BUILDING EDUCATOR CAPACITY FOR INCLUSIVE EDUCATIONAL PRACTICES FOR STUDENTS WITH HEARING LOSS

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Abstract

For decades students with hearing loss have been removed from their non-disabled, same age peers to be educated in separate settings. Segregated service delivery is fueled by several erroneous assumptions that can result in lowered expectations and quality of teaching. This Disquisition (a dissertation in practice model) details an improvement initiative that addressed the inequitable practice of providing specially designed instruction in more restrictive environments in one school district. A team of educators sought to increase teacher capacity and efficacy to include students who are Deaf/Hard of Hearing (D/HH) in general education classrooms through evidence-supported professional learning. The design team created professional learning modules that highlighted supportive scholarship including (a) the benefits of serving students in inclusive settings, (b) differing types/severities of hearing loss, (c) optimal hearing environments within the school environment, (d) effective modifications, and (e) effective collaboration with specialized teachers (e.g., special education teachers or D/HH teachers) and service providers. The improvement initiative is grounded in disabilities studies and support for a neurodiverse approach to education service delivery. Quantitative and qualitative measures were employed to determine if educator capacity increased for the implementation of inclusive practices following the professional learning activities. Findings show that professional learning efforts increased capacity for inclusion of students who are D/HH and cultivated positive educator perceptions toward inclusive practice for students who are D/HH. Implications and recommendations for schools and districts are included.

Key words: Deaf/Hard of Hearing, Inclusive Practices, Educator Efficacy, Professional Learning, Disability Studies Education, Neurodiversity

Building Educator Capacity for Inclusive Educational Practices

for Students with Hearing Loss

A National Issue

For decades students with disabilities have been removed from their non-disabled, same age peers to be educated in separate settings. This is especially true for students identified as Deaf or Hard-of-Hearing (D/HH). Even though the country has made progress towards inclusive practices for students who are D/HH, continued efforts are needed. A study by Gallaudet Research Institute (2006) reported that only 44% of D/HH students spent more than 16 hours a week in classrooms with their hearing peers. According to the National Center for Education Statistics (NCES), in the United States during the 2021-2022 school year, approximately 56% of students with hearing loss were educated in separate settings outside the general education classrooms. This includes settings such as resource rooms, separate classrooms for students with hearing loss, and separate schools or programs for students with hearing loss.

Segregated service delivery (e.g., pull-out services, self-contained classrooms/schools) is fueled by several assumptions including,

- We can better educate students who struggle if they are separated from their peers.

- We can only provide individual attention and support in a setting or situation separate from rigor and relevance in the core of teaching and learning.

- Classroom teachers are not able to teach to a range of students.

- Schools are incapable of changing to meet student needs.

- The locus of student problems lies within the student; thus, we have no need to examine how the school responds to the child or what can be done differently to avoid student struggles (Capper and Frattura, 2008).

Research continues to show us that these assumptions are unsupported, erroneous, and could result in harmful practices (Antia et al., 2009; Cole et al., 2022; Luckner & Muir, 2001; Stinson & Liu, 1999). Students served in segregated settings often receive lower expectations, miss standards-based content, and receive lower quality teaching (Cole et al., 2022; Darling-Hammond & Falk, 1997). Considering these conditions, it is not surprising that high school graduation rates for individuals who are D/HH are lower than their hearing peers (National Deaf Center, 2019). On the flip side, research supports the integration of students with disabilities into general education classrooms with non-disabled peers when teachers are supported in their efforts to meet the needs of the wide range of learners in their classrooms (Farmer et al., 2019; Luckner & Muir, 2002; Stinson & Liu, 1999).

When our students are not receiving supportive, inclusive education, post-secondary outcomes are impacted including career attainment. According to the National Deaf Center (NDC) for Post-Secondary Outcomes (2019), people who are deaf achieved lower levels of education than their hearing peers. Data show that the completion rate for bachelor's degrees is 15.2% higher for hearing students than deaf students (National Deaf Center, 2019). The NDC also reported that employment rates between hearing and deaf individuals varied widely depending on the field but, in all areas, deaf individuals' employment rates were significantly lower than hearing individuals. Even though attainment rates have increased since 2008, per the NDC, the gaps remain. Across decades, only minimal progress in reducing the opportunity gaps (Ladson-Billings, 2006) has been achieved, calling into question our assumptions about how students identified as D/HH should be educated.

While we are learning that segregated service delivery is not working, we are also learning that students with disabilities (including those identified as D/HH) excel within

classrooms with non-disabled, same age peers when supportive conditions are provided (Anita et al, 2009; Luckner & Muir, 2001; Pivik et al, 2002). Gilmour (2018) explains that the effectiveness of inclusion is determined by critically examining what works and what doesn't work in our instructional approaches to students with differing abilities. This contrasts our deficit thinking wherein we locate the problem within the students and not the classroom (Gorski, 2011). When teachers understand the needs of students with differing abilities and develop instructional supports to meet those needs, inclusive classrooms can be a place where all students thrive (Farmer et al., 2019).

Many studies have shown that students who are D/HH can be successful in the general education classroom. Luckner and Muir (2001) identified six themes that emerged from their research of students that were successful in the general education setting. Parents indicated that having caring professionals to support their children was a top need. A number of researchers have reported that students who are D/HH that are receiving their instruction in general education classrooms achieved higher academic achievement than those instructed in self-contained classrooms (Holt, 1994; Kulwin, 1993; Powers, 2001). Barrett et al. (2020) found that most educational practices utilized within separate settings can be implemented in inclusive settings without compromising the integrity of the core instruction. Cole et al. (2022) concluded that students with disabilities who were included with non-disabled peers demonstrated overall improved academic outcomes.

Individual Education Program (IEP) teams should make placement decisions that treat general education classrooms as the default for students and should only consider removing students if compelling evidence supports the need (Anderson & Brock, 2020). Unfortunately, IEP teams often lean toward segregated service delivery because of (a) their erroneous

assumptions about what is best for students who are D/HH, and (b) a system that is not prepared to include students who are D/HH in the classroom.

Background

Public Law (PL) 94-142, established in 1975, changed the landscape for special education including deaf education. Prior to 1975, the US had a long history of educational segregation for individuals who are deaf. The first deaf school was established in 1817 by Mason Cogswell, Thomas H. Gallaudet, and Laurent Clerc and was named the Hartford Asylum for the Education and Instruction of the Deaf and Dumb (Bridges for the Deaf and Hard of Hearing, 2019). In the many decades following, students identified as D/HH were educated in residential schools/facilities or in self-contained classrooms.

The Individuals with Disabilities Act (IDEA) was passed in 1975 and has been amended three times to provide deeper clarification for "least restrictive environment" (LRE) and "free and appropriate public education "(FAPE). The reauthorization of IDEA in 1997 added additional requirements to be considered for students who were D/HH. Section 300.324 (a) (2) (iv) of IDEA states that the IEP team shall

> consider the communication needs of the child, and in the case of a child who is deaf or hard of hearing, consider the child's language and communication needs, opportunities for direct communications with peers and professional personnel in the child's language and communication mode, academic level, and full range of needs, including opportunities for direct instruction in the child's language and communication mode (US Department of Education, 2017).

In each reauthorization of IDEA, the language and requirements have become more inclusive for students with disabilities. This is important as each reauthorization puts stricter considerations

and protections in place for students with disabilities to be included more with non-disabled peers. School districts must create a continuum of alternative placement options in which a student's IEP can be implemented to meet the unique individual needs of a student (Iris Center, n.d.). IDEA guarantees FAPE in the LRE to students with disabilities and each reauthorization has emphasized the need to increase access to the general education curriculum to improve educational outcomes. This suggests that students identified as D/HH should receive instruction in inclusive settings. However, we have not created conducive educational environments which include teachers who are prepared to teach in inclusive environments and address the unique needs of students who are D/HH.

Although the law says we are supposed to begin placement in the "least restrictive environment" many schools do not have the support in place to make this happen. Supports include ongoing educator training (Foster and Cue, 2009), collaboration between general education and special education teachers (Compton et al., 2015), administrator knowledge on the law and effective inclusive practices (Dorn, 2019; Luckner et al., 2005), and teacher efficacy for meeting the needs of a wide range of learners including those who are D/HH (Luckner & Muir, 2001). Without these supports, schools often default to extant models that rely heavily on segregated service delivery.

For general and special education teachers (including teachers certified to teach the D/HH) to collaborate and prepare the most effective IEP - one that focuses on keeping students with hearing loss in the general education classroom - they need to learn how to serve students with hearing loss in the general education classroom and have the confidence to apply those practices to improve outcomes for students who are D/HH. Luckner and Ayantoye (2013) completed a study that surveyed 356 teachers of the D/HH. Most of the participants reported that

the majority of students with hearing loss spend all or a portion of their day in the general education setting with hearing students. Supporting those claims, recent reports indicate that nationally 88.2% of students who are deaf and hard of hearing spend at least part of their day in the general education classroom (US Department of Education, 2019). In a study by Giezen et al. (2018), general education teachers in the United States were surveyed about their experiences and perceptions related to working with students who are D/HH. The results showed that while many teachers had positive attitudes towards inclusion and working with students who are D/HH, they often lacked specific knowledge and skills related to teaching this population. For example, many teachers reported feeling unprepared to work with students who use sign language and were not familiar with appropriate accommodations and modifications for students who are D/HH. Simply put, inclusion is not enough. We must commit to the preparations necessary for successful inclusion.

Theoretical Framework

This work is informed by Disability Study in Education (DSE) and the concept of neurodiversity (Baumer & Frueh, 2021).

Disability Studies in Education

Leaning into the leading scholars on DSE, Capper (2019) identified seven core tenets of DSE that can inform research and leadership practices. These include "(a) hegemony of normalcy, (b) denouncement of labeling, (c) disability is socially constructed, (d) critique of special education, (e) importance and critique of inclusion, (f) disability voice, and (g) intersectionality" (Capper, p. 177). Some of the tenets that closely align with the issue presented in this paper include the critique of special education, disability as socially constructed, and the importance of critiquing inclusion (Capper, 2019).

DSE scholars' critique special education and suggest that those who hold on to its structures and presuppositions do so for reasons of conformity and legal compliance, not necessarily what is best for the student. Capper (2019) explains that through the lens of DSE the goal should not be to improve or make our current special education system more effective but to change the normative core of schooling for students with differing abilities. DSE disagrees with the medical model of special education where students are portrayed as having a problem that needs fixing rather than as a student with differences (Capper, 2019). DSE scholars argue that learning differences are normal, and that the present educational system perpetuates dismal outcomes for students with disabilities because it does not include (and support) students who learn differently than "the norm" in the general education classroom.

The critique of inclusion is key to creating effective education for students with disabilities. Capper (2019) explains that most inclusive practices stop with the placement of students into physical spaces (general education classrooms) and don't address other integral components for successful inclusion, such as curriculum, social engagement, and teacher-specialist collaboration. She also notes that notions of inclusion do not typically engage the more just standard of proportional representation where the percentage of students with disabilities in the school's total population mirrors (or is less than) their population percentage in general education classrooms.

Neurodiversity

Armstrong (2017) describes how some educators are oriented toward neurodiversity (Baumer & Frueh, 2021) and focus on creating environments where all students can thrive. Neurodiversity describes the idea that people experience and interact with the world around them in many ways; there is no "right" or "normal" way of thinking, learning, and behaving.

Differences are not viewed as deficits (Baumer & Frueh, 2021). Students with disabilities are viewed as being part of the normal diversity of student learning. Many general education settings are designed around a socially constructed idea of "normal." If students with disabilities cannot assimilate to the norm (the general education classroom), they are viewed as deficient and removed from the classroom. Teachers who appreciate the neurodiversity of students strive to meet the learning needs of all their students proportionately and heterogeneously in the general education classroom. At the same time, school leaders continuously build teacher capacity to meet those diverse needs.

