

Understanding Early Childhood Educators' Attitudes on Communication Practices and AAC: A
Mixed Methods Study

Chi Un Baik

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Reading Committee:

Angel Fetting, Chair

Carly Roberts

Amy Pace

Carol Davis

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Chi Un Baik

University of Washington

Abstract

Impact of Early Childhood Educators' Attitudes on Communication Practices and AAC: A
Mixed Methods Study

Chi Un Baik

Chair of Supervisory Committee:

Angel Fettig

College of Education

There is a small, but significant population of students who are not yet able to access systematic, reliable forms of communication. Students with significant cognitive disabilities and complex communication needs (CCN) have extensive support needs (ESN) that require extra nuance when planning for effective communication instruction and inclusion. Augmentative and alternative communication (AAC) is a promising avenue for these students, but access to AAC is still very limited. For these students, in particular, appropriate and effective AAC use is not only determined by educators' competence with using these tools/strategies, but also by their beliefs about students' abilities and attitudes towards AAC. This study sought to better understand current attitudes of educators who support preschoolers with ESN/CCN and how these attitudes/beliefs affected their communication practices. Additionally, it explored how these

attitudes impacted students' inclusionary opportunities. A convergent parallel mixed methods design was used to gather survey and interview data to understand the connection between attitudes and practices. Results revealed that while early childhood educators showed positive intent and deep commitment towards student learning, effective AAC and inclusive practices were often constrained by technical skill gaps, limited resources, and implicit biases regarding disability and competence.

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Chapter 1: Introduction

Students with significant cognitive disabilities have extensive learning and support needs (ESN) that impact the ways in which they navigate the world and the ways in which the world views them (Erickson & Geist, 2016). In particular, their complex communication needs (CCN) affect how they are perceived, the levels of support they receive, and the learning environments they are taught in (Erickson & Geist, 2016; Kleinert, 2020). Approximately 30% of these students do not have a formal symbolic mode of communication, meaning they do not yet use shared symbols (e.g., words, pictures) to communicate in a structured and reliable way (Kleinert, 2020). Moreover, this communicative competence, or the ability to use symbolic language effectively and appropriately, changes very little over the course of a student's school career with about 10% of high school students with significant cognitive disabilities still relying on presymbolic and unreliable means to communicate (Kleinert, 2020). These presymbolic forms of communication (e.g., gestures, vocalizations, movements, expressions) can be difficult to interpret and attribute meaning to, even for communication partners (CPs) who are familiar with the student (Erickson & Geist, 2016; Geist et al., 2020).

Communication skills are essential to daily living to express thoughts, needs, feelings, and facilitate interactions with others. It impacts all aspects of a student's life; specifically, in a school context, it largely impacts students' opportunities to learn, socialize, and participate in educational tasks (Light & McNaughton, 2014; Erickson & Geist, 2016). Students with significant cognitive disabilities and CCN often need access to alternative ways of communicating (rather than verbal speech) due to exceptional language and/or developmental delays and impairment (Erickson & Geist, 2016). Augmentative and alternative communication

(AAC) refers to a range of methods and strategies that supplement or replace verbal speech for individuals who need communication support (Elsahar et al., 2019). The use of AAC, through strategies such as manual sign, picture-based systems, and speech-generating devices has been very promising for individuals with speech and language impairments; however, there have been concerns regarding access to AAC for students who have CCN and ESN (Andzik et al., 2021; Elsahar et al., 2019). This lack of access can be attributed to two main, related reasons: AAC tools/strategies are not thoughtfully designed for students with ESN and students with ESN/CCN are not being given meaningful and appropriate opportunities due to preconceived notions of their competence (Erickson & Geist, 2016; Kleinert, 2020).

Though students with ESN/CCN may have a range of extensive support needs that necessitate substantially adapted and/or modified materials, there are a range of AAC tools and strategies that can be used, in multimodal ways, to meet the needs of students with even the most significant support needs (Elsahar et al., 2019; McNaughton et al., 2019). For this population of students, simply providing physical access to AAC is not enough; CPs must be very intentional in how they teach and adapt AAC to meet the unique learning and access needs of each student (McNaughton et al., 2019). For preschool-aged students with ESN/CCN it is particularly important that CPs, which in school settings are usually educators, are knowledgeable and aware of how their communication and teaching practices can impact their students' access to appropriate AAC, as these young students' learning opportunities are heavily dependent on the choices of the adults around them (Klang et al., 2016; Petry et al., 2005).

It is important to understand the attitudes of educators towards AAC as communication skills play a significant role in students' learning opportunities (Kleinert, 2020). CPs who are

more knowledgeable about and confident in using AAC provide more meaningful opportunities for students to use AAC (Hanley et al., 2025). Educators' perceptions of their students' ability to learn, or presumptions of competence, have a direct impact on learning opportunities as well. Students with ESN/CCN are subject to low presumptions of competence due to societal perceptions of normalcy—because it's presumed that they will be unable to do a task, they are often not being given the opportunity to try (Biklen & Burke, 2006; Brenneise 2020). Therefore, the attitudes of educators and their presumptions of their students' competence need to be explored as they directly affect the quality and quantity of learning opportunities that students are receiving. This is especially evident when we look at the rates of inclusionary practices for students with ESN/CCN.

While rates of inclusion have generally increased for students with disabilities, over 90% of students with significant cognitive disabilities, many of whom have CCN, are still educated in separate self-contained classrooms and/or schools (Erickson & Geist, 2016; Morningstar et al., 2017). While proponents of segregated classrooms argue that students benefit from the highly intensive and systematic instruction/support assumed in these settings, research shows that restrictive placements often have lower levels of engagement from students due to inaccessibility to high-quality curriculum, qualified staff, and diverse communication systems/partners (Gee, 2020; Kurth et al., 2015). Findings from research indicate that students with disabilities (including those with extensive support needs) have more robust academic, communication, and social outcomes when taught in inclusive settings (Agran et al., 2020; Gee, 2020).

There is a statistically significant, positive correlation between a student's use of expressive communication and their placement in increasingly inclusive classroom settings (Kleinert, 2020). Thus, it is pertinent that schools prioritize addressing CCN for students with

significant cognitive disabilities for them to be able to meaningfully engage in inclusive learning opportunities. The attitudes and beliefs of educators towards their students' abilities and AAC use can have a direct, profound impact on students' communication outcomes and how their complex communication needs are being supported in schools. Therefore, it's important that we understand what these attitudes are and how they're impacting current communication practices.

Study Purpose

The purpose of this study is to collect exploratory data on the perceptions of educators who support preschool-aged students with significant cognitive disabilities who have CCN. In particular, it seeks to gather information on educators' attitudes towards their communication, AAC, and inclusionary practices and better understand their experiences implementing these practices. The research questions guiding the study are as follows:

Research Question 1: What are educators' attitudes towards: (a) communication goals and instruction; (b) AAC; and (c) inclusionary practices in relation to communication?

Research Question 2: How do educators describe their experiences in supporting communication instruction for preschool-aged students with ESN/CCN?

Research Question 3: What reported attitudes and contextual factors support the interpretation of how educators approach communication instruction for preschool-aged children with ESN/CCN?

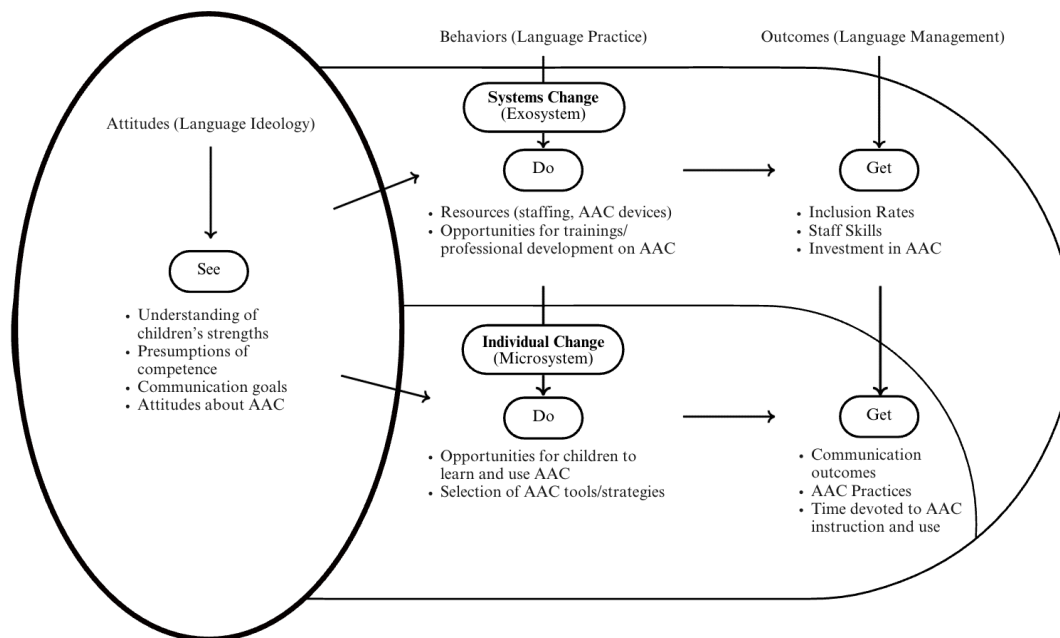
Conceptual Framework

This study will follow a proposed conceptual framework (see Figure 1) adapted from a model that Vandercook et al. (2020) proposed in their article describing the needed changes to improve inclusive educational practices for students with severe disabilities. The authors frame change based off elements from Covey's "See, Do, Get" Model (Covey, 2004) and

Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1994) to illustrate how presumptions of competence affect inclusionary practices for children with extensive support needs. Using this as a foundation, the model is expanded to illustrate how presumptions of competence can affect communication, AAC, and inclusion practices and outcomes for children with significant cognitive disabilities. The model further incorporates tenets of Family Language Policy (FLP) to illustrate how beliefs about AAC and language can affect educator's AAC practice and management.

Figure 1

Conceptual Framework



Covey proposed his cyclical “See, Do, Get” model in his book, “The 7 Habits of Highly Effective People” (Covey, 2004). Though designed as a management model, its elements can be used as a basic change model to explain how individuals’ perceptions and presumptions affect their actions and outcomes. There are three main components to this model. “See” refers to

people's attitudes or how they perceive a concept. "Do" refers to their actions or behaviors as a result of their attitudes. "Get" refers to the outcomes that manifest from their behavior which cycles back and may end up reaffirming or discrediting their initial belief/attitude. Basically, he posits that if an individual's perceptions or mindset/attitude (how they "see") changes then, consequently, their behaviors will change (what they "do") which will lead to different outcomes (what they "get").

In Bronfenbrenner's ecological systems theory (1994), he describes how individuals are situated within a system of interacting layered environments: the microsystem, mesosystem, exosystem, and macrosystem. Unique interactions and the environmental contexts in which they occur largely affect an individual's development (Bronfenbrenner, 1994). In this framework, communication practices are situated in the "see, do, get" model within the contexts of the microsystem and exosystem. In theory, a change in practices can occur on an individual level or on a systems level to affect communication outcomes. In the microsystem is individual change, where a change in educators' individual beliefs may cause a change in practice and outcomes. In the exosystem is systems-level change, which may include changes in the school system or the community environment's beliefs that impact communication practices and outcomes.

FLP is a concept referred to in the field of multilingual education to refer to how families manage children's language acquisition through decided language and literacy practices. It draws on theoretical frameworks of child language acquisition, language socialization, and language policy to gain insight on families' ideologies, practices, and management of language (Curd-Christiansen, 2018). AAC can have enough distinctive features (e.g., different language systems, syntax, and structure) to think of it as a discrete language (Denney et al., 2022).

Particularly when used with young children with significant cognitive disabilities, who often are exposed to simplified language, AAC can look very different to and is not a mirror of spoken English (Binger & Light, 2008). FLP theorizes that adults' attitudes towards certain languages largely influence the decisions they make regarding which languages to prioritize for children. More broadly, the social and cultural environments that children and their families are in affect these attitudes (Curdtt-Christiansen, 2018). Translating this into the school context, FLP posits that educators' attitudes and beliefs about AAC will reflect in their communication goals and practices. Therefore, it is pertinent that we consider the language ideologies of educators working with students with significant cognitive disabilities, in conjunction with their perceptions of disability and communication competency.

In Vandercook et al.'s discussion, the authors posit that, at the micro-level, segregated models of support perpetuate low expectations for learning ("see") which causes low academic outcomes ("do") which then confirms the reasoning for the exclusion of students from inclusive learning opportunities ("get"). Therefore, a change is needed at the "see" level in improving individuals' attitudes and presumptions of competence in order to enact positive change. At the exo-level, the authors hypothesize that inconsistent visions for inclusion ("see") cause unclear operationalization ("do") which causes low rates of or low quality inclusion ("get"). Therefore, again, an ideological change is needed to create a consistent and clear organizational vision for inclusion in order to enact a change in practices/outcomes. The authors also discuss how micro- and exo-systems interact with each other; in their case, the exo-level could have a large impact on the micro-level as educators can be highly influenced by their school's organizational vision.

Following the structure of this model, in relation to communication at the micro-level, reframing/changing how educators conceptualize communicative competence (“see”) will lead to more meaningful, appropriate, and diverse communication instruction (“do”) which will lead to higher communicative competence and higher rates of inclusion (“get”). The converse would also be true where low presumptions of competence/inappropriate communication goal-setting would lead to less favorable instruction and outcomes. Similarly, at the exo-level, this model hypothesizes that promoting higher presumptions of competence and being supportive of AAC (“see”) would lead school systems to invest more in communication resources and opportunities for students with significant cognitive disabilities (“do”), which will lead to stronger communication outcomes, higher rates of inclusion, and a stronger workforce better prepared to support CCN (“get”). Since the layered systems interact with each other, it is also hypothesized that change at the exo-level would affect change at the micro-level. For example, if a school system sets a very clear stance on their views of AAC and students’ competence and provides training to educators to affirm those views, the way that educators “see” is likely to be influenced.

This framework provides a logical guide into understanding how attitudes/presumptions about communicative competence and AAC can have a large impact on the levels and types of communication support that students receive. By setting communicative competence and higher rates of inclusion as outcomes or things to “get,” we can see how shifting attitudes of how educators “see” can create a ripple effect of change in this model. Therefore, following this theoretical underpinning, it is pertinent that we start by exploring educators’ attitudes and beliefs in how they “see” AAC, goals for communication, and inclusion for students with significant

cognitive disabilities in order to better understand the state of current communication, AAC, and inclusionary practices.

Researcher Positionality

The positionalities and beliefs of researchers may have influenced how data was perceived and analyzed. This research was a dissertation study of a nondisabled doctoral candidate working in the field of special education and was supported by a team of four faculty members. All individual members have varied experiences and expertise; however, all members have direct experience supporting and working collaboratively with children and/or staff to support the learning needs of students receiving special education services. All members also collaborate regularly with other professionals in the field as well as with families of children with significant cognitive disabilities in community work.

Chapter 2: Literature Review

Young Students with Significant Cognitive Disabilities and CCN

Students with significant cognitive disabilities are those who benefit from extensive and highly individualized instruction and support across daily living and learning opportunities (U.S. Department of Education, 2005). These students often receive special education services under the disability labels of multiple disabilities, intellectual disability, autism, and deaf-blindness and present with exceptional adaptive, behavioral, medical, and/or mobility needs that require substantially adapted and/or modified materials to fully engage in their environment (Burnes & Clark, 2021; Erickson & Geist, 2016; Roberts et al., 2024). Many students with significant cognitive disabilities often have co-occurring disabilities that also further impact how they may access their environments (Erickson & Geist, 2016). 11-12% of students with significant cognitive disabilities also have motor impairments that require full physical assistance for most or all activities. 7-10% have visual impairments and 6-8% have hearing impairments that impact access (Erickson & Geist, 2016). Most of these students exhibit low registration sensory process patterns, meaning they require more time and input to process incoming sensory information (Agostine et al., 2022). That is to say, a majority of these students present with a variety of physical, sensory, cognitive, and communication needs that impact the ways in which they interact with and experience the world (Agostine et al., 2022; Erickson & Geist, 2016). Additionally, the chronic and significant nature of these students' disabilities may adversely impact attendance, participation, and engagement in school (Salisbury & Copeland, 2013).

In particular, these students demonstrate complex communication needs (CCN) that affect the ways in which they receptively and expressively communicate with others (Geist et al., 2020). The National Longitudinal Transition Study-2 reported that 45% of individuals with

intellectual disabilities, 39% of individuals with ASD, and 28% of individuals with multiple disabilities did not have reliable and systematic ways to communicate effectively (Newman et al., 2009). More recently, Beukelman & Light (2020) report that approximately 1.3% of the population in the U.S. has CCN and Geist et al. (2020) found that more than 100,000 students in U.S. public schools are not yet able to communicate symbolically. While all forms of communication are valid, early nonsymbolic or presymbolic forms of communication are unconventional, and often inaccessible, because they require communication partners (CPs) who are familiar with the student to interpret meaning (Geist et al., 2020). Access to more systematic, universal forms of communication that can be understood by most others help to increase learning opportunities, improve outcomes, and facilitate daily living for these students (Geist et al., 2020; Light & Drager, 2007).

Communication Competency

Communication competency, or the ability to functionally and adequately communicate knowledge, judgement, and skill in various domains, affects all outcomes of daily life (Light & McNaughton, 2014). McNaughton et al. (2019) argue that it is one of the most fundamental factors that impact an individual's quality of life as one's ability to express thoughts, needs, and wants and socially connect with others greatly influences participation and acceptance across environments. For students who use augmentative and alternative communication (AAC), there are a number of unique factors to consider when working to build communicative competence. Individuals may conceptualize communicative competence differently based on their own beliefs shaped by personal and practical experiences (Leko et al., 2015). However, Light & McNaughton's 2014 framework of communicative competence is widely referred to when conceptualizing communicative competence for AAC users. This framework was originally

developed in 1989 and updated in 2014 to prioritize AAC users' independence and autonomy in their communication.

This framework includes four main constructs: communication functionality, adequacy, sufficiency of knowledge, judgement, and skill, and psychosocial factors (Light & McNaughton, 2014). Functionality refers to how appropriately and able the AAC user is to use different communicative functions to express themselves across environments (Light & McNaughton, 2014). Many times, communication goals for students with significant cognitive disabilities can be too focused on expressing wants and needs in isolated settings (Biggs et al., 2018). This is a reductive and ineffective approach to teaching communication as students are not given the opportunity to learn other communicative functions (e.g., socializing, exchanging information) and, often, are assumed to be unable to do so. Functionality, thus, should be thoughtfully developed by intentionally expanding a student's communicative repertoire and considering which environments a student will be using these functions in (e.g., home, school, community). For example, if instruction only centers around requesting food items within a clinical environment, a student may not be able to generalize those skills to encompass more communicative functions in other environments.

Communication goals should also be developmentally appropriate and scaled for each student (Light & McNaughton, 2014). Communicative competence should not equal communicative mastery. There is often a focus on the need for mastery of academic and functional skills before moving on to other skills like social skills (Knight et al., 2019). If a student develops enough communicative repertoire to meet daily life goals (i.e., adequacy), that should be considered reaching competency. This competency may vary between environments.

For example, a student might reach competence at home if they are able to ask for basic wants and needs, but may need more support in developing competency in the community to socially interact with novel CPs.

Functional use of AAC is predicated by sufficient knowledge and skills across four domains: linguistic, operational, social, and strategic (Light & McNaughton, 2014). In the context of AAC use, reaching adequacy in these domains is complicated as the knowledge and skills it takes to successfully use AAC differs greatly from the common language system (verbal speech) that CPs likely use. Linguistically, AAC users must learn both the system and syntax of verbal speech in order to receptively understand language and system of the AAC device in which they are using to communicate expressively. Operationally, they have the added task of learning how to navigate AAC tools and devices efficiently. Socially, they must learn when and how it is appropriate to use their device with others and strategically, they must learn how to overcome the constraints and limitations of AAC. It is important for educators to understand, acknowledge, and adapt to the added complexities that come with learning language for these students.

There are a number of other factors that affect students' road to communicative competence. Factors such as motivation, attitude, confidence, and resilience all affect how a student may approach communication opportunities and how others may interact with them. For example, a student in a communication-rich and supportive environment with CPs who have positive attitudes towards AAC will be more motivated, confident, and resilient in their communication. Additionally, as society has evolved, there have been a number of external environmental factors to consider as well. Changing demographics in the U.S. have necessitated

cultural and linguistic adaptations to AAC tools and services. Newer technologies have allowed for a wider range of available tools/devices, but require more training and support to be able to use. Changing societal perceptions have shifted what is considered functional and adequate for these students. All of these factors impact how educators think about and approach building communicative competence for students.

Language Ideology

Language ideology, or one's beliefs or attitudes about language, impacts how individuals approach language use, instruction, and management (Curd-Christiansen, 2018; McDuffie & Yoder, 2010). Family language planning (FLP), referred to in this study's conceptual framework, explains how educators manage students' language acquisition through both conscious and subconscious language and literacy practices. It draws on theoretical frameworks of student language acquisition, language socialization, and language policy to gain insight on families' ideologies, practices, and management of language within a sociopolitical context (Curd-Christiansen, 2018). This idea can be transferred to educators as they parallel young students' educators in an educational context.

The language ideologies of educators are important to consider as studies show that both the quantity and quality of linguistic/language input a student receives plays a central role in the development of their language and communication skills (Biggs et al 2018; McDuffie & Yoder, 2010). This linguistic input is more complicated for AAC users as there is often an input-output asymmetry where students who are expected to use AAC expressively have no models/input of others communicating with AAC (Biggs et al., 2018). Additionally, because mainstream culture

in the United States prioritizes and benefits those who speak English, AAC use may not be seen as ideal and, therefore, not prioritized in instruction (Light & McNaughton, 2014).

Unfortunately, there are other myths about AAC that can cause educators to have negative attitudes towards AAC as well. For example, many educators still believe that AAC can discourage speech development or ostracize students despite evidence showing that AAC supports students' gains in communication and speech production (Jensen et al., 2023). Also, there can be negative beliefs about the efficiency of AAC as, temporally, it takes users more time to produce speech (a few words a minute vs. 100-150 spoken words for the average speaking person) (Tegler & Pilesjo, 2023). These attitudes, coupled with popular beliefs that spoken English is the ideal language or should be the 'norm' for a student in the U.S. (Jensen et al., 2023), can severely impact how educators choose to incorporate AAC into their instruction and learning opportunities for students.

Presumptions of Competence

Societal perceptions of disability and presumptions of competence greatly affect the ways in which support is given (or not given) to students with ESN/CCN (Erickson & Geist, 2016; Roberts et al., 2024). Students with disabilities are often forced to resist assumptions of incompetence rather than being given faith in their abilities, having to prove that they benefit from instructional practices and inclusion in order to receive it (Biklen & Burke, 2006). These low presumptions of competence can create an unfortunate cycle in which low faith results in less learning opportunities and lower levels of attention/support which leads to slower progress. These negative perceptions of disability are then confirmed by the resulting slower learning rates and externalizing behaviors (Light & Drager, 2007). This is especially concerning for students

who have extensive support needs who face increased levels and types of ableism and exclusionary practices (Roberts et al., 2024).

Students with disabilities learn and show their learning in non-normative ways; therefore, it is problematic when we hold these students to normative expectations (Brenneise, 2020). For example, in relation to communication, educators' expectations of performance tend to correlate to the level of expressive communication skills that a student has (Klang et al., 2016). Therefore, if a student does not have a systematic way in which to communicate, they are likely to be seen as less competent. This is incredibly harmful to students' language learning outcomes as non-normative communication attempts are likely to be ignored or dismissed (Brenneise, 2020).

These perceptions about disability, or presumptions of competence, have a large impact on how students' communication needs are being supported and the levels of access students have to AAC (Klang et al., 2016; McCarthy & Light, 2005). For example, Binger and Light (2006) found that most preschoolers with CCN are limited to low-tech communication boards or simple AAC tech, with very few given access to AAC tech that offer greater breadths of communication options. AAC devices are also often not programmed with age-appropriate or skill-appropriate vocabulary that reflects individuals' personalities, perspectives and cultures (Brewster, 2013). These beliefs and practices unfortunately perpetuate the aforementioned cycle of students not being provided with what's needed to succeed, then others viewing lack of progress as incompetence. Rather than being criticized or looked down upon for being unable to show up for learning in normative ways, students with disabilities should be acknowledged and celebrated for showing up to learn in environments that were not designed for them (Brenneise, 2020). Educators should also take on some of this burden by putting in extra effort to try and

understand and add meaning to non-normative communicative behaviors (Biklen & Burke, 2006; Brenneise, 2020).

Impact of Educators' Beliefs on Communication Practices

Due to the support needs of young students with disabilities, educators play an integral role in improving students' learning outcomes (Erickson & Geist, 2016; Dell'Anna et al., 2022). Specifically in relation to communication, students with significant cognitive disabilities interact routinely with educators to learn and practice their communication skills. In school settings, educators and service providers are daily CPs who can greatly influence communication outcomes (Agran et al., 2020; Andzik & Chung, 2022).

Educators' beliefs about competence begin early and can be difficult to change; however, studies like the one by Leko et al., 2015 show that educators can adopt flexible thinking strategies to broaden their perspectives and approaches to supporting students. This is significant as educators use their beliefs to organize new knowledge, filter experiences, and decide on teaching practices/approaches (Leko et al., 2015). For example, educators who have a more social justice-oriented belief and approach to disability are more likely to prioritize equitable opportunities and advocate more strongly for their students (Kurth & Foley, 2014). Furthermore, educators who hold high presumptions of competence for their students with CCN are likely to provide higher-quality instruction and AAC support because they keep providing this support despite little visible progress, framing their approach in that students are still learning rather than assuming they are not learning (Biklen & Burke, 2006). Overall, supporting the development of positive attitudes and beliefs about students with disabilities strengthens teaching practices and works to improve inclusionary practices as well (Leko et al., 2015; Stites et al., 2021).

Impact of Educators' Beliefs on Inclusionary Practices

A big determinant for LRE placement decisions is presumption of competency (Agran 2020; Roberts et al., 2024). Since there is a correlation between limited expressive speech and competence, many students with CCN are not taught in inclusive environments (Kleinert, 2020). While rates of inclusion have generally increased for students with disabilities, fewer than 3% of students with ESN are fully included in general education classrooms (Kleinert, 2015). This is concerning because there are many benefits to inclusion for both students with disabilities and those without (Vandercook et al., 2020).

Though research heavily favors working towards inclusion, there are lags in research to practice (Morningstar et al., 2017). While most educators, when asked, are in support of working towards inclusion and highly rate their attitudes/beliefs towards inclusion as positive, their ratings on actual skills/knowledge to support inclusion are significantly lower (Morningstar et al., 2017; Yu, 2019). Moreover, general education teachers' views of students are often tied to students' diagnoses and level of support needs, with teachers much more likely to be accepting and welcoming of students with milder disabilities than those with more severe disabilities (Huang & Diamond, 2009). Through this, we see a gap in beliefs vs. actions. For example, Yu (2019) found that Head Start teachers were reported favorably towards inclusion, citing strong benefits. However, when asked about their practice, teachers cited difficulties in supporting students with severe disabilities and noted they would need a paraprofessional directly working with the student with severe disabilities in order for them to be included (Yu, 2019). Similarly, Tiwari (2023) found that teachers had positive attitudes about inclusion and believed that all children should be included in general education classrooms. However, many referenced

students' levels of functioning and disability labels when thinking about placement decisions and described feeling unprepared and under-resourced to actually be able to meet the needs of students with disabilities. Thus, educators claim (and may truly think they believe) that they hold high presumptions of competence for their students, but may hold unconscious biases that affect their actual actions and behaviors (Vandercook et al., 2020).

Even among special education teachers, many tend to believe that separate classrooms and environments are beneficial, even necessary, for students with ESN (Gee, 2020). For example, Coleman et al. (2023) found that special education teachers teaching in self-contained classrooms were tentatively positive in thinking about inclusion for their students with significant cognitive disabilities. Though they saw the potential benefits of inclusion, many cited that their students' behavioral needs and lack of prerequisite skills would make it difficult for their students to be properly supported in a general education classroom (Coleman et al., 2023). Common justifications for segregated learning environments include curricular reasons, environmental demands, and personnel requirements, with many believing that students with ESN require 1:1 support to be able to successfully access inclusive environments (Gee 2020; Krishnan, 2024). However, implicit biases (i.e., presumptions of competence) tend to affect placement decisions more than explicit reasoning (Gee, 2020; Roberts et al., 2024). For example, teachers may unconsciously collect data in biased ways which can be used malintently to show that a student is not ready for inclusion (Krishnan, 2024). Societal beliefs of normalcy can also cause barriers in inclusion as any slight deviation from socially acceptable behavior can be seen as a problem/disruption (Krishnan, 2024).

AAC

Critically, there is a statistically significant, positive correlation between a student's use of expressive communication and their placement in increasingly inclusive classroom settings (Kleinert, 2020). While many students with ESN/CCN may not yet have reliable ways of expressively communicating, a growing body of research shows their capacity to acquire other symbolic forms of communication using AAC, such as manual sign, picture-based systems, and speech-generating devices (Andzik et al., 2021; Elsahar et al., 2019). Therefore, it is important to understand what sorts of AAC tools/strategies exist and are effective for this population of students.

Though AAC has been a promising avenue for nonverbal communicators, the complexities of these students' needs require additional and extensive support in order for successful access to AAC tools and systems (Light & Drager, 2007; Schaefer & Andzik, 2016). Despite the availability of many evidence-based interventions and support to implement these interventions, a lot of students with significant cognitive disabilities still receive inadequate support for their CCN (Walker et al., 2022). Many forms of AAC require multi-faceted attention demands that may be difficult for students to manage (Light & Drager, 2007). Students must be able to monitor their own actions while simultaneously coordinating attention to their AAC device, their CP, and the ongoing shared activity. This can be particularly challenging for beginning communicators who have co-occurring motor/visual impairments that limit ability to engage in joint attention and gaze-shifting (Light & Drager, 2007). Consequently, for this population, simply providing opportunities to use AAC is not enough; CPs must take an intentional approach in strategically planning for and individualizing AAC systems for students to meet their CCN (Andzik & Chung, 2022; Beukelman et al., 2012).

Types of AAC

AAC encompasses a diverse range of systems and tools that augment, support, or replace speech for individuals with CCN (Elsahar et al., 2019). AAC can be categorized into three types: no-tech, low-tech, and high-tech. No-tech AAC refers to unaided communication systems that do not require any external tools or materials to employ, such as facial expressions, body movements, and manual sign language (Elsahar et al., 2019). No-tech options have a variety of benefits as they come the most naturally to students and do not require any concrete materials (meaning the communication mode is always readily available and accessible for a student to use) (Elsahar et al., 2019). However, the main drawback to these systems are that they are not as easily and universally understood by CPs. Many young students with significant cognitive disabilities begin by solely relying on these presymbolic, no-tech communication systems (e.g., gestures, vocalizations, movements, expressions); however, these attempts at communication can be difficult to accurately understand and attribute meaning to, even for CPs who are very familiar with the student (Erickson & Geist, 2016; Geist et al., 2020).

This does not mean, however, that no-tech options are not useful in a student's communicative repertoire. Though a student eventually would benefit from more complex and diverse communication systems, working on being consistent in gestures, vocalizations, and simple manual signs that are more universally understood (e.g., putting out a hand for an item) can help others better understand and reinforce communicative intent for students (Brady & Bashinski, 2008). The more a student participates in these two-sided communication exchanges with a variety of CPs, the more likely they are to understand the interpersonal and social aspects of communication (Brady & Bashinski, 2008). These no-tech communication modes can also continue to be used in addition to other AAC tools and strategies to supplement communication.

Low-tech AAC refers to aided systems that use basic, non-electronic tools to support communication, such as picture symbols, writing, or communication books/boards (Elsahar et al., 2019). The advantages to low-tech options are that they are relatively low cost and very accessible to students and educators (Elsahar et al., 2019). Educators can fairly easily print out picture symbols or create communication books that are customized to a student's needs and environment. They are also fairly portable or are able to be kept in a variety of different environments. For example, several copies of communication books could be made for different areas of a classroom so that it is always accessible to a student. The main drawback to low-tech options is their staticity (Walker & Chung, 2022). Once picture symbols are printed or communication boards are made, they are unable to be changed unless new versions are printed. This limits available vocabulary which may limit students' ability to practice communication, show the extent of their communication knowledge, or inhibit their communicative intent (Walker & Chung, 2022). Additionally, low-tech options rely heavily on the support of CPs, as they are the ones who need to provide the materials and facilitate interactions given the limited vocabulary options. Lastly, low-tech modes may sometimes be less motivating for students because of the lack of voice output and auditory feedback.

High-tech AAC refers to aided systems that use electronic devices to augment communication, such as GoTalks and BIGmacks, apps on tablets such as TouchChat and Proloquo2Go, or advanced technology such as eye-gaze software (Elsahar et al., 2019). There are a variety of advantages to using high-tech AAC because of how advanced and flexible systems can be; these high-tech options can provide extensive vocabulary banks, opportunities for more complex communication, aided features (like word prediction), and are most

universally understood by others due to auditory output (Elsahar et al., 2019). When considering even more complex and novel communication systems such as eye-gaze or other imaging methods, the implications are promising as these technologies have shown the potential to improve communication access for those with motor impairments or other limitations (Andreassan et al., 2024; Elsahar et al., 2019).

