience

20. Staff are trained to listen to all individuals they serve, including people who use AAC.
    ☐Yes ☐No

21. Staff are trained to adequately wait for all individuals to finish composing and stating their message, including people who use AAC.
    ☐Yes ☐No

22. Staff are trained to let PWUAAC know they will return when their message is fully prepared.
    ☐Yes ☐No

Staff training: Acknowledge fast-paced nature of restaurants

23. Staff are trained to be honest about the busyness of a restaurant while stating that they will try their best to communicate with everyone effectively, including people who use AAC.
    ☐Yes ☐No

24. Staff are trained to be honest about the expectation of the restaurant to be fast and efficient, while stating that they will try their best to communicate with everyone effectively, including people who use AAC.
    ☐Yes ☐No

Staff training: Humility

25. Staff are trained to ask people who use AAC to repeat their message as the PWUAAC composes the message if they did not understand them, versus pretending to understand them.
    ☐Yes ☐No

26. Staff are trained to ask people who use AAC to repeat their message if they can't hear the message due to the loud atmosphere of the restaurant.
    ☐Yes ☐No

27. If staff make a mistake, staff are trained to acknowledge their mistake and apologize to all contributing parties, including people who use AAC.
    ☐Yes ☐No

28. If necessary, staff will acknowledge areas they are still learning and growing in, including experience working with people who use AAC.
    ☐Yes ☐No

Staff training: Inclusivity

29. Staff are trained to include all people in communication interactions, including people who use AAC.
    ☐Yes ☐No

30. Staff are trained to treat people who use AAC the same as everyone else at the table.
    ☐Yes ☐No

31. Staff are trained to welcome all guests through greeting and being interactive with everyone, including people who use AAC.
    ☐Yes ☐No

Staff training: Open Mindset

32. Staff are trained to be flexible during customers' dining experiences, including people who use AAC.
    ☐Yes ☐No

33. Staff are trained to be willing to understand customers and their differences, including people who use AAC.
    ☐Yes ☐No

Staff training: Communication

34. Staff are trained to communicate using clear and easy-to-understand language during all communication interactions, including communication with people who use AAC.
    ☐Yes ☐No

35. Staff are trained to have mutual conversations with all guests where both parties' needs are met (i.e., the staff and customer), including people who use AAC.
    ☐Yes ☐No

36. Staff are trained to communicate in a positive manner in all communication interactions, including when communicating with people who use AAC.
    ☐Yes ☐No

Staff training: Knowledge

37. Training includes knowledge about AAC and different communication abilities.
    ☐Yes ☐No

38. Training includes general disability training for interacting with various populations, including people who use AAC.
    ☐Yes ☐No

Menu

39. Restaurant menus have an option to listen to the menu in person and/or on their website to increase independence for ordering in people with varying disabilities, including people who use AAC.
☐Yes ☐No

40. Restaurant menus have an option to order based on pictures of the menu in person and/or on their website to increase independence for ordering in people with varying reading and literacy disabilities, including people who use AAC.
☐Yes ☐No

41. Restaurant menus are visibly accessible to all people, including people who use AAC that may not be able to see above a counter and/or see a menu posted up too high.
☐Yes ☐No

42. Restaurant displays the option of making a special request that may be needed during the dining experience, such as pouring drinks into personal cups, cutting up food, putting food in a specific place or on a tray, etc.
☐Yes ☐No

Online ordering/ Website

43. Restaurant's website has customer feedback opportunities for people to rate their dining experience.
☐Yes ☐No

44. Restaurants will follow up after receiving negative feedback from their website, Yelp, or Google Review to address, apologize, and potentially alleviate negative experiences.
☐Yes ☐No