A Causal Analysis

In this section, I have provided a causal analysis (Ishikawa, 1976) of the identified problem: Students identified as D/HH are performing below their non-disabled peers. A causal analysis is conducted to help inform teams to determine the true causes of a problem (Hinnant-Crawford, 2020) and to, ostensibly, provide a targeted, effective response.

I have explored five causes within the research literature that have contributed to performance gaps between students identified as D/HH and their non-disabled peers. The five causes include (a) a lack of qualified teachers; (b) a lack of substantive collaboration between general education and special education teachers; (c) a denial of access to high quality teaching and learning as the result of segregated service delivery; (d) lowered student-efficacy as the result of stereotype threat, communicated by segregated service delivery; and (e) a lack of professional learning that builds educator capacity and efficacy for inclusive excellence. The figure below (Figure 1) illustrates these primary causes.

Figure 1

Fishbone Diagram: Building Educator Capacity for Inclusive Education
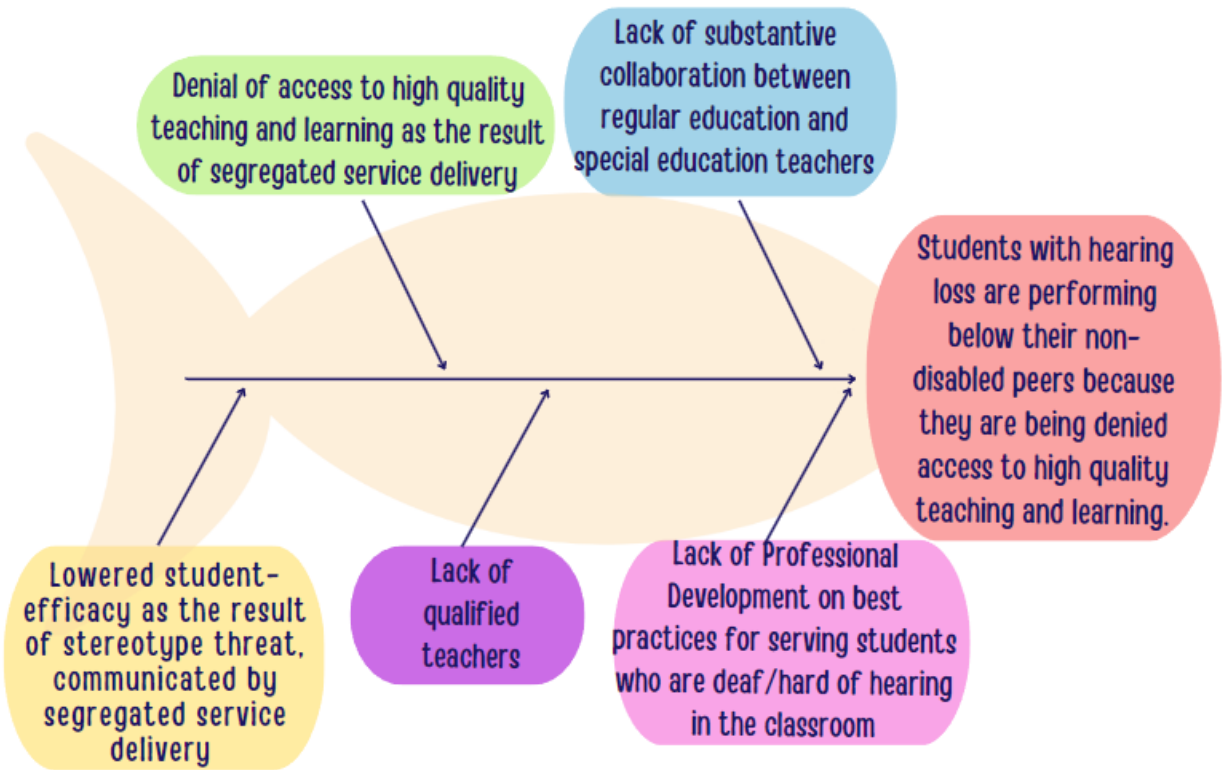
Lack of Qualified Teachers

The first identified cause is lack of qualified educators. The pool of qualified teachers (general and special education) is decreasing every year (Mitchell, Hampton, & Mambwe, 2022). This is especially true in the state of North Carolina (where this improvement work occurred). The 2020-2021 report on the State of the Teaching Profession in North Carolina (State Board of Education, 2022) presented to the general assembly was released in February 2022. In North Carolina, there is only one four-year university/college that offers a program for teachers to receive licensure to teach students who are D/HH. That program is a dual certification program where students receive certification for both deaf education and special education. Many of the graduates choose to work as special education teachers in schools with students having a variety of disabilities rather than focusing upon students identified as D/HH. It is right to surmise that

more employment opportunities exist for special educators than for deaf educators given the low percentage of students who are D/HH. However, with the number of teachers decreasing vacancies for teacher of the D/HH are rising.

Unfortunately, most educator preparation programs are not preparing educators to teach to the full range of students (including those with disabilities or D/HH) making it increasingly difficult to find qualified teachers (Guardino, 2015). If the educational system did not assign the majority of the responsibility for the education of students who are D/HH solely to specialized teachers, we may have a larger pool of qualified teachers. For such a shift to happen, assumptions would have to change about who is, who isn't, who should be, and who shouldn't be qualified to teach students identified as D/HH.

Lack of Collaboration Between General Education and Special Education Teachers

The second identified cause for subpar academic performance is a lack of collaboration between general education and special education providers including deaf education teachers (Compton et al., 2015; Luckner & Muir, 2002; Stinson & Liu, 1999). One of the teacher assumptions mentioned earlier was the inability to teach to the range of student needs within the classroom. Consultation and collaboration between general and special education teachers can serve to build general education teacher capacity and efficacy. Luckner and Muir (2022) explain that when professionals meet to share information and perspectives to provide consistent and thorough services to students, they are better prepared to address the variety of unique needs of students within their classroom. Dorn (2019) explains that consultation services occur when a specialist provides strategies and supports to the general education classroom teacher to help them serve students with disabilities in the general education classroom setting. Compton et al.

(2015) identified in their research that some teachers had limited time throughout the day to dedicate to collaboration and wanted administrative support to allow time to do so.

Many research studies have focused on consultation between special education and general education providers and the impact this collaboration has on student outcomes. Collaborative support from professionals that have specialized knowledge around educational pedagogy and accommodations/modifications for students with hearing loss is imperative for inclusive models (Peetsma & Van der Veen, 2011; Stinson & Liu, 1999). For students who are D/HH to be successful in the general education classroom, it is vital that teachers and staff work in partnership to provide ongoing support to adapt the curriculum and create accessible classrooms (Luckner & Muir, 2002). Compton et al. (2015) concluded in their qualitative study that consultation is a critical job component for teachers of the DHH to form relationships with general education teachers.

Denial of Access to High Quality Teaching and Learning as the Result of Segregated Service Delivery

The third identified cause is denied access to the core of teaching and learning (standards-based curriculum) typically situated in the general education classroom. If students are being removed from the core of teaching and learning to receive special education services, then they might be missing the rigorous instruction that is being presented within the classroom (Holtzman et al., 2017; Stinson & Liu, 1999). Angelides & Avari (2006/2007) concluded that attendance within a mainstream classroom appeared to provide more learning opportunities to students than those in segregated settings. Segregated service delivery also focuses attention on the deficits that allow for lowered teacher expectations within the classroom for students who are D/HH (Luckner & Muir, 2002). Additionally, when students who are D/HH are denied access to non-

disabled peers in the general education classroom they are at potential risk for not being seen as a member in the classroom (Farmer et al., 2019).

Lowered Student-Efficacy as the Result of Stereotype Threat, Communicated by Segregated Service Delivery

When we remove students from the general education classroom, we communicate to them that they are not as capable as the students who are not being removed from the classroom. Having a disability is thus perceived and internalized by students as a negative characteristic and is associated with an inability to learn--a lowered sense of self-efficacy for learning. This is an example of "stereotype threat" (Steele, 1997). Students believe and adopt the stereotype that students with disabilities are "less than" their non-disabled peers. This lowered sense of self-efficacy for learning negatively impacts their success in school (Hitt & Tucker, 2016).

Lack of Professional Learning that Builds Teacher Capacity for Inclusive Excellence

The fifth identified cause is a lack of teacher professional learning for successfully including students who are D/HH in their classrooms. Eriks-Brophy and Whittingham (2013) concluded in their study that teachers perceived themselves to be insufficiently prepared to teach students with hearing loss in an inclusive setting. Classroom teachers may not know how to integrate learners with diverse needs into the general education classroom academically or socially (Farmer et al., 2019).

Many research studies have also focused on teacher preparation for providing support to students with hearing loss. Guardino (2015) concluded in her study that many teachers that work with students with hearing loss desire additional in-service resources and learning opportunities. They seek relevant materials and courses that target assessment procedures. Similarly, Luckner et al. (2005) found that more training for school administrators is required. School administrators

need to better understand the impact of their leadership decisions within their school to support

appropriate strategies and modifications for staff working with students who are D/HH. Research

has demonstrated a tremendous need of professional training for educators that work with

students identified as D/HH (Afzali-Nomani, 1995; Eriks-Brophy & Whittingham, 2013;

Luckner & Muir, 2001; Yuknis, 2015).

School administrators play an integral role when it comes to supporting inclusive

excellence (Compton et al., 2015; DeMatthews et al., 2020). School administrators need to

understand the benefits of supportive inclusion for students who are D/HH and what supportive

inclusive environments look like within their building. DeMatthews et al. (2020) stated that

school administrators need to create a vision collaboratively with staff to support an environment

that champions inclusive practices. School administrators can work with school staff to create

shared values by (a) providing information denouncing segregation and what benefits come from

inclusion; (b) clarifying what inclusion looks like in practice; (c) addressing resistance for

inclusion in order to create solutions; and (d) developing a system to sustain the vision over time

(Billingsley & Banks, 2018).

A Local Issue: Alamance-Burlington School System

In this section, I will describe the local context of Alamance County, North Carolina and

the Alamance-Burlington School System (ABSS) – the school system in which this improvement

work took place. I will also share my role and positionality within the ABSS. Before doing so, it

is important to note the state of deaf education in the state of NC.

Deaf Education and North Carolina

Some movement towards an inclusive model is present within our state and within the

school system in this study, but it's not prevalent. North Carolina has two public, separate

schools for students with hearing loss. The advantage that the Deaf community sees in Deaf

Schools is the presence of specialized personnel such as teachers, related service providers, administrators, and other community members that are focused on meeting the needs of the students (Silvestri & Hartman, 2022). The support for inclusive initiatives does not seem popular in North Carolina, especially when you consider Session Law 2016-94, House Bill 1030, passed in 2016. The law requires,

> North Carolina public schools to provide a consent for release of information form to parents, guardians, or custodians of students identified with a primary disability of hearing and/or vision loss, or if the student is identified as multiple disabled and has hearing and/or vision loss. This consent authorizes the release of the parent's name, address, and the student's disability information to the NCDPI and the directors of the residential schools for the deaf and blind. The consent must be provided to parents by October 1 and affirmative consent responses only must be reported to the NCDPI and the residential school directors by November 30 of each school year (Department of Public Instruction, 2021).

All school districts in North Carolina must send a consent for release to every student under the requirements of House Bill 1030 to allow the release of their contact and disability information to be sent to the two NC public separate schools serving students who are D/HH. This allows the residential schools to reach out to the families to share information about their programs/locations. The release for consent is not a one-time request and must be sent to the students' family yearly. Ultimately, attending one of the public separate Deaf schools is an IEP team decision; however, House Bill 1030 appears to be advertising or promoting the schools.

Of course, the consent for release of information form is viewed by some as an important tool for ensuring that students with hearing and/or vision loss receive appropriate and effective

services to support their educational needs. By obtaining consent to share information, the residential schools can ensure that all relevant professionals and families have access to the information about their schools and the services that can be offered to students who are D/HH.

In addition to this viewpoint, it is also important to acknowledge that members of the Deaf community believe that residential deaf schools offer a safer place where students have access to a large group of peers and are more likely to use visual modes of communication (Silvestri & Hartman, 2022). However, advocates for full inclusion argue that separate schools are a form of segregation (Snow, 2021) and that placements within the general education classroom will enhance social integration and academic success (Millen et al., 2019).