However, high-tech options also come with a few disadvantages. These options are expensive and require users and CPs to have significant training and practice in using the systems. They can also be difficult to navigate and may have technical issues such as device malfunction or battery dependence that could inhibit a student's communication (Elsahar et al., 2019). If the proper support, resources, and training are given to both AAC users and CPs, high-tech AAC provides the least restrictive access to communication for its users. Since effective use of increasingly complex symbolic communication is necessary to communicate without inhibition and needed to eventually meet academic standards, it is important for us to work towards providing all students with the least restrictive communication system that works for them (Erickson & Geist, 2016). However, because these high-tech options are not as readily available and their stipulations are not as easy to meet, it makes sense to consider a multimodal and creative approach to communication instruction and support for young students with significant cognitive disabilities.

Effective Communication/AAC Strategies for Students with ESN/CCN

All students are capable of finding a communication style that works for them when given the proper support to do so. There is increasing evidence that all students can learn to use AAC (Schaefer & Andzik, 2016); however, as has been established, for some students, who have

exceptional support and learning needs, simply providing access to AAC is not enough to lead to desired outcomes (Leroux et al., 2023). For example, besides a need for general increased and intentional opportunities for practice (Ogletree & Pierce, 2010), there are countless other barriers that hinder AAC use for this population of students. For example, in a study of multi-stakeholders' perspectives on supporting AAC users with CCN, Yau et al. (2024) cited lack of CP knowledge of AAC, negative attitudes towards AAC, lack of resources, and poor device fit as barriers to successful AAC implementation. In a mega-review of AAC interventions for children with intellectual and developmental disabilities, Crowe et al. (2021) found that many AAC interventions are emerging or promising, but still lacked a strong evidence base. Therefore, educators must be very intentional in how they individualize and continually adjust both communication systems and their own knowledge to best support the student.

Though AAC tools and systems show a lot of potential in improving communication outcomes for students with CCN, extra steps must be taken to meet the learning needs of young students with significant cognitive disabilities. For these students, there is often too much rigidity and structure in instruction and the focus is very skewed in teaching very functional communication skills (e.g., requesting wants/needs) (Biggs et al., 2018). There are a few issues that arise from this: (a) communication becomes largely adult-led/initiated; (b) communication becomes a task, not a skill/function; and (c) students's communicative repertoire is severely limited. However, the literature highlights promising strategies/approaches for successful communication instruction.

Multimodal Communication to Find Individual Fit

Students with CCN typically rely on multiple modes of communication to meet their needs (Beukelman et al., 2012; Erickson & Geist, 2016). Communication needs constantly evolve and require reevaluation (Andzik & Chung, 2022). Therefore, young students with CCN require access to AAC systems that grow with them. If not, their expressive language will be limited to their modality of communication (Andzik & Chung, 2022). However, students often do not receive adequate communication resources and support to evolve with their changes and growth (Light & Drager, 2007). Language is also highly-restricted, with low-tech AAC users being limited to pre-stored vocabulary that is often pre-selected without personal input (Brewster, 2013).

It is a balancing, ever-changing task to provide students with the appropriate AAC tools/strategies they need. Most students with significant cognitive disabilities start in presymbolic or early emerging symbolic stages of language development (Kleinert, 2020). Therefore, it is pertinent that their learning is scaffolded to build up to more complex, symbolic forms of communication rather than jump to a system of communication that they are not yet ready for (Brady & Bashinski, 2008). In other words, the solution isn't to just provide unlimited access to flexible AAC systems—a more complex device is not always better for a student. If a device is too complex, it could be overwhelming for a student or be too difficult to navigate, negating its effectiveness and possibly leading to device abandonment (Crisp et al., 2014). Therefore, the most important thing to consider in AAC/communication strategy/tool selection is the individual fit for a student. Educators should consider a variety of individualized factors when choosing AAC strategies and tools to introduce to a student, such as the student's current language understanding, motor skills/limitations, attention needs, etc. (Light & McNaughton,

2014). For example, if a student has motor limitations, a GoTalk20+ (static speech-generating device (SGD) with very small buttons) is probably not the most appropriate option for that student. Similarly, educators should consider the environmental fit of the AAC system. For example, if a student is going out to recess, a pile of picture symbols is probably not the best fit as the picture symbols may get easily lost while the student plays.

Unfortunately, in many AAC interventions and approaches, the focus tends to be on how to teach students to adapt to existing AAC tools rather than to adapt available AAC tools and strategies to work for the students and their needs (Light & McNaughton, 2014). Educators tend to prioritize the use of whatever AAC system they have at hand or are most familiar with (Light & McNaughton, 2014). For example, if a classroom has a lot of GoTalk9+'s available for use, it is likely that teachers will resort to using that device, even if it is not developmentally appropriate for the student.

While it is great that some educators have specialized knowledge using certain AAC tools over others or that educators are trying to make the most out of existing resources, it is still important that they are cognizant of other options could be available and that they try a variety of those options to see if any are better at meeting their student's needs (Elmqvist et al., 2023). Many students with extensive support needs benefit from a flexible, multimodal approach where a combination of different AAC tools/strategies are used to meet their diverse needs (Walker & Chung, 2022). For example, in a study by Clarke et al. (2013), a student, in a peer conversation exchange, benefited from drawing on multiple modes of communication including aided AAC like a voice-output communication aid (VOCA), which had options of both pre-stored vocabulary and spelling, and non-aided AAC like eye gaze. The eye gaze as an extra supplement

to communication allowed for the student's CP to understand the slower flow and turn taking of conversation (Clarke et al., 2013). Additionally, Tegler & Pilesjo (2023) found that the level and appropriateness of scaffolding provided by a CP improved students' SGD use and agency. We must anticipate students' communication needs and growth and be ready to adapt the combination of tools they need to match them where they're at—otherwise, we may be inhibiting their voice.

Communicative Competence of CPs

It's important that we also consider and build the communicative competence of educators/CPs when using AAC (Hofmann & Muller, 2022). In AAC interventions, the focus is almost always on improving the communication skills of the student (Denney et al., 2022). However, educators and CPs must also learn how to appropriately use AAC as language and develop communicative competence in AAC. Ideally, educators should be modeling the use of language on the AAC systems that a student is using; nevertheless, a lack of preparation, confidence, and time tend to lead educators to privilege verbal speech when interacting with students who use AAC (Denney et al., 2022).

Educators must also be knowledgeable about the AAC systems they are teaching. Many preservice programs unfortunately offer very limited AAC training with faculty members having very limited knowledge on AAC and there are no specific competencies that exist to measure whether an individual graduating is able to properly support AAC use in the classroom (Costigan & Light, 2010). Even for SLPs who specialize in AAC, there are reports of gaps in knowledge (Solomon-Rice et al., 2024). Since low-tech and high-tech AAC methods both require some level

of training to use, both for the user and the CP, it is concerning that many educators in the workforce do not feel prepared or confident about using AAC as students may be forced to adapt to communication systems that may not be good fits instead of being provided multimodal options that work for them (Light & McNaughton, 2014). Moreover, a study by Nijs & Maes in 2021 found that educators who rated their knowledge of AAC as insufficient tended to rate cognitive abilities of individuals with profound intellectual disabilities more restrictively.

Accessibility

No matter how effective an AAC strategy or tool is, it is useless if not accessible to a student. Giving students access to a variety of communication systems and modes will not only prevent communication limitations, but also create communication-rich environments in which they feel uninhibited and motivated to communicate (Pope et al., 2024). Andzik et al. (2016), in an observation of a range of elementary classrooms, found that AAC devices were not in proximity to nor accessible for students for a majority of time, especially in more inclusive settings. This is concerning because students who use AAC are not being afforded the same communicative opportunities as their peers without CCN. Additionally, students are only being provided communicative opportunities during certain parts of the day and in specific settings which limits their opportunities for generalization of skills (Andzik et al., 2016).

Naturalistic, Student-Centered Communication

In most instances for young students with extensive support needs, communication is largely adult-led. In their observation of 23 students across various elementary classroom settings, Andzik et al. (2016) found that only 3% of students' communication interactions

involved their peers, with less peer interactions happening in more restrictive settings. Chung et al. (2012) found similar results in their observation of students using AAC in inclusive general education classrooms, finding that only 5% of communication interactions were with peers. This focus on adult-student interaction also takes away from students' opportunities to communicate with same-aged peers. For example, Walker and Chung (2022) found discrepancies between their observation and interview data where teachers reported that their students preferred communicating with them, rather than with peers, but found from observations that students were actually given very limited opportunities to communicate with their peers. This adult-student focus may make sense as preschool-aged students require a lot of physiological needs and support which may be prioritized for communication (e.g., toileting, food, etc.), but to reach communicative competence, students must also be able to initiate interactions and socialize with others (Light & McNaughton, 2014).

It is very important for CPs to reflect on and intentionally plan their instructional decisions regarding communication to be developmentally and individually appropriate, as they are primarily the ones initiating communication, deciding which devices and tools students have access to, and deciding what goals students are working towards (Biggs et al., 2018). Effective AAC interventions and communication instruction for students with CCN are person-centered and should incorporate the input of the AAC user or family members to ensure the individualized and unique CCN are being met (Brittlebank & Sowers, 2023; McNaughton et al., 2019). When building a student's communicative repertoire, it's important that educators consider what skills would make most sense for the student to use in their day-to-day lives. Students with CCN are less likely to have participatory IEP goals, such as socializing with peers, and goals are often

written for skills to be practiced in isolation, not for generalization (Klang et al., 2016). For example, Chung et al. (2012) found in their observations that the most common communicative functions, about 39% of interactions, were expressions of wants/needs.

Another consideration when planning effective communication instruction is to consider the types of communication opportunities being provided in the environment. Because AAC interventions/instruction tend to be highly structured (e.g., taught in trials rather than through naturalistic opportunities), students may begin to view communication more as a demand rather than a way for them to express themselves (Elmquist et al., 2023). This demand is amplified when most access to AAC is provided to students solely in academic learning opportunities (Andzik et al., 2016). While it's understandable that educators may believe this structure and control is beneficial for students, it can lead to students becoming passive communicators, as they are conditioned to respond to stimuli/demands rather than initiate and express their own thoughts/ideas (Klang et al., 2016). Since these students' devices/tools are inaccessible for parts of the day and they are only taught very specific communication functions, they are unable to build their communicative repertoire (Klang et al., 2016). Additionally, when communicative opportunities are very structured and limited, it prevents students from being able to understand the natural flow of communication exchange (Alabbas & Miller, 2019).

Relationship between Communication and Inclusionary Practices

While there has been a recent push for inclusion and falling exclusionary rates, we still must be alert in how we provide meaningful inclusion opportunities (Agran et al., 2020; Geist et al., 2020). Unfortunately, successful inclusion is often determined by the length of time a student is physically included in inclusive environments and does not account for the quality of the

inclusion (Morningstar et al., 2015). Oftentimes, students with ESN have limited opportunities to participate and engage in meaningful learning activities with inconsistent access to general curriculum (Kurth et al., 2016). Therefore, when students enter into inclusive environments with their AAC devices, they're not necessarily being given meaningful opportunities to communicate within the classroom and amongst their peers (Morningstar et al., 2015). As discussed, it's important that students have access to a variety of communication modes that are flexible and malleable (Elmquist et al., 2023; Walker & Chung, 2022). Since preschool-aged students with extensive support needs are so young and require a lot of adult support, they rely on educators to scaffold their use of these devices and have opportunities to use their devices in meaningful and natural ways (Walker & Chung, 2022). Thus, educators have the responsibility of making sure communication systems are readily accessible for students and creating naturalistic, scaffolded opportunities for students to use AAC. Historically, explicit opportunities to use AAC are usually only given during academic learning time (e.g., whole group reading, small group lessons) (Morningstar et al., 2015; Walker & Chung, 2022). With limited accessibility to AAC during non-academic times, students miss out on critical opportunities for social interactions and to expand communicative functions (Brewster, 2013; Dell'Anna et al., 2022).

Even so, if AAC devices are technically available to students during other times (such as transitions or free play) but students are not given the appropriate scaffolding and support needed to effectively use their devices during these times, they become ineffective and non-opportunities. Simply giving a student an AAC device and sending them off into inclusive settings is not enough (Brock, 2018). An opportunity is not effective if the student merely has physical access to their device. A quality opportunity should take advantage of the

communication-rich inclusive environment and provide a student with the chance to practice new communicative skills and expand their repertoire (Geist et al., 2020; Huang & Diamond, 2009; Kleinert et al., 2015).

One of the most advantageous aspects of inclusive environments is the access to same-aged peers in a communication-rich classroom (Agran et al., 2020; Mansouri et al., 2022). Therefore, it is important that we teach students, both with and without disabilities, how to communicate with and understand each other. A student with CCN should be provided with the social skills support they need to successfully initiate and maintain interactions with peers (Dell'Anna et al., 2022; Mansouri et al., 2022). Similarly, typically-developing same-aged peers should be taught the appropriate skills and tools needed to thoughtfully interact with a student who uses AAC. Research shows that young students are able to perceive disability and understand/empathize that some peers need more support than others (Holyfield et al., 2018; Kwon et al., 2017). Referring back to my framework, this is doubly important as we have the opportunity to shape positive perceptions of disability at a young age, which will lead to higher societal presumptions of competence.

Conversely, when students are not given appropriate support and opportunities to interact with their peers, they may become further isolated and excluded from their class. If students who use AAC are left on their own around peers who have been given no context or instruction on how to socialize with differently communicating peers, there is a potential for othering and development of negative biases (Kwon et al., 2017). Therefore, it is extremely important that young students are taught about understanding and embracing differences. If properly supported,

typically-developing students, even at very young ages, are able to support communication outcomes as peer models (Kwon et al., 2017).

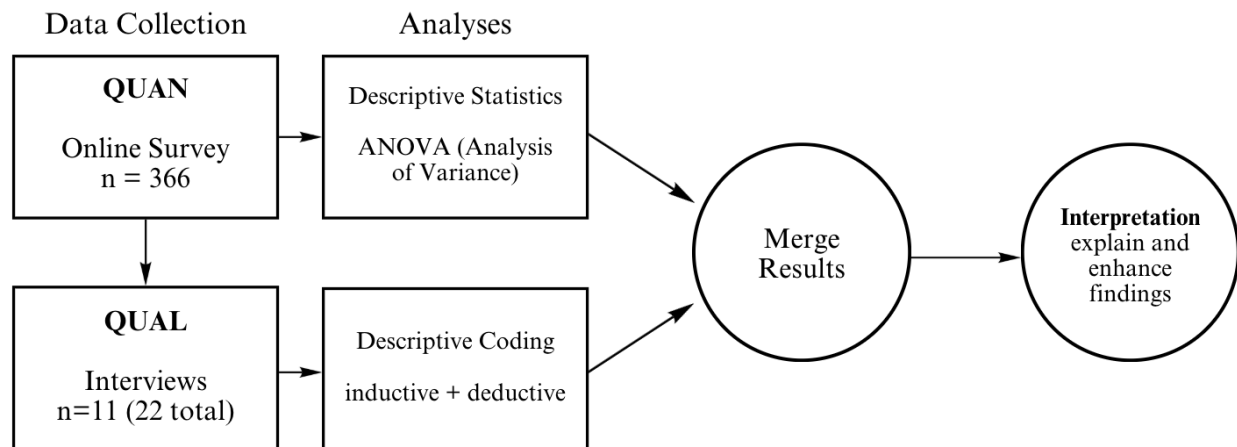
Chapter 3: Methods

Research Design

This study used a mixed methods research design. A mixed methods design allowed for the collection and analysis of different types of data to gain a more comprehensive understanding of the constructs being explored (Fetters et al., 2013). Specifically, it used a convergent parallel design (see Figure 2) where quantitative data from a survey was collected alongside qualitative data from interviews (Fetters et al., 2013). Both sets of data were collected and analyzed separately then merged together to gain a stronger understanding of the studied phenomenon, which was to understand educators' perceptions of: (a) communication goals and instruction; (b) AAC; and (c) inclusionary practices in relation to communication.

Figure 2

Convergent parallel design



A survey and interview guide was designed, informed by current literature and input from relevant stakeholders, with the goal of gaining a deeper understanding of participants' perceptions of the aforementioned constructs. The qualitative portion (interview) is particularly

important for this study as it added context into the understanding of how educators' beliefs impacted actual communication practices. This integration of data made it possible to more thoroughly explain the current state of and attitudes towards communication for students with significant cognitive disabilities. In other words, this design allowed for the collection of both broad, widespread data (through survey) and detailed perceptions (through interview) about current communication practices and beliefs and integrated the two to provide greater depth and nuance of information (Creswell & Plano Clark, 2018).

Phase 1A: Survey (Quantitative Data Collection)

Survey Rationale

A survey was chosen for the quantitative branch of this study as it allowed for a larger number of participants to form a representative sample (Ponto, 2015). This study aimed to collect the perceptions of educators from diverse backgrounds (e.g., region, experience, etc.) so a survey design was best suited for this. Survey research also gave an opportunity to identify patterns or correlations between constructs (Ponto, 2015). For example, did years of experience supporting young children with significant cognitive disabilities affect how educators perceived students' competence? Survey research helped to begin exploring if there was significance in these relationships (Ponto, 2015).

Participants & Setting

This survey sought to understand the perceptions of educators who support preschool-aged students with significant cognitive disabilities who have CCN. Surveys were distributed online via Qualtrics to educators from three states: one in the northwest, one in the

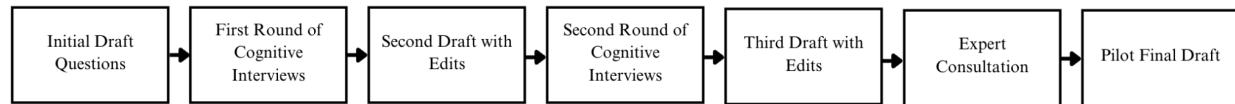
midwest, and one on the east coast. “Educator,” in this study, referred to an early childhood special educator, speech-language pathologist (SLP), or paraeducator. Therefore, to be eligible, educators must have had: (a) been a current certified teacher, SLP, or paraeducator to a preschooler (3-5 years old) with a significant cognitive disability who primarily relied on presymbolic means of communication (e.g., gestures, vocalizations, expressions); (b) at least one year of experience supporting students with CCN; (c) been a key communication partner with the student at a public school; and (d) taught in the United States and spoke English. The sample included participants from a variety of preschool settings (i.e., full inclusion, partial inclusion, self-contained) and personal backgrounds (e.g., years of experience, age, race/ethnicity).

Survey Instrument Development

To develop the survey, the primary researcher worked with a team of educators and researchers through seven steps: 1) creation of initial survey questions from literature; 2) initial round of cognitive interviews; 3) first revision of draft from feedback; 4) second round of cognitive interviews; 5) second revision of draft from feedback; 6) expert consultation; and 7) pilot testing (see Figure 3). The survey development team consisted of the primary researcher (a doctoral candidate), a faculty advisor, a SLP, a special education teacher, and two paraeducators. The SLP, special education teacher, and paraeducators participated in one-on-one cognitive interviews. The primary researcher specifically reached out to these members to reflect the target sample of participants for the survey. Cognitive interview participants were given a \$50 gift card for their time. The faculty advisor provided feedback on the planning and direction of survey development as well as the final draft of the survey.

Figure 3

Survey Instrument Development Steps



In the first step, the primary researcher created an initial draft of survey questions based on identified constructs of interest from the literature (see Table 1). Since this research sought to gain educators' perceptions of communication, AAC, and inclusionary practices of students with CCN, questions were created to probe participants on their opinions of these topics. The initial survey had 49 items: 1 screening question, 14 demographic questions, 9 questions about communication goals/instruction, 13 questions about AAC, 11 questions about inclusionary practices, and 1 question for additional comments.

Table 1: Matching survey questions to literature

Survey Questions	Literature
<i>Communication Goals</i> 1. What do you prioritize in communication instruction/goals for students? 2. How much time do you spend explicitly teaching functional communication skills (e.g., requesting)? 3. How much time do you spend explicitly teaching social communication skills (e.g., communication with peers)? 4. I believe my child's communication IEP goals are developmentally appropriate. 5. I believe my child requires mastery of certain communication skills before moving onto others. 6. I believe my child understands what they are communicating via their AAC device.	Communication goals for children with ESN and CCN are often limited to focus on adaptive skills and functional language (Light & McNaughton, 2014) Teachers report limited knowledge about AAC (Costigan & Light, 2010)

-
7. My child has opportunities to naturally use communication in the classroom.
 8. I provide adequate communication instruction to meet my child's complex communication needs.

AAC

1. How often does your child use AAC?
2. What kinds of AAC does your child use?
How confident do you feel in supporting AAC instruction/use?
3. My child communicates independently using some form of AAC/multimodal communication.
4. I believe my child's AAC device(s) is/are appropriate for their functional/social/academic needs.
5. My child cannot express him/herself sufficiently.
6. I have the proper support/resources to adequately provide AAC instruction/support for my child.
7. My child has opportunities to explore different types of AAC/multimodal communication tools/strategies.
8. During what periods of the day does your child have access to their device?
9. I believe my child is prepared to use AAC.
10. My child has meaningful opportunities to use AAC.

Children with complex communication needs typically rely on multiple modes of communication to meet their needs (Beukelman et al., 2012; Erickson & Geist, 2016).

In most instances for young children with extensive support needs, communication is largely adult-led. The adults/caregivers are the ones initiating communication and they are the ones deciding which devices and tools the child is able to use to respond (Biggs et al., 2018).

Inclusion

1. How much time does your child spend in an inclusive setting?
2. Students who require AAC should be in gen-ed classrooms.
3. I think my child has the skills needed to meaningfully participate in inclusive settings.
4. My child will develop communication skills more rapidly in an inclusive setting than in a self-contained classroom.
5. There are benefits to my child's social-emotional development learning in a self-contained classroom.
6. My child will be socially accepted in an inclusive environment.
7. A gen-ed teacher has sufficient training to work with my child.
8. I reflect on how my own perceptions of disability affect my teaching practices.
9. My child's interfering behaviors make it difficult to teach communication skills.
10. My child is motivated to communicate with me.
11. How meaningful do you feel your child's inclusionary experiences are?
12. I believe improved communication skills would lead to more meaningful inclusion.
13. I believe my child would benefit more from a more inclusive class setting.

There is a statistically significant, positive correlation between a child's use of expressive communication and their placement in increasingly inclusive classroom settings; many children with complex communication needs are not taught in inclusive environments (Kleinert, 2020)

Students with disabilities (including those with extensive support needs) have more robust academic, communication, and social outcomes when taught in inclusive settings (Agran et al., 2020; Gee, 2020).

A big determinant for LRE placement decisions is presumptions of competency (Agran 2020).

When students enter into inclusive environments with their AAC devices, they're not necessarily being given meaningful opportunities to communicate within the classroom and amongst their peers (Morningstar et al., 2015).

After this first draft was completed, the primary researcher scheduled one-on-one meetings via Zoom with the four stakeholders (teacher, SLP, and 2 paraeducators) of the instrument development team in April 2025 to get an initial round of feedback regarding the relevance and clarity of questions. During the meetings, which lasted 30-45 minutes, participants were presented with questions, section by section, and informally asked to provide thoughts and

comments as they read through. The primary researcher recorded these meetings and also took notes as members shared their thoughts.

Participants shared varied feedback in this initial round of interviews. Most comments were clarifying questions or feedback regarding specific topics to ask more about. For example, the SLP asked if participants taking the survey would be given context on what AAC stands for and to clarify between AAC devices vs. AAC strategies, if needed. Additionally, the teacher commented that it would be helpful if there were more questions asking about the levels of support that educators receive around AAC. The primary researcher took notes on all comments but explained to members that, due to survey length limitations, not all feedback would be incorporated into the final draft. For example, one member suggested to include questions about how AAC supports Pre-K to K transition. Though this is an interesting question, it was not included since it was outside the scope of this specific project.

After the first round of interviews, the primary researcher looked through all of the notes, grouped similar feedback across participants together, and edited the survey to create a second draft (see Table 2). The faculty advisor on the team also provided feedback that was incorporated into the edited draft. The second draft of the survey had 62 questions: 3 screening questions, 9 demographic questions, 12 questions about communication goals/instruction, 20 questions about AAC, 9 questions about inclusionary practices, and 1 question for additional comments.

Table 2: Incorporating feedback during survey development (initial)

Feedback	Revised Items
<i>Communication Goals</i> “It would be interesting to know what they know about early language development, like the sequence of language development and	[+] I am knowledgeable about students’ language development.

language learning styles and how that affects [communication instruction]”	[+] I know what types of language/vocabulary I should be teaching to my student.
“If these are kiddos who are not yet speaking or using a device, asking teachers about how they know, or if they know, what the kiddo is trying to say.”	[+] I understand what my student is trying to communicate with me.
<i>AAC</i> “I think there’s a difference between actually teaching AAC and helping kids use [the AAC]. Like, I don’t know how to teach it but I help my student a lot to use it so I think it’s different.”	[+] I feel confident in <i>teaching</i> my student to use AAC tools/strategies. [+] I feel confident <i>supporting</i> my student in using AAC.
“Asking what the barriers are to AAC. For example, do you not know how to use the app? Is it hard to get devices? Keep them charged?”	[+] I know how to manage/customize AAC to meet my student’s needs. [+] I need support in deciding the most appropriate AAC for my student’s needs. [+] I understand the factors to consider before choosing an AAC tool/strategy for my student.
“Do you mean device only? Or does that include strategies too? That could be confusing.”	[edit] I believe my child's AAC device(s) system is/ are appropriate for their functional, social, and/or academic needs. [edit] I believe my student understands what they are communicating via their AAC device system. [+] My student requires a combination of different AAC to communicate effectively.
“Maybe asking if they know where to look for support? Sometimes it’s there but so hard to find or ask for.”	[+] I know where to look for resources/support regarding AAC.
“How much time do people spend collaborating? would be a good one. How much face-to-face time [with other service providers] are you getting? Or if there’s an AT specialist.”	[+] I effectively collaborate with other members of the IEP team to meet my student’s communication needs.

“How do you go about adding new vocab or maintaining vocab systems? Is there a plan for adding new content? How are you working with others to keep the [AAC] system growing?”	[+] I regularly update my student’s AAC system to meet their growing needs. [+] My student’s AAC system meets their cultural needs.
<i>Inclusion</i> “Sometimes you want to give your student more inclusive opportunities but it's the school that says no even if [the student] is ready. So you should ask about that.”	[+] My school administration and/or available resources make it difficult for my student to engage in inclusive environments.
“I think that question is a little confusing because my student might have some skills to be able to participate. It’s nuanced. I wouldn’t want to answer no to that but the answer also isn’t yes. Maybe asking more so if it’s an appropriate environment for them to learn.”	[-] I think my child has the skills needed to meaningfully participate in inclusive settings. [+] My student’s primary learning environment is appropriate to meet their communication needs. [-] My child will develop communication skills more rapidly in an inclusive setting than in a self-contained classroom.
“In my classroom [my student] can communicate a bit more but in a new environment it’s all gone, she doesn’t use [her device] at all. [researcher: So the skill isn’t generalizing?] Yes, exactly and I think that’s common. And she can’t go without her para. And I think that’s common too.”	[+] My student is able to generalize communication skills across environments. [+] My student requires 1:1 support to meaningfully engage in an inclusive environment.
“You can ask if they’re making progress based on what they’ve tried. Are they making progress on skills that meet their needs?”	[+] I believe my student is making progress in learning to use AAC. - LIKERT [+] I believe that my student will learn how to communicate in a way that meets their needs.

After incorporating initial feedback, the primary researcher met with the instrument development team again in May 2025. The primary researcher shared that the focus of this second meeting was to condense the survey (with the goal of surveys taking 10-15 minutes to

complete) and gain feedback on the readability and flow of questions. The survey was reintroduced to members and the primary researcher explained through changes that were made from the first round of edits. Then, each section was reviewed and verbal feedback was given by members as the primary researcher shared her screen. Participants, again, shared varied feedback. Most comments were suggestions on how to combine questions together to shorten the survey. For example, certain Likert-scale questions were combined into free response questions to reduce redundancy and certain leading questions were cut (see Table 3).

Table 3: Incorporating feedback during survey development (second round)

Feedback	Revised Items
<i>Communication Goals</i> “What’s the difference between these? [primary researcher explains] Okay well, to me, those can be one question...If you’re worried about [participants] only answering one part, you can put it like 1. setting goals, 2. planning instruction, because to me if I see a question with two parts like that it makes me think I should answer both.”	[-] What do you prioritize in communication instruction for students? [-] What do you prioritize in communication goals for students? [+] What do you prioritize when: a) setting communication goals; and b) planning communication instruction for students?
<i>AAC</i> “I think most people in this survey would agree that their students aren't expressing themselves sufficiently, right? If they’re focusing on a child who is struggling to communicate. I’m thinking that’s not needed.”	[-] My student is not yet able to express themselves sufficiently.
“I know you’re trying to save space. But I think it would make a lot of sense to actually ask what specific resources or help people need. It would provide a lot of insight because it can look very different.”	[+] What specific resources/support would you need to better support your student in using AAC?

“Again, I think most people would probably answer ‘agree’ to wanting more training so maybe that can be cut.”

“If you’re trying to save space. I don’t really see the difference. Unless you really care about that difference. But to me, I’d answer the same but maybe some others won’t.”

Inclusion

“Those two questions [I believe my student would benefit from a fully inclusive setting + I believe my student would benefit from partial inclusion]--when I read that, I think so many things could be contributing to why a student is or isn’t successful in inclusion, not just communication. You can try asking what specifically in the environment helps communication.”

“This question can be hard to answer. There are benefits but obviously not as much social benefit compared to gen ed.”

“Most kids at this age are very accepting. They love to help and they’re so open to praise that if you praise them for being kind to a friend, if anything, they include them too much, they love the attention [laughs] So maybe that’s a question for older kids.”

“It’s not just gen-ed teachers. I’m thinking like specials teachers and just others we pass by at school. They don’t really know how to interact with [an AAC device] at all.”

[Faculty advisor gave general feedback on focusing the scope of the survey. Certain

[-] I would benefit from training on how to use AAC.

[-] I feel confident in *teaching* my student to use AAC tools/strategies.

[-] I believe my student would benefit from a fully inclusive setting

[-] I believe my student would benefit from partial inclusion

[+] What factors of the classroom environment support your student in developing communication/AAC skills?

[-] There are benefits to my child's social-emotional development learning in a self-contained classroom.

[-] My child will be socially accepted in an inclusive environment.

[-] A gen-ed teacher has sufficient training to work with my child.

[+] I believe other school staff have the appropriate skills needed to communicate and engage with my student.

[-] How much time do you spend explicitly teaching functional communication skills

questions were removed or edited for relevance, in relation to general participant comments as well (e.g., redundancy)]

(e.g., requesting)?
[-] How much time do you spend explicitly teaching social communication skills (e.g., communication with peers)?
[-] How meaningful do you feel your child's inclusionary experiences are?
[-] How often does your child use AAC?
[-] My child has opportunities to naturally use communication in the classroom.
[-] During what periods of the day does your child have access to their device?
[-] I believe my child is prepared to use AAC.
[-] I reflect on how my own perceptions of disability affect my teaching practices.
[-] My child's interfering behaviors make it difficult to teach communication skills.
[-] I believe my child would benefit more from a more inclusive class setting.
[-] Students who require AAC should be in gen-ed classrooms.

[edit] ~~I think~~ my student has the *communication* skills needed to meaningfully participate in inclusive settings.

After the second round of interviews, the primary researcher again looked through all of the notes, grouped similar feedback, and edited the survey to create a third final draft. This draft was reviewed by the faculty advisor and finalized into Qualtrics to prepare for pilot testing. The edited third draft had 50 questions: 3 screening questions, 9 demographic questions, 9 questions about communication goals/instruction, 16 questions about AAC, 12 questions about inclusionary practices, and 1 question for additional comments. Lastly, the primary researcher piloted the survey in August 2025 with three participants: a special education teacher, a

paraeducator, and a SLP. The focus of the pilot was on the flow, readability, and organization of the survey. No major revisions were made.

Survey Instrument Description

The final survey had a total of 50 questions. The survey was split into four main sections: a) demographics; b) perceptions of communication instruction/goals; c) perceptions of AAC; and d) perceptions of inclusion and ability (see Appendix A for full survey). Questions had different response options such as single-choice (8 items), checkbox (4 items), or free-response (6 items). The majority of questions (32 items) were measured using a 5-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree) as this scale is useful in capturing participants' perceptions of a certain phenomenon by gauging how much they agree or disagree with selected statements (Sullivan & Artino, 2013). Though it uses an ordinal scale, Likert-responses can still be analyzed through parametric tests to determine patterns in data (Sullivan & Artino, 2013).

The three main constructs being explored were perceptions of: communication instruction/goals, AAC, and inclusionary practices. Questions were specifically designed to probe participants on their opinions regarding their own practices and beliefs surrounding these constructs, as described in the survey development section above. The survey was split up into sections based on these constructs to both help the research team organize questions to ensure each construct was being addressed and to help the flow of the questions as participants took the survey (see Table 4).