Another initiative the North Carolina legislation approved is the required communication plan worksheet (CPW) to be completed for all students with a documented hearing loss during the IEP process. The purpose of the CPW is to guide the decision-making process for the IEP team through a collaborative needs-based lens. Within the legislation text of NC 1503-5.1 in the Policies Governing Services for Children with Disabilities (2021) section, it states that the team must,

> Consider the communication needs of the child, and in the case of a child who is deaf or hard of hearing, consider the child's language and communication needs, opportunities for direct communications with peers and professional personnel in the child's language and communication mode, academic level, and full range of needs, including opportunities for direct instruction in the child's language and communication mode (North Carolina Department of Public Instruction, 2021).

This policy supports collaborative strategic planning between special education and general education teachers to consider the educational and functional needs of the student. If our teachers

do not understand the importance of collaboration when developing the IEP, then IEP teams are ineffectively developing IEPs to educate students who are D/HH.

Ultimately, the most appropriate classroom placement for a student who is D/HH depends on their individual needs and circumstances. Some students who are D/HH may thrive in inclusive classrooms with appropriate support and accommodations, while others may benefit from specialized classrooms with a focus on deaf education. The decision should be based on a thorough evaluation of the student's strengths and needs.

Some would argue that the decision should also include an examination of the available resources and support within the school district. Although it seems reasonable to only offer that which is available, doing so could deny access to services the student needs and deserves. If a district does not have inclusive classrooms, the district should work to create those classrooms. I argue that all districts should have the array of options (resources) available for students who are D/HH including fully supported, inclusive classrooms. This honors special education law surrounding Free and Appropriate Public Education (FAPE).

Alamance-Burlington School System

My Positionality within ABSS

I acknowledge that I am a White, cisgender, able-bodied female. I am not Deaf, nor do I have any close family members that are Deaf. I recognize that I have never had the lived experiences of a person who is D/HH. However, I am an advocate for inclusivity and believe that no matter our abilities (differences) we should have access to all places within society. School districts should provide access in the form of fully supported, inclusive classrooms for students who are D/HH.

I started with the Alamance-Burlington School System in August of 2005 as a speech-language pathologist in a Title I elementary school. After working for a few years, I was asked to attend specialized training in the practices and principles of auditory-verbal therapy when working with students with hearing loss. After this training, I began working with students who are D/HH and built a program within the district that focused on providing appropriate and effective services for students who are D/HH. I am currently the Exceptional Children's Program Facilitator for Related and Support Services. I am responsible for running the program while making administrative decisions and improvements as needed. I complete all teacher observations and summative evaluations throughout the year along with programmatic decisions for the departments I support. These staff members include Teachers of the D/HH, Spoken Language Facilitators, Educational Sign Language Interpreters, Speech-Language Pathologists, Audiologists, Cued Language Transliterators, Speech-Language Pathologists, Occupational Therapists, Physical Therapists, School Psychologists, etc.

Throughout the years, I have assisted the North Carolina Department of Instruction with many initiatives to support students with hearing loss. These include working with stakeholder groups to analyze the effectiveness of Educational Sign Language Interpreters within the state, creating a database for collection of NC House Bill- 317 data, and creating professional learning to utilize the data within each district. I currently sit on the North Carolina Governor's Council for Deaf and Hard of Hearing as the state's Local Education Agency representative.

I have been providing technical assistance and support to the staff for over 17 years within the ABSS. I have been complicit with supporting service delivery models that segregated students with hearing loss. I will be honest; I was perpetuating these segregated models for years.

I seek to create greater access for the D/HH and fully support inclusive educational environments.

The ABSS Community

The Alamance-Burlington School System was established in July of 1996 after merging the respective county and city schools into one school district. There was great controversy surrounding the merger since it combined the rural county schools with the city schools who educated a greater number of marginalized students – students who identified outside of the dominant group (e.g., White, non-disabled, English-speaking, middle to upper class, etc.).

Alamance County has fifty-one students eligible for special education services under the category of deafness or hearing impairment and, over the years, those with hearing loss have become a close-knit community. Our middle and high school students who are D/HH often mentor our younger students to build strong peer relationships and to increase their sense of belongingness. For the past ten years, the ABSS has hosted a free Deaf/Hard of Hearing family night for students and community members which has cultivated a supportive collaboration between families in our county. The bond continues to strengthen and grow each year. Many of our students attend a camp for students who are D/HH at Camp Sertoma every summer. The community of support created over the years has cultivated the climate of acceptance within the community.

Demographics

The demographics of Alamance County and the Alamance-Burlington School System are reflected in Table 1: Alamance County racial demographic information as reported by the 2021 US Government Census count; and Figure 2: the ABSS racial pupil demographics for the 2021-2022 school year. The table and figure show predominantly white characteristics for the community and school system.

Table 1

Alamance County Racial Demographics

Race and Hispanic Origin	Percentage
White alone	73.60%
Black or African American alone	20.90%
American Indian and Alaska Native alone	1.50%
Asian alone, percent	1.70%
Native Hawaiian and Other Pacific Islander alone	0.10%
Two or More Races	2.30%
Hispanic or Latino	13.10%
White alone, not Hispanic or Latino	62.90%
Note. Population Estimates, July 1, 2021	173, 877

US Department of Census https://www.census.gov/quickfacts/alamancecountynorthcarolina

Figure 2

Alamance-Burlington School System Racial Pupil Demographics for the 2021-2022 School Year

ENROLLMENT, 2021-22

- American Indian
- Asian
- Hispanic
- Black
- White
- Pacific Islander
- Two or more

28.6%
38.8%
24.5%
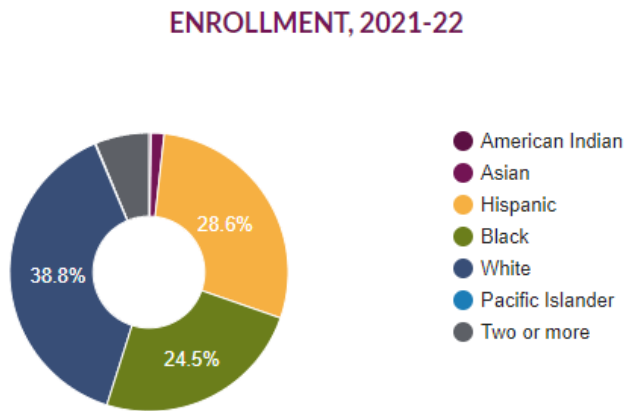
Total pupils in membership: 21,917

Education NC (2022) https://www.ednc.org/district/alamance-burlington/

The racial demographics of the ABSS have not drastically changed over the past decade but varies significantly across the county. Our city schools tend to be more diverse than the county schools.

Per the US Government Census (2021) report 12.5% of persons live in poverty in Alamance County. The median household income in Alamance County is lower than the state median and significantly lower than the national median. The top employer in the county is the school system with Labcorp of America, a medical testing company, coming in second.

The ABSS and national percentage of students identified in the disability category of Deafness or Hearing Impairment is comparable. The US Department of Education (2021) reported that 1% of students with disabilities were eligible for special education services under the IDEA category of deafness/hearing impaired. In the ABSS, as of the December 1, 2023, child count report, 1.4% of students with disabilities were eligible for services under the same category. It is important to note that students who are D/HH could be included in other eligibility categories, so these percentages do not take into account those students.

ABSS: Moving Away from Segregated Service Delivery

Many ABSS students with hearing loss are receiving specially designed instruction in restrictive environments, away from the general education classroom (and non-disabled peers) denying them access to high quality teaching and learning. The ABSS has been working to change these potentially harmful conditions. In 2010, all centrally located programs for students were dismantled, meaning students with hearing loss were no longer being bussed all over the county to receive educational services in segregated classrooms/schools. This was a big undertaking, but it put students with hearing loss back into their neighborhood (domicile) schools giving them the opportunity to build relationships with students that live in their community. In

the ABSS, teachers of the D/HH were no longer located at one school but move among schools in an itinerant service model. This also gave general education and special education teachers across the district the opportunity to teach students with hearing loss in their classrooms. However, this created stress for some teachers because they did not have knowledge or experience teaching students with hearing loss. As a result, students who are D/HH were often relegated to special education services occurring outside the general education classroom. In addition, the ABSS's nine itinerant teachers of the D/HH were also accustomed to providing the services in a special education classroom.

The ABSS started using Long Range Plans (LRP) to map out student's educational needs. This LRP considered language skills, vocabulary skills, and reading level. We utilized the following formula as a means to achieve students' IEP goals: every year of language delay should amount to one hour of direct services addressing language/vocabulary development. There is no quantitative research supporting this formula and rarely did the IEP team determine that these services could be rendered within the general education classroom.

The ABSS has not moved away from educating students in separate settings as teachers continue to assume that separate settings are best for students and fear that inclusion will increase their work loads. Figure 3 shows where the students who are D/HH receive instruction from a teacher of the D/HH. The LRP process did support the collaboration of lesson planning between special education and general education providers to some degree, but it never went the extra step to provide inclusive services in general education classrooms. Of course, doing so would have required the district to create the conditions necessary for effective inclusive practice.

Figure 3

Location of Special Education Services for Students with IEPs that Receive Direct Instruction

from an Itinerant Teacher for the Deaf/Hard of Hearing
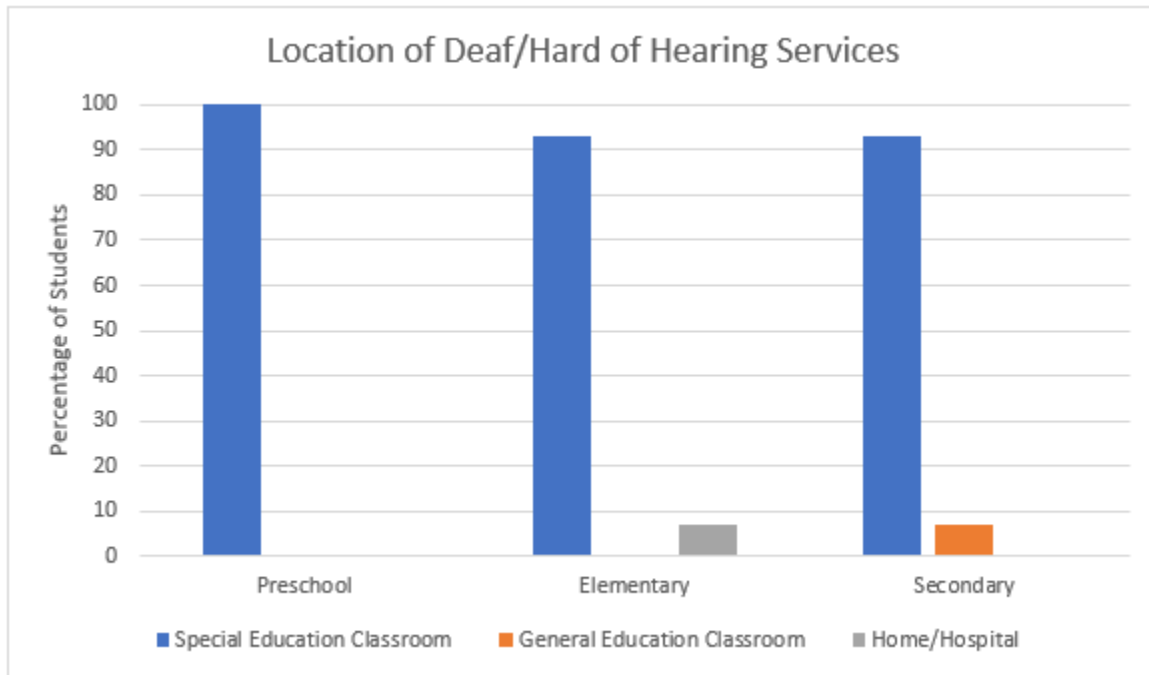
A Proposed Improvement Initiative: Building Teacher Capacity and Efficacy to Enact

Supportive, Inclusive Practices for Students who are Deaf or Hard of Hearing

In this section, I present the improvement initiative including a) theory of improvement,

b) drivers of change, c) research supporting the improvement initiative, d) design team members,

e) goals for the initiative, and f) timeline for implementation.