Table 4: Survey questions from each construct

Construct	Survey Questions	Scale
<i>Demographics</i>	1. Would you like to participate in this research?	Single Choice

	2. What is your current role?	
	3. What type of classroom environment do you currently teach in/support?	Checkbox
	4. How many years of experience do you have teaching/supporting students with extensive support needs?	Single Choice
	5. For this survey, we ask you to think of one focus child to answer questions for. What disability category is your student currently being served under on their IEP?	
	6. How would you describe the primary ways in which your student communicates?	Checkbox
	7. What is your age?	Single Choice
	8. What is your gender identity?	
	9. What race/ethnicity best describes you?	Checkbox
	10. What is your highest level of education?	Single Choice
<i>Communication Goals/Instruction</i>	1. What do you prioritize when: a) setting communication goals; and b) planning communication instruction for students?	Free Response
	2. I believe my student's communication IEP goals are developmentally appropriate.	Likert
	3. I believe my student requires mastery of certain skills before using AAC.	
	4. I believe my student understands what they are communicating via their AAC device.	
	5. I understand what my student is trying to communicate with me.	
	6. My student has opportunities to naturally use/practice communication in the classroom.	
	7. I provide adequate communication instruction to meet my student's complex communication needs.	
	8. I am knowledgeable about students' language development.	
	9. I know what types of language/vocabulary I should be teaching to my student.	
<i>AAC</i>	1. What kinds of AAC does your student use?	Checkbox
	2. I feel confident supporting my student in using AAC.	Likert

<i>Inclusion/Ability</i>	3. My student has meaningful opportunities to use AAC.	
	4. My student has opportunities to explore different types of AAC.	
	5. My student requires a combination of different AAC to communicate effectively.	
	6. My student is able to independently communicate using some form of AAC. - LIKERT	
	7. I believe my student's current AAC toolbox is appropriate for their functional, social, and/or academic needs.	
	8. I have the proper resources/supports to adequately provide AAC instruction/support for my student.	
	9. I know how to manage/customize AAC to meet my student's needs.	
	10. I need support in deciding the most appropriate AAC for my student's needs.	
	11. I understand the factors to consider before choosing an AAC tool/strategy for my student.	
	12. I know where to look for resources/support regarding AAC.	
	13. I effectively collaborate with other members of the IEP team to meet my student's communication needs.	
	14. I regularly update my student's AAC system to meet their growing needs.	
	15. My student's AAC system meets their cultural needs.	
	16. What specific resources/support would you need to better support your student in using AAC?	Free Response
	1. How much time does your student spend in an inclusive setting?	Single Choice
	2. What factors of the classroom environment support your student in developing communication/AAC skills?	Free Response
	3. My student would have more meaningful experiences in inclusive settings if they had stronger communication skills.	Likert
	4. My student's primary learning environment is appropriate to meet their communication needs.	

	5. My student requires 1:1 support to meaningfully engage in an inclusive environment. 6. My school administration and/or available resources make it difficult for my student to engage in inclusive environments. 7. My student is able to generalize communication skills across environments. 8. I think my student has the necessary communication skills to meaningfully participate in inclusive settings. 9. My student is motivated (wants) to communicate with me. 10. I believe my student is making progress in learning to use AAC. 11. I believe that my student will learn how to communicate in a way that meets their needs. 12. I believe other school staff have the appropriate skills needed to communicate and engage with my student.	
<i>Wrap Up</i>	1. Is there anything else you'd like to share regarding how you support your student's complex communication needs? 2. What is your first and last name? 3. What is the best email to reach you?	Free Response

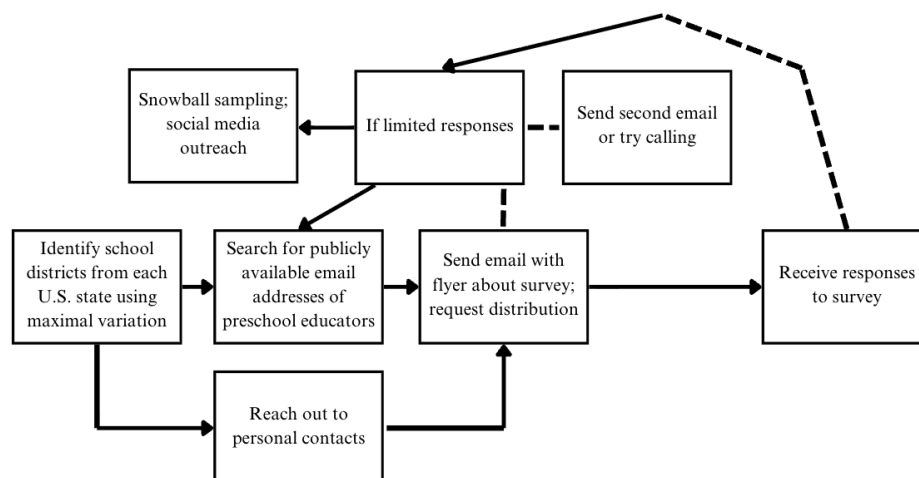
Recruitment and Distribution Plan

To recruit as many participants as possible, the initial plan was to begin with purposive sampling and turn to convenience sampling if needed (see Figure 4). Purposive sampling would allow for efficient recruitment of participants who fit the inclusion criteria while convenience sampling would allow for a broader reach, potentially recruiting extra participants who may have been missed (Dillman et al., 2014). The target sample size for the survey was 300 educators. Since this goal was surpassed through purposive sampling, convenience sampling techniques were ultimately not used.

To recruit participants, the primary researcher began by identifying school districts from three states (northwest, midwest, and east) in the United States and searched for publicly available email addresses of preschool educators serving students with ESN in June 2025. Since each state's preschool programs looked different, the primary researcher was diligent in ensuring that appropriate programs were chosen that would have educators who fit the inclusion criteria. Maximal variation sampling was also used by ensuring school districts that are in both rural and urban areas of each state were included (Fetter, 2020). The primary researcher kept an excel document of all of the programs that were identified and were reached out to. A total of 9,854 publicly available educators' emails were collected. An email template and a flyer were made to distribute to educators (see Appendix B). The primary researcher used the university's Google group service to mass send emails. The first round of emails were sent in September 2025. Two additional reminder emails were sent a week apart (October 2025). A total of 366 eligible responses were collected.

Figure 4

Survey Sampling Plan



IRB approval was received in September 2025. Consent forms were built into Qualtrics at the start of the surveys to ensure participants understood the purpose of the study and how they would be expected to participate. Survey results were anonymous with an option for participants to leave their contact information to possibly win an incentive (gift card). Each week the survey was active, participants were voluntarily entered to win a \$100 gift card if they were eligible and completed the survey.

The primary researcher took measures to ensure valid responses and prevent multiple submissions and bot responses. This was primarily done through Qualtrics software by using content type validation (e.g., forced answer free response questions) as well as the “bot detection” and “prevent multiple submissions” features. The primary researcher also screened through survey responses as another measure of validity. Surveys were sent out in September 2025, as most school systems began their school years during that time. Surveys closed in mid-October 2025. Responses were monitored during this time through Qualtrics’ distribution summary feature. The primary researcher checked in frequently to see the number of complete/incomplete and eligible/non-eligible responses to gauge whether the recruitment plan was effective or needed to be adjusted in order to reach the desired sample size. No changes to the recruitment plan needed to be made.

Data Analysis Plan

The primary researcher worked with a doctoral candidate in special education with extensive knowledge in statistical analysis to run analyses and check data analysis for accuracy. Descriptive and inferential statistics, specifically ANOVA (analysis of variance), were used to analyze the quantitative data from the survey. ANOVA was most appropriate to analyze the data

as there was interest in exploring variance amongst multiple group means (e.g., by role, education level, etc.) (Kim, 2014).

Validity

The primary researcher worked with a number of stakeholders (instrument development teams) to strengthen the validity of the survey instrument. The iterative process of item development with the team allowed for stronger face and content validity to make sure the survey was addressing the correct content and gathering enough information about each construct (DeVellis, 2017). Additionally, to avoid nonresponse error, the survey was designed to be as succinct and user-friendly as possible (Dillman et al., 2014). The survey was also piloted with said relevant stakeholders to reach higher reliability (DeVellis, 2017).

Phase 1B: Interviews (Qualitative Data Collection)

Interview Rationale

Interviews were chosen as the qualitative data source as they provide richer data on perspectives from a small and meaningful sample of participants (Bogdan & Biklen, 1992). With the convergent parallel design, interviews were conducted and analyzed alongside the survey to seek deeper understanding of participants' experiences and add context onto patterns and themes from the quantitative data (Fetters et al., 2013). Interviews were also well suited for this phenomenological research because they helped to capture the unique shared, lived experiences participants had (Bogdan & Biklen, 1992).

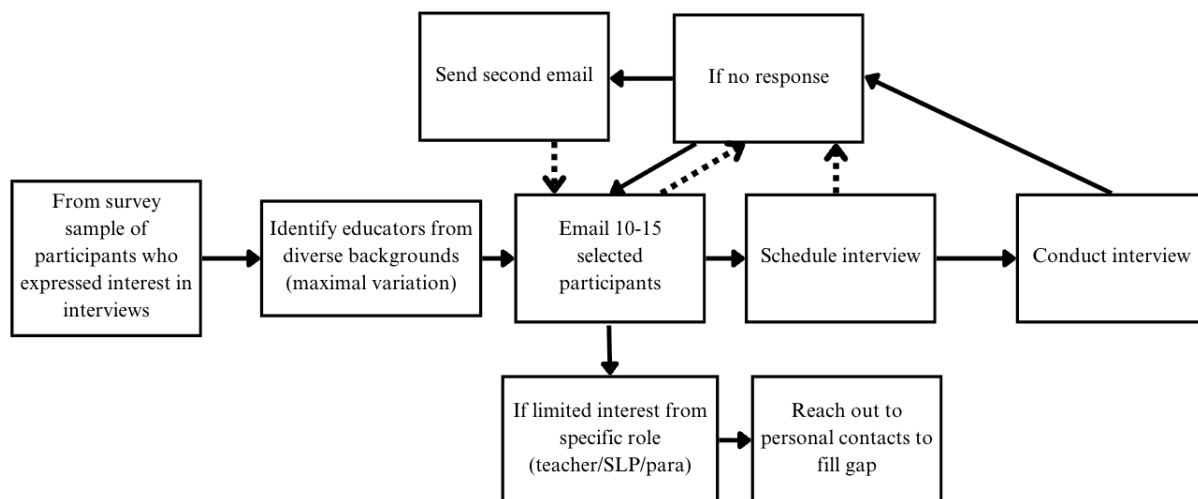
Participants & Recruitment

For the qualitative portion of this study, educators were selected to participate in two 45-60 minute interviews. Nested sampling was used to select participants from each subgroup

(teachers, SLPs, paraeducators) from the larger quantitative sample in order to gain insight on the experiences of each role (Love, et al., 2023). Since nested sampling was used, interview recruitment started in October 2025 as survey responses were coming in. Participants had an option at the end of the survey to indicate whether they were interested in further participating in an interview. A \$100 gift card incentive was offered to participants who were chosen for interviews.

Figure 5

Interview Sampling Plan



Maximal variation sampling techniques were used to try and capture as many diverse perspectives as possible; participants were randomly chosen per role to gather varying perspectives (Fetters, 2020). The primary researcher looked through participants who expressed further interest (via the survey), sorted respondents by role, and randomly chose participants based on each role (special education teachers, SLPs, paraeducators, and general education teachers). Eleven educators (3 special education teachers, 3 SLPs, 3 paraeducators, and 2 general education teachers) were ultimately recruited and interviewed.

Procedures

The goal of the qualitative portion of this study was to gather further information and context on educators' perceptions of: (a) communication goals and instruction; (b) AAC; and (c) inclusionary practices in relation to communication. A semi-structured interview format was used as it allowed the researcher to gather rich and comprehensive data through the use of a systematic interview protocol (Jamshed, 2014). The semi-structured format organized key questions/topics while still allowing room for participants to lead their own thinking and discussion. Participants received \$100 gift cards for their further participation upon the completion of both interviews. Interviews were conducted via Zoom to ensure access to diverse participants across various states and school districts. The primary researcher conducted all 22 interviews. Interviews took place from late December 2025 to early February 2026.

Interview Protocol Development

An initial interview protocol, with 38 questions, was drafted by matching domains from the final survey instrument to open-ended questions (see Table 5). Questions were designed to promote self-reflection of educators' practices and beliefs in supporting a student with a significant cognitive disability with CCN. These included questions such as, "How do you decide what aspects of communication to focus on when working with a student?" and "How often do you reassess the suitability of your student's AAC system? What does this look like?" A copy of the full interview protocol can be found in the appendix (Appendix B).

Table 5: Matching survey domains to qualitative interview guide

Survey Questions	Interview Questions
<i>Communication Goals</i> 1. What do you prioritize when: a) setting communication goals; and b) planning communication instruction for students?	IIA. What are a few things your student is currently working on in regards to communication (e.g., requesting, 2-3 word utterances, etc.)?

2. I believe my student's communication IEP goals are developmentally appropriate.
3. I believe my student requires mastery of certain skills before using AAC.
4. I believe my student understands what they are communicating via their AAC device.
5. I understand what my student is trying to communicate with me.
6. My student has opportunities to naturally use/practice communication in the classroom.
7. I provide adequate communication instruction to meet my student's complex communication needs.
8. I am knowledgeable about students' language development.
9. I know what types of language/vocabulary I should be teaching to my student.

AAC

1. What kinds of AAC does your student use?
2. I feel confident supporting my student in using AAC.
3. My student has meaningful opportunities to use AAC.
4. My student has opportunities to explore different types of AAC.
5. My student requires a combination of different AAC to communicate effectively.
6. My student is able to independently communicate using some form of AAC.
7. I believe my student's current AAC toolbox is appropriate for their functional, social, and/or academic needs.

IIA1. How do you decide what aspects of communication to focus on when working with a student?

IIA2. How do you decide what vocabulary/language to teach your student?

IIA1. Can you share what some of your focus student's communication IEP goals/objectives look like?

IIA1a. How appropriate do you think these goals are? If you could change them, would you and why?

IIA1b. What do you perceive as current barriers to your student achieving these goals?

IIB. What does daily communication (with you) look like with your student?

IIB1. How confident do you feel in your ability to understand your student's communication attempts and why?

IIB1a. What are some ways that you promote/provide opportunities for your student to communicate during the school day?

IIIA. What is your personal experience with implementing AAC interventions?

IIIA1. How effective do you feel your AAC instruction or support is for your student? Do you believe your student is making progress in their communication goals?

IIA1a. Where do you look for support/resources on this if needed?

IIA1b. If you were to receive a training on AAC instruction/support, what specific aspects would you want support in that you believe would improve your practice?

IIIB. What kinds of AAC does your student use?

8. I have the proper resources/supports to adequately provide AAC instruction/support for my student.
9. I know how to manage/customize AAC to meet my student's needs.
10. I need support in deciding the most appropriate AAC for my student's needs.
11. I understand the factors to consider before choosing an AAC tool/strategy for my student.
12. I know where to look for resources/support regarding AAC.
13. I effectively collaborate with other members of the IEP team to meet my student's communication needs.
14. I regularly update my student's AAC system to meet their growing needs.
15. My student's AAC system meets their cultural needs.
16. What specific resources/support would you need to better support your student in using AAC?

Inclusion

1. How much time does your student spend in an inclusive setting?
2. What factors of the classroom environment support your student in developing communication/AAC skills?
3. My student would have more meaningful experiences in inclusive settings if they had stronger communication skills.
4. My student's primary learning environment is appropriate to meet their communication needs.
5. My student requires 1:1 support to meaningfully engage in an inclusive environment.

IIIB1. What were some of the factors you considered when deciding on these specific tools/strategies for your student?

IIIB1a. What are some things that went well/are going well with AAC methods?

IIIB1b. What are some difficulties?

IIIB1c. How effective do you think your student's current AAC system/toolbox is in meeting their CCN? Why?

IIIB2. How often do you reassess the suitability of your student's AAC system? What does this look like?

IIIB2a. How often do you update your student's device/tools and why?

IIIB3. Do you collaborate with others to make decisions on your student's AAC system? Who is involved? How often? What does this look like?

IIIC. Can you describe some of the opportunities your student has to practice using this AAC throughout the school day?

IIIC1. At what times during the day does your student have access to their AAC system and why?

IVA. How much time does your student spend in inclusionary settings during the school day?

IVB. Do you believe your student's CCN affects their opportunities for inclusion? Why or why not?

IVB1. What are some other factors you believe are impacting your student's opportunities for inclusion?

IVB1a. What are some supports that would facilitate inclusive opportunities for your student?

IVB1. Do you believe your student is ready to learn in an inclusive environment?

6. My school administration and/or available resources make it difficult for my student to engage in inclusive environments. 7. My student is able to generalize communication skills across environments. 8. I think my student has the necessary communication skills to meaningfully participate in inclusive settings. 9. My student is motivated (wants) to communicate with me. 10. I believe my student is making progress in learning to use AAC. 11. I believe that my student will learn how to communicate in a way that meets their needs. 12. I believe other school staff have the appropriate skills needed to communicate and engage with my student.	IVC. How appropriate do you think your student's current LRE is in addressing their CCN? IVC1. Do you believe that other staff members have the knowledge/experience to engage meaningfully with your student and their AAC system? IVC1. Do you believe that your student's AAC system gives them access and opportunities to socialize with their peers? IVD. What role/impact do you think school/district support has on facilitating the communication development of children with complex communication needs? IVD1. Do you have any specific examples you can think of/you'd like to share about receiving/not receiving school/district support?
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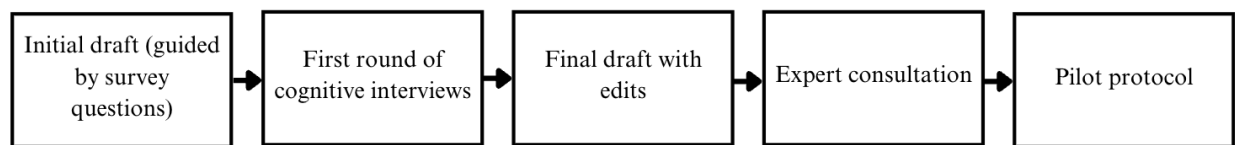
The initial interview protocol was designed to be a single hour-long interview to collect further information on educators' perceptions of communication goals and instruction, AAC, and inclusionary practices. After the project proposal was presented to the PI's advisory committee, the decision was made to conduct two hour-long interviews with fewer participants to gather richer information for data integration. Therefore, the initial interview guide was divided into two, with one interview focused on gathering background information about the educator, student, and learning environment and the other focused on learning more about communication practices/beliefs and AAC use (see Appendices C and D for complete interview guides).

Because the interview questions were extensions of survey questions, the interview protocol did not follow the same development trajectory as the survey. However, it still went through one round of cognitive interviews and was piloted with relevant stakeholders (in October-November 2025) to ensure that all constructs were being addressed and appropriate

probing questions were used. Thus, there were five steps in protocol development: 1) creation of initial protocol from survey; 2) initial round of cognitive interviews; 3) revision of protocol from feedback; 4) expert consultation; and 5) pilot testing (see Figure 5). The interview protocol team again consisted of the relevant stakeholders (teachers, paraeducators, SLPs).

Figure 6

Interview Protocol Development



Interview Pilot

After the original interview protocol was split into two distinct protocols, the PI met with three relevant stakeholders (a teacher, SLP, and paraeducator) to pilot the guides. There were two meetings with each of the stakeholders; during the meetings, which lasted about an hour each, participants participated in mock interviews and were asked to informally provide feedback as they responded to questions. The primary researcher recorded these meetings and also took notes as members shared their thoughts. Most changes had to do with organization and flow, adding elaboration, or removing redundancy. Changes in the protocol can be found below, organized by content (see Table 6).

Table 6: Incorporating feedback from pilot interview

Feedback/Notes	Revised Items
<i>General Info</i> 1. Participant asked if they could use their student's real name.	1. Emphasized in the intro and question IC that responses will be anonymized: "As a reminder, all responses will be anonymized,

<i>Communication Goals</i> 1. More elaboration is needed answering question IA2. 2. Question IB is repetitive—most participants touch on this already in question IA. 3. More elaboration is needed answering question ID. 4. More elaboration is needed answering question 1D1a. <i>AAC</i> 1. Question IIA1 is repetitive 2. More elaboration is needed answering question IIB. 3. More elaboration is needed answering question IIB1c. 4. Question IIC should be asked earlier. 5. Question IIG’s phrasing doesn’t ask the right question. Rephrase needed. <i>Inclusion</i> 1. More elaboration is needed answering question IIC1.	so please feel welcome to refer to your student in whichever way you’re most comfortable.” 1. Add probe: <i>If you don’t make the decisions, do you provide any input? Would you want to?</i> Add probe: <i>What about multilingual learners?</i> 2. Removed question IB. 3. Add probe: <i>e.g., Do you prompt? Do they initiate communication? Can you describe any communication routines you may have?</i> 4. Add probe: <i>What sorts of multimodal communication strategies do you use?</i> 1. Removed question IIA1. 2. Add probe: <i>Who decided? Did you have a say? Is there a standard process? Are there only specific tools available? Did you have experience with these specific tools?</i> 3. Add probe: <i>What would make it more effective?</i> Add probe: <i>Have you tried many other AAC methods?</i> 4. Question IIC moved up to be immediately after IIB. 5. Rephrase: “How effective do you feel your AAC instruction or support is for your student?” to “Can you describe how you’re feeling about the progress your student is making in their communication goals?” 1. Add probe: <i>Do you believe there are certain parts of the day your student could be pulled out for inclusion? Is more 1:1 time</i>
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2. Wording for question IIC2 needs to be changed in order to elicit opinion.

3. More elaboration is needed answering question IID1.

needed?

2. Added, “*To your knowledge, tell me about your student’s opportunities and experiences interacting with other staff members.*”

3. Add probe: *Does verbal language impact inclusion opportunities? Does functional communication level matter?*

Interview questions centered around the three constructs this study sought to explore: communication goals/instruction, AAC, and inclusionary practices. Thus, many of the interview questions asked educators to directly or indirectly speak about their communication and language ideology or beliefs. For example, participants were asked, “Can you describe your own beliefs about communication and how you think that affects your approach [in teaching your student]?” They were also asked questions like, “How do you decide what aspects of communication to focus on when working with a student?” and “How appropriate do you think [your student’s IEP] goals are?” Other questions aimed to dive deeper into educators’ AAC knowledge and attitudes and how those affected communication practices. For example, participants were asked, “What is your personal experience implementing [your student’s] AAC interventions?” They were also asked questions like, “What were some of the factors you considered when deciding on these specific tools/strategies for your student?” and “How effective do you think your student’s current AAC system/toolbox is in meeting their CCN and why?” Additionally, questions were designed to gain deeper insight into educators’ opinions about inclusionary practices. For example, participants were asked, “How do/would you feel about your student learning in an inclusive environment?” They were also asked questions like, “How appropriate do you think

your student's current LRE is in addressing their CCN?" and "What are some supports that would facilitate inclusive opportunities for your student?"

Data Analysis

Interviews were recorded and transcribed via Zoom. The primary researcher went through the transcripts to ensure accuracy and removed identifying information. Atlas.ti, a qualitative data analysis software, was used to organize and code responses. Both deductive and inductive coding were used to develop a codebook to analyze transcripts; this allowed for easy categorization and summarization of the comprehensive interview data that was collected (Merriam & Tisdell, 2016). The primary researcher initially coded all transcripts, and developed the codebook. Then, 32% (7 interviews) of the transcripts were double-coded for accuracy by a member of the research team. This was done deductively using the developed codebook to ensure accurate coding; no new codes were identified and there were no major disagreements on coding processes. Any quotes that were missed by the primary researcher were identified and reviewed through the Atlas.ti software.

For the deductive coding process, the primary researcher originally identified three initial broad codes based off of the literature and studied constructs. These were:

communication/language ideology, knowledge/attitudes about AAC, and inclusionary practices.

The first code, *communication/language ideology*, identified instances in which a participant referenced their belief in what is important to prioritize in communication instruction. For example, a participant could have talked about how they believe a student should first learn how to request items before learning how to greet peers. The second code, *knowledge/attitudes about language/AAC*, identified when participants shared their perceived knowledge or confidence level of teaching language, communication, and/or AAC. For example, a participant may have shared that they do not feel comfortable with their level of AAC expertise and rely on their SLP

to provide AAC instruction. This code also included how participants spoke about using AAC with their students. For example, a participant may have shared about how it is inconvenient to manage AAC systems for their students. The third code, *inclusionary practices*, identified how participants perceived how their students' CCN affected their inclusion. For example, a participant may have talked about how they believe their student couldn't be in a general education classroom because no one would understand them. Following this initial coding, descriptive (inductive) coding was used to further identify patterns/themes that emerged to create subcodes (or add any new codes that arose). A total of 56 codes were ultimately identified and used to organize the data (see Appendix E).

Trustworthiness & Credibility

Throughout the study, the primary researcher kept an audit trail on a Google drive to document project actions. This included keeping track of all the steps of the research process as well as keeping accurate and detailed records of interviews, such as transcripts in order to document clear rationale for study decisions (Lincoln & Guba, 2007). All transcripts were double-coded by the primary researcher and a member of the research team using a codebook with pre-identified codes to ensure accurate coding. To further establish trustworthiness and credibility to the study, the primary researcher conducted member checks after data analysis to ensure that findings accurately reflected the thoughts and perspectives of the interview participants (Lincoln & Guba, 2007). Emails were sent in April 2026; responses were received from six participants, all in agreement with the findings.

Phase 2: Integration

Data Analysis Procedure & Legitimation

Since this study was a mixed methods design, integration occurred throughout the research process (Creswell & Plano Clark, 2018). As a convergent parallel design, two types of data sources (in this case, quantitative survey data and qualitative interview data) were collected and analyzed separately then merged together for further interpretation (Creswell & Plano Clark, 2018). Additionally, a convergent design allowed room for sampling integration as a specific subgroup of participants from the larger sample were intentionally recruited for deeper understanding and analysis across the multiple sources of data (Leko et al., 2022; Love, et al., 2023).

An independent, intramethod analysis approach was used where both quantitative and qualitative data sets were analyzed separately, then brought together and integrated to form meta-inferences (Bazeley, 2018). The focus of integration in the data analysis stage was to merge and enhance findings across multiple data sources (Fetters, 2020). Thus, once both quantitative and qualitative data analyses were done, data was brought together and a narrative approach was used to “weave” data together (Fetters et al., 2013). The weaving of data highlighted points of concordance, discordance, and complementarity between datasets (Fetters, 2020). Joint data displays were also used to visually combine both strands of data to facilitate interpretation (Creswell & Plano Clark, 2018).

Other measures were also taken to add further legitimation to this study. Weakness minimization was addressed as interview data compensated for the rich, contextual data that the survey might’ve missed (Leko et al., 2022). Measures were taken to also continuously draw on

and connect the guiding conceptual framework, by highlighting relationships between educators' beliefs and practices, to give the study a strong theoretical foundation (Leko et al., 2022). Lastly, inside-outside legitimation was met by including and elevating the perspectives of educators while simultaneously acknowledging how positionalities may have affected data interpretation (Leko et al., 2022).

Chapter 4: Results

The findings of this study are organized into three sections: quantitative (survey) findings, qualitative (interview) findings, and integrated mixed-methods findings. Since this was a convergent parallel design, quantitative and qualitative results were first collected and analyzed separately. Then, the two data sets were brought together and merged to further interpret results (Fetters et al., 2013).

Quantitative (Survey)

The first research question focused on understanding differing perspectives of communication, AAC, and inclusionary practices by asking, “What are educators’ attitudes towards: (a) communication goals and instruction; (b) AAC; and (c) inclusionary practices in relation to communication?” Descriptive analysis, one-way ANOVA (Analysis of Variance) tests, and Spearman’s rank correlation were used to analyze survey data. Findings are organized by subcategories below, including demographic data, and presented using various data visualization methods.

Demographics

There were a total of 464 survey responses. Out of these responses, 94 of them were incomplete and removed. Then, 4 responses were removed due to not meeting participant inclusion criteria. In all, 366 complete and eligible survey responses were recorded. The majority of participants were special education teachers ($n = 118$, 32%) or SLPs ($n = 111$, 30%) followed by paraeducators ($n = 90$, 25%) and general education or inclusion teachers ($n = 47$, 13%). A large number of respondents reported 10 or more years of experience ($n = 169$, 46%) followed by those with 5-10 years of experience ($n = 83$, 23%), 3-5 years of experience ($n = 54$, 15%), 1-3 years of experience ($n = 49$, 13%) and 0-1 year of experience ($n = 11$, 3%). Most participants

were between the ages 35-44 years old ($n = 106$, 29%) followed by those who were 45-54 years old ($n = 102$, 28%), 25-34 years old ($n = 88$, 24%), 55+ years old ($n = 61$, 17%), and 18-24 years old ($n = 9$, 2%). The majority identified as women ($n = 360$, 98%), with a few men ($n = 5$, 1%) and 1 participant preferring not to say.

The majority of participants also held a Master's degree ($n = 247$, 67%), followed by a Bachelor's degree ($n = 71$, 19%), Associate's degree ($n = 27$, 7%), high school diploma ($n = 11$, 3%), and Ph.D. or Ed.D. ($n = 3$, 1%). Seven participants (2%) reported "other" as their highest education, with 6 participants saying they completed "some college" and 1 participant reporting that they had a J.D. Most educators' students were receiving special education services under the disability categories of Developmental Delay ($n = 92$, 25%) or Autism Spectrum Disorders ($n = 157$, 43%) followed by OHI (Other Health Impairment) ($n = 16$, 4%). Additionally, 81 participants (22%) selected multiple disability categories and 20 participants (6%) reported being unsure of the disability category their student was being served under. Many students were being taught in an inclusion or general education setting ($n = 180$, 49%). However, many were also in self-contained settings ($n = 146$, 40%). Some students were taught in partial inclusion settings ($n = 32$, 9%) and a few were in separate schools ($n = 8$, 2%). See Table 7 for complete demographic information reported.

Table 7*Survey Respondent's Demographics*

Demographic Variable	%	<i>n</i>
Role		
Special Education Teacher	32%	118
Speech Language Pathologist (SLP)	30%	111
Paraeducator	25%	90
General Education Teacher	13%	47
Gender		
Woman	98%	360
Man	1%	5
Prefer not to say	<1%	1
Age		
18-24	2%	9
25-34	24%	88
35-44	29%	106
45-54	28%	102
55+	17%	61
Years of Experience		
0-1	3%	11
1-3	13%	49
3-5	15%	54
5-10	23%	83
10+	46%	169
Education Level		
High school diploma	3%	11
Associate's	7%	27
Bachelor's	19%	71
Master's	67%	247
Ph.D. or Ed.D.	1%	3
Other	2%	7
Student Disability		
Developmental Delay	25%	92
Autism Spectrum Disorder (ASD)	43%	157
Other Health Impairment	4%	16
Multiple	22%	81
Unsure	6%	20
Student Learning Environment		
Inclusion/General Education	49%	180
Self-Contained	40%	146
Partial Inclusion	9%	32
Separate School	2%	8

Findings

Descriptive analysis and inferential statistics were used to examine survey results and identify educators' attitudes towards the three categories: communication goals/instruction, AAC, and inclusionary practices. Composite score distribution histograms were created to visually examine normality/skewness, homogeneity of variance (spread), and outliers (Boels et al., 2019). As seen from the histograms, attitudes towards AAC and inclusionary practices were normally distributed while attitudes towards communication goals/practices skewed left, or negative (see Figure 7). With a larger sample size ($N = 366$), Q-Q plots were used to further examine sample mean distribution (Liang et al., 2004). As seen in the plots, results were consistent with the histograms with attitudes towards AAC and inclusionary practices normally distributed (see Figure 8). Despite attitudes towards communication goals observing a ceiling effect, with the large sample size ($N = 366$), the Central Limit Theorem allowed for parametric tests on all three concepts (Kwak & Kim, 2017).