Theory of Improvement

My theory of improvement, developed a year ago, asserted that: *research-informed*

professional learning for educators would positively change their beliefs and improve their

capacity and efficacy for providing supportive, inclusive instruction for students with hearing

loss. I believed that if we showed teachers how to successfully include students who are D/HH

(built their capacity) along with understanding the benefits for all students, then we could start to

provide students who are D/HH greater access to the general education environment and high-quality teaching and learning.

Drivers of Change: The Components of the Improvement Initiative

To increase access to supportive, inclusive environments, we must understand the potential drivers of change (See Figure 4). A driver diagram (Bryk et al., 2017) organizes various changes to build towards a solution of a shared problem. In the column on the right the change ideas are listed that address the primary and secondary drivers that could be targeted to address the aim statement.

Possible primary drivers to increase access to supportive, inclusive environments for students with hearing loss within our schools are (a) professional learning that supports teacher understanding for how to successfully teach students with hearing loss within the general education setting; (b) collaborative practices between general education and special education teachers; and (c) administrative understanding and support throughout the school.

Figure 4

Driver Diagram to Increase Access to Supportive and Inclusive Environments for Students with Hearing Loss
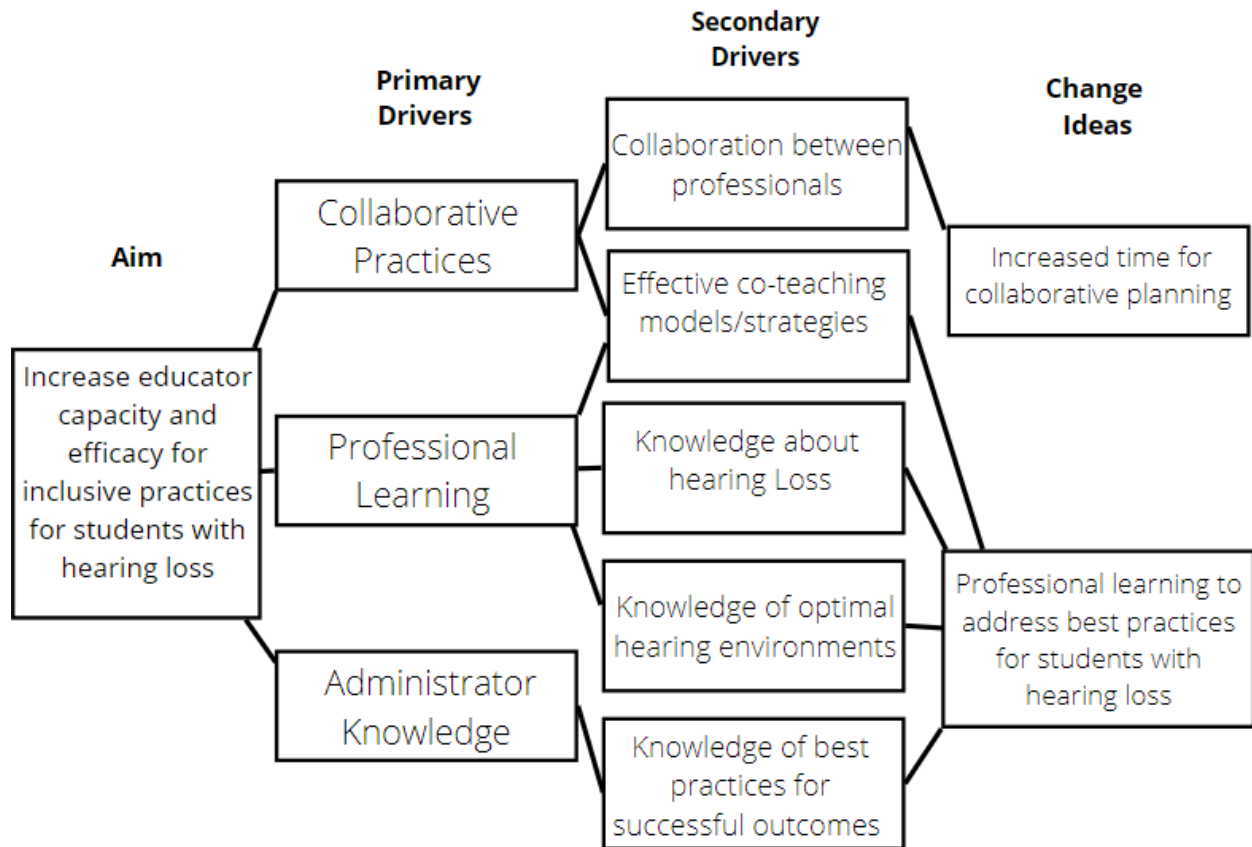
Using this driver diagram to display the relationship among variables, I proposed an improvement initiative that engaged research-informed professional learning for educators. I hoped to increase educator capacity and efficacy to include students who are D/HH by providing professional learning that focuses upon five primary content/curriculum areas: a) the benefits of serving students in inclusive settings, b) differing types/severities of hearing loss, c) optimal hearing environments within the school environment, d) effective accommodations and/or modifications, and e) effective collaboration with amongst educators (e.g., special education teachers or D/HH teachers) and service providers.

Literature Review Supporting the Improvement Initiative

Learning Forward and Research-Supported Standards for Educator Learning

Learning Forward (2023) presents a framework of standards for professional learning. If high quality professional learning is provided, then improved educator practices and student outcomes will result. There are 11 standards in the Learning Forward framework that address rigorous content, conditions for success, and transformational processes. Utilizing these standards to develop high quality professional learning will lead to environments where equitable access for powerful learning can occur. Foster (2022) stated that research shows that teacher practice can change as a result of high-quality professional learning that focuses on knowledge, beliefs, and instructional competencies. I utilized the Learning Forward standards when creating and delivering the professional learning for my change initiative.

Research that Supports the Curriculum for the Professional Learning of Inclusive Educators

In this section, I will present research that supports professional learning content to increase educator capacity for creating supportive and inclusive environments for students who are D/HH.

Benefits of Inclusion. Literature supports the benefits of serving students in inclusive settings. A student's IEP should be developed with collaborative input from all teachers and service providers supporting the student. Eriks-Brophy and Whittingham (2013) explained that for inclusion to be successful for students with differing abilities, teachers must have the ability to create a learning environment that is conducive and responsive to all the students' needs. Unfortunately, the IEP team often finds it easier to consider IEP services in the special education setting, away from non-disabled peers, than exploring the inclusive model and providing appropriate support to allow the student with hearing loss to remain in the general education classroom to access the core of teaching and learning.

An additional benefit of inclusion is the positive impact on students that are D/HH and also their hearing peers. Afzali-Nomani (1995) concluded that teachers reported an overall positive impact that hearing students gained in social adjustment and self-confidence with being a part of a classroom with students who are D/HH.

Optimal Hearing Environments. It is important to create optimal hearing environments within the school environment so students who are D/HH can gain better access to language through instruction. Preferential seating is the first accommodation that many educators consider when determining appropriate accommodations to set up optimal hearing environments. However, there are many other ways to prepare your classroom for optimal hearing access. Setting up classroom communicative norms, such as one speaker at a time and pausing between speakers can allow students who are D/HH to focus more and not miss conversations that are happening around them (Dostal et al, 2017, p.329). Another is the way educators can structure class activities as it can affect the amount of classroom participation from a student with hearing loss (Stinson & Liu, 1999).

Educators also need to consider ambient noise sources within the classroom and their body position when delivering instruction. There are many simple adjustments that can be made within a classroom that have a high impact on improved accessibility. Creating an accessible classroom learning environment not only promotes learning for students who are D/HH but benefits all students within the classroom (Allman et al., 2019; Fielder, 2001).

Accommodations and Modifications. Considering effective accommodations and/or modifications is an integral component of the IEP process to increase accessibility in the school environment. Dostal et al. (2017) emphasizes that educators need to understand the purpose and function of an accommodation and utilize it effectively for students who are D/HH to be

successful. Accommodation and modifications should be provided by all educators within the school no matter the class. All educators working with the student should be supplied a copy of the "review of accommodations" from the IEP and understand how to implement them to fidelity within their setting.

   Collaborating with Specialists. Educators need to work toward effective collaboration with other teachers (e.g., special education teachers or teachers of the D/HH) and related service providers to provide conducive learning environments for students who are D/HH. Foster (2022) stated that collaboration of educators in different roles improves practices and the overall culture within the learning environment. General education teachers may not have experience with teaching students with hearing loss within their classrooms and teacher preparation programs may not cover this information. It is important for all educators working with the student to develop and maintain a positive rapport as this can have a dramatic impact on student success (Dorn, 2019). When educators collaboratively share strategies and plan together a sense of community is created on trust and respect.

Design Team

   A design team was created of professionals with specialized expertise surrounding the change initiative. I chose a design team that was comprised of professionals that have knowledge of the school district, the current policies and practices that are in place, or are content experts in the field of D/HH. The design team within the ABSS assisting in this improvement initiative are the Chief Special Education Officer, the district's Educational Audiologist, and the Executive Director of Exceptional Children. Additionally, support was provided by staff from the Department of Public Instruction and the University of North Carolina Children's Cochlear Implant Center for creation and deployment of the professional learning sessions. With the

expertise and input from these individuals, this improvement initiative had input from a plethora

of individuals who have robust knowledge to produce and deliver meaningful professional

learning that increased educator capacity and efficacy.

Improvement Initiative Goals

In this section, I outline the desired outcomes for this improvement initiative.

Outcome Goals

Long Term Outcome Goal. The long-term goals described below will not be achieved

by the end of the proposed improvement initiative period. It is hoped that they will be achieved

in subsequent efforts following this first stage of the improvement work. It will likely take an

additional year to see achievement towards the long term goal. IEPs are reviewed and revised, at

minimum, annually so this will delay the collection of data addressing changes made to the

service delivery location since it will take an additional year for IEP teams to convene.

- Long Term Goal: By June 2025, 80% of students identified as D/HH will have increased

    time in the general education classroom (as evidenced by documentation of service

    delivery location on their IEP).

Short Term Outcome Goals. The short term goals described below will serve as benchmark

goals (interim steps) on the way to achievement of the long term goal. I believe that building

capacity for inclusive practices for teachers is a necessary step that will lead to increased time

spent in the general education classroom for students who are D/HH. It is imperative that we

address teacher capacity (understanding inclusive practices) to increase teacher efficacy (the

confidence to enact inclusive practices) by targeting each of the following short-term goals:

- Short Term Goal #1: By August 2023, more than 80% of educators will report that

    students identified as D/HH should be given access to a general education classroom (if

the classroom is designed to meet their needs and teachers have been given the

appropriate skills).

- Short Term Goal #2: By August 2023, educators will report increased understanding of

  the research-supported teaching strategies for effectively including students who are

  D/HH in the classroom.

- Short Term Goal #3: By August 2023, more than 80% of educators will report that they

  feel "confident" or "very confident" teaching students identified as D/HH in their

  classrooms.

Implementation Plan/Timeline

With Western Carolina University's IRB Board approval, the implementation timeline

for my proposed change initiative started in May 2023 (see Table 2). My change initiative

consisted of targeted professional learning for general and special education teachers. By using

the Plan, Do, Study, Act (PDSA) cycles process, I determined if the change idea created

improvement.

For the first component of the change initiative, I proposed that the team analyze the

teacher perceptions survey data to determine the appropriate professional learning topics. During

each professional learning session, we collected a pre and post survey to ensure the topics were

meaningful and significant. After all professional learning PDSA cycles were complete, the

teacher perceptions survey was administered again to analyze if the professional learning had an

impact on teacher capacity and efficacy for inclusive practices.