Figure 7

Composite Score Distribution Histogram

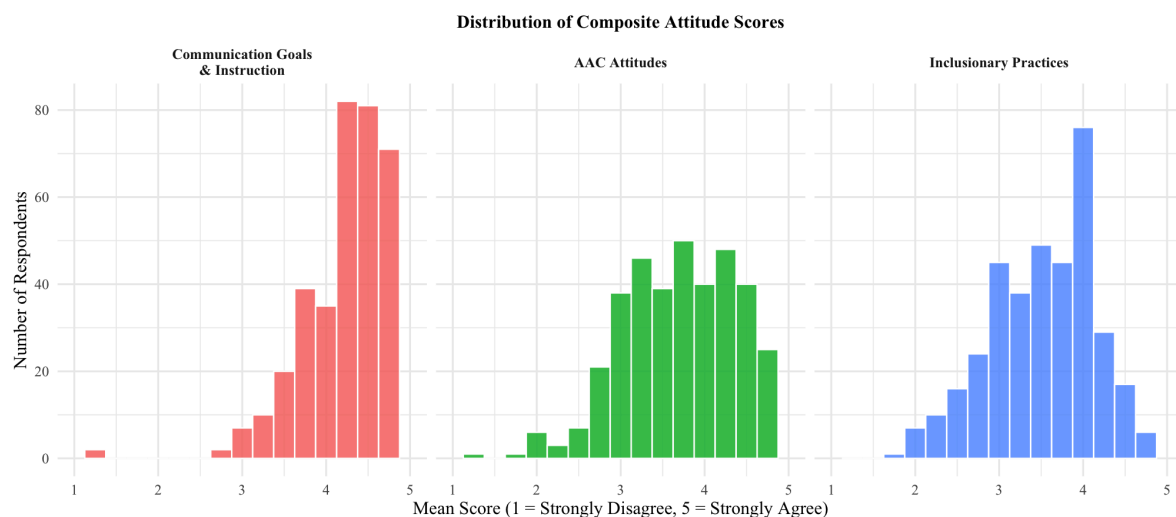
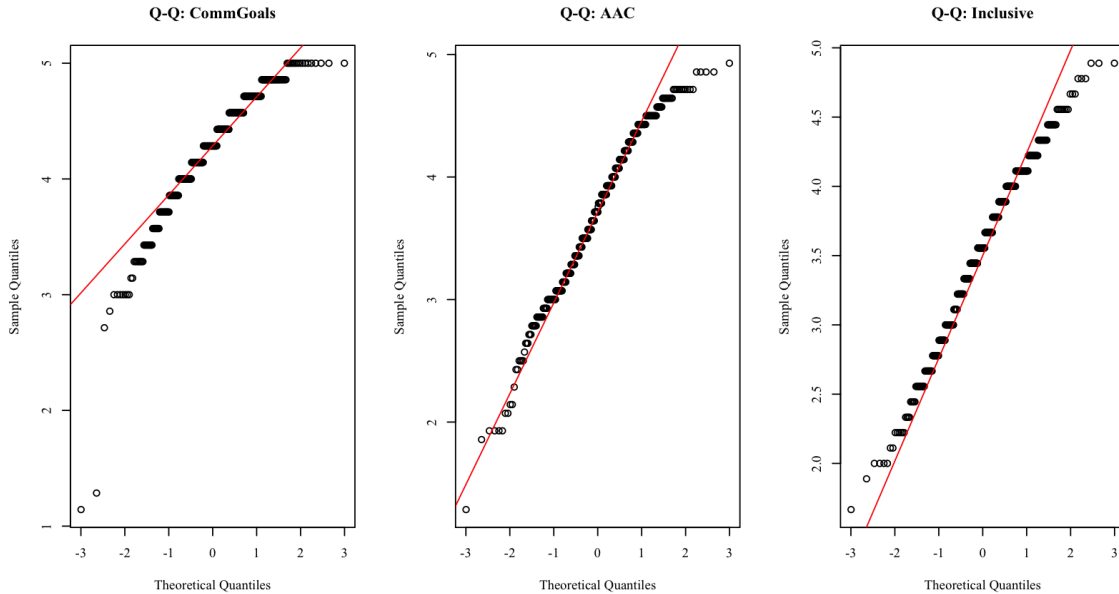


Figure 8

Q-Q plots



Communication Goals and Instruction

Overall, educators held positive attitudes when thinking about communication goals and instruction for their students. A one-sample t-test indicated that educators' mean attitude score toward communication goals and instruction ($M = 4.25$, 95% $CI [4.19, 4.30]$) was significantly higher than the scale midpoint (3 out of a 5-point likert scale), $t(365) = 45.29$, $p < .001$, $d = 2.37$. This represents a large effect size, confirming that educators held strongly positive attitudes toward communication goals and instruction, well above the neutral midpoint. Interestingly, a one-way ANOVA revealed a significant difference in attitudes toward communication goals and instruction across educator roles, $F(4, 361) = 4.79$, $p < .001$, $\eta^2 = .05$. This represents a small-to-medium effect size, indicating that educator roles accounted for approximately 5% of the variance in communication goals attitudes. Post-hoc comparisons revealed two significant pairwise differences. Special education teachers scored significantly higher than paraeducators

($M = 4.27$ vs. $M = 4.06$), with a mean difference of 0.22, $p = .028$. SLPs scored significantly higher than paraeducators ($M = 4.36$ vs. $M = 4.06$), with a mean difference of 0.31, $p < .001$. All other pairwise comparisons were non-significant (all $ps > .05$). SLPs had the highest estimated marginal means ($M = 4.36$), while paraeducators had the lowest ($M = 4.06$), though all means remained above the scale midpoint of 3.0, indicating positive attitudes across all role groups.

There was also a significant difference in communication goals and instruction across education levels, $F(4, 361) = 3.04$, $p = .01$, $\eta^2 = .04$. This represents a small-to-medium effect size, indicating that level of education accounted for approximately 4% of the variance in communication goals attitudes. Post-hoc comparisons revealed one significant pairwise difference. Educators with Master's degrees scored significantly higher than those with Bachelor's degrees ($M = 4.31$ vs. $M = 4.10$), with a mean difference of 0.21, $p = .01$. All other pairwise comparisons were non-significant (all $ps > .05$). Educators with Master's degrees had the highest estimated marginal means ($M = 4.31$), while those with Bachelor's degrees had the lowest ($M = 4.10$), though all means remained above the scale midpoint of 3.0, indicating positive attitudes across all role groups. One way ANOVA tests were run across all other demographic factors but revealed no significant differences in attitudes toward communication goals and instruction.

Diving deeper into individual survey items, there were eight items (1 free response, 7 Likert-scale items) asked to measure educators' attitudes towards communication goals and instruction. When looking closer at the data from individual survey items, three key findings emerged: 1) educators' communication prioritizations, 2) educators' confidence in communication instruction, and 3) alignment of communication instruction with student needs.

Communication Prioritizations.

In the survey, participants were asked to answer the question, “What do you prioritize when planning communication instruction/goals for students?” This was a force-response question, so all 366 participants were prompted to submit a written response to this question; however, four participants submitted invalid (e.g., left blank by pressing space) responses ($n = 362$). Written responses were thematically coded using inductive coding. Ten themes, or codes, about communication priorities emerged from this process (see Table 8).

The most frequently cited priority was the need for functional communication ($n = 153$). Participants overwhelmingly noted the importance of students’ ability to “express their wants/needs.” Many of these participants also noted the importance of teaching these functional communication skills in order to decrease the frequency of challenging behaviors. The second most frequently mentioned priority ($n = 104$) was making sure that communication goals and instruction met each student’s individual needs, whether that was meeting their learning needs or figuring out which goals made most sense to set to meet their daily living and learning needs. For example, many participants wrote about “meeting [students] where they’re at,” “using [students’] strengths,” and “figuring out what works for them.”

Two other commonly noted priorities were keeping communication accessible ($n = 73$) and reinforcing any and all communication attempts ($n = 62$). Many participants mentioned how they “prioritize access to a variety of ways for communication” and the importance of having “easy to access” AAC tools around the classroom. Others wrote about how their students were still working on foundational skills of back-and-forth exchange and joint attention, so any attempts at communication were praised, accepted, and honored. Some participants went on to write about how they “do not force” their students to respond back to communication but rather,

“without expectation,” reinforce language with visuals and models. Six other notable priorities in participants’ free responses can be found in Table 8.

Table 8

Free Response Summary of Q11

What do you prioritize when planning communication instruction/goals for students?	
Answer	<i>n</i>
<i>Functional Communication</i>	153
<i>Individualized Approaches</i>	104
<i>Accessibility</i>	73
<i>Reinforcing Communication Attempts</i>	62
<i>Environmental Fit</i>	39
<i>Student Autonomy</i>	37
<i>Social Communication</i>	27
<i>Setting Realistic/Achievable Goals</i>	27
<i>Core Words/Vocabulary Focus</i>	20
<i>Generalization</i>	15

Educator Confidence.

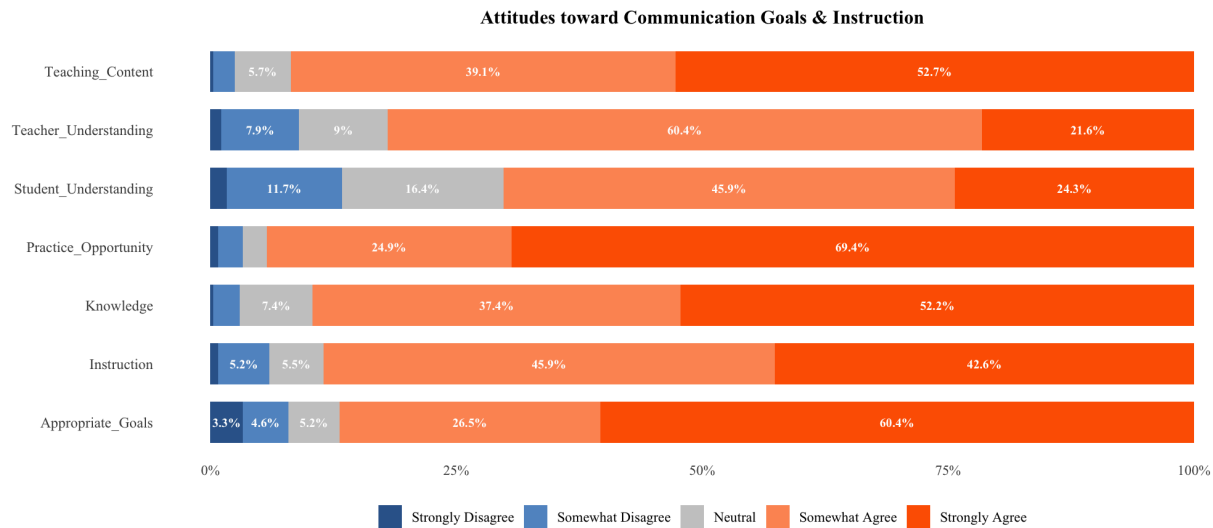
Four Likert-scale survey items touched on the topic of educators’ confidence in communication goals/instruction. The majority of respondents reported feeling pretty confident about their ability to understand their student and their needs, as well as their ability to provide meaningful instruction (see Figure 9). For example, the overwhelming majority (88.5%) of respondents selected agree or strongly agree to the statement, “I provide adequate communication instruction to meet my student’s complex communication needs.” Similarly, educators reported feeling knowledgeable about students’ language development (89.6%) and felt confident knowing what types of language/vocabulary to teach their students (91.8%). Lastly, when it came to understanding what their students were trying to communicate to them, most educators (82%) responded positively, implying confidence in this ability.

Student Fit.

Three Likert-scale items centered around communication goals/instruction (see Figure 9). The vast majority of educators agreed or strongly agreed that their students' IEP goals (in relation to communication) were developmentally appropriate (86.9%). A large majority (94.3%) also agreed that their students had opportunities to naturally use and practice communication in their classrooms. Lastly, educators were asked to rate their agreement to whether they believe their student understood what they were communicating via their current communication systems. This statement had the lowest agreement among all items related to communication goals/instruction (70.2%), but still had over the majority of educators agree or strongly agree.

Figure 9

Communication Goals/Instruction Descriptive Analysis



AAC

When it came to the area of AAC, there was a more normal distribution, meaning educators were more neutral in their responses. However, there was a significant difference in AAC attitudes across educators' roles, $F(4, 361) = 4.79, p < .001, \eta^2 = .05$. This represents a

small-to-medium effect size, indicating that educators' roles accounted for approximately 5% of the variance in AAC attitudes. Post-hoc comparisons revealed three significant pairwise differences. SLPs scored significantly differently than all other roles. SLPs scored significantly higher than special education teachers ($M = 3.92$ vs. $M = 3.67$) with a mean difference of 0.15, $p = .03$. Compared to general education teachers, SLPs scored significantly higher ($M = 3.92$ vs. $M = 3.46$), with a mean difference of 0.46, $p = .002$. Lastly, they were significantly higher than paraeducators ($M = 3.92$ vs. $M = 3.59$), with a mean difference of 0.33, $p = .004$. All other pairwise comparisons were non-significant (all $ps > .05$). SLPs had the highest estimated marginal means ($M = 4.31$), while general education teachers had the lowest ($M = 3.46$), though all means remained above the scale midpoint of 3.0, indicating generally positive attitudes across all role groups.

There was also a significant difference in AAC attitudes when it came to the type of classroom environment educators were in, $F(4, 361) = 2.67$, $p < .05$, $\eta^2 = .03$. This represents a small-to-medium effect size, indicating that classroom environment accounted for approximately 3% of the variance in communication goals attitudes. Post-hoc comparisons revealed one significant pairwise difference. Educators teaching in self-contained classrooms scored significantly higher than those in separate schools ($M = 3.79$ vs. $M = 3.01$), with a mean difference of 0.78, $p = .07$. All other pairwise comparisons were non-significant (all $ps > .05$). Educators in self-contained classrooms had the highest estimated marginal means ($M = 3.79$), while those in separate schools had the lowest ($M = 3.01$), though all means remained above the scale midpoint of 3.0, indicating neutral to positive attitudes across all role groups. One way ANOVA tests were run across all other demographic factors but revealed no other significant differences in AAC attitudes.

There were fourteen Likert-scale items and one free response item that measured educators' attitudes towards AAC. When looking closer at the data from individual survey items, three key findings emerged: 1) educators' confidence in AAC, 2) student opportunities to use AAC, and 3) meeting student needs with AAC.

AAC Confidence.

Four items were related to educators' confidence with using AAC to support their students' communication needs (see Figure 10). One item directly asked respondents to rate their agreement with the statement, "I feel confident supporting my student in using AAC." Most educators (84.4%) agreed or strongly agreed to this statement. Additionally, educators were asked if they knew how to manage/customize AAC tools to meet their students' needs. A little over half of educators (64.2%) expressed confidence with this skill. Similarly, respondents were asked if they understood which factors to consider before choosing an AAC tool/strategy for their students and a little over half of educators (62.5%) agreed or strongly agreed. Lastly, respondents were asked to rate their agreement to the statement, "I need support in deciding the most appropriate AAC for my student's needs." It is important to note that this statement was phrased negatively, meaning responses of strongly disagree or disagree would indicate higher confidence with AAC. For this statement, 65.3% of educators disagreed or strongly disagreed, suggesting that they feel confident in choosing appropriate AAC tools for their students.

Student Opportunities.

Three likert-scale items were asked to understand educators' perspectives on their students' opportunities and actual use of AAC (see Figure 10). Generally, educators felt positive about their students using AAC. Most educators (81.7%) reported that their students had meaningful opportunities to use AAC during the school day. A little over half of educators

(65.3%) reported that their students had opportunities to explore different types of AAC throughout the school day. Lastly, just over half of educators (54.6%) agreed or strongly agreed that they believed their student was able to independently communicate using some form of AAC.

Meeting Student Needs.

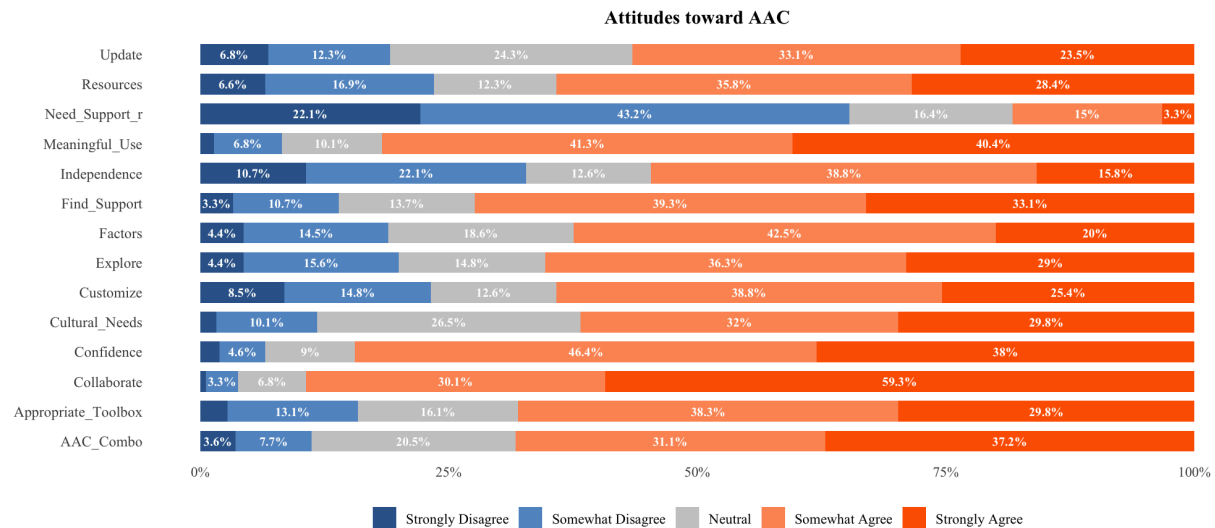
Beyond opportunities to use AAC, educators were asked to describe their perspectives on how their current use of AAC meets their students' complex communication needs through seven Likert-scale items (see Figure 10). 68.3% of educators believed that their students required a combination of different AAC (multimodal communication) to communicate effectively. Similarly, 68.1% of educators agreed or strongly agreed that their students' current AAC toolbox was appropriate to meet their functional, social, and/or academic needs. Furthermore, participants were asked if they believed their students' AAC system met their cultural needs. 61.8% of respondents agreed or strongly agreed with this statement. That being said, just over half of respondents (56.6%) reported that they regularly update their students' AAC systems to meet their growing needs.

Regarding how they find resources to meet their students' AAC needs, educators were asked if they believe they have the proper resources/support, where they look for resources/support, and how they collaborate with others to meet communication needs. Many respondents (72.4%) reported that they knew where to locate resources/support regarding AAC. However, fewer respondents (64.2%) indicated that they felt they had the proper resources/support to adequately provide AAC instruction for their students. By far, participants shared positive experiences in regard to working with other members of their students' IEP

teams to meet communication needs with 89.4% reporting that they effectively collaborate with their teams.

Figure 10

AAC Descriptive Analysis



Inclusionary Practices

For inclusionary practices in relation to communication, there was also a more normal distribution, meaning educators were not skewed in their responses. One way ANOVA tests were run across all demographic factors but revealed no significant differences in attitudes about inclusion. However, a Spearman's rank correlation was conducted to examine the relationship between time spent in inclusive settings (see Figure 11) and attitudes toward inclusionary practices. Results indicated a statistically significant negative correlation, $r_s(368) = -.24, p < .001$. This represents a small-to-medium effect, suggesting that educators whose students spent more time in inclusive settings reported slightly lower attitudes toward inclusionary practices (see Figure 12).

Figure 11

Students' Time Spent in Inclusive Settings

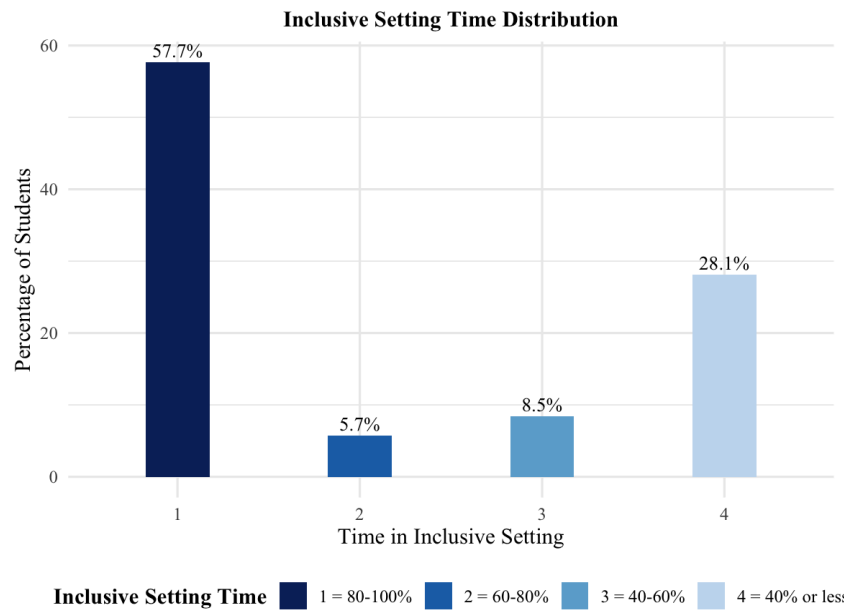
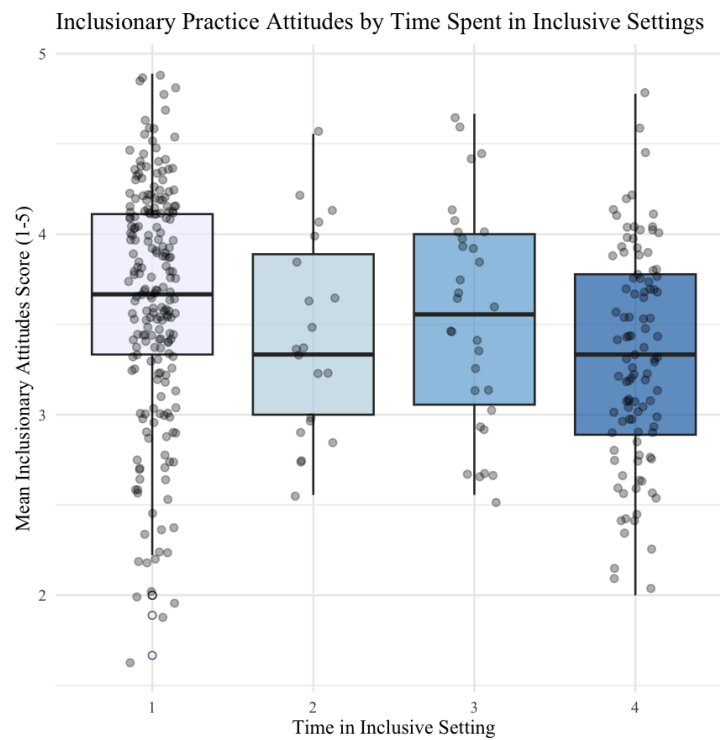


Figure 12

Spearman's Rank Correlation of Inclusion Attitudes by Classroom Setting



There were nine Likert-scale items that measured educators' attitudes towards inclusive practices (see Figure 13). After examining the data from individual survey items, three key findings emerged: 1) belief of appropriateness, 2) belief in student ability, and 3) perspectives about feasibility.

Belief of Appropriateness.

Three items were centered around educators' beliefs about what was most appropriate for their students' learning needs (see Figure 13). For example, educators were asked to express their agreement with the statement, "My student's primary learning environment is appropriate to meet their communication needs." Most respondents (80.3%) agreed or strongly agreed with this statement. It is important to remember that participants in this survey worked in a variety of settings from separate schools to fully inclusive classrooms. Educators were asked if they believed their student was able to generalize communication skills across environments but less than half of respondents (47.5%) believed in their students' ability to do so. Similarly, when asked if they believed their students have the necessary communication skills to meaningfully participate in inclusive settings, only 44.8% of respondents agreed or strongly agreed.

Belief in Ability.

Educators were asked three items regarding their students' communication progress and beliefs in their ability to communicate (see Figure 13). Responses for these items were overwhelmingly positive, indicating that educators acknowledge their students' communicative competence and intent. Most educators (77.3%) believed that their student was motivated (wanted to) communicate with them and 74.6% believed that their students were making progress in learning how to use AAC. In the same vein, educators were very hopeful about their students' communication outcomes. When asked to rate their agreement with the statement, "I

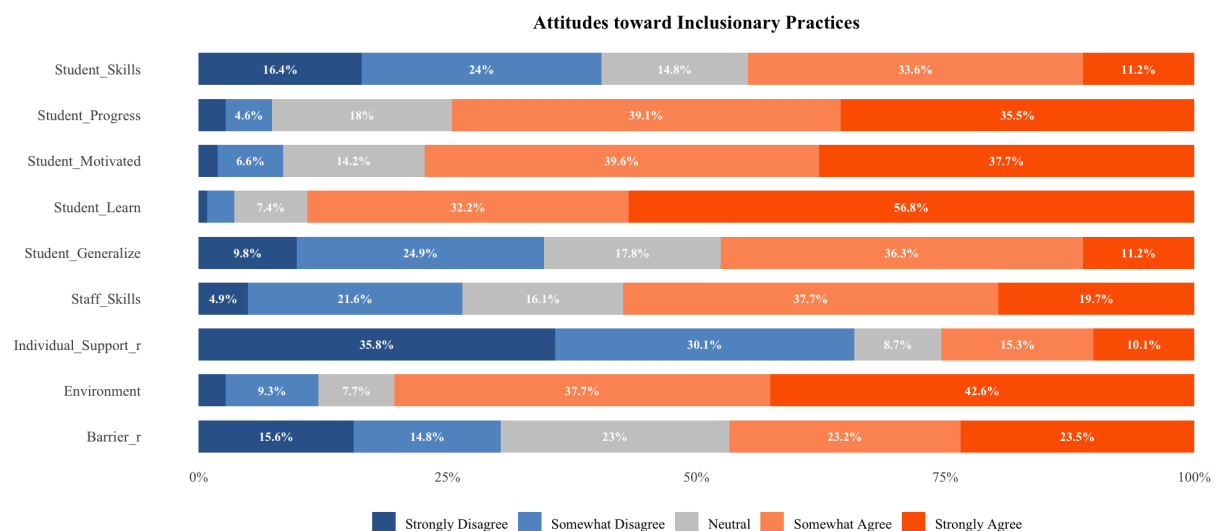
believe that my student will learn how to communicate in a way that meets their needs,” 89% of educators responded positively in agreement.

Feasibility.

Three items questioned educators’ perspectives on the feasibility of inclusionary practices (see Figure 13). For example, when given the statement, “My school administration and/or available resources make it difficult for my student to engage in inclusive environments,” only 30.4% of respondents disagreed or strongly disagreed. It is important to note that this question was phrased negatively, so disagreement would’ve indicated higher feasibility. However, when asked about the belief of other school staff’s ability to successfully engage and communicate with their students, over half of respondents (57.4%) reported their faith in staff’s skillsets. Lastly, when asked if 1:1 support would be needed for their students to meaningfully engage in inclusive settings, only 25.4% of respondents indicated that their students would need individualized support.

Figure 13

Inclusionary Practices Descriptive Analysis



Summary

The goal of the survey was to explore the first research question, “What are educators’ attitudes towards: (a) communication goals and instruction; (b) AAC; and (c) inclusionary practices in relation to communication?” to better understand differing perspectives of communication, AAC, and inclusionary practices. With 366 total eligible responses, descriptive and inferential statistics were utilized to identify any trends or patterns in the data. It is important to note that the survey sample, though somewhat reflective of the workforce, was predominantly composed of women with 5+ years of experience and higher degrees.

The survey was designed to explore the three constructs: communication goals/instruction, AAC, and inclusionary practices. Each survey item was mapped onto these constructs and key findings were identified through descriptive analysis. When exploring educators’ attitudes toward communication goals and instruction, the findings indicated that educators, in general, had very positive attitudes towards creating and implementing communication goals and instruction. The histogram and Q-Q plot showed that mean scores were negatively skewed, suggesting that educators are deeply committed to and hopeful about communication goals/approaches they have for their students. It’s notable that SLPs and special education teachers demonstrated significantly more positive attitudes than paraeducators. This could be due to a number of factors, but it may suggest that more specialized training/education may impact perspectives about communication. Overall, educators were pretty confident about their skills in providing communication instruction and believed that what they were teaching their students was developmentally appropriate and students had adequate opportunities to learn and practice communication skills.

When looking more specifically into AAC, attitudes had a more neutral distribution of reported attitudes. SLPs held the most positive attitudes, scoring significantly higher than general education teachers and paraeducators, which would make sense given their content expertise. Interestingly, the learning environment also influenced perspectives, as educators in self-contained settings held more positive attitudes toward AAC than those working in separate, specialized schools. Findings from the analysis of items from the AAC construct show that there is a gap between general confidence using AAC and actual technical proficiency. While most educators (84.4%) reported feeling confident supporting a student in using AAC, only about 64% reported confidence in customizing tools or selecting the most appropriate strategies. Collaboration was reported to be a strength amongst most respondents, so there is potential opportunity to bridge these gaps. Lastly, resource limitations were of concern with over a third of educators feeling like they lack the proper resources to provide adequate AAC instruction.

When looking at attitudes towards inclusionary practices, there was also a more normal distribution. However, an extremely interesting finding through Spearman's rank correlation was the relationship between time spent in inclusive settings and attitudes toward inclusionary practices. Attitudes toward inclusion showed a statistically significant negative correlation with the amount of time students actually spent in inclusive settings, meaning that educators whose students were in more inclusive settings reported slightly less favorable attitudes towards inclusion. This may reflect the disconnect between ideals of inclusion and practical realities of classrooms. Concerns over feasibility (e.g., lack of resources) and readiness (e.g., ability to generalize skills) arose in responses. These ideas are reflected in the data as a large majority of educators (89%) believe in their students' potential to communicate, but only 45% believe their students currently possess the skills needed to meaningfully participate in inclusive

environments. In summary, the survey data highlights educators who are confident, collaborative, and optimistic about students' potential, but held back by gaps in technical knowledge and systemic limitations. While it's clear that most educators hold a strong foundational belief in communication as a right, there is a theory-to-practice gap, especially regarding inclusive practices.

Qualitative (Interviews)

The second research question explored educators' perspectives of supporting communication by asking, "How do educators describe their experiences in supporting communication instruction for preschool-aged students with ESN/CCN?" Interviews were recorded via Zoom and auto-transcriptions were cleaned up by the primary researcher. Atlas.ti, a qualitative data analysis software, was used to organize and code responses. Both inductive and deductive coding were used to analyze data (Merriam & Tisdell, 2016). A total of 56 codes were ultimately identified and used to organize the data. A codebook was developed following the first round of coding (see Appendix E).

Demographics

From the survey participants, nested sampling was used to identify participants who were interested in follow-up interviews. Participants were asked at the end of the survey to indicate their interest in two follow-up interviews where they would be asked more about their experiences supporting students with CCN. A total of 209 participants indicated interest. From this sample, the primary researcher reached out to a total of 46 participants. After email correspondence and successful completion of consent forms, a total of 11 participants were interviewed: 3 SLPs, 3 special education teachers, 3 paraeducators, and 2 general education teachers. All participants were women and all but one participant identified as White. There was

a range in years of experience and age, but the majority of participants ($n = 8$) held a Master's degree. A more detailed look into interview participant demographics can be found in Table 9.

Table 9

Interview Participants

Participant	Role	Age	Race/Ethnicity	Experience	Education
SLP 1	SLP	25 - 34	Asian, Native Hawaiian, or Pacific Islander	1 - 3	Master's
SLP 2	SLP	35 - 44	White	10 +	Master's
SLP 3	SLP	35 - 44	White	5 - 10	Master's
SET 1	SpEd Teacher	25 - 34	White	5 - 10	Master's
SET 2	SpEd Teacher	35 - 44	White	10 +	Master's
SET 3	SpEd Teacher	25 - 34	White	3 - 5	Master's
PAR 1	Paraeducator	55+	White	5 - 10	Bachelor's
PAR 2	Paraeducator	45 - 54	White	5 - 10	Master's
PAR 3	Paraeducator	45 - 54	White	1 - 3	Bachelor's
GET 1	GenEd Teacher	55+	White	10 +	Master's
GET 2	GenEd Teacher	45 - 54	White	10 +	Associate's

Findings

The aim of the interviews was to gather richer and more contextual information about the experiences of educators supporting children with complex communication needs. Though a range of factors came up in interviews, a few common key points were identified. Findings are organized through the broad constructs of (a) communication goals/instruction, (b) AAC knowledge/attitudes, and (c) inclusionary practices.

Communication Goals/Instruction

Themes that emerged from the construct of communication goals/instruction are organized into two sections: 1) What do educators believe is the role/purpose of communication? and 2) How do educators think communication should be taught?

Role/Purpose of Communication.

Participants expressed diverse perspectives regarding the purpose and role of communication. While every educator acknowledged the importance of functional communication, their levels of prioritization differed significantly. A similar lack of consensus existed regarding social communication; although it was universally mentioned, the emphasis placed on its value differed among interviewees. Likewise, there were theoretical differences when it came to accessibility and autonomous use of communication/AAC tools. Some educators prioritized student autonomy, equating AAC devices with a student's "voice," while others tended to restrict or limit access for various practical or behavioral reasons. Finally, participants held contrasting views on communicative expectations. Many advocated for the idea of "communication without expectation," validating students' communication attempts without requiring a specific response; however, others relied on structured manding and prompting techniques to elicit specific, desired outcomes.

Prioritizing Functional Communication.

All 11 educators brought up the importance of functional communication and shared that their students were actively working on goals to build functional communication skills. Most of these goals centered around expressing wants and needs (such as requesting items), asking to use the bathroom, and/or labeling items. For example, PAR2 shared:

We're mostly just trying to work on getting her to make requests for things using the AAC or picture cards. She doesn't have any words or signs, so mostly working on just trying to teach her that you can get what you want by using these means of communication to request. And I would think the goal would be eventually to do more than just, say, you know, cookie, but to know how to use the device to say, 'toy broken' or 'need diaper' or whatever it is that's bothering her.

Similarly, GET2 shared how her student's biggest goal was to communicate wants/needs:

Currently, she's working on communicating her wants, needs with us. I think that's the biggest goal for her, is to be able to tell us what she needs either with language or by using her AAC device, which she's just now learning to use. But yeah, I think that's the most important thing.

Educators also shared their tendencies to anticipate students' needs and overprompt; therefore there was focus on students being able to initiate functional communication. For example, SET1 shared:

He just kind of, like, expects people to know what he needs, and I guess, like, at home, like, a lot of people, like, anticipate his needs, and, like, we get into the habit of doing that. So, like, working on that, we tried giving him, like, a lanyard with, like, a bathroom kind of, like, card on it he could show... So that was something that we were really trying to work on with him, and just, like, requesting things, because, like, you know, a lot of times, like, we do get, like, caught up in, like, anticipating their needs.

While functional communication was seen as a necessary part of early communication skills, many educators believed it wasn't the only thing, and not the most important thing, that their students should work on. For example, they emphasized that many students had a focus on

requesting items (particularly food), but expressed the need to expand communication past requesting. SET3 shared her how she'd like to expand her student's communicative functions:

One of her goals, or like, things we're working on is to get her to request more than just snack...She's good at leading for requesting as well, like, bringing our hand and all of that, but she doesn't have much of a way to show us any of the things she knows, or, like, to tell us something other than, like, requesting, like, something she wants. So, she'll make, like, a grunting sound when she's frustrated...or she could be, like, sad too. So, like, trying to figure out communication of, like, feeling words, So, the commenting, I think, is a good one also, because then she can share, like, enjoyment.

Social Communication.

Social communication was also brought up by all 11 educators; however, contrary to functional communication, all participants brought up its importance but few were directly working on it with their students. For example, SLP3 shared:

I think, the ultimate goal for communication is to bring another person into the equation...a lot of behaviors are definitely communicating things, for sure...but in terms of like, when we're designing goals, it's to bring another person into the picture...but if we're not seeing that, then we'll hang out, with at least one goal around connecting to a person with conventional gestures, so pointing, giving back if you don't want, I don't have too many goals that I... I don't have any goals right now that are, like, a wave, but that would be kind of the same, like a greeting wave, or...triadic eye gaze.

Many educators also expressed the importance of building the communication skills needed to socialize with friends; however, again, few were working on explicitly fostering these skills. For example, SET1 spoke about her student's interest in his peers but when asked if her student had

structured opportunities to work on social communication, she shared, “Not, like, with [his] peers, because that isn’t really, like, what we’re focused on.” Others noted how social interactions were opportunities for students to fortify their functional communication skills.

SET2 shared:

I think a big piece in communication does go hand-in-hand with social interactions, too. And so increasing that social language, as simple as just, like, requesting my turn, and understanding those processes, that's gonna help with friendships, too, and have more of that, like, reciprocal and that joint attention.

Students of educators who taught in more inclusive settings ($n = 4$) tended to have more social communication goals or generally just more opportunities for social skills instruction. For example, GET2 shared how her classroom environment supported her student’s social opportunities sharing:

I think that because we are a play-based learning... if she's feeling like she wants to play with somebody else, she can. You know, we definitely support their social-emotional growth, because all of them are learning how to play together, or play, at least play alongside of each other, and, you know, give and take, share...take turns, all of the things that you need to do in preschool to learn, you know, cleaning up after yourself, and I feel like she really does a good job with modeling, you know, following the model of what the other kids are doing.

Similarly, PAR1 spoke about her student’s goal of engaging with his peers saying:

Right now, we're working on engagement of peers and appropriate saying hello, so that's the one that we're kind of focused on. He doesn't say hello, or he'll do a high-five, but

trying to work you know, he's got a PEC in his PECS book to do that, so that's one thing that I'm really trying to work with.

Emphasis on Accessibility and Student Autonomy.

A common sentiment shared by educators was the importance of preserving students' autonomy. Some educators equated their students' communication tools/systems as their "voices." Therefore, in theory, it was essential that students had unrestricted access to their "voice" to be able to express wants, opinions, and feelings and make decisions for themselves. SLP2 shared her belief of why it's crucial for her student to have accessible communication, sharing:

[AAC] always needs to be unrestricted...stimming's okay, and, you know, using the device because it's their voice in any way they want is okay, because we can't silence any student that uses, you know, their regular voice to speak, so why would we do that for someone, that uses an AAC device? That's taken some coaching, too, especially, like, volume...some students like to turn the volume all the way up, and yes, as loud and distracting that can be in class, that's just like them yelling. So she has unrestricted access to the device. She brings it with her, and the staff right now is helping her bring it with her everywhere she goes.

Similarly, PAR3 shared her student's desire for autonomy and protectiveness over his device:

When he's using his device, he often times won't let us touch it, and so it's hard to model...what we're doing, or what we want him to do, or ask him questions, because when we try and touch the device, he gets very possessive over it. So I do think that there's a level of trust there that we need to build up, that he realizes, like, we're not

taking this away from you, you know? And I understand that once they get something like this, that's... You know, it's...it's a bridge between, you know, him and other people.

On the other hand, some educators grappled with allowing unrestricted access vs. managing challenging behaviors in their classrooms. Though they did want to respect their students' autonomy with their "voices," they ultimately did limit access, expressing difficulty in continuing instruction. For example, PAR2 spoke about employing the guided access feature on her student's device due to distraction sharing:

He would navigate out of TD Snap and open up the camera and take a bunch of selfies, which is cute, but not what it's for. With him, we had to either put it on guided access, or, like, sometimes just take it away, because he wasn't using it for what he needed to use it for...he wasn't focusing on what we were doing.

SLP2 also shared how she sometimes limited access to communication tools due to safety concerns saying:

I think the only time there's restriction on it is when there's been, like, a moment of safety concern, with the throwing of the speech devices...I feel like this happens in this room every year for, like, a little period of time, and then it's okay. So hopefully this will... be the case here. But otherwise, the speech device goes with him everywhere.

Communication Without Expectation.

Educators had mixed opinions when it came to what they expected from their students during communication exchanges. Some were resolute on the importance of modeling and providing opportunities for communication without expectation, meaning they did not expect their students to respond in any way and just focused on providing communication input. For example, SLP1 gave an example of how she teaches words saying, "We haven't started working

on 'where' yet...but we're still introducing it, so we're modeling a lot of language and telling him 'where' means this, but we're not expecting him to answer it at this point." SLP3 also spoke about how she models her speech sessions sharing:

I use the second half of his speech session to just be following him around the room and, like, modeling on his speech device and...his morning meeting in his class. He's not expected to, like, be in a particular space, but, I'm modeling more on his talker related to what the teacher is talking about, and then praising him if he's in the space for group, or look, like, turned toward the group, or looking at the whiteboard, or watching the video, or anything like that... Something that I... try to emphasize with staff here is, like, you literally cannot model too many times, and that modeling is, like, with no pressure on the student to do anything.

Other educators fell along the spectrum of communication without expectation all the way to hand-over-hand prompting of responses. Some educators were proponents of modeling, but seemed to have an expectation of some sort of response. For example, PAR3 shared:

So we'll use the...feelings page, on his device, and then also on our core board, so we will try to, you know, point out, like, oh, you look like you might be sad, you know, and point to sad, and look for some kind of a response...sometimes if he's looking really tired or something, we say, oh, you know, I think you might be tired, or you look like you're tired, so just try and, like. say, you know, like, hey, I think this is what I'm seeing from you, you know, and just trying to look for any kind of response, or if maybe he'll touch, then, that feeling, a motion on his page or on the core board, that, you know, that's huge, that's kind of rare for him to do that.

At the end of the spectrum, one of the participants, GET1, shared that in her classroom, she frequently used hand-over-hand prompting to elicit a response from their student. She shared:

Well, I think because of the nature of her personality, it...she's just very resistant. I think the environment is rich with language and options and opportunities. It's just the point where she will not put forth any initiative, just like, you know, like, when we help her try to request, when... she wants something, and we'll do the hand over hand.

Approaches to Communication Instruction.

Though educators differed on priorities of communication instruction, as seen in the last section, opinions of how communication should be taught was pretty uniform. Most educators agreed on the importance of working towards independence (e.g., student being able to use AAC/communication tools on their own) and addressing issues with skill generalization (e.g., being able to transfer communication skills learned in pull-out speech sessions or in the classroom to other environments). Educators agreed that communication instruction should happen as naturally as possible (e.g. embedded in classroom routines rather than discrete trials) and that students should be exposed to communication-rich environments. Lastly, they all spoke on the importance of individualizing instruction to meet students' unique learning and communication needs.

Importance of Skill Generalization and Independence.

Most educators stressed the need for students to strive towards independence. Ideally, for them, successful communication looked like using communication tools and supports independently and with initiative (e.g., no prompting). PAR3 spoke about her experience encouraging her student to become more independent by using communication tools, sharing:

He is fairly dependent on us. He doesn't like to really even do things on his own. He wants to use our hands to, like, move pieces of a puzzle, or, you know, both blocks around. So we're at the point where we're trying to encourage him to do things independently, which is helping to get him to, like, start utilizing the [communication] board a little bit more, and things like that.

SLP1 also shared her experience of her student working towards independence, saying:

Sometimes...he wants something, and he's just looking at me, but...I don't always know what he wants, and I give him a few options, but also, just because I don't always want to prompt him, and I want him to independently be able to tell me what he wants. Also, near the door, we have, like. Like, these sentence strips with, again, the basic words that I showed you, and I had an 'I want,' and then he has options to pick from...So, recently, he's been going up. I'm like, 'what do you want, [student]? Like, can you tell me what you want? You can go to the door and show me what you want.'

Another point of interest was the need for skill generalization. Most educators identified skill generalization as a big barrier for their students and described it as an important aspect of communication instruction. A lot of educators spoke about their students being able to demonstrate certain communicative functions in isolation, but not being able to demonstrate the skill in other settings. SET2 described this with her student, sharing:

I think what's tricky, for a lot of students with autism is finding what motivates them, and kind of really working on that consistency, and then also generalizing the skill, too. So, I feel like sometimes they'll show different skills in different settings...if either it's happening in my room, but not in speech, and, the opposite, and then, sometimes they'll show a different skill or language, and then, not be able to do it the next day, and so I

think that's kind of the biggest struggle, is finding that consistent, like, communication that is motivating for them to do.

Similarly, SLP1 shared:

With this particular kid, he's doing really well...the classroom teacher isn't seeing as much of a difference, and I understand that, because I think, again, I told you he's great one-on-one, but...I think it's hard for him to do in a classroom setting. But I think he has the ability to do so, and I think we're gonna stick to what we're doing and, hopefully, there should be some changes in the classroom also.

Naturalistic Approach.

All 11 of the educators agreed that communication, especially at the preschool level, should be taught as naturalistically as possible. All educators tried to embed communication instruction in everyday routines and activities, but opportunities were often adult-led. For example, many used snack time as a natural, highly-motivating opportunity to practice communication. PAR2 noted this, sharing, “snack time is where they really are supposed to be working on communication, because they can use the boards to request and stuff like that.”

Many educators tried to make sure that all skills that students were working on were embedded within each other and the classroom. SET3 shared an example of this, saying:

I think she's in a really good environment. We kind of... I do my best to embed communication, OT skills, everything into my room, like, just into the environment...so...a lot of communication support, since it's 6 kids that don't talk, and don't really have a means of communication. I really try, especially to partner with my speech path, to, like, embed as much of that as possible directly in the environment.

SLPs, who did some pull-out instruction, made it a point to be present in the classroom and do a certain amount of their minutes embedded into class activities. For example, SLP3 shared what her speech sessions generally look like, sharing:

For a speech session right now, I kind of split the session to be early communication work. The student is moving a lot. It's kind of a choice/sensory time for the first 20 minutes of their session, so I'm just, like, following them around, trying to find something he likes, get him to ask with his eyes for it, and then we move on. And then 20 minutes in, their group shifts to a morning meeting lesson, and I kind of set my data tracking for that aside, and have his talker out, and then I'm modeling wherever he is in the room, on his talker. His classroom teacher will be modeling on the modeling device, so she's holding that up and modeling that, and if a staff is sitting with him, they're modeling on his as well.

Others used play time as opportunities to communicate. GET2 shared:

We just kind of engage with her in her world and kind of inspire language through that, like, oh, you brought me a plate with an apple on it, you know? What color is the apple? You know, so really asking open-ended questions, really getting engaged with her and what she's doing, whatever it may be.

Fostering a Communication-rich Environment.

All educators expressed the importance of having a communication-rich environment, both visually and auditorily. GET2 described how her classroom environment had visuals and communication boards all around so her student always had access to some form of communication, sharing:

We have communication boards with pictures and signs outside on the wall, so they can go point to something they need. We have them in the classroom, and then all over our classroom, we have these little posters that have like, for Home Center, we have different pictures of things on there that they can point to if they, you know, are looking for something. Block Center has the same thing. We put those same kind of communication boards over in our breakfast area where they have... where they eat, if they need milk, or if they need water that they can point to. And she does use those every once in a while.

SLP1 shared how she also has tools accessible for her student, even if her student is not yet utilizing tools independently. She shared:

For this particular kid. I have [communication boards] on the walls, but he doesn't really access it, unless the teacher tells him to, so when they tell him to, like, there could be times when he's crying, and then they take him to it, but I don't think it's as reinforced as it should be...It's available, it's present physically, it's just, like, difficult for anyone to engage with him using it.

SLP3 shared how it's equally important to have an auditorily rich communication environment. She described how she works with staff members, not just in the classroom but across the school, to create language-rich environments for students. She shared:

We have an...AAC word of the week throughout the school year that the whole building knows...So, modeling can look like just pick[ing] a single word and model[ing] it a lot, if that feels most realistic. I just want adults to have their hands on either the modeling device or the student's device, and the more you do that, the better.

Individualization.

All 11 educators spoke at length about individualizing their communication instruction to meet the needs of each student, whether it was adjusting instruction based on students' motor needs, cognitive needs, identifying motivators, or working around challenging behaviors. Every student that was described in interviews presented differently and had vastly different communication profiles. Thus, it made sense that educators all approached instruction for their students a bit differently. SLP2 described how she considered different learning needs, saying:

So, the students that come to our program, all have typically a diagnosis of autism. Many of them...have the, motor planning, the physical and fine motor, capabilities to directly select icons on an AAC device. So, if I were working with a medically fragile population, or students with vision or hearing disabilities would look a lot different. But because they're grouped together, obviously there's lots of differences, but in general, they're able to [use AAC].

SLP2 also mentioned how she individualizes her communication instruction based on individual interests and needs, saying:

[Core words] can be used, you know, for lots of different expressions, phrases, but the other thing I really focus on, too, is possible gestaltes. And so, for those, we're just looking at any phrases, sayings that the kiddo is really interested in. And so that's really tailored to their interests, like their special interests, and so, I like to program those in [the device] as well, based on what the parents might share, or, even self-advocacy phrases, things that they really need to be able to access, in their classroom settings or at home.

Others mentioned adjusting their approach based on frequency and type of instruction. GET2 described this, saying, "it really depends on how they are best able to learn. Some kids

need just a lot of reminders, a lot of modeling, a lot of repetition and opportunity to use their words, and most of them just need encouragement and positive reinforcement.” Then, some participants mentioned very specific/unique circumstances for their students that affected their approach. For example, SET3 shared that with her student, the angle at which her AAC device mattered a lot in how she used it. She shared:

We noticed when we had a classroom device that she would only use it if it was straight vertical or straight horizontal. So if she had it in her lap, we were doing, like, a song last year with different color cars. And she would go to colors and touch all the colors herself, and spontaneously label along with the video. And if we leaned it up against something at the table and it was completely vertical, she would do it, but if we used the stand, and it was at an angle, she wasn't using it. Which was interesting. I don't know if it was the glare on it, or what it was.

AAC Knowledge/Attitudes

Themes that emerged from the construct of AAC are organized into two sections: 1) Preparation vs. Practice (e.g., how do educators’ experiences and felt preparation affect their communication practices?) and 2) Attitudes vs. Opportunities (e.g., how do educators’ attitudes towards AAC affect their students’ communication opportunities?).

Preparation vs. Practice.

Participants had very diverse experiences learning about and using AAC with students. Some participants had explicit coursework, training, or professional development about AAC while others had no experience before learning on the job. All educators described experiences of learning about AAC of their own volition and having to commit extra time to self-taught AAC to better support their students. These differing experiences impacted how educators approached

AAC use with their students, particularly when it came to how often they assessed the suitability of their students' AAC system and how they went about choosing AAC tools for their students.

Professional Development/Pre-Service Training.

There was a diverse mix of experience with AAC among interview participants. Some had years of experience on the job and hours of professional development while others were fairly new to AAC or had no prior experience. These naturally had some variance by role, with SLPs having the most experience with AAC coursework, training, and use and paraeducators having the least experience. For example, SLP1 was the only participant who took specific pre-service coursework on AAC, sharing, "In my second year of grad school, I took an AAC elective, which very few people take, and I really enjoyed [it], so it just kind of led me do this."

However, all participants shared about opportunities they had to take professional development courses/trainings on AAC through their work, either out of necessity or interest. PAR1 shared a positive experience she had saying, "the county-wide, assistive technology group has had some really terrific trainings in the past...the training has been very good for me...they would...often have suggestions on how to engage with a student to make more progress." SET1 shared how she elected to take a few trainings through her district about AAC due to her SLP going on leave: "I went to, like, some trainings and stuff for [AAC], because I knew that my SLP was gonna be going out on maternity leave. And I wanted to at least have an idea of what was going on." Lastly, SLP1 shared how her school/county provided optional, but consistent, AAC/language trainings, saying:

I think every Thursday, or every other Thursday, [the school does] an AAC, or just, like, language training...I think it's led by someone from the county. I think she comes after school and does it. I haven't really had a chance to attend any of those, and I don't know

how many people do attend those, but I do know that's something that the school does provide. So it's training for the staff, for the paras, on how to most effectively communicate with kids with special needs in their classroom. So I think that's a great thing that they have, I just don't know who actually goes to it.

Working Overtime/Independent Learning.

Though a few participants had some formal level of training/experience, most participants attributed their AAC knowledge to hands-on experience both in and out of the classroom. Most participants shared experiences of taking their own time outside of work to learn from others, online, or themselves (exploring tools). For example, SLP2 shared her experience learning how to use different AAC devices, saying:

I had to learn everything myself...I chose to do some professional development classes in AAC, and...with high-tech AAC devices, there's some big manufacturers you can go through, and they are a great support, but only for their device...and so Avaz, at the time, were stand-alone and so I really, just explored it on my own and took some of their classes online to learn about it. I then just started trialing it with students.

SLP3 shared her experience of doing research outside of working hours sharing:

I've done an ASHA Learning Pass training, I think, by the people who did the CERTS program? So, like, how...do we recognize, like, any communication and call that out for students, and celebrate it, and then shape it...I've also just done, like, readings online...by people who have disabilities around, like, what to do and what not to do.

Lastly, SLP1 shared her experience of using her free time to support the classroom her student was in, saying:

He's mandated 30 minutes twice a week on his legal document, but often, I will also go into the classroom, which is not part of my work, but just because, like, I'm very close to these kids, I will go into the classroom, and if I ever see them crying, or if I ever see them, like, upset, I will sit with them, and I will ask them what's happening, and I'll often go in...and just make changes in the classroom.

Many participants shared their experiences just exploring apps and tools during class time to figure out how to navigate them. For example, PAR3 shared:

I found it's just, like, trial and error. So, like, if I have a student that has, an AAC, and, like, we're sitting and playing and they're kind of doing their thing, and I'm just sitting there, a lot of times I'll try and just, like, play through to see, like, okay, like, where's this on this page? Where's this on, you know, how do I get this across? And, you know, just kind of, like, going through it and kind of practicing on it, when we have the opportunity.

PAR2 shared a similar experience of having to take initiative to learn the AAC app her student used, saying:

[It was] not a specific training. I'm sure at some point, either the SLP or the teacher just showed me how. But a lot of times, the teacher would be busy, and a kid who wanted to use the iPad would be mad because it wasn't working, so I would take it and just figure it out. And...so I've kind of taught myself a lot of the little things in the app.

(Re)Assessing Suitability.

Some participants had systems of data monitoring that they used to make decisions on whether changes/adjustments were needed for their students' AAC systems. For example, SLP3 shared her thought process of whether to keep trying to use TouchChat for her student or to try another device:

I've kind of got eyes on, like, are we trying to interact with Grid or Proloquo on other students' devices? At this point, [that] information would make me wonder about TouchChat not being the best fit. Right now, I don't feel like I have the data to...reject TouchChat, based on what I'm seeing...we need to support the student in interacting with AAC at all before I can have a good idea if we need to change the app or not, or, like, the vocab set or something.

Others relied on timelines like progress reports and IEP meetings to determine if changes should be made. For example, SET1 shared:

Quarterly, I do, like, progress reports. We have annuals, like, yearly, sometimes twice a year, and I feel like that's usually the big time that, like, I might possibly, like, add something in or take something out. But we held, like, an interim...to do the AAC trial. So, like I know I can do that, like, I can call an interim or something, if I feel like the need is really, like that great, but I feel like usually, like, I'm gonna wait. Potentially until we have, like, that whole IEP year of data. to, like, look at things and make a decision, but if it's evident that, like, we can't wait anymore, like, I know I can do [call an interim].

Others had less formal approaches to reassessing suitability of AAC systems. For example, PAR3, in her role as a paraeducator, shared her approach of informal monitoring, saying:

I think it's always a constant assessment in terms of...you know, is this working, is this not working? But as far as like a formal assessment, I really don't know if it's...every couple months, because, I mean, they do review their IEPs, you know, a couple times a year, so I'm assuming that those would probably be the times, but to be totally honest, I don't know exactly when they do formal assessment of it.

Lastly, some participants fell in the middle, both using formal timelines and constant informal assessments to make decisions. SLP1 describes her take on this saying:

So, officially, you assess its language every 3 years, and that's something that the school and the state does. But, on an informal basis, I could be doing it whenever I feel like, okay, like, there's stagnance. Every time we have a speech session, we collect data, and we write reports. If I feel like, okay, he hasn't been making any progress in the last, like, four sessions, and it's stagnant, there's something that needs to be changed. That is a situation that hasn't happened with him yet, but that is a situation where I would be like, okay, I need to change some things around. I would maybe reassess the kind of materials that I'm showing to him, the kind of core board that I'm showing to him.

Convenience vs. Fit.

The levels and types of AAC knowledge that an educator had played a role in how they decided which tools/strategies to use with students, as well as the resources that were available to them via their school/district. Educators who were familiar/had experience with a wider and more diverse range of tools/strategies were generally more open to their students trying/using multiple tools, even if they had less experience with the tools. Thus, they prioritized AAC tools' fit for their students over convenience. For example, SLP2 shared:

Like, I have one student who really likes symbol sticks on ProloquotoGo. And I... it wasn't my favorite choice, but that's what she had the most interest in, and that's, from my therapy sessions and my data, that was the one that she was using the most, versus, like, real pictures, or I think we were trying, like, TD Snap, so, like, the board maker symbols. She didn't care for those as much, so we went with that system.

Other educators cared about student fit, but considered aspects of convenience. For example, SLP3 shared her thinking that it's important that the AAC tool chosen is one that other staff members have familiarity with and some comfort using:

Would this be a good fit, using something that staff are already familiar with? If not, you know, I think staff can learn to use something different, but we have mainly ProLoQuotoGo, Touch, Chat, and Grid in the class, and there's a little bit of ease in implementation if staff are kind of familiar with it.

When convenience was prioritized over fit, it was usually due to district or school-wide resources/decision-making. For example, PAR1 describes her experience in the county she teaches in, saying, "TouchChat is the program that's used in [my] county...so right now, he's really just getting that practice with TouchChat when the SLP is there working with him."

Similarly, SLP1 described how her district had preferences as well, sharing:

There's some schools that prefer LAMP, and then they give all their kids LAMP. There's some schools that prefer TouchChat, they give all their kids TouchChat, so they don't really look at what might be more beneficial for the kid. It's kind of like... just, like, a blanket AAC that they give to everyone, just because it's easier to train the masses, like the teachers.

Attitudes vs. Opportunities.

Educators generally held positive attitudes towards using AAC to support their students' communication. However, their confidence levels in planning and implementing AAC instruction differed. These differing levels in confidence impacted how AAC use was prioritized in the classroom—the more confident an educator seemed to be about implementing AAC instruction, the more likely it was that the student had more opportunities to use their AAC tools

in their learning. As expected, SLPs expressed the most confidence in using AAC with their students. With this, there was an interesting theme that arose with the distinction of roles in the classroom. Though all educators expressed positive experiences with collaboration to meet students' complex communication needs, most educators clearly delineated roles and responsibilities (e.g., who is in charge of what) when it came to AAC.

Confidence in AAC.

Most educators expressed that they felt confident in anticipating their students' needs and understanding their communication attempts, but not all educators felt confident in their ability to successfully use AAC to support their students' complex communication needs. For example, SET2 expressed confidence in using AAC, but shared that it was difficult for her to navigate tools while juggling class management and her program's schedule:

I feel pretty confident. I think what's tricky is [AAC tools are] hard to edit when you have students, so a lot of times, like, my speech therapist will do it. I feel like in a jam, I could do it, but a lot of times...I feel like in different models, when you have kids every day, then they're like, 'oh, that's fine, you can take it for the evening to, like, do whatever you need to,' or 'hey, just tell us what you want us to add on to it,' but I think that every other day just makes it more challenging, so, yeah, I'm confident in using it, but... time... and teaching, and all of those things that happen, are more challenging, I think.

Alternatively, PAR3 shared her feelings of doubt due to inexperience, saying:

It's difficult...I don't always feel confident, because, you know, sometimes he does get frustrated, and we're not sure. You know, we could go through what's sort of worked in the past, kind of figure out you know, what it is...I haven't experienced enough

of...adding a lot of very specific vocabulary...[and] modifying to hide some pictures and add some other ones.

Though the SLPs in the interviews expressed high confidence in their own abilities to use AAC, they expressed their uncertainty with others' AAC knowledge or others' capacity to manage AAC use with their students. For example, SLP2 shared:

You also hear a lot about how challenging and how many SLPs don't feel comfortable introducing and using AAC, because I think that's a bigger trend...I find that many SLPs just aren't [using AAC] because they don't have the time, and they don't have that large number of students that to actually use it.

Similarly, SLP1 shared this sentiment, along with her belief that building confidence is key in promoting AAC use and improving outcomes:

I think the more confident people are with using AAC...it yields a better outcome...I think you just have to, like, go all in, even if you're not the most confident, just be like, okay, the child has an AAC, I will use it to the best of my knowledge...[other SLPs] kind of really shy away from the kids who have an AAC...and I think that then affects the way that they're working, because they feel so intimidated by an AAC...but never remove, like, an AAC device from from the child, just because you don't understand, like, I think that would be, like, a negative like, it would really play a negative role in, like, your therapy or, like, your work with the child.

Prioritizing AAC tools/Multimodal communication.

All 11 educators seemed to prioritize not only AAC use, but access to diverse forms of communication. While many students were primarily using one AAC app or tool to focus on

‘mastering,’ they still had exposure, access, and opportunities to use other forms of AAC. PAR3 explained the importance of multimodal communication, saying:

I think the fact that we have so many different types of ways of communicating is helpful because, you know, everyone's different, so everyone's gonna gravitate towards something different, and that gives us an opportunity to see which way they gravitate...Having so many choices is really helpful, but it also gives us a way to say the same thing multiple times, but in different ways. So, like, we might, you know, we might say, you know, oh, ‘you want more,’ and we might sign it, we might point to the core board, and...point to the AAC, you know, depending on which one it seems like they're really tuned into at the time.

When staff were ‘bought in’ to the idea of AAC, they were more likely to use it, as SLP2 shared in her experience:

We have a very strong, highly skilled, special ed teacher in that room...that's what makes that class work. [She] really supports AAC...I know that doesn't happen anywhere. But I'm in this, in this, lovely little bubble with such a great community where everyone's on board and bought in with AAC, and so it's not the norm, but it sure does make a difference.

However, participants also spoke about barriers to AAC use, due to others’ attitudes. For example, SET2 shared how it was difficult to have her student’s family buy in to AAC use because they believed it was hindering their child’s verbal language:

I think [AAC’s] pretty effective...it's not hindering her language and her expressive output. I know a lot of, like, families, that's their biggest concern, is that they think it's going to hinder that. But it's really facilitated it, and I feel like she's had a lot of language.

I think, and it's not, like, any fault of her own or even her family's, but, once she was starting to express more, they didn't send the iPad as frequently, because they were wanting her to use that expressive language.

SET3 shared difficulties she had with her district due to their philosophy on AAC as well, saying:

The district I'm currently in is very hesitant, I would say, to give AAC devices. When I was in a larger district, they were like...you don't talk, have an AAC. And they wanted to get them started as early as possible. The district I'm currently in...it's like, oh, they're going to kindergarten? I guess we should start doing an AAC...so I think that, like, on a district level, that's kind of a big barrier of supporting communication needs, is they have us jump through so many hoops, because you open the evaluation, then you have to do it, then they have to get the device, and sometimes that takes a while.

Collaboration and Distinct Roles.

All 11 participants spoke extensively about how they collaborate with others on their team and collaborative efforts were generally very positive. Similar mindsets, shared hope for their students, building relationships, and flexibility (e.g., meeting informally) seemed to be the factors that led to successful collaboration. For example, PAR3 shared:

I mean, I think, I think we definitely lucked out that we, all, you know, have a very similar mindset. We have a really great teacher, and she's super supportive, and she's very open to ideas, and she, you know, and she's always willing to, like, talk things out. And so I think she kind of set the tone for the classroom, because I do know that, like, you know, on days when we, like, are missing students and stuff, I have to go help in other classrooms. And it's not always the same in other classrooms, it just doesn't feel quite as

cohesive. So I think having that one person that's in charge, that really seems to know what she's doing and how to express it to everybody else, I think, has made a big difference, and we worked together as a team for two years. So I feel like, you know, just as time goes on, we just get more and more cohesive as a group.

SLP2 shared a similar experience, but with some difficulty in consistency due to changing staff:

Our district has a late start, so we get collaboration time on Mondays, and we're very fortunate...we typically meet and get to discuss the students, and so that's when we really talk about their devices and any decisions that might need to change. Teachers, super great, will always just catch me because I'm in the classroom so often, or send me an email...I've seen the staff that has been there for the last couple years, fantastic.

Everything we do is absolutely aligned, but right now we have so much new staff going in and out, that is a really big challenge, trying to make sure that we're all responding the same way to the students.

An interesting theme that arose was that almost all participants assigned themselves and others very distinct roles in their collaborative efforts. There were clear delineations of who was in charge of what and most educators did not stray from these roles. Across the board, it seemed like SLPs were 'in charge' of ultimate decision-making when it came to communication goals/supports. For example, GET1 described how she takes a step back when it comes to communication decisions:

There is a collaborative discussion about [communication goals], but really, I leave it up to the SLP, because that's her wheelhouse, and she's the expert on that, so yeah. And so, obviously, you know, we're implementing all the goals, whether it's an OT goal, or a PT

goal, or a speech goal. So, even though we have a lot of voice in the IEP process and that decision making, I do let [SLPs] take the lead, because that's their discipline.

Then, it seemed like teachers were 'in charge' of implementing these goals/supports and paraeducators, who generally spent the most time with students, were 'in charge' of informally reporting progress/notes. For example, PAR3 described her role in supporting communication, sharing:

So, the actual [AAC] device, and whether or not they have a high-tech device, or whether they use a cord, that decision is made by, the team that I'm not a part of, like, the speech, the, the classroom teacher, and, any other support staff that they have, so those decisions are made by them. The way that I use the device has been taught to me in terms of, like, like, we have a couple different apps that we use with different students.

In her role, SLP1 described how she relied on teachers and paraeducators to have more information on students:

I think it's because his class teachers know a little more, and the paras that are in the class go with them to all the specials...so they kind of know his needs, so the teacher herself might not do so well, but then the paras will tell them, oh, like, here's how you need to say it to him, or here's what you need to do for him, so they really assist in that.

That being said, some educators expressed frustration in such rigid roles. For example, PAR2 expressed her desire to be able to have a more active role in her student's IEP team, saying:

I'd really like it if we got invited to the IEP meetings. I mean, we know what the students' goals are, because we're collecting data. But it would be nice if we got to see the IEPs. Or if, like, even before the meeting, if the teacher just said, hey, is there anything you think I

should talk about? And I know that's not our job, and it's not really what we're trained to do. But I think just getting our input. Or at least, even being able to sit in the meeting and keep my mouth shut and not say a word the whole time would give me some insight into what everybody involved is thinking. And, maybe they say things about the student that I didn't know, [or that] the teacher wouldn't think to tell me.

Inclusionary Practices

Themes that emerged from the construct of inclusionary practices are organized into two sections: 1) Pro-Inclusion (e.g., what are educators saying who are for inclusionary practices?) and 2) Reservations (e.g., what are factors that educators believe are impacting inclusive opportunities for students?).

Pro Inclusion.

All eleven educators in the interviews expressed their wishes for their students to be meaningfully included in general education environments. Everyone expressed that with the right supports and deliberate planning, their students could benefit from inclusive learning environments. Most participants expressed their belief in the benefits of same-aged peer models as communication models and many participants described positive experiences with their schools' administrative teams and with district support in providing their students with meaningful opportunities for inclusion.

Benefit of Peer Models.

By and large, the number one rationale for inclusion was the benefit of peer models. Though some educators did note that their students didn't seem too interested in their peers, they all concluded that it was important for their students to be around their peers. They believed that being around typically-developing peers would aid in both communication/social interest and

outcomes. Many educators noted that their students were much more interested in and likely to follow peer models, rather than adult models. For example, SLP1 described many instances of her student watching and following his peers:

He'll do well when he sees other kids, though. That's something that I've noticed. He'll see everyone lining up. I don't think he heard the lining up instruction, but he sees everyone lining up, so he'll get up and he'll line up. Even with speech, I'll take four of his peers with him, and I always tell them, 'hey, put your chairs on the carpet and line up.' I don't even know if he understands what I'm saying, but I know he sees his other friend put the chair on the carpet, so he quickly runs, gets his chair, puts it on the carpet, so I don't have to tell him twice. Like, I think he just kind of figures this is what I have to do.

Specifically regarding language, the same participant shared how her student was more likely to respond with a peer model:

With the modeling of language, I know he's picking it up, he might not be using it, but he is picking it up because during speech sessions, when I ask him first, he usually can't answer. I ask his friend, his friend answers, I go back to him, he then answers. So I know he's heard it. He's kind of retained it, and he now can see it...so I know he's listening to the peer, and I know he's, like, picking up on it.