Table 2

Implementation Timeline for the Change Initiative

Change Initiative Implementation & Evaluation Timeline					
Professional Learning for Teachers					
Building teacher capacity and efficacy for inclusive practices for students who are Deaf/Hard of Hearing	April 2023	May 2023	June 2023	July 2023	August 2023
(P) Design team collaboratively reviewed participant perceptions survey; determined appropriate professional learning; created measurement instruments.	� blue	▮			
(D) Provided professional learning		▮			
(S) Analyzed pre survey and post survey data		▮			
(A) Design Team determined next professional learning topic		▮			
(P) Design team developed professional learning			→		
(D) Provided professional learning			▮		
(S) Analyzed pre survey and post survey data			▮		
(A) Design team determined next professional learning topic			▮		
(P) Design team developed professional learning				→	
(D) Provided professional learning				▮	
(S) Analyzed pre survey and post survey data, analyzed focus group with all teachers, analyzed teacher perceptions post survey				▮	
(A) Determined future professional learning needs					▮

Responding to Anticipated Challenges/Barriers

The design team did anticipate some barriers moving this improvement initiative forward within the district. With the deployment of Language Essentials for Teachers of Reading and Spelling (LETRS) training within the district this year, many teachers had added demands and stress. We anticipated this could impact teacher participation as this would be an additional commitment to an already heavy workload. To help alleviate this potential barrier we considered limiting the professional learning sessions to a maximum of one hour to keep the sessions short but packed with meaningful content. We provided access to digital modules with all the information shared so participants could visit and revisit the learning materials as they needed.

Also, we allowed the focus group discussion to be scheduled with no minimum time limit and gave multiple date options for attendance.

Another potential barrier was the scheduled deployment of the professional learning sessions as they fell within the summer months during the teachers' non-contracted work months. Teachers may not be available for all the professional learning opportunities. On the flip side, this may be the perfect time to offer this opportunity since teachers will be on a break and they may be more engaged with the experience.

Evaluating the Improvement Initiative

The design team utilized Improvement Science (Langley et al., 2009) to guide the procedure of enacting and testing my theory of improvement. This involved using the "Plan, Do, Study, Act" (PDSA) cycles process (Langley et al., 2009). During the "plan" stage, defining the change, making predictions, and designing a way to test the change is established (Byrk, et al., 2017). Hinnant-Crawford (2020) describes the "do" stage as the combination of implementation and documentation of your change initiative. In the "study" stage the comparison of the data with the predetermined predictions is used to analyze the results (Langley, et al., 2009). Bryk et al (2017) describes the "act" stage as deciding what to do next based on what was gleaned during the other stages. My theory of improvement proposed that to increase inclusive services for students with hearing loss, we must positively change educator beliefs and increase their capacity and efficacy for providing supportive, inclusive instruction for students with hearing loss. One of the ways to accomplish this is by providing effective professional learning opportunities.

Multiple assessment measures were utilized during the improvement initiative to include teacher perceptions surveys, pre and post surveys during each professional learning opportunity, and a focus group discussion after the completion of all the professional learning sessions. The

following figure shows a visual representation of the professional learning activities with the assessment measures superimposed (Figure 5).

Figure 5

Evaluation Plan to Ensure Professional Learning Outcomes for Educators

EVALUATION PLAN
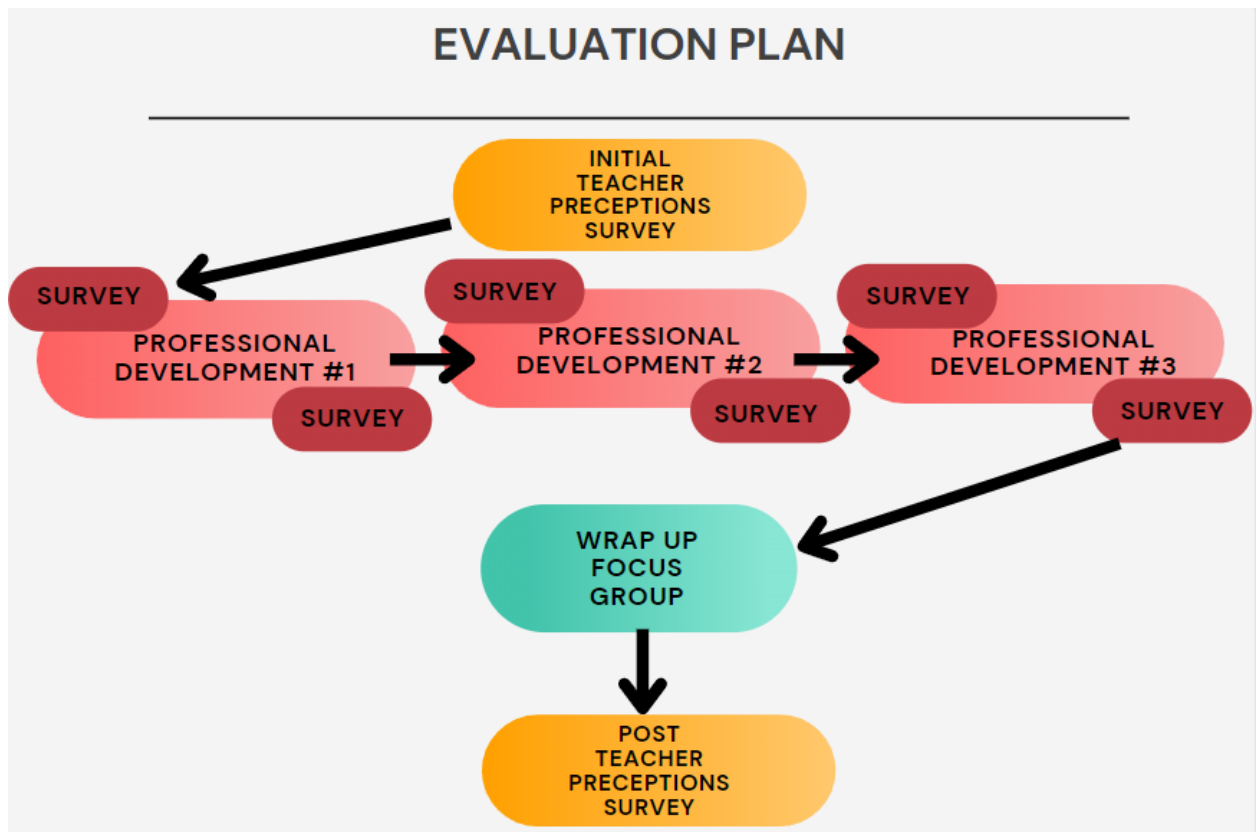
Participants and Demographics

Of the total 18 participant respondents, 16 officially participated in the change initiative by completing the initial and post teacher perceptions survey along with attending at least one of the professional learning sessions. As shown in Figure 6, seventy-five percent of the participants were special education teachers while twenty-five percent were general education classroom teachers. The largest demographic of teaching experience was six-ten years at thirty-one percent of participants and closely behind was eleven-fifteen years with twenty-five percent of

participants. Most of the participants taught elementary school, high school, or at multiple levels within the district.

Figure 6

Participant Demographic Information
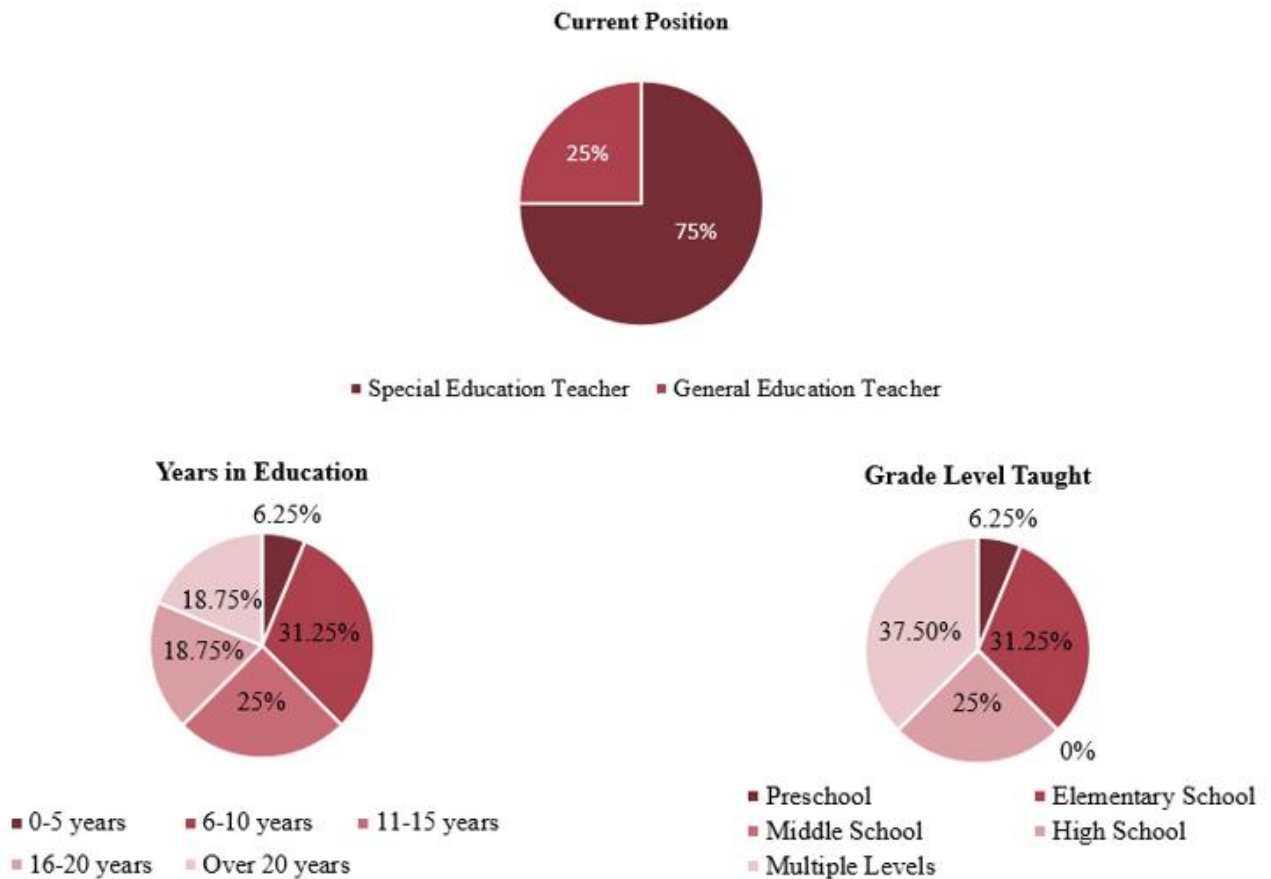
Data was collected from sixteen participants throughout the change initiative. If a participant attended at least one of the three professional learning sessions and completed the initial and post teacher perceptions survey, they were included in the overall number of participants and their data was analyzed for the study.

The three professional learning sessions were delivered virtually utilizing an online platform and lasted between forty-five minutes to an hour. All participants were given access to the session materials to utilize and refer to as needed.

Formative Evaluation of the Improvement Initiative

In this section, I will present the measures the design team utilized to collect data throughout the improvement initiative. The findings of this study will help determine if providing effective professional learning opportunities will increase teacher capacity and efficacy for providing inclusive services to students who are D/HH in the general education classroom.

Throughout the implementation of the change initiative, multiple forms of formative data collection were used to ensure the change idea was working. Formative assessment ensures that we are monitoring the process as we are going along and not just at the end (summative).

Driver Measure

It was imperative that we collected data on the driver measure to determine if the change had created the desired improvement. Driver measures inform the work during critical stages of the improvement initiative (Bryk, 2017).

Data Collection. The design team analyzed the initial teacher perceptions survey to determine what professional learning topics were appropriate for the participants. We utilized the initial teacher perceptions survey (See Appendix A) using four of the domains that correlated directly to the problem of practice. The four domains were (a) teacher attitudes towards inclusion of children with hearing loss; (b) teacher confidence in teaching children with hearing loss; (c) knowledge of hearing loss and strategies to facilitate teaching and learning; and (d) teacher relationships. The teacher perceptions survey was collected from all participants prior to the first professional learning opportunity. The goal of the teacher perceptions survey was to examine

influences that might be linked to the acceptance of and resistance to inclusion of students with hearing loss in the general education classroom and produce meaningful professional learning. It was imperative that each professional learning opportunity be aligned to the teacher perceptions survey results as this drove appropriate targeted areas of professional learning needs.