Others focused on the social benefits that their students got from inclusive settings. There were a few educators who spoke about how it's unfair that students with disabilities, particularly those with ASD, are labeled to be non-social. For example, SET2 shared:

She has autism, but I feel like some of, like, her social qualities were really strengths of hers, which sometimes we don't see with kids with autism, and so that was really fun to see her partner up with other children. I will say, what I noticed with inclusion

classrooms are other kids really learned how to interact with all students and kind of know their level, and so some kids would do, like, peek-a-boo games with her, some would do, like, tickling, so it was just really fun to see those social friendships happen. Similarly, PAR1 described how her student enjoyed socializing with peers, despite communication and language barriers:

I found that [inclusion] was really helpful for this student because other students wanted to join in the game, and he really, you know, you can see that smile on your face. He wants to play with other kids, he just doesn't know how, and right now, he's found one little friend who...is a typically developing kid, but with limited English skills, so it's a nice kind of mix of...a non-verbal way to play, one typically developing [with a language barrier], one on the autism spectrum.

Positive Experiences with Administrative/District Support.

There were a lot of positive experiences shared regarding support received from educators' administrative teams and districts. Participants detailed specific experiences with support specialists that helped their practice, as well as larger district-wide initiatives and supports that facilitated students' inclusion. For example, SLP3 spoke about her experiences having a mentor that was an assistive technology consultant:

I had a mentor here my first 2 years who was the assistive tech consultant. We have 3 of them for the district and he was really helpful...of what is the sequence of supporting students who might be using switches, using the communication matrix as a tool, how to use that tool in a way that's actually helpful for planning. So I think that was really helpful, just to have someone who had, like, the background knowledge to talk through it.

Similarly, GET2 spoke about her experiences feeling supported with her district's assistive technology department:

We do have an AT department, and so you can have AT consult if needed. You can have somebody come out to, like, observe the kid. And I know last year when we did the AT trial, the AT department was super instrumental and helpful in getting us through that, so... I think that helps him succeed, having those resources available to the teachers who help him...they just really want these kids to get in at an earlier age and kind of be able to learn and develop their communication skills before they get to kindergarten.

On a higher level, educators described the effect that an AAC-positive, supportive admin team or district could have on facilitating student support and inclusion. For example, SLP3 shared that in her school, inclusion is prioritized:

It seems like admin expectations must drive inclusion. Like, our building admin has had our staff professional development be related to inclusion. It conflicts with the department meeting for me, so I don't attend them, but like all of the staff professional development on early release days here is related to inclusion. There's co-teaching that is an admin-directed expectation for SPED teachers and gen-ed teachers to teach at least part of the day together. And I think if those were not the expectation for the building, I'm not sure if they would have naturally happened.

Similarly, SLP2 described how, even though she's in a smaller district with less resources, the belief in AAC/communication really facilitates AAC access for students:

I think, we have the beauty of being a small district, but also, it's kind of a double-edged sword, because larger districts have, assistive tech specialists, and we don't, and I think that's a resource that we're missing...our district is very supportive as far as getting

devices and communication apps. That's been a fairly easy process, to be able to get students aided right away. I know other districts, it's a little bit longer process, so I think they've been as supportive as they can be, but funding is always a concern, too.

Belief in Inclusion and Student Competence.

All but two educators believed that, ideally, inclusion would be the best model for their students. All educators held varying levels of belief in their students' ability or competence in understanding communication and language that would support them in inclusive environments. SLP2 spoke directly about the importance of presuming communicative competence, saying:

Receptive language is really hard to measure for these kiddos that don't speak verbally and we need to presume competence. I think that's a shift in our field as well, a lot of retraining for staff and, you know, anybody that works with these kiddos. Before, it was, 'oh, they don't understand, we need to work on these things,' but now, we, we need to presume that they do understand, and they usually do.

SLP1 shared how she believed in her student's ability to engage in more inclusive settings, despite having less supports, sharing:

This [gen-ed] classroom doesn't do visuals, because it's mostly just typical peers, so they'll have a few visuals up here and there...like, everyday instructions don't have visuals. And I think he might have been a little dependent on those, but he also can understand without visuals, but I think he really needs to have, hey, we're talking to you, now you need to go stand in a line. He'll do well when he sees other kids, though. That's what I... something that I've noticed.

Educators also held space for their students' potential, noting that even if they're not there yet, they will one day be. For example, SET1 shared of her student:

I know he's also on the younger side too, so, like, I know we're a little worried about him going off to kindergarten, but then we did, like, have an AT trial last year, so I think that was really helpful to do that before he went off to kindergarten. But also knowing that, like, it's always something that can be repeated again if they feel like what is in place right now isn't working.

Others brought up that inclusion is beneficial for all students, not just for students with disabilities. SET2 describes how in a partial inclusion model, all students benefitted from learning from each other's strengths and weaknesses:

Like, we're just trying to build language for all of our students...for her, with the model, it doesn't have to be typically developing peers. Like, I think any child is a peer model. For other kids, like, everyone has their own strengths and... I don't want to say weaknesses, things they're working on...so I think, having her in a preschool setting that wasn't restrictive was what was best for her, because it can be hard in self-contained classrooms if everyone's working on the same goal.

Similarly, GET2, whose student is in an inclusive classroom, described how it supports typically-developing peers as well:

I think that [her communication needs]...kind of shows her peers that she needs extra help...it's kind of the realization that she isn't going to talk back to them, but they're going to have to learn to play with her in a different kind of way, and I think that creating that awareness and the culture of our classroom has been really, really kind of a cool thing, because I see a lot of empathy and help and understanding with the other kids. You know, as well as we're hoping that in time the AAC device will help her navigate the classroom a little easier.

Reservations.

Though all participants shared their desires for their students to be taught in inclusive environments, not all participants agreed that it was feasible. Many held reservations about their students being “ready” for inclusion and these definitions of readiness varied. Some participants cited challenging behavior interferences, some cited prompt dependence, and others expressed concerns about social belongingness. Some also worried that inclusive environments were too overwhelming for their students and there was not enough support for their students to be meaningfully included in learning. Lastly, some participants expressed external factors, such as resource limitations and pushback from their schools/districts that made it infeasible for their students to be fully and meaningfully immersed in inclusive learning environments.

Proving Readiness/Challenging Behavior Interference/Prompt Dependence.

Some educators worried about whether their students were ‘ready’ to be in inclusive environments, citing students’ prompt dependence and challenging/interfering behaviors. For example, though SLP1 believed in her student’s understanding of some language and academic content, she worried about his prompt dependence, as he needed consistent reminders to engage with material:

And I don't think it's that he doesn't understand, I just don't think he can take in like, general information, so I do think if there was, like, a para...someone who's with him at all times, just telling him what's happening in class, or even reminding him, like, hey, look up and look at what she's saying. He then really taps in, but he needs that reminder every 5 to 7 minutes.

Similarly, SET1 described her students' prompt dependence, saying, "he had some behaviors...the lack of behavior was also because of the language, like, he wouldn't ask for help and stuff, so sometimes he would kind of just, like, sit there."

Others noted challenging and interfering behaviors that might make it difficult for their students to be included in gen-ed environments. For example, SLP1 shared about her student's difficulty emotionally regulating, particularly due to his complex communication needs, saying:

If he ever wants something, he will just sit there and cry instead of telling you what he wants. He'll get really upset, especially in a bigger classroom setting...and [the classroom teacher] can't give up the classroom plan that she's doing, right? So the crying continues until, like, he self-soothe, like could be 30 minutes, could be 40 minutes...so, I think that is primarily because of not being able to express what the frustration is, or not being able to use those words.

GET1 had even stronger concerns with her student due to her reported hyperactivity and noted that it may be distracting to other peers in the room:

It would be very non-successful. For her and the other peers in the room, or the environment, yeah. Because she's just, she's very busy... she would not be able to sit in a [room] with her typical peers. Yeah, that would just... yeah, it would not last probably more than a minute...[also] her frustration definitely is very direct of when she does not want to do something, and she wants to carve out her own opportunity. And, like I said, this week, she started getting physically aggressive and not able to drop it and move on.

PAR1 described similar concerns about other peers in the classroom, saying:

The other kids in the class...sometimes they're a little bit intimidated by him because he's big and he can push. You know, he can't say, 'play with me.' ...his way to get attention

has been to be really aggressive with grabbing other students, grabbing their things, trying to get reactions that way...he definitely needs support in learning to get others' attention without physical prompting. He also likes to get attention by eloping out of the classroom, So, you know, that's... that's another challenge.

Some educators shared that, though they believe their students had some necessary skills (e.g., social interest, following models) to participate in inclusive environments, their communication skills were not strong enough for them to 'keep up.' For example, SET3 described her students' strengths and needs for inclusion, sharing:

I think her communication needs would be a barrier to, like, wanting to play with something, or even...beginning following directions, because now she's starting to look at what other kids are doing...so, I think that's kind of the barrier, is like, could she... communication-wise ask for what she needs, or follow the directions in a larger environment.

Additionally, PAR3 shared her student's communication barriers to inclusion:

So it's definitely impacting his ability for inclusion, because I don't think that he...would be able to get his needs across...to, you know, other kids, or even maybe a teacher that was in there. So in order for him to be ready to move into that type of environment, I think he needs to get more comfortable with using a device that would be easier for students and teachers that might be in an inclusive classroom to understand...so that he could communicate his needs and be able to interact, and, you know, be able to, hopefully, then create some bonds with some other students.

Attributing Non-social Behaviors/Concerns Over Belongingness.

Many educators ascribed concerns over belongingness to their hesitations for inclusion. A lot of educators described their students as ‘not interested’ in others (both adults and peers) and seemed worried that these non-social tendencies would both not benefit their communication needs and ostracize them from their peers. SLP2 described her student (and others in her caseload) by saying:

We have some students that have gone through the program that are getting older, that do show more interest, desire to be with their peers, and so we're giving them more of those opportunities, but at this [preschool] level, with these little littles, they're right where they need to be...they really don't have that desire to want to be with peers in that type of inclusive environment. So really, for them, you know, when I think of inclusion, for them to feel like they belong, and they're seen in their herd. This [self-contained class] really is where they do that...most of the time, as they're incoming kindergartners, they're typically just not regulated, but also not interested, just at this level. But, we definitely, definitely give it a go. Like, holiday parties might be an opportunity for them to join.

SLP1 spoke about how her student did have social interest, but needed a lot of support (that he didn't have) to engage in social interactions, sharing, “I say, go, go, go play with [peer], and then he'll go. But, like, on his own, he won't feel like he can go up and play with them.”

Others described recent observations of their students' non-social behaviors that factored into their concerns. For example, PAR2 described her student, saying:

Well, [all the students in her classroom] are autistic, so she has the opportunity to play with them as much as she wants, or as much as they want. Most of them ignore each other...She has very little interest in playing with the other kids. Except sometimes we have bikes...where one kid can write on the back, so... she might ride on the back of a

bike if another kid is pedaling. But for the most part, she doesn't really play with the other kids.

Similarly, SET3 described non-social interactions in her classroom:

In our classroom it's kind of like, 'I'm gonna look and make sure you're not taking my toy,' or like, 'you have a snack I like, so I'm gonna try and take it.' But there's not a whole lot of reciprocal interaction in the classroom and as far as like, what I see of her at arrival and dismissal, it's more like, 'I saw something on your backpack.'

Lastly, GET1 shared similar sentiments with her student, saying:

She doesn't really engage...she's very, standoffish, very non-social until she wants something and she can't retrieve it herself. It's really the only time that she will actually initiate that contact...she does not have a real interest in any of the other students, unless the other student would get too close to her, and then ...there has been times where she's kind of pushed them away, so she does acknowledge that they're there. She doesn't like them being there. They are almost like ships just passing by each other in a room, all day long.

Overwhelming Environment/Not Enough Appropriate Support.

Many educators were concerned that inclusive settings had “too many bodies, too many students, and too many noises” that would make their students feel “overwhelmed” [SLP2]. All educators mentioned that their students benefitted from more one-on-one support or in smaller groups. For example, GET2, whose student was in a partially-inclusive setting described how she felt it was the appropriate learning environment for her, saying:

I think it's definitely where she should be. I think it would be really difficult for her to be in a [fully inclusive] setting. You know, some other programs have a ratio of 1 teacher to

10 students. So there'd be less support. This particular classroom is geared for supporting kids with limited verbal skills, especially delayed verbal skills. just in the amount of support that we have, professionally and, group size.

SLP2 also described how her student had other needs, in addition to his complex communication needs, that would require significant adult support:

I think more support, as far as adult support, which sounds, you know, I'm sure you hear it all the time, but even with, you know, 3 adults and up to 6 students right now, these are students with complex communication needs, who also have very high sensory needs and, you know, emotional regulation needs. And in a typical self-contained classroom where they're all put in with their home school, these are the students that are serviced one-on-one, so there's always an adult with them. And now we've changed it, and we're putting them in a smaller classroom setting—yes, there's 3 staff, but sometimes that's still not enough. Even for safety.

In addition to the quantity of support needed, many educators also referenced the lack in quality of support provided in inclusive environments. Many believed that general education staff did not have the proper training and/or knowledge to meaningfully engage with and support their students' communication and learning needs. PAR2 expressed this concern by sharing:

I understand and support inclusion. I don't think that student now...could be in a fully inclusive class. Like, she couldn't be in a gen ed classroom right now, I don't think. Because the people who work in [gen-ed] just don't have the training... and that's not their fault, but they don't have the training to work with students who can't follow instructions and can't tell you themselves what they need, and they don't have enough adults to support...she needs a one-on-one who understands her communication needs. I

think she would do better if she was getting more speech from somebody who really understands her specific struggles and strengths.

Similarly, SLP3 alleged the need for more training for gen-ed teachers in her school to understand students' needs, saying, "I think...the holdup or like, the hesitation...in my heart, just [think] like maybe there's a missing skill there, and not just, 'we don't want disabled kids in my spaces.' So I think...staff training. And gen-ed staff support [is needed]... at least based on my experience here."

Lack of Opportunity/Pushback from Admin/Gen-Ed.

Due to others' belief, or lack of belief, in students' competence and ability to engage in inclusive environments, there seemed to be pushback from other staff members in educators' schools, which, for some, made it difficult for their students to have time in inclusive environments. For example, a few educators recounted experiences of working with general education teachers who 'complained' about having students with complex communication needs in their rooms. SLP1 shared her current experience with the teacher pushing back on why her student was in her class, saying:

But now the class teacher here is like, 'oh my god, I don't know why he's here, just because he tested academically,' because she's thinking of it as, like, a holistic thing. She's like, he's not really participating or listening in class. So again, for me, I think...the classroom setting's fine, but I think he would definitely benefit from a para, which everyone's asked for, but again, schools are short on staff...Not with me, but again, the classroom teacher has complained of a lot of crying, which will, like, go on for 25 minutes straight. Nothing, nothing, nothing disruptive to others, it's just the crying.

Similarly, SET2 describes her student's experience having push-in inclusion time and the gen-ed teacher pushing back. She expressed her frustration, sharing:

And I was like, I'm sorry I understand that, that sucks, like, I get being short-staffed, but that's not my student's problem. Like, this is a district problem, you guys need to get the staffing for it, and so then they were trying to push her into more seclusion...and we're like, well, she's already been in inclusion, we think that it's an appropriate spot for her.

PAR2 also attributed lack of funding, support, and willingness as barriers to her student's inclusion opportunities, saying:

I just think the district doesn't have enough support. And that's partly funding, so it's partly a district problem, it's partly a state problem. I know we always have a ton of [special education] para openings. And that's partly because it's a really hard job, and partly because the pay sucks. And without the state being able and willing to provide more funding, the district is always going to say, 'well, we can't either.' And so they just can't or won't hire enough one-on-ones for all the students who deserve inclusion to really get it...and they'd have to have the training and the willingness, which some do, this is not a slight on gen-ed teachers at all, but there are some who are not willing to have students like that in their classroom, which is really sad.

Fear of Non-meaningful Inclusion.

Educators were wary of the idea of inclusion due to the fear of it being a non-meaningful experience for their students. Participants cited either past experiences or anecdotal evidence they've heard about students being 'included' in general education settings that made them skeptical of how beneficial inclusion opportunities would actually be for their students, considering their complex communication needs and the limited resources that were available to

them. Many participants voiced concern about their students' needs getting 'lost' in the chaos of an inclusive environment. PAR3 voiced this worry, saying:

I think my initial feeling would be that I would be nervous, that he would kind of fall through the cracks? He needs quite a bit of support. And so it would depend. I mean, I suppose if he was in an inclusive classroom with, you know, with a 1:1, then I could see that...he could be successful in that way [and it] would probably be good for him in terms of just being around more students.

SET3, similarly, expressed her apprehension saying:

I think because she doesn't...initiate or show much, like, acknowledgement if someone if a familiar adult is talking to her, she'll just look at you...we're still working on that. And that's a matter of safety for her, so I think her communication needs in that way. Even if some of those are receptive, she'd get a little bit lost, or I feel like it would be lost in a room of 20 children with all the noise and everything.

SLP3 also shared this sentiment by describing what it would take for inclusion to be "meaningful engagement" where students are not "just in the space" but "with the group of students." She elaborated by saying:

I think inclusion for this particular student would just... Hmm. I think if we are so tuned in just to the item that we want, connecting...with another person [is difficult]. Like, it has to be connecting to a person in some way, and I think right now we're not seeing that. And so that is impacting, kind of, any tuning in to anything, aside from [expressing] what we want, or letting others know by pushing stuff away or moving away that we don't want. So...I think inclusion in terms of physically being in the space would not

necessarily be difficult, but meaningfully participating and being part of the classroom community would be hard.

Lastly, SLP1, whose student was in an inclusive classroom, described their experience with non-meaningful inclusion:

[He] sits in the back of the classroom, because he can't, like, he doesn't sit on the carpet with everyone else, because just...I don't know why. I think they figured that he would just keep getting up, or he was looking everywhere else, so he sits at the back of the classroom on a chair, so he looks right up at the screen, but again, every time I go in, he's playing with a pop-it, or he's not really listening to classroom instruction.

Summary

Interviews were conducted with educators to gather contextual information regarding their own experiences supporting preschoolers with CCN with findings organized into three constructs: communication and language ideology, AAC knowledge and attitudes, and inclusionary practices. When it came to communication and language ideology, educators consistently emphasized the importance of teaching functional communication, primarily centered on expressing wants, needs, and requests. While social communication was also recognized as important, fewer educators explicitly worked on social communication skills with their students. When it came to AAC devices and communication tools, participants spoke about the importance of autonomy and giving students a 'voice.' Many advocated for unrestricted access to promote autonomy; however, some did ultimately limit access due to safety or distraction concerns.

Expectations regarding communication instruction varied. Some educators subscribed strictly to the idea of communication without expectation. They spoke about providing

communication input hoping for, but not expecting, a response from their students. Others did expect their students to have some sort of response to communication input. This sometimes required heavier prompting, including hand-over-hand techniques. Despite these varying expectations, educators overall seemed to believe that instruction should be naturalistic, embedded into daily classroom routines, and highly individualized to match each student's unique needs. They also believed that it was critical for students to be able to work towards independence and be able to generalize skills across their relevant environments.

When it came to AAC knowledge and attitudes, there was also a wide range of perspectives. All participants acknowledged the potential for AAC to support their students' communication needs. However, participants possessed varying levels of training and experience with AAC, with a majority relying heavily on their own independent learning during or outside of their work hours. This variance in foundational knowledge directly impacted implementation of AAC. Those with broader knowledge and familiarity with AAC prioritized using communication tools and finding tools that fit students' needs. Those with less experience and confidence with AAC often fell back on convenience, using tools that were easy, readily available, or just following the guidance of others.

The differing confidence levels also seemed to influence the AAC opportunities given and created rigid roles in decision-making. All participants spoke very positively about collaborative efforts for AAC instruction. However, in most teams, SLPs typically made the ultimate communication instructional decisions, teachers made sure things were implemented as stated, and paraeducators supported in various ways, such as with informal data tracking. These roles seemed pretty set in stone and participants did not stray away from them, despite some expressing frustration that they felt excluded from planning and decision-making.

Regarding inclusionary practices, all educators expressed desire for their students to be meaningfully included in general education settings. Many cited that their students benefitted or would benefit from peer models. Experiences with administrative staff and district support varied, but those with supportive teams and access to district assistive technology resources had more positive experiences with inclusive opportunities. However, despite all participants advocating for inclusion, some held strong reservations regarding its feasibility. Many educators spoke about their worries regarding their students' prompt dependence, challenging or interfering behaviors, safety issues, and lack of social interest in their peers. They also feared that inclusive environments were or would be too overwhelming for their students, expressing that meaningful inclusion could only happen if their student had 1:1 support with an adult who had specialized training. Worries about "non-meaningful" inclusion drove a lot of these hesitations; with inadequate resources, placement in an inclusive classroom would result in students being physically, but not meaningfully, included in classrooms, where their needs would be overlooked and unmet.

Mixed Methods Integration

Quantitative and qualitative findings from the previous two questions were "weaved" together to support mixed methods analysis of the third question, "What reported attitudes and contextual factors support the interpretation of how educators approach communication instruction for preschool-aged children with ESN/CCN?" Both datasets were used to either establish concordance, discordance, or complementarity in findings (Fetters, 2020). Again, the data were organized using three constructs: communication goals/instruction, AAC, and inclusionary practices. Thus, when integrating, these constructs were used as the major themes to narratively weave both datasets and create meta-inferences (Fetters et al., 2013). From this

integration process, seven meta inferences were created: 1) communication as a right, 2) communication for multiple purposes, 3) AAC knowledge and preparation, 4) AAC Attitudes x Opportunities, 5) collaboration and distinct roles, 6) appropriateness/readiness (perceptions of disability), and 7) feasibility of meaningful inclusion with resource limitations. Table 10 summarizes these findings alongside some quantitative and qualitative data points in a joint display of integrated data collection (Fetters & Tajima, 2022).

Findings

Communication as a Right.

Within the theme of communication goals/instruction, the first integrated finding, or meta-inference, was participants' strong belief that every student, no matter how complex their communication needs, should have the right to communicate their wants and needs.

Quantitatively, this was most clearly reflected in the ceiling effect observed in educators' attitudes toward communication goals, which yielded a mean score of 4.25 out of 5.

Qualitatively, there was complementarity through recurring instances of participants explicitly referencing the importance of students being "heard and honored." This provided further ideological context, showing that educators viewed communication not just as an instructional and functional goal, but as a moral imperative for their students.

The high mean score (4.25) in the survey results regarding educators' attitudes towards communication goals reflected a consensus that establishing and providing access to communication is a top priority, regardless of how complex a student's communication needs. The majority of participants (94.3%) reported that their students had opportunities to naturally use and practice communication in the classroom. This aligned with what was reported by interview participants, who all expressed that their students also had ample and intentional

opportunities to practice communication in the classroom. For example, SLP2 shared about how she coached teachers to provide wait time for students to communicate:

“So this month is wait time, and we're really focusing on...my poster even says silence is okay, because new staff members really are struggling with giving students the opportunity to process and possibly respond, and there's just a lot of talking going on in the classroom, but it's by the staff, not by the students, and we know students with sensory needs, you know... that's too much input when there's too much noise.”

Furthermore, interview participants described how opportunities to practice and use communication were often provided without expectation, meaning educators did not expect students to provide an “appropriate” or expected response. For example, SLP3 shared how she approached modeling for her student in a way where the language is available, but the expectation to respond is not:

Sometimes we'll have a big feeling, and we, like, haven't seen what's happened right before...I think we'll still just verbally label what we're seeing, we'll make guesses on the talker, like, maybe something hurts, maybe, you're ready to go outside and we're, like, pushing buttons on his talker. I think a lot of that at the moment, is maybe just, like, auditory, like, receptive input for the student. I don't think he's consistently, like, watching the model on his talker, but it's, like, at least available for him in that moment.

Despite not always understanding what their student is trying to communicate, the majority of educators expressed the importance of honoring students' communication attempts. Educators in the survey were asked if they agreed that their students understood what they were communicating via their current communication systems. This statement had a lower agreement percentage among all items related to communication goals/instruction (70.2%). This, compared

to the 94.3% of educators who provide natural opportunities for their students to communicate in their learning environments, showed that despite not being sure of what their student is trying to communicate or even if they believe what their student is communicating, educators still valued and were receptive to these communication attempts. For example, SLP3 shared how she promotes communication understanding and autonomy with her student:

Any communication that a kid might possibly be doing is verbally acknowledged by staff...any approximation of participation is called out. So, like, at any big group, if he, like, turns his body toward the group, or, like, is physically on the carpet area by where the active board is, the teacher might be, like, 'Way to join the group! You're with the group, I see you turning your eyes to look at the whiteboard. Nice checking it out'...Or, 'I noticed you pushed that away, maybe you don't want that right now,' and then someone would model on the talker, or maybe, 'you're all done with that. I hear you use your voice, maybe you're, sharing your ideas,' or something like that. So, it's a lot of, like, verbal recognition of anything as communication or participation.

Lastly, this meta-inference was substantiated by participants' belief that communication should not be confined to normative expectations and that communication can manifest in diverse ways. Survey respondents (89%) overwhelmingly agreed with the statement: I believe that my student will learn how to communicate in a way that meets their needs. Interview data complemented this belief, with participants describing the atypical ways in which their students communicated and how those communication attempts were validated. For example, GET2 described how she welcomes her students' challenging behaviors, as they're one way for her student to communicate using their currently available tools/skills:

I believe that all behavior is communication. Sometimes a child doesn't even need to speak in order to tell us what they need. And, you know, they do that by mannerisms, you know, about gestures, tantrums even... Our goal is to mediate and help children find their words, whether or not it's because they are just developmentally still kind of learning that, or if they do have a physical reason where they, you know, they can't physically speak, or there's, you know, that connection hasn't been made with their brain yet, no matter what the situation is. That's kind of my feeling about it, and the more we get in tune with that, the easier it becomes to teach language, model language, and to encourage them to use their words.

Communication for Multiple Purposes.

The second integrated finding within the theme of communication goals/instruction emphasized a discrepancy of theory vs. practice. In both survey responses and interviews, most educators reported that communication should serve a variety of purposes and functions (e.g., functional, social, emotive) and that it should be child-led and individualized for each child. However, in practice, there was a lot of focus on functional goals and manufactured, adult-led opportunities. This discordance was highlighted between survey questions and follow-up interview questions, in which participants described inconsistent practices.

While most participants in the survey did list a number of things they prioritized when working on communication instruction, including aspects like individualization, accessibility, and social communication, by far, the most cited priority was functional communication ($n = 153$). Furthermore, in interviews, participants spoke in ideals and aspirations of what they wanted communication to look like for their student, but described their actual practices to be functionally-focused. For example, PAR2 spoke about how she wanted her student to be able to

express opinions, but was disappointed that her student's IEP goals were functional-focused, sharing that she'd "like training on how to tell kids to use [communication] for more than just requesting a cookie."

There were further inconsistencies in instructional practices that seemed to contribute to this focus on functionality. Theoretically, educators supported child-led ($n = 37$) and individualized ($n = 104$) communication but interviews revealed that, in practice, there seemed to be a lot more manufactured and adult-led opportunities for communication. GET1 spoke about using hand-over-hand prompting to get her student to request items, sharing:

So [the iPad] is our main mode with her. Because it's just...easier for her to be able to press a button, to give us a word, or a picture. And then, then trying to implement that hand-over-hand where she's typing out...what she wants. Yeah, to request a specific item.

Individualization was used heavily to identify student motivators and address behavioral needs, but was not necessarily used to tailor opportunities for communication that made sense for the students' needs. For example, many educators spoke about how they approached communication by having students respond to specific prompts or classroom tasks (motivated by individualized interests), but did not consider how those skills would purpose themselves outside of the classroom. SET2 shared how she wasn't sure how to help her student use her communication skills outside of the classroom, saying, "...the concern is just, it's tough for her to be able to communicate. When we're in a classroom, it's in context, and so it's a little bit easier for us to, like, guess and...figure it out, but when it's out of context, or if it's outside of the school environment, like, I... it just would be so challenging, I feel like, at home to figure out."

AAC Knowledge and Preparation.

Within the construct of AAC, the third finding revolved around educators' knowledge and preparation of AAC. Similar to the previous finding, there was a disconnect between what participants reported vs. what they described. While educators generally self-reported high confidence, particularly in likert-scale questions about AAC practices, many interview participants spoke about feeling underprepared to use AAC or expressed desire to gain more AAC knowledge/training, both for themselves and other staff members.

A majority of participants in the survey (84.4%) agreed or strongly agreed with the statement, "I feel confident supporting my student in using AAC." Additionally, 65.3% of participants reported that they did not need support in deciding what AAC is most appropriate for their students. However, when asked more specifically about support skills, confidence lowered. For example, only 64.2% of educators reported knowing how to manage/customize AAC to meet their students' needs and only 62.5% agreed that they understood what factors to consider before choosing an AAC tool or strategy for their students. So, although there was high self-reported confidence in using AAC, there seemed to be gaps in some technical knowledge.

Interview data continued to point out discrepancies in self-reported confidence vs. actual knowledge of AAC. While all educators spoke about some sort of professional development or training they took about AAC during their career, the 3 SLPs were the only ones with preservice training and knowledge of AAC. Many interviewees shared that AAC was completely new to them when they started working with their current population of students or that their preservice training had no communication/AAC course requirements. Even for SLPs, AAC was not a part of required coursework to complete their programs. SLP1 shared how she learned about AAC through an optional AAC elective and externship experience:

In my second year of grad school, I took an AAC elective, which very few people take, and I really enjoyed the AAC elective, so it just kind of led me to do this...it was called Learning and Fundamentals of AAC, so we learned about different kinds of AAC in that class. We also did, like, a few projects on that, and then again, the externships that I was at, all of the kids there were high support needs, because that school was designed as such. So it was... the school was designed for children who could not place into a typical school, which means their needs were so high that they could not be met by the state or the county. So everyone in that school had some form of AAC device given through the state, and so I got a lot of experience with different kind of AACs.

Many interviewees discussed how their AAC knowledge and preparation came from hands-on, on-the-job, informal training (usually directly from their SLPs). For example, GET1 shared how she learned to navigate her student's device, saying, "[the SLP] showed me how to navigate it, and then it was just me sitting down and figuring, you know, trying to remember as, like, what's on what, you know, which screen, you know, like, how many swipes to this, you know, to what I'm looking for." Furthermore, interviewees discussed how a lot of times, when it came to device customization and navigation, they would explore and figure it out themselves.

PAR2 shared:

[I haven't had] a specific training. I'm sure at some point, either the SLP or the teacher just showed me how. But a lot of times, the teacher would be busy, and a kid would be mad because the kid who wanted to use the iPad would be mad because it wasn't working, so I would take it and just figure it out and just do... and so I've kind of taught myself a lot of the little things in the app.

When participants did attend school- or district-wide trainings, there were mixed experiences. Some participants described positive experiences, sharing that trainings were specific and relevant. For example, SET2 shared that her school hosted a parent night, in conjunction with a local university, where she learned more about “core language boards that have, like, the color coding and different things for the AAC device,” and shared that, “that's probably where [she] got the extensive amount of training.” Others had less positive experiences, noting that trainings provided by the schools/districts were not relevant to young students with CCN/ESN. For example, PAR2 shared,

If I'm being honest, the biggest complaint I've had about [training] is that very little of it has anything to do with special education. and especially none of it has anything to do with preschool...but...I've been complaining to the district that they should offer courses that are more geared towards [AAC]. And it hasn't really happened yet. Like, we've been asking...we got one geared toward older students who can speak. It was a great training, the presenter was amazing. But...learning how to talk to a 12-year-old who can have a conversation doesn't help me learn what to do with a 3-year-old who can't speak and won't acknowledge the existence of the AAC device.

AAC Attitudes x Opportunities.

The fourth meta-inference, falling under the construct of AAC, revolved around educators' attitudes and perceptions about AAC and how those impacted students' opportunities to use AAC. This finding found that the attitudes that educators have towards AAC impacts the number of opportunities and access students have to AAC. Data sets showed complementarity, where survey data showed that educators were generally supportive of AAC and interview data provided deeper context to expand on how these attitudes affected communication opportunities.

However, interview data did also reveal possible unconscious biases regarding normative expectations that may have affected communication opportunities for students.

Though attitudes towards AAC were generally positive across all roles, survey data showed that SLPs scored significantly higher in this aspect than other roles. This was reflected in interview data as well, with SLPs sharing more confidence with AAC and having broader views of how AAC could be used with students. For example, all 3 SLPs brought up ideas about how AAC is like a student's 'voice,' should always be accessible, and should be used without expectation. SLP2 shared her stance on keeping AAC use unrestricted, saying:

Stimming's okay, and, you know, using the device because it's their voice in any way they want is okay, because we can't...silence any student that uses, you know, their regular voice to speak, so why would we do that for someone that uses an AAC device? That's taken some coaching, too, especially, like, volume...some students like to turn the volume all the way up, and yes, as loud and distracting that can be in class, that's just like them yelling. So she has unrestricted access to the device.

Similarly, other educators who shared positive attitudes towards AAC were more likely to support its use. For example, a couple interviewees spoke about experiences they had with families who were hesitant to use AAC due to myths of it hindering verbal speech development. These educators, influenced by their own belief in AAC, worked with families to promote AAC use. GET2 shared her experience with her student's family, saying:

I know that they kind of were hoping she would...start speaking a lot sooner, and I think they put off using the AAC, you know, maybe for fear that it would hinder her speech development, and I think that was just because they were misinformed. So I think now that the parents are seeing the value in it, they're being more proactive with us.

Similarly, SET2 shared similar thoughts regarding her student's experience, saying:

I think [AAC's] pretty effective, especially because it's obviously not hindering her language and her expressive output. I know a lot of, like, families, that's their biggest concern, is that they think it's going to hinder that. But it's really facilitated it, and I feel like she's had a lot of language. I think, and it's not, like, any fault of her own or even her family's, but, once she was starting to express more, they didn't send the iPad as frequently, because they were wanting her to use that expressive language, and so, I think just being that consistent on that end, is probably helpful for that child.

Conversely, while survey data showed that 81.7% of educators reported their students having meaningful opportunities to use AAC throughout the school day, interviewees shared instances where AAC use or access was limited or restricted. Sometimes, this was due to safety concerns, but other times, spontaneous self-expression was seen as a distraction and access to tools was used as behavior management. For example, SET3 shared her frustration, saying, “[My student] has not found it yet, but the kids that find...and I'm sure she'll find it, is the Animal Sounds page. And all they do is press animal sounds, and it's hard to get them off of it. You don't want to take it away, but...It's so hard.” Similarly, PAR2 shared how her team sometimes limits access with her student due to distractions, saying, “So he would navigate out of TD Snap and open up the camera and take a bunch of selfies. Which is cute, but not what it's for. With him, we had to either put it on guided access, or, like, sometimes just take it away, because he wasn't using it for what he needed to use it for...”

On a larger scale, school- and district-level attitudes about AAC also impacted communication opportunities and practices for students. There were many positive experiences working with districts and administrative teams, particularly with having support from assistive

technology specialists. For example, SET1 shared how her student benefitted from district support, saying, “We do have, like, an AT department...you can have somebody come out to, like, observe the kid. And I know last year when we did the AT trial, the AT department was, like super instrumental and helpful in getting us through that, so... I think that helps, like, him succeed.” This aligned with survey results that showed that 72.4% of respondents knew where to locate resources/support regarding AAC.

Others shared how district/school-level attitudes of AAC “trickle-down” into practices. This is significant as only 64.2% of survey participants felt like they had the proper resources and support to adequately provide AAC instruction for their students. Some had positive experiences, like PAR3, who described how her school admin and staff were supportive of students’ needs:

It's a great district. My kids went to the district, but I don't really know too much about the communication needs of students that are outside of my particular school...but in terms of our school, I feel like our school is like, so important to the well being of the student. These students, the type of students that we're working with, especially because there is, there are so many people that have been working at the school for so long that they really understand what these kids need, and really understand all the different types of communication devices and boards and things that we can use and trial and the best ways to implement them...So I think that that my school especially is really important in the success that these students are having.

Other interviewees, unfortunately, shared more negative experiences. For example, SET3 shared how her current district is not as supportive of AAC:

The district I'm currently in is very hesitant, I would say, to give AAC devices. When I was in a larger district, they were like... 'You don't talk? Have an AAC.' And they wanted to get them started as early as possible. The district I'm currently in...it's like, 'oh, they're going to kindergarten? I guess we should start doing an AAC.' So we have to do the full evaluation... which is...good to, like, for kids where we're not sure what's gonna work the best, but when she's been using one that's in the classroom, it's like, we know she knows how to use this, like, and that it works for her. So I think that, like, on a district level, that's kind of a big barrier of supporting communication needs, is they have us jump through so many hoops, because you open the evaluation, then you have to do it, then they have to get the device, and sometimes that takes a while.

Collaboration and Distinct Roles.

The fifth finding was also organized under the construct of AAC but focused on the role of collaboration in using AAC. There was concordance in the quantitative and qualitative data, with most educators seeing the value of collaboration and having positive collaborative practices/experiences. The interview data complemented survey data about collaborative practices by adding nuance onto what these practices actually look like. An interesting finding, notably from the interview data, was that educators tended to put themselves in very distinct roles and rarely stepped out of those roles.

Participants overwhelmingly shared positive experiences regarding collaboration, with 89.4% of survey respondents reporting that they effectively collaborate with team members. Interview data matched this sentiment, with all interviewees describing positive experiences working with other members on their students' IEP teams. Educators had different frequencies of formal collaboration, with some meeting weekly and others just annually, but all described

constant daily or weekly informal collaboration. For example, SLP3 shared how she collaborates formally and informally with her team to ensure everyone feels comfortable using AAC:

We have a monthly team meeting, for the assistive tech, which is just, like, broadly talking about stuff with OT, PT, vision, and the classroom teacher. In terms of assistive tech. I'm kind of always checking in. Every student in that class has a speech device or is going to be getting one once they have their IEP in place, so if something's broken, the teacher will tell me, if we're needing to add words to the talker, the teacher will tell me, and I'll get that in, or if like, the teacher at this point has so much experience working with those different apps that I mentioned that, she'll be like, 'hey, I'm wondering if maybe... I'm seeing this, would maybe this be worth trying?' So we'll kind of check in. At the end of the day, I want the teachers to feel, like, confident, because they're the ones doing the modeling the most.

A big factor that came up that seemed to facilitate collaboration was understanding each other and having a “similar mindset.” For example, PAR3 shared, “I mean, so, we all work so closely together that his interactions with me would be very similar to his interactions with the other paras, with the teachers, with the support staff and everything. So pretty much we all work together as a team, and we all have very similar, similar mindsets and similar way of approaching things.” Conversely, any difficulties that came up seemed to be because of not having built relationships and understanding with each other, usually due to struggles with educator retention. For example, PAR1 shared, “This year, the SLP that I've been working with the last few years, she moved on to do something else, and we don't even have a full-time SLP assigned for this student. So, the SLP is actually remote working, and she has a SLP para that's doing the implementation in the class...and there hasn't been as much collaboration within the

class.” SLP2 shared a similar experience, saying, “the staff that has been there for the last couple years, fantastic. Everything we do is absolutely aligned, but now that we have so much new staff going in and out, that is a really big challenge, trying to make sure that we're all responding the same way to the students.”

Interestingly, although survey respondents and interviewees both reported high satisfaction with collaboration and described their practices to be effective, there were distinct role delineations in collaborative practices. Each role had very clear responsibilities and were “in charge” of certain aspects of a student’s learning, to the point that certain decisions were made exclusively by certain people. For example, a common sentiment was that any decision-making regarding AAC was the SLPs job. GET1 shared how she trusts her SLP to make communication decisions:

Again, there is a collaborative discussion about it, but really, I leave it up to the SLP, because...that's her wheelhouse, and she's the expert on that, so yeah. And so, obviously, you know, we're implementing all the goals, whether it's an OT goal, or a PT goal, or a speech goal. So, even though we have a lot of voice in the IEP process and that decision making, I do let them take the lead, because that's their discipline.

Similarly, GET2 shared how staff in her classroom had distinct roles and clear responsibilities, saying:

So my responsibilities are mainly developing curriculum, less implementing lesson plans. [The special education teacher and I] work, kind of, co-teach in that way. My responsibilities are observations...The special education teacher is more in charge of the IEP goals...that's basically how that goes. We both are included in IEP meetings and discussions about goals with everybody, from families to special services...and [the

student] also works with our speech and language pathologist, who comes in here and works with her and takes her out for services as well.

Appropriateness/Readiness (Perceptions of Disability)

Within the construct of inclusion, the sixth meta-inference was that educators' perceptions of their students' "readiness" impacted inclusionary opportunities for their students. There was some discordance in the data, with conflicting statements in support of and against inclusion. Generally, all educators had positive attitudes towards and were supportive of the idea of inclusion. However, many expressed it as an ideal—great in theory, but something that was not realistic due to a number of reasons. These reasons painted a portrait of what it would look like if a student was "ready" for inclusion or if an inclusive environment was appropriate for their learning needs.

When asked whether they believe their students' current learning environment was appropriate to meet their CCN, most survey respondents (80.3%) agreed. As a reminder, 49% of respondents reported that their students were taught in inclusive settings, 40% reported their students learning in self-contained settings, 9% reported their students being in partial inclusion classrooms, and 2% reported their students learning in separate schools. Surprisingly, educators whose students spent more time in inclusive settings reported slightly lower attitudes towards inclusion. This reflects the sentiment of interviewees' responses that there are many potential benefits to inclusion, but students need to be 'ready' to reap those benefits. In other words, there were a lot of "yes, but..." answers shared in interviews. For example, some educators spoke about the potential benefits of their students being around peer models, but the difficulties that came along with it. SLP1 shared how her student was engaged with his peers but struggled to keep up academically:

[My student will] engage when it's led by a peer. He won't lead a peer, but when it's led by a peer, he will listen to her, he'll be super engaged, he'll, like, smile at her, he'll have fun, and if they do something funny, he'll giggle, he'll laugh...I think there's a lot of good things that look great on paper. But when it comes to implementing....he...doesn't retain any of the classroom information, so anything academic, in the bigger... like, when they're doing, like, a bigger circle, I don't think he retains it, because he...Because I don't think he's listening.

PAR1 described how her student had the desire to socialize with his peers but had difficulty creating friendships due to his CCN:

I think he's ready to learn, yeah, I think he wants that social aspect, and I think that's going to be the hardest thing for him to be able to have. Socialization with you know, all students. And I have to say, you know, the other kids in the class, they're getting better about, you know, asking for a high five, or, you know, 'give me a high-five,' but sometimes they're a little bit intimidated by him because he's big, and...he can push. You know, he can't say, 'play with me.' He's like, 'push.'

Similar to this, other educators described their concerns about how their students' CCN would directly affect their social or learning opportunities and that students' needs would 'get lost' in inclusive environments. PAR3 described this in how she had worries about her student being able to communicate his needs and connect with others:

So [his CCN is] definitely impacting his ability for inclusion, because I don't think that he would be able to get his needs across, his needs communicated to, you know, other kids, or even maybe a teacher that was in there. So in order for him to to be like...ready to move into that type of environment, I think he needs to get more more comfortable with

using a device that would be easier for students and teachers that might be in an inclusive classroom to understand, so that, you know, so that he could communicate his needs and be able to interact, and, you know, be able to, hopefully, then create some bonds with some other students...I think it would be my initial feeling...Would I be nervous that he would kind of fall through the cracks? He needs quite a bit of support. And so it would depend.

Others shared their fears that an inclusive environment would be too overwhelming for their students, unless they were to have 1:1 support. This sentiment, shared by most interviewees, was discordant with survey data, in which only 25.4% of respondents reported that their students needed 1:1 support to meaningfully engage in inclusive environments. Most interviewees shared concerns about student safety and students' CCN being overlooked without 1:1 support. For example, SET3 shared her concerns with her student's CCN and how it may potentially impact her safety in a more chaotic environment, saying:

I think because she doesn't, in our classroom, she doesn't initiate or show much, like, acknowledgement if someone if a familiar adult is talking to her, she'll be like, 'oh,' and she'll look at you. One of her specific goals for me is to respond to her name and the words like, 'come here' or 'come to me,' and we're still working on that. And that's a matter of safety for her, so I think her communication needs that way, even some of those receptive, she'd get a little bit lost, or I feel like it would be lost in a room of 20 children with all the noise and everything.

Similarly, PAR2 talked about how she thought her student would need to be better versed in using her AAC device before moving into inclusive classrooms without a 1:1 paraeducator:

Her communication would just have to be better because cognitively, she can't, you know, she can't really tell you what she knows. She doesn't have words. She won't...doesn't know how to use the AAC in a way that...we don't know what she knows. And she isn't ready to sit down and listen to a teacher and then follow instructions. So...maybe if she had a 1:1, a full-time 1:1 who could sit with her and kind of show her...so if there's a way to adapt the lessons and get her to follow instructions. Maybe she might? I don't know how the teachers really make that determination, but I know she would need more support than the gen ed classrooms have.

SLP1, whose student was in an inclusive classroom, described how the experience would be more beneficial if he had 1:1 support who could prompt him to stay on task and support his bilingual needs:

He sits at the back of the classroom on a chair, so he looks right up at the screen, but again, every time I go in, he's playing with a pop-it, or he's not really listening to classroom instruction. And I don't think it's that he doesn't understand, I just don't think he can take in like, general information, so I do think if there was, like, a para or a bilingual para, even if she was speaking in English, because I speak just English with him, and he's very receptive to it, someone who's with him at all times, just telling him what's happening in class, or even reminding him, like, hey, look up and look at what she's saying. He then really taps in, but he needs that reminder every 5 to 7 minutes.

Lastly, two interviewees, despite speaking positively about inclusion, didn't think inclusion was appropriate for their students at the current moment, alleging that their needs were better met in their current, self-contained learning environment. GET1 shared that her student had interfering behaviors that were best addressed with a smaller ratio of students:

I think [the current environment is] definitely where she should be. I think it would be really difficult for her to be in a general setting. You know, some other...programs have a ratio of 1 teacher through 10 students. So there'd be less support. This particular classroom is geared for supporting kids with limited verbal skills, especially delayed verbal skills. just in the amount of support that we have, professionally and, group size...I think because of the nature of her personality, she's just very resistant. I think the environment is rich with language and options and opportunities. It's just the point where she will not put forth any initiative...it would be very non-successful. For her and the other peers in the room, or the environment, yeah. Because she's just, yeah, she's very busy...she would not be able to sit...yeah, it would not last probably more than a minute.

SLP2 described how her student's current, self-contained environment had been very successful for her in making progress with using AAC and how a general education classroom, especially at her student's young age, would be too overwhelming and possibly not of interest:

[The current environment is] very, very much the perfect place for her...you know, the special education population, it has changed so much, and we're seeing more and more students with these complex communication needs...And so, I think she's in the perfect spot, and I'm really thankful that we have a very strong, highly skilled, special ed teacher in that room...who really supports AAC, because I know that doesn't happen anywhere. But I'm in this, in this, lovely little bubble with such a great community where everyone's on board and bought in with AAC, and so it's not the norm, but it sure does make a difference...I think in a, you know, gen ed classroom, there's too many bodies, too many students, and too many noises, so they would feel overwhelmed...at this level, with these little littles, they're right where they need to be, and, you know, parents will also

acknowledge, yep, they're really not ready, they don't want to, join for parties and, maybe assemblies or, even specialists with their gen ed class. It's just not something these students are interested in.

Feasibility of Meaningful Inclusion with Resource Limitations.

The last meta-inference, under the construct of inclusion, dove deeper into the feasibility of inclusion. Survey and interview data were in concordance that there were limited resources that made it difficult to implement meaningful inclusion opportunities for students. Interview data further added context about the reservations educators had about inclusion and there was an important distinction between physical inclusion and meaningful inclusion highlighting, again, ideals vs. real-world practice.

From survey data, only 30.4% of respondents reported that they were satisfied with their school administrative support and/or available resources. This was concordant with interview data, with some interviewees not being satisfied with the support and resources they had. Interviews added context to the survey data, noting that specifically, educators faced pushback from administrators or other staff about including their students in general education environments. For example, SLP2 shared a poor experience of her student not welcomed in a general education classroom:

Yeah, sadly, I think it's the diagnosis itself. And that she wasn't fully potty trained, like... I don't know, the [gen-ed] teacher was freaking out about that, because they didn't have a bathroom attached to the classroom. And that she had 4 kids that were eloping, like, when they had to take them to the bathroom. And it's just tough because...I mean, that's when we call a team decision and you try to brainstorm. Like, can someone come support? Can you just take the kids one at a time? Like, you just have to figure it out.

SLP3 shared how she hoped the pushback against inclusion from gen-ed staff in her school wasn't from a place of bigotry but from a place of inexperience:

I think inclusion in terms of physically being in the space would not necessarily be difficult, but meaningfully participating and being part of the classroom community would be hard...At least to start, it would just feel like they're in the space, but not, like, in the group of students...I think probably in this building, the holdup or, like, the hesitation, I'm trying to...in my heart, just be like, maybe there's like a missing skill there, and not just, like, 'we don't want disabled kids in [our] spaces.'

Others spoke about how some decisions were just in the hands of the schools/districts. Interviewees specifically brought up how hiring and retaining highly-trained staff was an issue. For example, GET1 shared, "I do think that there are things that could be done, I just don't know how feasible they are, you know, like, I mean, having another couple other, adult people, you know, highly trained adult people, you know, that's in the room..." This was concordant with survey data, in which 57.4% of participants responded that they had faith in other staff's skillsets to support their students' CCN. Similarly, PAR2 shared:

I just think the district doesn't have enough support. And that's partly funding, so it's partly a district problem, it's partly a state problem. I know we always have a ton of SpEd para openings. And that's partly because it's a really hard job, and partly because the pay sucks. And without the state being able and willing to provide more funding, the district is always going to say, well, we can't either. And so they just can't or won't hire enough 1:1s for all the students who deserve inclusion to really get it.

Summary

The mixed methods integration of quantitative (survey) and qualitative (interview) data uncovered several important meta-inferences regarding how educators support preschool-aged children with CCN. Overall, the findings highlighted recurring incongruity between educators' idealistic beliefs and their actual instructional practices across the three constructs of communication goals/instruction, AAC, and inclusionary practices. Educators overwhelmingly viewed communication as a right and seemed to believe that all students would eventually learn to communicate in some capacity, demonstrating presumed competence. However, while they advocated for child-led, multifunctional, and individualized communication practices, their actual implementation of communication practices was predominantly adult-led and centered around functional goals, such as requesting items or responding to adult-directed prompts.

With AAC, there was a notable gap between educators' high self-reported confidence vs. their actual technical knowledge of AAC systems. With many lacking formal preservice AAC training, educators relied heavily on their own research or informal, on-the-job training from SLPs. This led to rigid professional role delineations where AAC decision-making was primarily deferred to SLPs. Furthermore, students' access to AAC was heavily influenced by individual educators' attitudes; while strong proponents of AAC viewed access to AAC as a right, others restricted access, treating spontaneous device use as distractions or behavior management issues.

Lastly, although educators supported the concept of inclusion, they stipulated that students had to be 'ready' in order to benefit from inclusive environments. There was a clear difference described between physical inclusion (merely being in a classroom) and meaningful inclusion (actively participating in class activities). Educators largely cited systemic resource limitations such as lack of administrative support, funding, and highly trained staff as primary barriers to true and meaningful inclusion for their students. Ultimately, these findings highlight

that educators' idealistic beliefs on their own are not enough to overcome the systemic barriers and training deficits that hold back students with CCN/ESN.

Table 10

Integrated Findings Joint Display

Construct/Theme	Quant Findings	Qual Findings	Meta Inferences
<i>Communication Goals/Instruction -</i> Communication as a Right	Ceiling effect observed in attitudes towards communication goals and instruction (mean of 4.25 out of 5) 94.3% reported students had opportunities to naturally use and practice communication in the classroom. 89% agreed students will learn how to communicate in a way that meets their needs.	Clear examples of students having opportunities to naturally communicate in classes. Consistent references back to honoring students' communication attempts and autonomy. Understanding of students' challenging behaviors that arise from communication frustrations.	Participants believe that every student has a right to be able to communicate their wants and needs and it is important we find a way how. Communication should be accessible, honored, and prioritized.
Communication for Multiple Purposes	Most frequently cited priority was the need for functional communication (n = 153). Other priorities that were cited were that communication should be child-led (n = 37) and individualized (n = 104).	Theoretically, educators shared communication should span multiple purposes and be student-tailored. Actual practices reported were majority functionally-focused, manufactured, and adult-led.	In theory, communication should serve a variety of functions. Participants speak a lot about child-led and individualized approaches to communication. However, in practice, there is a lot of focus on functional goals and manufactured opportunities.
<i>AAC -</i> Preparation/ Knowledge of	84.4% of respondents reported confidence supporting their students in using AAC. 65.3%	Only the SLPs had formal preservice training and knowledge of AAC.	Educators reported generally high confidence in likert-scale questions about AAC practices in the survey.

AAC	reported not needing help in deciding appropriate AAC for their students. Only 64.2% knew how to manage and customize AAC to meet students' needs and 62.5% understood what factors to consider when choosing AAC.	AAC was not a part of required coursework. Professional development varied with some experiencing relevant and helpful training and others not. All mentioned self-taught or informal, on-the-job training to understand how to use AAC.	However, in free response questions and interviews, many mention a lack of AAC training/ knowledge both for themselves and other staff members.
AAC Attitudes x Opportunities	SLPs scored significantly higher in attitudes towards AAC than other roles. 81.7% of respondents reported their students have meaningful opportunities to use AAC. 64.2% had proper resources and/or support to adequately provide AAC instruction.	SLPs shared more confidence with AAC and had broader views of how AAC should be used. Some actual practices reported limited or restricted students' AAC use. Mixed experiences with school and district support of AAC.	The attitudes that educators have towards AAC impacts the number of opportunities and access students have to AAC. A student who works with an educator who believes in AAC and makes an effort to prioritize its use has access to more diverse systems and opportunities to trial those systems.
Collaboration and Distinct Roles	89.4% effectively collaborated with other team members. 72.4% of respondents knew where to find support on AAC.	Interviewees shared positive experiences, especially when other team members had 'similar mindsets' regarding AAC. Distinct role delineations, with clear responsibilities and decision-making hierarchy.	Most educators saw the value of collaboration and had positive collaborative practices. Interestingly, most educators put themselves in very distinct roles and did not step out much of those roles.

<i>Inclusion -</i> Appropriateness/ Readiness (Perceptions of Disability)	80.3% believed their students' current learning environment was appropriate to meet their CCN. Educators whose students spent more time in inclusive settings reported slightly lower attitudes towards inclusion.	Many shared potential benefits of inclusion and desires for their students to be included but consistently brought up worries of whether they were 'ready.' 2 interviewees acknowledged potential benefits of inclusion but believed their students' needs were best met in self-contained settings.	Almost all educators had positive attitudes towards inclusion to some capacity. Participants noted the potential benefits and spoke in ideals; however, there were a list of caveats that painted a portrait of what it would look like if a student was 'ready' for inclusion or if an inclusive environment was appropriate for their learning needs..
Feasibility of Meaningful Inclusion with Resource Limitations	Only 30.4% of respondents were satisfied with school/district support and/or available resources. 57.4% had faith in other staff's skill and ability to support their students' CCN.	Interviewees recounted instances where they received pushback about their student being included from admin or other staff. Interviewees described difficulties in hiring and retaining skilled staff that could adequately support their students' CCN.	Participants were generally dissatisfied with resources/support available to them, especially to support inclusion. Many spoke at length about resource limitations that made true inclusion difficult. Many also noted the important distinction between physical inclusion and meaningful inclusion. This highlights again ideals vs. real-world practice.

Chapter 5: Discussion

The purpose of this study was to explore educators' attitudes regarding communication goals, augmentative and alternative communication (AAC), and inclusionary practices for preschool-aged children with significant cognitive disabilities and complex communication needs (CCN). Utilizing a convergent parallel mixed-methods design, I gathered survey data alongside interview insights to provide a more contextualized view of current communication practices that educators are engaged in to support these students. This approach allowed for deeper analysis into how theoretical beliefs impact or translate into classroom practices.

While the findings indicated that educators generally held positive attitudes toward communication goals, AAC, and inclusion for their students, there were inconsistencies with reported beliefs and actual practices and paradoxical beliefs regarding student competence and inclusionary practices. These discrepancies suggest that while educators have good intentions and hold aspirational ideals for their students, the impact of their current instructional practices are hindered by systemic factors, lack of resources/training, and unconscious normative expectations. Essentially, this study highlights a disconnect between the high value educators place on communication and the actual implementation of robust, inclusive strategies for preschoolers with significant support needs.

Communication Goals and Instruction

When it came to communication goals and instruction, the findings of this study highlighted the complex relationship between philosophical beliefs and practical implementation of communication instruction for preschoolers with extensive support needs. Educators in this study conceptualized communication as a fundamental right for all students, often equating AAC

systems and other communication tools to students' physical voices. This is significant, as research shows that social perceptions of AAC and language ideologies play a central role in the development of language and communication skills (Biggs et al 2018; McDuffie & Yoder, 2010).

Many educators also took on the perspective of presumed competence, as 89% of surveyed educators expressed firm belief that their students would eventually learn to communicate in ways that meet their needs. This is promising, as educators who hold higher presumptions of competence for their students are likely to provide higher-quality instruction and communication support for their students (Biklen & Burke, 2006). By assuming that students understood more than they could express and believing that their students were taking in information (despite, at times, little visible progress) educators shifted their focus from measuring academic progress to simply honoring communication. This approach of "communication without expectation" ensured that student communication and autonomy were validated and reinforced, which is especially important for this population of students, who are often overlooked or not acknowledged due to their non-normative ways of demonstrating learning (Brenneise, 2020).

Despite the positive attitudes towards communication reported from the survey, deeper analysis suggested that while educator intentions are positive, they are often underpinned by a narrow pedagogical focus on functionality. This focus is evident in the fact that a large number of participants (n = 153) prioritized "functional communication," specifically working on students expressing wants and needs, when teaching their students. This aligns with current literature which shows that for young students with CCN and ESN, instruction is usually highly-structured and very skewed to teach functional communication skills (Biggs et al., 2018). This focus was

also evident in interviews, where all participants spoke about working primarily on functional communication skills.

This narrow focus on functionality can be troubling, particularly when considering student autonomy. Educators in this study seemed to want their students to express their autonomy and be able to independently communicate for multiple purposes, but their instructional approaches favored adult-led, structured activities that didn't expand communicative functions (e.g., structured opportunities primarily focused on functional skills, rather than social or expressive communication). Light and McNaughton's framework (2014) emphasizes that social and strategic domains are also essential for genuine autonomy, so the restricted focus on functionality may be potentially harmful to fostering student autonomy and independence, as well as social connection and inclusion.

Lastly, the data highlighted notable professional disparities in how educators approach communication. SLPs and special education teachers scored significantly higher in attitudes and confidence in communication and language instruction compared to paraeducators. Additionally, educators holding Master's degrees demonstrated higher scores in confidence, which may suggest that advanced training correlates with broader, more comprehensive perspectives on communication. This is important to consider, as educators who have a more inclusive and understanding approach about disability are more likely to prioritize equitable opportunities and advocate more strongly for their students (Kurth & Foley, 2014).

AAC

There are similar discussion points when it comes to how educators view and approach AAC specifically. While a large majority of educators (84.4%) report feeling confident in

supporting students who use AAC, a gap emerges regarding the technology itself. Only 64.2% feel confident in the actual management or customization of AAC devices. Also, despite reporting confidence in using AAC strategies and tools in the survey, interviews revealed that many educators lack AAC knowledge, especially when it comes to knowing what tools are available and how to best decide on a tool/strategy to meet a student's needs. This is reflective of the literature which states that there are very few preservice programs that offer AAC-specific courses and do not have required competencies for graduates (Costigan & Light, 2010). Consequently, this limits communication opportunities for the students, as the use of AAC is often contingent on the availability and knowledge of the SLP, who is frequently the only staff member confident enough to modify and make decisions about AAC. There was very clear role delineation and very few instances of educators stepping out of those roles, with educators frequently sharing sentiments of things being "[another role's] job." Even then, SLPs in the study shared that they at times lack certain knowledge and use trial-and-error methods to decide on AAC for their students, often starting with the AAC tools/strategies they are most familiar with. This is a potential worry as students may be forced to adapt to communication systems that aren't the best fit instead of being provided multimodal options that work for them (Light & McNaughton, 2014).

The lack of formal preparation can also lead to differences in AAC attitudes and perceptions of disability. Again, the data showed discordance, with survey data reporting high attitudes of confidence in AAC and in student ability but with interview data revealing inconsistencies of these beliefs in actual practice. The learning curve to start using AAC can be difficult for a student with ESN for a variety of reasons including motor skills, attention needs, and language skills (Light & McNaughton, 2014). Thus, while all interviewees saw AAC as a

useful tool to support their students' communication skills, some truly bought into the practice despite the learning curve and some prioritized behavior management and classroom control. SLPs, who often had more education and formal preparation using AAC, were stronger advocates for the idea of presuming competence; in this context, this was the belief that students possessed an understanding of language that was not always reflected in their expressive output. The educators whose attitudes reflected this were more likely to give students more opportunities to use and explore AAC, have non-restricted accessibility to tools, model without expectation, and better balance verbal speech and AAC. This reflects current research reporting that lack of preparation, confidence, and time may lead educators to privilege verbal speech when interacting with students who use AAC (Denney et al., 2022).

Conversely, some educators with less experience and preparation with AAC approached its use from a fundamentally different angle. Though they believed in their students' right to communicate, their instructional decisions and actions demonstrated their primary function of teaching communication as a way to decrease and manage students' challenging behaviors. Educators shared about how they limited access to AAC for their students, sometimes due to physical safety concerns (e.g., throwing devices) and other times due to it being a 'distraction.' Contrary to stated presumptions of competence, others shared beliefs that students didn't know what they were doing and were "randomly" pressing buttons on their device; thus, they lowered volumes or revoked access when it became distracting to others. This paralleled literature reporting that educators who self-rated lower knowledge of AAC tended to rate cognitive abilities of individuals with profound intellectual disabilities more restrictively (Nijs & Maes, 2021). This perspective ultimately treated student communication as a reactive behavioral intervention rather than an inherent right. Together, these findings illustrated inconsistencies

where ideals collided with technical and systemic limitations, causing communication practices to revert to normative and often restrictive expectations.

Inclusionary Practices

When it came to educators' beliefs on how students' communication affected inclusionary practices, the same idea of ideals vs. actual practice arose. Educators in interviews spoke at length about how their students would benefit from inclusion. Research backs this up, as inclusion has been proven to be beneficial for both students with disabilities and their typically-developing peers (Vandercook et al., 2020). However, they were hesitant to say their students were 'ready' to be in fully inclusive environments and had a list of caveats needed for their students to be successful (such as 1:1 support and/or better-trained staff). Thus, participants were clear to distinguish the difference between physical vs. meaningful inclusion and brought up concerns about the feasibility of meaningful inclusion. This directly parallels recent research that shows that educators report favorably towards inclusion, but actually feel unprepared and under-resourced to actually be able to meet the needs of their students with disabilities (Tiwari, 2023; Yu, 2019).

These themes of readiness and feasibility were consistently brought up by interview participants. This aligned with survey results, where only 44.8% of participants believed their students possessed the necessary skills to participate meaningfully in inclusive settings. This sort of 'gatekeeping' thinking, where educators cited reasons why their student wasn't ready for inclusion (e.g., behavioral needs, lack of prerequisite skills, lack of interest in peers), acts as a huge barrier to inclusion, which is why we may see that less than 3% of students with ESN are being taught in fully inclusive environments (Kleinert 2015; Kleinert, 2020).

This brings up the question: does the inclusive environment have to be perfect in order for a student with CCN/ESN to benefit? It is true that physical time in inclusion does not necessarily account for the quality of inclusion (Morningstar et al., 2015). Particularly, when it comes to communication, inclusion would not be beneficial if a student did not have access to proper AAC tools or an experienced teacher to support their learning. This was anecdotally evidenced by interviewees who described “non-successful” attempts at inclusion with their students. However, it’s hard to look past the huge potential advantages of inclusion, especially when it comes to peer models and social communication opportunities (Vandercook et al., 2020). While some educators cited their students’ lack of interest in peers, it may be possible that implicit biases may play a role (Gee, 2020). When social interest is not expressed in normative ways, it could be perceived as disinterest. Conversely, some educators expressed worry that their students would disrupt others in a general education setting, or be othered by their peers, which was expected as deviations from socially acceptable behavior can be seen as a problem/disruption in classrooms (Krishnan, 2024). Regardless, the literature shows that all students can benefit from inclusive practices with proper scaffolding and support in place (Holyfield et al., 2018; Kwon et al., 2017).

Lastly, it was very interesting to find that educators whose students spent more time in inclusive settings reported slightly lower attitudes toward inclusion. This validates concerns about the feasibility of meaningful inclusion for students with extensive support needs, suggesting that without proper support, the practical challenges of inclusive environments could lead to poor instructional or communication practices and/or potentially cause educator frustration/burnout. This is a significant finding that should be noted when planning future research regarding inclusion for students with CCN/ESN.

Integration with Conceptual Framework

In relation to this study's proposed conceptual framework, the findings map on pretty clearly to the cycle of see (attitudes), do (practices), and get (outcomes). Positively, findings generally illustrate educators' hopeful attitudes ("see") towards their students' communication development. Educators whose attitudes reflected this presumed competence provided better communication support ("do"), such as giving students non-restricted access to AAC tools, modeling without expectation, and exploring multimodal options. However, the findings also revealed a breakdown in this cycle: despite educators holding aspirational ideals about communication and inclusion ("see"), their actual classroom practices ("do") often reverted to restrictive, normative expectations. This could be due to unconscious biases, but as the framework predicts, this restrictive instruction ("do") hindered students' communication opportunities and meaningful inclusion ("get").

The disconnect between educators' positive beliefs and their inconsistent instructional practices maps on to the exo-level of the conceptual framework, which accounts for systems-level influences. The model hypothesizes that unclear school- or district-wide visions and a lack of systemic investment in training/professional development ("do") lead to poorly prepared staff and lower-quality inclusion ("get"). The study's results mirror this hypothesis, showing evidence that actual practices are greatly impacted by systemic factors and a lack of resources and training. For example, the systemic lack of preservice AAC training/education limited communication opportunities and forced a heavy reliance on SLPs. We see examples of the exo-level impacting the micro-level in the study as well, shown by the interesting finding that educators whose students spent more time in inclusive settings (presumably without adequate support) actually reported slightly lower attitudes toward inclusion.