Additionally, we collected attendance data during each professional learning session. If staff attendance decreased between sessions, then that could mean that the professional learning was not meeting the participants' needs.

Data Analysis. The design team analyzed the central tendencies of each question on the initial teacher perceptions survey using descriptive statistics to determine what professional learning opportunities should be offered. Individual survey questions and domains that received the highest scores were indicated as areas of improvement that were addressed through the professional learning sessions.

Descriptive statistics of attendance data were used to determine if the number of participants decreased over sessions. Absence trends were analyzed across professional learning sessions.

Results. The initial teacher perceptions survey analysis indicated areas of improvement that were addressed during the professional learning sessions. The survey questions with the highest mean scores were considered areas of needed improvement (see Table 3). The overarching questions that showed topics for improvement pertained to the areas of (a) understanding hearing loss and technology; (b) supporting students with hearing loss in the general education classroom; and (c) collaboration between educators.

Table 3

Topic Areas Identified with the Initial Teacher Perceptions Survey

Item		Domain	Professional Learning Area	Mean Pre-Survey	Standard Deviation
10	I have sufficient knowledge about hearing loss to adapt my teaching strategies to the needs of students with hearing loss.	3	Instructional Supports and Hearing Technology	2	0.816
14	support to allow me to work effectively with the student with hearing loss.	4	Educator Collaboration	1.94	1.063
15	The teacher for the Deaf/Hard of Hearing has realistic expectations regarding the amount of individual attention that I am able to devote to the included student with hearing loss during the school day.	4	Educator Collaboration	1.94	0.854
16	I have the necessary expertise to work effectively with students with hearing loss.	2	Educator Collaboration, and Instructional Supports	1.88	1.025
17	I am familiar with the varying degrees of hearing loss.	3	Hearing Technology	2.13	1.204
18	Students with hearing loss should be educated primarily in special education classrooms or in classrooms for students with hearing loss.	1	Educator Collaboration and Instructional Supports	2.69	1.01
19	The teacher for the Deaf/Hard of Hearing provides me with useful suggestions for teaching students with hearing loss.	4	Instructional Supports	1.88	1.025

Attendance data indicated that there was very little to no change in the number of participants attending each session. Ten participants attended the first professional learning session, while fourteen attended the second, and twelve participants during the last professional learning session (see Figure 7). Sustained attendance suggests that the professional learning was engaging and meaningful to the participants.

Figure 7

Participant Attendance during Professional Learning Sessions

Professional Learning Session Attendance
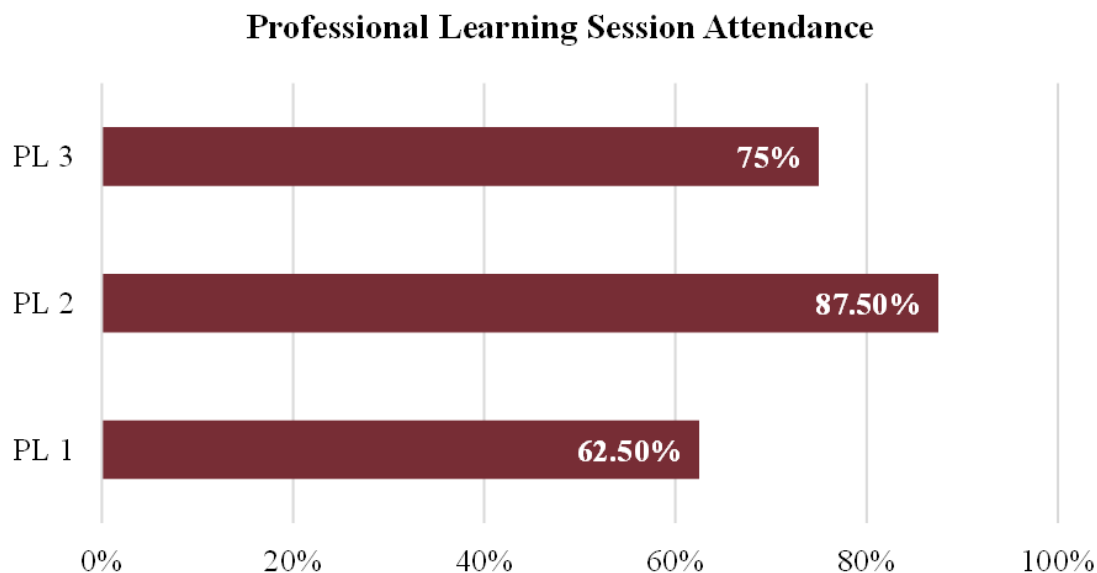
Process Measure

It is important to determine if the change was proceeding as planned by collecting data on the process measures. Bryk et al (2017) describes process measures as information gathered about how specific changes are presented under varying conditions. To do so, we collected pre and post survey (see Appendix B) responses during each professional learning session to ensure the teachers were receiving benefit from the information in the sessions along with gauging their capacity to implement the information within their classrooms.

The pre and post survey questions were created so data could be compared using a paired *t*-test to determine if deeper understanding and efficacy for implementation of professional learning topics were achieved.

Data Collection. We collected pre and post survey responses before and after each professional learning session. A post survey question about whether participants would change anything about the session was also asked to inform the design team of any changes needed for the next professional learning. The participants' survey results were analyzed to determine if a change was noted.

Data Analysis. The pre and post survey questions were created so data could be compared using a paired *t*-test to determine if deeper understanding and efficacy for implementation was achieved. The participants' survey results were analyzed to determine if a meaningful Cohen's *d* effect size was indicated. Cohen's *d* effect size score of 0.5 or higher indicates a medium to high effect size for that question. The three pre and post survey items (see Appendix B) that targeted the process measures were (a) after today's professional learning session, has your understanding of today's topic improved; (b) after today's professional learning session, would you feel confident implementing today's professional learning topic into your classroom practices. One of the questions on the post survey that was analyzed qualitatively was-

"Are there any ways in which you would change the way this learning session was designed or delivered? If so, please give specific feedback." These responses assisted in changes that needed to be made to the next professional learning experience. These data were analyzed after each professional learning session and adjustments were made by the design team before the next professional learning session. The implementation timeline allowed for ample time to adjust the delivery and content based on the post survey feedback.

   Results. The survey results for each professional learning session (see Table 4) showed that a medium to large Cohen's d effect size was indicated for each session implying that teacher perception of their capacity improved in each of the topics addressed (Except for session 2, questions 1 and 2). The largest effect size was from the sessions that addressed the understanding of hearing loss and hearing technology (session 1) and the session that addressed educator collaboration (session 3). The focus of session 2 was on understanding appropriate classroom accommodations and modifications within the classroom.

Table 4

Survey Comparison Results from the Three Professional Learning Sessions

Professional Learning Session	Question	Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean Difference	n	p	Cohen's d Effect Size
Hearing Technology	1	1.7	0.483	1.2	0.422	0.5	10	0.052	0.707
	2	1.8	0.789	1.1	0.316	0.7	10	0.045	0.738
Accommodations	1	1.93	0.829	1.5	0.65	0.429	14	0.165	0.393
	2	1.93	0.997	1.43	0.646	0.5	14	0.187	0.372
Collaboration	1	2	0.603	1.25	0.452	0.75	12	0.012	0.866
	2	2.17	0.718	1.33	0.492	0.8333	12	0.01	0.889

Balance Measure

   To ensure that change did not create negative outcomes to the individuals in the system, the design team needed to monitor the balance measure results by analyzing the post survey responses after each professional learning session to determine if the professional learning was

meaningful and not producing undue stress on staff. Balance measures ensure that a change in one part of the system does not disrupt other parts within the system (Hinnant-Crawford, 2020). We wanted to ensure that the change initiative did not produce any undue effects within the system and cause harm in an unintended way.

Data Collection. We monitored the balance measures by analyzing the post survey responses after each session to determine if the professional learning was meaningful and not producing undue stress or preventing staff from engaging in other opportunities for growth. The questions that were asked of all participants in the post professional learning surveys were "Do you feel today's professional learning topic was a good use of your time?" and "If you weren't attending this professional learning, what other work would you be doing?".

Additionally, a focus group discussion was completed at the end of the change initiative to capture participant voice. This was collected to determine if any additional information could be gleaned from participant discussions that negatively impacted the change initiative.

Data Analysis. The balance measure data was analyzed both quantitatively and qualitatively. We utilized descriptive statistics to quantitatively analyze one of the post professional learning survey questions that was asked after each of the sessions. This was analyzed to determine if participants felt that the professional learning session was a good use of their time. Additional post session questions were qualitatively analyzed using concept coding to gather what participants would be doing if they were not attending the session that day.

The focus group discussion was qualitatively analyzed to determine if any negative impacts occurred to the participants or if the system was impacted in any way during the initiative. Concept coding was utilized in analyzing the focus group discussion because it represents words and phrases in broader terms or meaning (Saldaña, 2021).

Results. After each professional learning session, participants were asked if they felt that

the session was a good use of their time. The descriptive statistical results yielded positive results

for each session (see Table 5). The mean score for each professional learning session ranged

from 1.16 to 1.33 indicating that all participants strongly agreed or agreed that the professional

learning sessions were a good use of their time. The last question asked of all participants after

each session was what they would be doing instead of spending their time in the professional

learning sessions. Since it was during the summer vacation, many responses were about sleeping,

enjoying summer vacation, and sitting on the beach. Others reported that they would be engaging

in other professional learning, planning for the beginning of the year, lesson planning, and

attending to other job-related duties. None of the feedback captured alluded to any negative

impacts from the change initiative.

Table 5

Participant Feedback on if the Professional Learning Sessions were a Good Use of their Time

Professional Learning Session	n	Mean	Standard Deviation
Professional Learning Session 1	10	1.5	0.707
Professional Learning Session 2	14	1.5	0.65
Professional Learning Session 3	12	1.416	0.515

Concept coding focus group data yielded no negative themes or concepts from the

participants perspectives. In fact, the opposite was gleaned from the data. Participants felt that

the professional learning was relevant and meaningful and voiced that they wished that this

would be district wide training for others to engage and learn from. Some themes extracted about

the professional learning experience using concept coding were facilitating acceptance,

community building, increasing awareness, and improved accessibility. One participant voiced

that this type of professional learning "should be universal for all teachers". Another participant said that "any teachers can use these strategies not just for students with hearing loss".

Summative Evaluation of the Improvement Initiative

In this section, I will detail the summative evaluation measures for the improvement initiative of building teacher efficacy for inclusive practices for students with hearing loss within the general education classroom. We collected qualitative and quantitative data to determine if the desired outcome was achieved.

Outcome Measure

To ensure that providing professional learning was effective with accomplishing the outcome measures, we needed to examine multiple measures of data. These data provided a way to determine whether a change affected the targeted problem (Byrk et al, 2017). It was imperative that we established clear outcome measures that explicitly assessed if a change occurred. An outcome measure is used to ensure a change was accomplished through the initiative and indicate the success within the system (Hinnant-Crawford, 2020).

Data Collection. A teacher perceptions survey of inclusive practices for students with hearing loss (See appendix A) was utilized to collect pre and post data from all participants. All participants were asked to complete the teacher perceptions survey prior to any professional learning sessions to collect initial findings on their attitudes toward inclusive practices for students with hearing loss. The participants were then asked to complete the same teacher perceptions survey after all professional learning was finished to evaluate if a change in their perceptions shifted during the change initiative.

Additionally, a participant focus group discussion occurred after all the professional learning sessions were completed utilizing guided questions (see Appendix X). We applied

concept coding to determine the teachers' level of confidence to influence students' success in providing inclusive practices to students with hearing loss.