Lastly, the findings reflect the tenets of Family Language Policy (FLP), where educators act as language managers. In the context of FLP, educators' ideologies and attitudes toward AAC (as a distinct language) influence their communication goals and management practices. Differences in language ideologies were seen between roles, with SLPs and educators with advanced degrees demonstrating broader perspectives of AAC as a student's 'voice.' In contrast, educators with less AAC preparation often failed to view it as a valid language system, instead treating AAC as a reactive behavioral intervention. This was seen from the findings with some educators inadvertently restricting their student's 'voice.' This illustrates the FLP's framework that underlying attitudes toward a language system fundamentally influence how that language is prioritized and managed.

Implications for Research and Practice

There are a few implications that can be drawn from this study. First, the findings of this study reveal a disconnect between educators' ideals regarding communication and their actual classroom practices. Future research could look into creating robust interventions and instructional frameworks that are designed to help educators better understand the idea of presuming competence and apply it by providing actionable instructional strategies. It would also be worth further exploring how to shift communication instruction away from adult-led, narrowly-focused, functional communication (e.g., expressing wants and needs) toward broader, child-led, social and expressive communication. Future research may also look into investigating the efficacy of already existing training or interventions that aim to expand communicative functions for students with CCN/ESN to provide further insights into fostering communicative competence.

With the professional disparities in confidence and attitudes toward AAC, there is a critical need to develop effective preservice and in-service training models. This would help the systemic lack of AAC preparation reported by participants in the study. Communication/AAC instruction should not solely rely on the expertise of the SLP, so it is pertinent that there are specific resources available to teachers, paraeducators, and other adult supports regarding AAC selection and customization. While participants in this study reported satisfaction with their collaborative practices, it may also be beneficial to further research and support interdisciplinary collaboration, particularly regarding the management of students' AAC systems in which teachers and paraeducators could take more active roles in decision-making.

Another implication for future research stems from the paradoxical finding that educators whose students spent more time in inclusive settings reported lower attitudes toward inclusion. This highlights an urgent need for research focused on the mechanics and, more importantly, feasibility of meaningful inclusion. Additionally, future mixed-methods research could further explore the inconsistencies in reported beliefs vs. actual practices to determine how implicit biases regarding normative social behaviors impact inclusion for students with CCN/ESN. It may never be realistic to have the resources needed to create perfect inclusive environments. Therefore, it is critical that we understand what constitutes adequate support in fully inclusive settings to move beyond physical inclusion to true meaningful inclusion.

Lastly, the use of mixed methods research was instrumental in uncovering nuanced themes about ideals vs. practices that a single-method approach would have likely overlooked. While quantitative survey data provided an overall, larger snapshot of educators' beliefs, qualitative interview data provided depth through individual experiences that added important context to reported beliefs. Specifically, the use of a convergent mixed methods design and the

approach of ‘weaving’ data together allowed for the formation of meta-inferences through concordance, discordance, and complementarity of data, capturing not just what educators reported to believe, but how their actions align or misalign with their beliefs.

Limitations

There were a few limitations in this study. First, with the survey, there could be self-report biases where participants may have provided distorted information about themselves and their experiences due to the nature of the survey (Rosenman et al., 2014). Participants were asked to self-report their own confidence and skills, which could have self-serving bias. This may explain the ceiling effects seen in certain responses. Additionally, participants were asked about their perceptions of disability, which could have social-desirability bias due to social norms (Rosenman et al., 2014). There was also a large sample skew, with 98% of survey respondents and 100% of interviewees being women. Another limitation of this study was the generalizability of the study’s findings. The sample size of the survey ($N = 366$) and interviews ($n = 11$), and the geographical limitations (3 states) are not enough to make large generalizations about communication support for students with CCN/ESN. Lastly, this study could’ve been strengthened if observations were used to corroborate or refute educators’ self-reported practices.

Conclusion

In conclusion, while early childhood educators hold positive intentions and commitment to student success, gaps in technical skills, resources, and implicit biases of disability and competence hinder the full potential of AAC and inclusion for preschoolers with CCN/ESN. This tug-of-war between what educators hope for vs. what actually happens in the classroom was made evident through deeper analysis using mixed-methods research. Ultimately, helping these

students requires more than just good intentions. There needs to be concrete ways to bridge the gap between belief and action by providing educators with better training/preparation, in both technical AAC skills and in reflective practices to address implicit biases. By shifting the focus from just teaching basic functional skills to manage behaviors/basic needs to creating environments and spaces for students to have meaningful opportunities to communicate, we can hopefully bridge this gap and improve communication outcomes for these young students.

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APPENDIX A

Survey

Intro (pg. 1)

The purpose of this survey is to gain insight on educators' perspectives on supporting a student with complex communication needs (CCN). This survey should take about 10-15 minutes to complete. Your responses are voluntary and will be kept confidential. At the end of the survey, you will have the option of entering for a chance to win a \$100 gift card for your participation in this survey. You will also have the option to indicate interest for a follow up interview.

Would you like to participate in this research?

- a. Yes
- b. No

Demographics (pg. 2)

What is your current role? - SINGLE CHOICE

- c. Special Education Teacher
- d. General Education Teacher
- e. Paraeducator
- f. SLP
- g. Other: - branch to ineligible

What type of classroom environment do you currently teach in/support? - CHECKBOX

- h. Separate (separate school, residential/hospital settings)
- i. Self-Contained (segregated classroom within a gen-ed school)
- j. Partial Inclusion (50-80% of time in a gen-ed setting)
- k. Inclusion/Gen-Ed (80% or more time in a gen-ed setting)

How many years of experience do you have teaching/supporting students with extensive support needs? - SINGLE CHOICE

- l. 0-2
- m. 3-5
- n. 5-10
- o. 10+

For this survey, we ask you to think of one focus child to answer questions for. What disability category is your student currently being served under on their IEP? - SINGLE CHOICE

- p. DD (Developmental Delay)
- q. ASD
- r. OHI
- s. Other: _____
- t. Unsure

How would you describe the primary ways in which your student communicates? -
CHECKBOX

- u. Gestures (e.g., pointing, reaching)
- v. Body Language (e.g., turning towards/away)
- w. Vocalizations (e.g., cooing, crying)
- x. Manual Sign Language
- y. Facial Expressions
- z. Other: ____

Demographics (pg. 3)

What is your age? - SINGLE CHOICE

- aa. 18-24
- bb. 25-34
- cc. 35-44
- dd. 45-54
- ee. 55+

What is your gender identity? - SINGLE CHOICE

- ff. Woman
- gg. Man
- hh. Transgender
- ii. Non-binary/Non-conforming
- jj. Prefer not to say

What race/ethnicity best describes you? - CHECKBOX

- kk. American Indian or Alaskan Native
- ll. Asian, Native Hawaiian, or Pacific Islander
- mm. Black or African American
- nn. White
- oo. Hispanic or Latino
- pp. Other: ____

What is your highest level of education? - SINGLE CHOICE

- qq. High School Diploma or equivalent
- rr. Associate's Degree
- ss. Bachelor's Degree
- tt. Master's Degree
- uu. Ph.D or Ed.D

Communication Instruction and Goals (pg. 4)

What do you prioritize when: a) setting communication goals; and b) planning communication instruction for students? - FREE RESPONSE

LIKERT - (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)

I believe my student's communication IEP goals are developmentally appropriate. -

LIKERT

I believe my student requires mastery of certain skills before using AAC. - LIKERT

I believe my student understands what they are communicating via their AAC device. -

LIKERT

I understand what my student is trying to communicate with me. - LIKERT

My student has opportunities to naturally use/practice communication in the classroom. -

LIKERT

I provide adequate communication instruction to meet my student's complex communication needs. - LIKERT

I am knowledgeable about students' language development. - LIKERT

I know what types of language/vocabulary I should be teaching to my student. - LIKERT

AAC (pg. 5)

Prompt: Define AAC.

What kinds of AAC does your student use? - CHECKBOX

vv. Communication Book/Picture Symbols

ww. Picture Exchange Communication System (PECS)

xx. Manual Sign Language

yy. 1-2 button/switch Speech-generating device (e.g., AbleNet BigMack, Step-by-Step, etc.)

zz. 3+ button speech generating device (e.g., GoTalk 9+, Dynavox, etc.)

aaa. AAC App (e.g., Proloquo2Go, TouchChat, etc.)

bbb. Eye gaze

ccc. Other: ____

ddd. Unsure

Prompt (Strongly Disagree to Strongly Agree)

I feel confident supporting my student in using AAC. - LIKERT

My student has meaningful opportunities to use AAC. - LIKERT

My student has opportunities to explore different types of AAC. - LIKERT

My student requires a combination of different AAC to communicate effectively. - LIKERT

My student is able to independently communicate using some form of AAC. - LIKERT

I believe my student's current AAC toolbox is appropriate for their functional, social, and/or academic needs. - LIKERT

AAC (pg. 6)

Prompt (Strongly Disagree to Strongly Agree)

I have the proper resources/supports to adequately provide AAC instruction/support for my student. - LIKERT

I know how to manage/customize AAC to meet my student's needs. - LIKERT

I need support in deciding the most appropriate AAC for my student's needs. - LIKERT

I understand the factors to consider before choosing an AAC tool/strategy for my student. - LIKERT

I know where to look for resources/support regarding AAC. - LIKERT

I effectively collaborate with other members of the IEP team to meet my student's communication needs. - LIKERT

I regularly update my student's AAC system to meet their growing needs. - LIKERT

My student's AAC system meets their cultural needs. - LIKERT

What specific resources/support would you need to better support your student in using AAC? - FREE RESPONSE

Inclusion/Perceptions (pg. 7)

How much time does your student spend in an inclusive setting? - SINGLE CHOICE

eee. Full Day (80-100%)

fff. For certain time blocks (e.g., lunch, recess, specials) (60-80%)

ggg. 40-60%

hhh. Less than 40%

Prompt (Strongly Disagree to Strongly Agree)

What factors of the classroom environment support your student in developing communication/AAC skills? - FREE RESPONSE

My student would have more meaningful experiences in inclusive settings if they had stronger communication skills. - LIKERT

My student's primary learning environment is appropriate to meet their communication needs. - LIKERT

My student requires 1:1 support to meaningfully engage in an inclusive environment. - LIKERT

My school administration and/or available resources make it difficult for my student to engage in inclusive environments. - LIKERT

My student is able to generalize communication skills across environments. - LIKERT

Inclusion/Perceptions (pg. 8)

Prompt (Strongly Disagree to Strongly Agree)

I think my student has the necessary communication skills to meaningfully participate in inclusive settings. - LIKERT

My student is motivated (wants) to communicate with me. - LIKERT

I believe my student is making progress in learning to use AAC. - LIKERT

I believe that my student will learn how to communicate in a way that meets their needs. - LIKERT

I believe other school staff have the appropriate skills needed to communicate and engage with my student. - LIKERT

Thank You/Additional Comments (pg. 9)

Is there anything else you'd like to share regarding how you support your student's complex communication needs? - FREE RESPONSE

What is your first and last name? - FREE RESPONSE

What is the best email to reach you? - FREE RESPONSE

APPENDIX B

Survey Distribution Materials

Email:

SUBJ: Your input is valuable!—UW survey

Survey link: https://uwashington.qualtrics.com/jfe/form/SV_2fdZDDMcM8ZC9rU

Your voice matters! We are looking for teachers, SLPs, and paraeducators who are passionate about supporting their preschool students' complex communication needs to take a survey sharing their experiences.

This survey will take 15-20 minutes and responses will be confidential. Those who are eligible and complete the survey will have the option to be entered into a weekly lottery to receive a \$100 e-gift card as an appreciation for their time.

Specifically, we are looking for current certified teachers, SLPs, or paraeducators who:

- Support students (3-5 years old) who primarily rely on presymbolic means of communication (e.g., gestures, vocalizations, expressions)
- Have at least 1 year of experience supporting students with complex communication needs
- Are key communication partners with the student at a public school in the United States

If you are an educator who fits this description and is interested in participating, please click the link or scan the QR code to complete the online survey. If you know of any educators who fit this description, please send them the link so they can complete the online survey!

Survey link: https://uwashington.qualtrics.com/jfe/form/SV_2fdZDDMcM8ZC9rU

Thank you so much in advance for taking the time to complete and/or share this online survey!

Flyer:



CALL FOR RESPONDENTS

Are you a **teacher, SLP, or paraeducator** who supports a preschooler with complex communication needs (CCN)?



We want to learn about your experiences in supporting CCN of preschoolers who are learning to use AAC (augmentative and alternative communication).

We are looking for:

current certified **teachers, SLPs, or paraeducators** who...

- support students (3-5 years old) who primarily rely on presymbolic means of communication (e.g., gestures, vocalizations, expressions)
- have at least 1 year of experience supporting students with CCN
- are key communication partners with these students at a public school in the US

Participation involves:

- **15-20 minute online survey**
- an opportunity to enter a weekly raffle for a chance to win **\$100 gift card** upon survey completion
- an opportunity to further participate in the research through follow up interviews

This study is approved by the UW Institutional Review Board. If you have any questions, please contact Chi Baik at ✉ cbaik28@uw.edu

Link



APPENDIX C

INTERVIEW GUIDE 1

Hi, my name is Chi and I am a doctoral student at the University of Washington.

Thank you for taking the time to meet with me today. You are invited to participate in this study because you completed a survey regarding your experience supporting a student with complex communication needs.

This will be the first of two interviews. I am interested in learning more about your experiences supporting a student with CCN, specifically regarding communication goals for your student, AAC use, and your thoughts on inclusionary practices in relation to communication. This first interview will focus on questions about you, your experiences, your student, and their current learning environment. I have a set of questions to ask you, but please feel free to ask me questions if anything is unclear. I expect this first interview will take around 30-45 minutes, no more than an hour, depending on your answers.

I. Consent to Record (5 minutes)

I want to confirm that I've received the consent form via the link I sent to you in an email. – *IF PARTICIPANTS HAD NOT DONE THIS, PASTE THE LINK INTO THE CHAT BOX FOR THEM TO COMPLETE THE CONSENT PORTION RIGHT AWAY.*

Our conversations will be recorded in order to ensure that we accurately capture your comments and perspective, but we will not share this recording with anyone who isn't working on the study. Responses will also be anonymized.

Can I double check that I have your permission to record this interview?

- ☐ No
- ☐ Yes

Start digital recording now. Say the participant ID and repeat that you have permission.

I. GENERAL DESCRIPTION OF ROLE/CLASSROOM/STUDENT

I am going to start by asking you some questions about your background and current role.

IA. Tell me a little about your background in teaching/working in education (e.g., years of experience in current role; different roles)

IA1. How long have you been working with students with extensive support needs?

IA1a. What got you interested in teaching this population of students?

IB. What is your educational background?

Probe: How has this helped/impacted you in your current role?

IB1. Tell me about any experiences (e.g., courses, student teaching) that prepared you to support students with extensive support needs/CCN.

IC. In this study, we've asked you to think of one 3-5 year old focus student that you support who primarily uses presymbolic means to communicate. Can you describe the student you're thinking of? As a reminder, all responses will be anonymized, so please feel welcome to refer to your student in whichever way you're most comfortable.

Probe: Diagnosis, age, gender, race, personality, behaviors

IC1. How frequently do you interact with this student?

IC2. How long have you been supporting this child?

ID. Can you describe your student's complex communication needs?

ID1. What are some of their current communication strengths and needs?

IE. We will get into this more in-depth in the second interview but, currently, what are some of their primary modes of communication?

Probe: Do they primarily gesture? Vocalize? How do they try to communicate with you?

II. INCLUSIONARY PRACTICES/ENVIRONMENT

Now, I'm going to ask you to share about the type of learning environment that your student is currently in. Then, I'll ask you a few questions about how you think communication plays a role in your students' opportunities, or lack of opportunities, for inclusion.

IIA. Tell me about the classroom environment in which you teach.

Probe: Is it a self-contained classroom? Specialized school? Inclusive?

Probe: Population of students served?

Probe: Student:teacher ratio?

IIB. What does a typical day supporting your student look like?

Probe: What are some of the daily tasks/ responsibilities you have in this role? Can you walk me through what your day looks like?

Probe: How often does your student receive speech therapy? x/week, mins, days

IC1. In what setting does this service occur?

Probe: Push-in? Pull-out? Group?

IIIC. How appropriate do you think your student's current LRE is in addressing their CCN?

Probe: How does the classroom environment (e.g., self-contained) affect the level of support, peer models, instructional time, opportunities for embedded communication, etc.)?

IIC1. Are there any aspects of the environment could improve to better support your student?

Probe: Do you believe there are certain parts of the day your student could be pulled out for inclusion? Is more 1:1 time needed?

IIC2. To your knowledge, tell me about your student's opportunities and experiences interacting with other staff members.

Probe: Do you believe that other staff members have the knowledge/experience to engage meaningfully with your student?

Probe: Do you believe your student is able to generalize the communication skills they learn across different environments and people?

IIC3. Tell me about your student's opportunities and experiences interacting with other children.

Probe: Does your student have structured opportunities to practice communication with typically-developing peers or peers in their classroom?

Probe: Do you believe that other students have the knowledge to engage meaningfully with your student? Do you believe that your student's current mode(s) of communication gives them the access needed to socialize with their peers?

IID. How do/would you feel about your student learning in an inclusive environment?

Probe: "readiness"

IID1. In what ways do your student's CCN affect their opportunities for inclusion?

Probe: Does verbal language impact inclusion opportunities? Does functional communication level matter?

IID1a. What are some other factors you believe are impacting your student's opportunities for inclusion?

IID1b. What are some supports that would facilitate inclusive opportunities for your student?

IIE. What role/impact do you think school/district support has on facilitating the communication development of students with complex communication needs?

IIE1. Do you have any specific examples you can think of/you'd like to share about receiving/not receiving school/district support?

V. WRAP UP

I really appreciate your participation in this first interview. In the second interview, we will ask you more about your communication practices and AAC use in supporting your student. Do you have any questions thus far?

Thanks for your time! If it works for you, I can send you a Calendly link and we can schedule our second interview now. I will send a follow up email with this link so, if anything changes,

you can reschedule your second interview. After the completion of the second interview, you will receive a \$100 e-gift card as a thanks for your participation.

Please don't hesitate to reach out if you have any questions/concerns!

END RECORDING

APPENDIX D

INTERVIEW GUIDE 2

Hi! Just as a reminder, my name is Chi and I am a researcher. Thank you for taking the time to meet with me again today. This is our second and final interview. In this interview, we are interested in learning more of your beliefs about communication and AAC practices. Like last time, I have a set of questions to ask you, but please feel free to ask me questions if anything is unclear. I expect this interview will also take 30-45 minutes depending on your answers.

I. Consent to Record (5 minutes)

Our conversations will be recorded in order to ensure that we accurately capture your comments and perspective, but we won't share this recording with anyone who isn't in the study.

Do I have your permission to record this interview?

- ☐ No
- ☐ Yes

Start digital recording now. Say the participant ID and repeat that you have permission.

I. COMMUNICATION GOALS/INSTRUCTION

This second interview will ask about your experiences supporting your focus student who primarily uses presymbolic means to communicate. Presymbolic communication includes things such as vocalizations, gestures, movements, and facial expressions. I am now going to ask you a few questions about how you think about communication goals and instruction for your student.

In the last interview, you shared a bit about your focus student and their current modes of communication.

IA. What are a few things your student is currently working on in regards to communication (e.g., requesting, 2-3 word utterances, etc.)?

Probe: Can you share what some of your focus student's communication IEP goals/objectives look like? It doesn't have to be exact goals, but a general idea (e.g., is it functional-focused? social?)

1. _____
2. _____
3. _____

IA1. How appropriate do you think these goals are?

Can you tell me about your belief about communication (e.g., purpose of communication) and how that affects approach?

IA2. How do you decide what aspects of communication to focus on when working with a student? What are some individual factors you consider?

Probe: Do you collaborate with the SLP/teacher/para to create goals?

IA3. How do you decide what vocabulary/language to teach your student (if at all)?

IA4. What do you perceive as barriers or challenges to your student achieving these current goals?

~~ID. What does daily communication (with you) look like with your student?~~

Probe: e.g., Do you prompt? Do they initiate communication? Can you describe any communication routines you may have?

ID1. How confident do you feel in your ability to understand your student's communication attempts and why?

ID1a. What are some strategies you use to try and understand your student's communication attempts?

Probe: What sorts of multimodal communication strategies do you use?

ID2. What are some ways that you promote/provide opportunities for your student to communicate during the school day?

Probe: e.g., Are there structured routines in which they have daily opportunities? Do you prompt them throughout the day?

II. AAC

I am now going to ask you a few questions about how AAC is used in your classroom and your experiences using AAC with your focus student. AAC stands for Augmentative and Alternative Communication and refers to any range of strategies or tools used to support or replace spoken language.

IIB. What kinds of AAC does your focal student use?

IIA. What is your personal experience implementing these AAC interventions?

Probe: Did you take any training/courses? How long have you implemented AAC interventions?

IIC. Can you describe some of the opportunities your student has to use this AAC throughout the school day?

Probe: e.g., Are there structured times where students learn how to navigate their devices?

IIC1. At what times during the day does your student have access to their AAC system? If your student does not have unrestricted access to their device, what are the factors you consider to decide when to give access?

IID. What were some of the factors you considered when deciding on these specific tools/strategies for your student? Or how did you decide on the tool/strategy that your student is using?

Probe: Who decided? Did you have a say? Is there a standard process? Are there only specific tools available? Did you have experience with these specific tools?

IID1. What are some things that went well/are going well with AAC methods?

IID2. What are some difficulties?

IID3. How effective do you think your student's current AAC system/toolbox is in meeting their CCN? Why?

Probe: What would make it more effective?

Probe: Have you tried many other AAC methods?

IIE. How often do you reassess the suitability of your student's AAC system? What does this look like?

Probe: Is there a specific process?

Probe: What factors do you consider (e.g. how much time passes)? What would warrant a change in strategy?

IIE1. How often do you actually update your student's device/tools and why?

IIF. How do you collaborate with others to make decisions on your student's AAC system? Who is involved? How often? What does this look like?

Probe: Do you have time to actually learn how to use the devices? From who? What does this look like?

IIG. Can you describe how you're feeling about the progress your student is making in their communication goals?

IIA1a. Where do you look for support/resources on this if needed?

Probe: Do you feel like you have access to the resources needed/are these resources sufficient?

IIA1b. If you were to receive a training on AAC instruction/support, what specific aspects would you want support in that you believe would improve your practice?

V. WRAP UP

I really appreciate your participation in this study! My goal in this study is to better understand current attitudes of educators who support preschoolers with ESN/CCN and how these attitudes/beliefs affect their communication practices. Is there anything I did not ask, but you think is important for me to know related to your role as an educator of a student with complex communication needs?

Thank you for your time. To compensate for your time, you will receive a \$100 Amazon e-gift card in the next few days. Does this work for you?

☐ Yes.

☐ No. If not, which gift card do you prefer? _____

Is the email we used to communicate with you so far an appropriate place to send the gift card?

☐ Yes.

☐ No. Alternative email _____

I will be following up with you in a few months to share my findings with you and confirm with you that information I have captured represents your perspective. You will receive an additional \$10 e-gift card after that.

In the meantime, please don't hesitate to reach out if you have any questions/concerns!

END RECORDING

APPENDIX E

Interview Codebook

Mixed Methods Codebook Abridged	
1.0 Communication/Language Ideology	
<i>1.1 Role/Purpose of Communication</i>	
<i>1.1a Functional Communication</i>	
<i>1.1aa Core Words</i>	
<i>1.1b Social Communication</i>	
<i>1.1c Accessibility</i>	
<i>1.1ca Multimodal Options</i>	
<i>1.1cb No Tools to Meet Need</i>	
<i>1.1d Student Autonomy</i>	
<i>1.1da Choosing Battles</i>	
<i>1.1db Child-Led vs. Adult-Led</i>	
<i>1.1e Communication Without Expectation</i>	
<i>1.1ea Honoring Communication Attempts</i>	
<i>1.1eb Presuming Intent</i>	
<i>1.1ec Modeling Without Expectation</i>	
<i>1.2 Communication Approaches</i>	
<i>1.2a Skill Generalization</i>	
<i>1.2b Working Towards Independence</i>	
<i>1.2ba Prompt Dependence</i>	
<i>1.2bb Anticipating Needs</i>	
<i>1.2c Communication Rich Environment</i>	
<i>1.2d Naturalistic Approach</i>	
<i>1.2e Individualization</i>	
<i>1.2ea Communication Affects Behavior</i>	
2.0 AAC Knowledge/Attitudes	
<i>2.1 Preparation/Practice</i>	
<i>2.1a Independent Learning</i>	
<i>2.1aa Working Overtime</i>	
<i>2.1ab Staff Burnout</i>	
<i>2.1b Professional Development/Pre-Service Training</i>	
<i>2.1ba Lack of AAC training</i>	

<i>2.1c Assessing Suitability</i>
<i>2.1ca Data-based Decision-making</i>
<i>2.1cb Cultural/Multilingual Considerations</i>
<i>2.1d Convenience vs. Fit</i>
<i>2.1da Resource Limitations</i>
<i>2.1db System Limitations</i>
<i>2.2 Attitudes vs. Opportunities</i>
<i>2.2a Prioritizing AAC Use</i>
<i>2.2aa Exposure to Diverse AAC</i>
<i>2.2ab Student Interest/Disinterest</i>
<i>2.2b Confidence in AAC</i>
<i>2.2ba Self Confidence</i>
<i>2.2bb Belief in Students' Progress</i>
<i>2.2c Collaboration</i>
<i>2.2ca Distinct Roles</i>
<i>2.2cb Belief in Others' Abilities</i>
<i>2.2cc Building Trust/Relationships with Students</i>
3.0 Inclusionary Practices
<i>3.1 Pro Inclusion</i>
<i>3.1a Benefit of Peer Models</i>
<i>3.1b Positive Experiences with Admin/District Support</i>
<i>3.1c Belief in Student Competence</i>
<i>3.1ca Reframing Challenges</i>
<i>3.2 Reservations about Inclusion</i>
<i>3.2a Proving Readiness</i>
<i>3.2aa Challenging Behavior Interference</i>
<i>3.2ab Prompt Dependence</i>
<i>3.2ac Uncertainty of Student Understanding/Presuming Incompetence</i>
<i>3.2ad Attributing Non-social Behaviors</i>
<i>3.2b Fearing Non-meaningful Inclusion</i>
<i>3.2ba Concerns Over Belongingness</i>
<i>3.2bb Overwhelming Environment/Sensory Considerations</i>
<i>3.2c Resource Limitations</i>
<i>3.2ca Need for 1:1</i>
<i>3.2cb Pushback from Admin/District</i>

3.2 cc Lack of Opportunity for Inclusion

Full codebook	
Code	Definition
1.0 Communication/Language Ideology	
<i>1.1 Role/Purpose of Communication</i>	
<i>1.1a Functional Communication</i>	Mentions any form of functional communication e.g., requesting wants/needs, asking for help, etc.
<i>1.1aa Core Words</i>	Mentions teaching core words e.g., want, like, stop, etc.
<i>1.1b Social Communication</i>	Mentions using communication to socially interact with others e.g., with peers, greeting others, etc.
<i>1.1c Accessibility</i>	Mentions access or non-access to communication tools
<i>1.1ca Multimodal Options</i>	Mentions using 2 or more different kinds of AAC or communication tools
<i>1.1cb No Tools to Meet Need</i>	Mentions lack of access (for whatever reason) to appropriate communication tools to meet student's need
<i>1.1d Student Autonomy</i>	Mentions importance of allowing student to make their own choices/communicate whatever they want
<i>1.1da Choosing Battles</i>	Mentions conceding to a student's behavior/desire for something due to whatever reason
<i>1.1db Child-Led vs. Adult-Led</i>	Talks about whether communication is child-led (initiated by child or guided by child's interests) or adult-led (guided/led by adult's interests)
<i>1.1e Communication Without Expectation</i>	Explicitly mentions no expectation of having student respond back
<i>1.1ea Honoring Communication Attempts</i>	Talks about validating student communication attempts by following through on request
<i>1.1eb Presuming Intent</i>	Referencing that they believe the student understands what they're trying to communicate or understands what is said despite no clear response from said student
<i>1.1ec Modeling Without Expectation</i>	Talks about modeling communication in any way without need for student response

<i>1.2 Communication Approaches</i>	
<i>1.2a Skill Generalization</i>	Mentions generalizing communication skills to environments outside of the classroom
<i>1.2b Working Towards Independence</i>	Mentions wanting or needing student to eventually communicate independently
<i>1.2ba Prompt Dependence</i>	Talks about student needing prompting in order to engage in communication
<i>1.2bb Anticipating Needs</i>	Mentions how they predict students' needs or requests in order to facilitate communication
<i>1.2c Communication Rich Environment</i>	Discusses how communication is or is not apparent in the classroom environment
<i>1.2d Naturalistic Approach</i>	Mentions efforts to embed communication into daily routines and classroom tasks
<i>1.2e Individualization</i>	Talks about importance of tailoring communication approaches for each individual student
<i>1.2ea Communication Affects Behavior</i>	Alludes to challenging behaviors occurring due to communication frustrations
2.0 AAC Knowledge/Attitudes	
<i>2.1 Preparation/Practice</i>	
<i>2.1a Independent Learning</i>	Talks about learning about AAC or communication strategies on own
<i>2.1aa Working Overtime</i>	Talks about learning about AAC or communication strategies after school hours
<i>2.1ab Staff Burnout</i>	Talks about self or others feeling overworked/burnt out
<i>2.1b Professional Development/Pre-Service Training</i>	Talks about learning about AAC or communication strategies through professional development or through pre-service (in college) trainings
<i>2.1ba Lack of AAC training</i>	Talks about not having or wanting AAC or communication training
<i>2.1c Assessing Suitability</i>	Talks about how they reassess how AAC tool/strategy is or isn't working for the student
<i>2.1ca Data-based Decision-making</i>	Directly talks about using collected data to guide decision making about AAC

<i>2.1cb Cultural/ Multilingual Considerations</i>	Directly talks about considering students' cultural backgrounds when making AAC or communication decisions
<i>2.1d Convenience vs. Fit</i>	Mentions choosing AAC based on convenience (e.g., readily available or educator already has knowledge about) or talks about choosing AAC to fit the student
<i>2.1da Resource Limitations</i>	Talks about how school district or school doesn't have proper resources needed to properly support student
<i>2.1db System Limitations</i>	Talks about how AAC tool/device has limitations that affect students' communication
2.2 Attitudes vs. Opportunities	
<i>2.2a Prioritizing AAC Use</i>	Mentions prioritizing use of AAC over other communication methods
<i>2.2aa Exposure to Diverse AAC</i>	Mentions exposing student to multiple types of AAC
<i>2.2ab Student Interest/Disinterest</i>	Mentions whether student seems interested or not interested in AAC
<i>2.2b Confidence in AAC</i>	Talks about belief in AAC being effective for student
<i>2.2ba Self Confidence</i>	Talks about own confidence level with using AAC
<i>2.2bb Belief in Students' Progress</i>	Talks about how they believe or don't believe their student is making progress in using AAC
<i>2.2c Collaboration</i>	Mentions working with others in making decisions about AAC or communication instruction
<i>2.2ca Distinct Roles</i>	Talks about how each collaborative member has a unique role (e.g., "that's not something I do, that's x's job")
<i>2.2cb Belief in Others' Abilities</i>	Talks about whether they believe other adults do or do not have the skills to facilitate communication with students
<i>2.2cc Building Trust/Relationships with Students</i>	Talks about needing to know students more and build relationships in order to facilitate communication
3.0 Inclusionary Practices	
3.1 Pro Inclusion	
<i>3.1a Benefit of Peer Models</i>	Mentions how peer models have benefitted facilitating communication

<i>3.1b Positive Experiences with Admin/District Support</i>	Talks about positive experiences with getting help from admin/district
<i>3.1c Belief in Student Competence</i>	Alludes to belief in student ability to communicate
<i>3.1ca Reframing Challenges</i>	Gives alternate reasoning or explanation to challenging situations
<i>3.2 Reservations about Inclusion</i>	
<i>3.2a Proving Readiness</i>	Any mention of some skill or characteristic student would need to have to be 'ready' for inclusion
<i>3.2aa Challenging Behavior Interference</i>	Mentions challenging or interfering behaviors that would limit meaningful engagement in inclusive settings
<i>3.2ab Prompt Dependence</i>	Mentions students' reliance on prompting that would limit their opportunities to meaningfully engage in inclusion
<i>3.2ac Uncertainty of Student Understanding/ Presuming Incompetence</i>	Any mention of being unsure that a student is understanding or can understand communication
<i>3.2ad Attributing Non-social Behaviors</i>	Talks about how student does not have interest in interacting with others
<i>3.2b Fearing Non-meaningful Inclusion</i>	Mentions worries about how student being in inclusive environment will not be a meaningful experience
<i>3.2ba Concerns Over Belongingness</i>	Discusses worry about student not fitting in in inclusive environments
<i>3.2bb Overwhelming Environment/Sensory Considerations</i>	Talks about how student gets/may get overwhelmed with sensory stimuli in inclusive settings
<i>3.2c Resource Limitations</i>	Talks about how school district or school doesn't have proper resources needed to properly support student (same code as other category)
<i>3.2ca Need for 1:1</i>	Talks about how student needs 1:1 support in order to meaningfully be included in inclusive environment
<i>3.2cb Pushback from Admin/District</i>	Explicitly mentions admin, district, or other staff pushing back against inclusive opportunities for student

<i>3.2 cc Lack of Opportunity for Inclusion</i>	Mentions having no or limited opportunity for student to be in inclusive environment for whatever reason
--	---