Data Analysis. Data collected for outcome measures were analyzed both quantitatively and qualitatively. The pre and post teacher perceptions survey was analyzed using a paired *t*-test to determine if a change occurred from the start to the completion of the change initiative. Cohen's *d* effect size is reported to determine the extent to which positive change was achieved. The Likert scale used in the teacher perceptions survey was 1-5 with one being strongly agree to five being strongly disagree. A mean score under 3 indicated a positive association for that item while a mean score over 3 indicated a negative association.

Additionally, all participants were invited to take part in a focus group discussion after all professional learning sessions were complete. I used a list of guided questions (see Appendix C) to facilitate the conversation with participants. During analysis, I utilized concept coding to determine if educators perceived their confidence levels increased with the strategies and concepts presented in the professional learning sessions to successfully provide inclusive practices to students with hearing loss.

Results. The results from the perceptions survey covered the following four domains (a) teacher attitudes towards inclusion of children with hearing loss; (b) teacher confidence in teaching children with hearing loss; (c) knowledge of hearing loss and strategies to facilitate teaching and learning; and (d) teacher relationships. An additional question was added to the survey to determine if teachers perceived that students with hearing loss can attain the same levels of academic achievement as hearing peers. The domain results are detailed below along with the focus group outcomes.

Domain 1. Table 6 shows the participant's responses to questions captured in domain 1. Mean data was collected and analyzed to determine if teacher perceptions shifted toward a more inclusive capacity. Due to the negative phrasing in question 18, it was reversed-scored for data presentation. In two of the three questions, the mean decreased showing a positive change for inclusive practices.

A paired samples *t*-test revealed a significant difference in two of the three pre and post survey questions. The most significant effect size, measured by Cohen's d, was with question 18 where *d*= 1.02, indicating a large effect. Educator perceptions changed significantly, from believing that students with hearing loss should be educated in special education classrooms to favoring a more inclusive setting in the general education classroom. Question 13 also revealed an effect size of Cohen's *d*= 0.519, indicating a medium effect. Overall, the professional learning sessions within the change initiative increased teacher attitudes toward including students with hearing loss.

Table 6

Results from Domain 1: Teacher Attitudes Toward Inclusion of Children with Hearing Loss

Item		Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean difference	n	p	Cohen's d Effect Size
5	Schools should accept and include the students with hearing loss who live within their school boundaries.	1.06	0.25	1.06	0.25	0	16	NaN	NaN
13	classroom is an appropriate educational option for the majority of students with hearing loss.	1.63	0.619	1.31	0.479	0.313	16	0.055	0.519
18	educated primarily in special education classrooms or in classrooms for students with hearing	3.06	1.063	1.88	0.719	1.19	16	0.011	1.02

Domain 2. Table 7 shows the participant's responses to questions captured in domain 2 on the pre and post teacher perceptions survey. Mean data was collected and analyzed to determine if teacher perceptions shifted toward a more inclusive capacity as a result of the

professional learning improvement initiative for building educator capacity for inclusive practices.

A paired *t*-test indicated that all survey items showed a positive change in this domain. One survey item presented a medium effect size as the other two questions showed a small effect size. Educator perceptions changed significantly in the readiness to adapt teaching to the needs of students with hearing loss.

Table 7

Results from Domain 2: Teacher Confidence in Teaching Children with Hearing Loss

Item		Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean Difference	*n*	*p*	Cohen's *d* Effect Size
9	I am confident of my ability to adapt my teaching to the needs of a student with hearing loss.	1.63	0.5	1.19	0.403	0.438	16	0.014	0.695
11	hearing loss would experience a positive learning environment in my classroom.	1.44	0.629	1.31	0.602	0.432	16	0.432	0.202
16	I have the necessary expertise to work effectively with students with hearing loss.	1.88	1.025	1.56	0.727	0.313	16	0.264	0.29

Two of the questions did not yield a significant effect size increase. Both of the questions addressed having the necessary expertise to effectively work with students with hearing loss or creating a positive learning environment within their classrooms. The two questions showed Cohen's *d* effect size of 0.2 which is a small effect.

Domain 3. Table 8 shows the participant's responses to questions captured in domain 3 on the pre and post teacher perceptions survey.

Table 8

Results from Domain 3: Knowledge of Hearing Loss and Strategies to Facilitate Teaching and Learning

Item		Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean Difference	n	p	Cohen's d Effect Size
6	I am familiar with hearing aids, FM systems, and other assistive listening devices for students with hearing loss.	1.63	0.719	1.5	0.632	0.125	16	0.497	0.174
10	I have sufficient knowledge about hearing loss to adapt my teaching strategies to the needs of students with hearing loss.	2	0.816	1.5	0.516	0.5	16	0.027	0.612
12	I am familiar with the effects of hearing loss on language development and learning.	1.69	0.793	1.31	0.479	0.375	16	0.054	0.522
17	I am familiar with the varying degrees of hearing loss.	2.13	1.204	1.63	0.619	0.5	16	0.15	0.38

There were two questions that did not yield a significant effect size with understanding different types of hearing loss and the technology that is used to support students. Hearing technology has advanced significantly over the past decade due to the improvement in digital technologies (Edwards, 2007) and continues to change almost yearly with improved devices. With this advancement, it is difficult for educators that are not immersed daily with hearing technologies to stay abreast of all the latest, and at times, more complex hearing devices. It is understandable that educators may not perceive themselves to be competent with the types and degrees of hearing loss along with the ever-changing hearing technology landscape.

Domain 4. Table 9 shows the participant's responses to questions captured in domain 4 on the pre and post teacher perceptions survey.

Table 9

Results from Domain 4: Teacher Relationships

Item		Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean Difference	n	p	Cohen's d Effect Size
7	The teacher for the Deaf/Hard of Hearing recognizes the contribution of the regular classroom teacher to the progress of the student with hearing loss.	1.56	0.814	1.31	0.479	0.25	16	0.333	0.25
8	provides me with sufficient assistance in dealing with the technology of hearing aids, FM system, and other assistive hearing devices.	1.75	1	1.38	0.5	0.5	16	0.138	0.392
14	The teacher of the Deaf/Hard of Hearing provides me with sufficient support to allow me to work effectively with the student with hearing loss.	1.94	1.063	1.31	0.704	0.625	16	0.013	0.706
15	The teacher for the Deaf/Hard of Hearing has realistic expectations regarding the amount of individual attention that I am able to devote to the included student with hearing loss during the school day.	1.94	0.854	1.5	0.516	0.438	16	0.048	0.538
19	The teacher for the Deaf/Hard of Hearing provides me with useful suggestions for teaching students with hearing loss.	1.88	1.025	1.5	0.632	0.376	16	0.083	0.465

There are questions that did not yield a significant change within this domain. These questions still showed some improvement with Cohen's *d* effect size of 0.25 and 0.392 respectively, with the collaboration between educators to understand hearing technologies and collaboration for student success.

Additional Question. An additional question was added to the teacher perceptions survey to determine if the professional learning sessions influenced teachers' attitudes toward students with hearing loss and if they could attain levels of academic achievement as those peers who are hearing (See Table 10). A paired *t*-test was performed, and results indicated a Cohen's *d* effect size of medium-high. This implies that teacher perceptions changed throughout the change initiative toward the positive for students with hearing loss and their ability to achieve academic success.

Table 10

Additional Question to Address Perceptions of Attainment Abilities between Students with Hearing Loss and their Hearing Peers

Item		Mean Pre-Survey	Standard Deviation Pre-Survey	Mean Post-Survey	Standard Deviation Post-Survey	Mean Difference	n	p	Cohen's d Effect Size
20	Students with hearing loss can attain levels of academic achievement that are comparable to those of their hearing peers.	2	1.095	1.13	0.342	0.875	16	0.011	0.727

Focus Group Discussion. The focus group discussion yielded many overarching themes about the implementation of the topics within the professional learning sessions. One theme identified was being more aware of student needs. Teachers perceived that the professional learning sessions gave them valuable information to assist in understanding the needs of students with hearing loss within their classrooms. Some additional themes extracted were facilitating a community within the school to support students, problem solving with other educators, and the importance of educational strategies to increase understanding. Teachers indicated that the professional learning session that focused on collaboration gave them strategies to effectively communicate and problem solve with other teachers to ensure students were receiving instruction that met their needs. They also left the sessions feeling more confident with understanding educational strategies that could assist students. The findings from the focus group discussion aligned with the findings throughout the study. One participant summed it up perfectly by stating, "we are here to educate all students and educators must be willing to step out of their comfort zones so we can create environments that are welcoming for all."

Improvement Initiative Goals

The above results were utilized to determine if the change initiative outcome goals were achieved. The leading measure was to increase educator efficacy for providing inclusive instruction to students with hearing loss in the general education classroom. The lagging measure should increase service delivery time on the student's IEP in the general education classroom if

increased educator efficacy is achieved. I will review the data collected and results along with addressing the long and short term goals established for my change initiative.

Long Term Goal

As mentioned before, the long term goal cannot be determined within the PDSA cycle as it will take an additional year for IEP teams to meet and collect the data to see if the change initiative actually impacted IEP service delivery locations. These data will be collected during the 24-25 school year to determine if IEP teams utilize the information given to them during the professional learning to implement inclusive strategies and information when developing the IEP for students with hearing loss.

Long Term Goal: By June 2025, 80% of students identified as D/HH will have increased time in the general education classroom (as evidenced by documentation on their IEP).

Short Term Goals

The short term goals served as benchmark goals (interim steps) on the way to achievement of the long-term goal. The professional learning sessions and content areas addressed achieved the intended outcomes of each of the short term goals based on the analyzed results. The change initiative did build teacher capacity for understanding the importance of inclusive practices for all our students who are D/HH.

Short Term Goal #1: By August 2023, more than 80% of teachers/participants will report that students identified as D/HH should be given access to a general education classroom (if the classroom is designed to meet their needs and teachers have been given the appropriate skills). This goal was achieved as 100% of the participants both special and general education teachers reported that they strongly agree or agree that inclusion in the general education classroom is an appropriate educational option for the majority of students with hearing loss.

Short Term Goal #2: By August 2023, teachers/participants will report increased understanding of the research-supported teaching strategies for effectively including students who are D/HH in the classroom. This goal was achieved as 100% of participants, both special and general education teachers, reported that they strongly agree or agree that they have sufficient knowledge about hearing loss to adapt their teaching strategies to the needs of students with hearing loss.

Short Term Goal #3: By August 2023, more than 80% of teachers/participants will report that they feel "confident" or "very confident" teaching students identified as D/HH in their classrooms. This goal was achieved as 100% of participants, both special and general education teachers, reported that they strongly agree or agree that they are confident in their ability to adapt their teaching to the needs of a student with hearing loss and that they have the necessary expertise to work effectively with students with hearing loss.

Findings, Implications, and Recommendations

In this section, I will summarize the change initiative findings and limitations. I will also discuss implications for practice and policy, provide recommendations for practitioners, and potential directions for future research.

Findings

Overall, the theory of improvement held true: research-informed professional learning for educators would improve teacher perceptions of their capacity, efficacy, and positively impact teacher beliefs for providing supportive, inclusive instruction for students with hearing loss. As the outcome results showed, each domain surveyed had a meaningful impact on teacher perceptions towards the importance and benefit of inclusive practices.

Teacher Beliefs

Gal et al (2010) noted that negative teacher attitudes may be one of the most difficult environmental barriers to overcome. There continues to be more evidence that teacher beliefs directly impact student outcomes (Sabarwal et al, 2021). The change initiative results suggested that we were able to change teacher beliefs towards inclusive practices. The largest shift in teacher beliefs was in the statement that students with hearing loss should be educated in special education classrooms. Teachers overwhelmingly changed their perceptions from students with hearing loss should be educated primarily in special education classrooms or in classrooms for students with hearing loss to a more inclusive shift for educating students with hearing loss in the general education setting.

The relationship between educators' beliefs and their educational practices is very dynamic with each influencing the other (Muijs & Reynolds, 2015). The participant responses to the inquiry of "can students with hearing loss attain levels of academic achievement that are comparable to those of their hearing peers" resulted in a positive change after all the professional learning sessions were complete. Educators responded that students with hearing loss could attain the same academic levels as their hearing peers. Many participants noted during the focus group discussion that the professional learning sessions would be beneficial for all educators as the information shared is not taught in teacher preparation programs. They also added that this should not just be for special education providers but include general education teachers as well. It is hopeful that in the long term, this belief shift will have an impact on increased inclusive educational practices for students with hearing loss.

Teacher Capacity and Efficacy

Increasing educator capacity (knowledge) and improving educator efficacy (confidence) was accomplished during the change initiative. I will address each professional learning session

and the impacts it had on educator capacity and efficacy. Burić & Kim (2020) explain that teacher efficacy is positively associated with instructional quality and creating supportive climates within the classroom.

Hearing Technology. The design team was able to increase educator's understanding of hearing technologies and their impacts within the classroom. Allman et al (2019) emphasized that creating accessible classrooms benefits all students, not only students with hearing loss. During the professional learning session that addressed hearing technologies and optimal hearing environments, all but one participant strongly agreed that they would feel confident implementing today's professional learning topic into their classroom practices. This shows that we were able to foster a deeper understanding of the topic through professional learning. It is important to acknowledge that as hearing technology and advancements continually improve, this is an area that educators will need to have frequent refreshers to stay abreast.

Accommodations and Modifications. Holzberger et al (2013) concluded in their research that there is a positive relationship between teacher self-efficacy beliefs and their instructional quality. Ensuring that teachers understand the purpose and functionality of an accommodation is essential to effectiveness for the student (Dostal et al, 2017). The design team was able to create a targeted professional learning session enriched with evidence and research-based strategies surrounding potential accommodation and modifications to be used in the total school environment. Participants reported that they had a deeper understanding of the topic and were more confident in the implementation after the session was complete. A participant reported during the focus group discussion that learning about all the various accommodations will benefit all students within the classroom, not just the students with hearing loss. This is

promising feedback as we strive to create educational spaces where all students have optimal access to the core of teaching and learning.

      Educator Collaboration. Collaboration between general and special educators is one of the most critical elements in giving students with disabilities meaningful learning experiences in inclusive education settings (Park et al, 2018). Compton et al (2015) explained that collaborative relationships require a sense of parity and denotes a sense of equality among individuals to assign equal value to the contributions of others. The design team was able to emphasize the importance of educator collaboration and shared practices to improve meaningful implementation during the professional learning session. A participant during the focus group stated that teacher collaboration and planning helps the teachers understand different teaching strategies and approaches to ensure students get the most out of all the teachers that work with them. This session had the highest effect change on increasing educator capacity and efficacy of all the sessions.

Limitations of Study

      There were a few limitations to the study, one being the time of year that the change initiative was deployed. I originally thought that providing professional learning during the summer months would allow teachers more time to participate as the demands on their time would be lessened. This turned out to be untrue as I did not have as many participants commit to the study as I had originally expected. I conclude that this is due to conflicts with summer vacations and the educator's need for a break away from their demanding jobs.

      Another limitation of the study was the number and diversity of the participants. There were more special educators that attended, which is wonderful, but they are the educators that would typically advocate more for students with differing abilities. I would have liked to have

more general education teachers attend as inclusive practices would primarily be occurring in their classrooms.

These limitations impacted the overall professional learning outreach to educators within the school district. This limited the data to only 16 participants of the over 2,000 employees within the district. To include more employees in this outreach, other platforms might be employed such as self-paced online courses or school-wide professional learning.

One additional limitation that was garnered from the focus group discussion was around the feelings of the teachers of the D/HH. Some of the perception survey questions put the onus on them to be the primary providers of information to teachers about students with hearing loss. Teachers of the D/HH felt that they were the ones that always attend the trainings to support students and it is not required for other teachers to attend even though other special and general education teachers have students with hearing loss in their classes. Teachers of the D/HH are typically an itinerant position. Since they are not at the schools all day with the students then collaboration with all teachers are a must to ensure students are receiving what they need.

Implications for Practice

Based on the results of the change initiative, it would be advantageous to continue this work and increase the offerings throughout the school district. The professional learning sessions could be offered and adapted to meet the needs of many groups within the district.

District Administrators

District administrators need to understand the value and positive implications of professional learning that addresses the current inequities within the district impacting students with differing abilities. If district administration is willing to support the continued discourse

around inclusive practices and allow professional learning that addresses these inequities, then all students will benefit.

School Administrators

As the leaders in their buildings, it is imperative that school administrators understand the benefits of inclusive practices within their purview. If school administrators do not have the capacity to support their staff when implementing inclusive practices, then it will not be a sustainable initiative to promote an equitable environment. Professional learning needs to be geared towards a leadership mindset addressing barriers and solutions for implementation within the context of their school community and climate. Staff rely on the school administrators to lead and guide their mission within their school and if equitable inclusive practices are at the center of their school values, then staff are more likely to support the implementation.

Related and Support Service Providers

It is imperative that this information is shared with all service providers that support students within the school environment. This includes related and support services providers such as speech-language pathologists, physical therapists, occupational therapists, adapted physical education teachers, etc. These staff are integral members of a student's support team and should also be supporting an inclusive environment for the students they serve. They should be included in the dissemination of information as they support IEP teams when making critical decisions surrounding service delivery and educational placement decisions.

General and Special Education Teachers

Even though the change initiative focused on providing professional learning to general and special education teachers, the participation was voluntary, and the number of participants was limited. Ideally, the professional learning would be scaled up to reach additional general and

special education teachers that have students who are D/HH in their classrooms. Arguably, this is the group that needs to understand and commit to the implementation of inclusive practices for students to ultimately benefit.

Implications for Policy

Special education policy is not easily changed at the federal or state level. The results of this change initiative will not be used to transform or establish new policies or laws but will assist in informing educators of how to interpret policy or law within their daily practices and decisions.

Professional learning opportunities, such as the ones deployed in my change initiative, can help guide IEP teams to make better educational programming decisions for students with hearing loss during meetings. As IEP teams convene, at least annually, for every student with a disability to review and revise the IEP based on current and relevant data, the knowledge gleaned from professional learning opportunities that focus on inclusive practices can influence how teams interpret and apply the data to provide more robust conversations surrounding educational programming. When educators have the foundational knowledge of the benefits of inclusive practices for all students within the school, we create an educational system of acceptance and advocacy. This will always lead to more educational opportunities for all students.

Recommendations for Practitioners

Practitioners who are willing to engage in this work need to be open-minded and prepared to have their previous assumptions and beliefs challenged. Practitioners must accept that their past assumptions and beliefs may not reflect the best educational practices for all students. Crucial conversations surrounding this type of work can create an awkward space

however growth is not readily made in comfort. Ideally, practitioners would adapt the change initiative to address the areas of needed improvement in their educational context.

I recognize that this change initiative addressed the perception of their knowledge and confidence. A recommendation would be to add an additional measure that would capture participant knowledge after the professional learning session by asking content questions in a post survey. This would show if new learning was accomplished as teacher perception alone does not ensure understanding was acquired.

Practitioners should recognize that change can be made when professional learning explicitly addresses inequities and provides clear strategies that take into consideration barriers with potential solutions. Ericks-Brophy & Whittingham (2013) stated that professionals that had explicit training for students with differing abilities showed less resistance towards inclusions and had a more positive attitude. An added component to the change initiative could address intentional coaching. Educators could then learn within their educational spaces from professionals able to scaffold learning to increase educator capacity and efficacy at a greater rate. Other ways to support teachers are to meet with professional learning communities regularly and promote continual self-learning experiences.

Recommendations for Future Research

In order to continue improving access to students with differing abilities within the general education classroom, future studies should focus on capacity building of school administrators. Limitations in this study reflect the need for school administrators to receive targeted professional learning to lead implementation of inclusive practices within their buildings.

Professional learning could include how to set up master schedules that allow service providers the ability to serve students within the classrooms with scheduling ease. Professional learning could also encompass having critical conversations with teachers and how these can create more accepting environments.

Conclusion

Overall, the change initiative results showed professional learning was able to target teacher belief, build educator capacity, and increase educator efficacy towards inclusive practices for students who are D/HH and positively increase their perceptions. Over time the effects should increase the acceptance of students with differing abilities to be welcomed in inclusive spaces and thrive educationally as teachers are better prepared to serve all students. When educators are prepared to teach all students, our classrooms become a reflection of our communities and neurodiversity is embraced and valued.

Educators that attended the professional learning sessions that focused on the benefits of inclusion, creating optimal classroom hearing environments, appropriate accommodations and modifications, and the importance of collaboration increased their understanding and efficacy for inclusive practices. The hope is that with this knowledge inclusive educational programming for students with hearing loss will increase throughout the school district.

As with all continuous improvement initiatives within complex educational organizations limitations are expected. There is no good time to ask educators to do more in our current educational state with increased daily demands and vast staffing vacancies. The biggest limitation to the improvement initiative was recruiting teachers to attend a series of professional learning during non-contracted summer hours. If the professional learning could be imbedded in throughout the school year, there may be better commitment to participate.

Some of the professional learning sessions have already been improved upon and scaled to reach other educators that support students with differing abilities, not just hearing loss. Many school administrators have requested the information to be presented to their staff as part of their professional learning plans for the year. This is promising as school administrators are acknowledging the importance of this work within their purview. If improvement initiatives that address the importance of inclusive practices can change educator assumptions and beliefs, we can scale the educational reform movement in a different, more positive direction, were all students are successful in the core of teaching and learning. Our world is beautifully neurodiverse so why should our classrooms not engage and reflect in that same beauty.

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Appendix A: Teacher Perceptions Survey

This instrument will be used to collect initial teacher perceptions survey data along with post teacher perceptions survey data during the improvement initiative.

1.Schools should accept and include the students with hearing loss who live within their school boundaries.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

2.I am familiar with hearing aids, FM systems, and other assistive listening devices for students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

3.The teacher for the D/HH recognizes the contribution of the general classroom teacher to the progress of the student with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

4.The teacher for the D/HH provides me with sufficient assistance in dealing with the technology of hearing aids, FM system, and other assistive hearing devices.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

5. I am confident of my ability to adapt my teaching to the needs of a student with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

6.I have sufficient knowledge about hearing loss to adapt my teaching strategies to the needs of students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

7.I am confident that a student with hearing loss would experience a positive learning environment in my classroom.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

8.I am familiar with the effects of hearing loss on language development and learning.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

9.Inclusion in the general education classroom in an appropriate educational option for the majority of students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

10. The Teach of the D/HH provides me with sufficient support to allow me to work effectively with the student with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

11.The teacher for the D/HH has realistic expectations regarding the amount of individual attention that I am able to devote to the included student with hearing loss during the school day.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

12. I have the necessary expertise to work effectively with students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

13. I am familiar with the varying degrees of hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

14.Students with hearing loss should be educated primarily in special education classrooms or in classrooms for students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

15. The teacher for the D/HH provides me with useful suggestions for teaching students with hearing loss.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

16. Students with hearing loss can attain levels of academic achievement that are comparable to those of their hearing peers.

1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

Appendix B: Pre and Post Professional Learning Questions

These questions will be surveyed before and after each professional learning opportunity.

Before Professional Learning Opportunity

1.Are you familiar with today's professional learning topic?

   1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

2.Do you feel confident in implementing today's professional learning topic within your classroom?

   1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

3. Do you feel today's professional learning topic is of relevance to your practices in your classroom?

   1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

After Professional Learning Opportunity

1.After today's professional learning session, has your understanding of today's topic improved?

    1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

2.After today's professional learning session, would you feel confident implementing today's professional learning topic into your classroom practices?

   1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

3. Do you feel today's professional learning topic was a good use of your time?

   1-Strongly Agree, 2-Agree, 3-Neutral, 4- Disagree, 5-Strongly Disagree

4. If you weren't attending this professional learning, what other work would you be doing?

5. Are there any ways in which you would change the way this learning session was designed or delivered? If so, please give specific feedback.

Appendix C: Focus Group Questions

Focus group questions to help guide discussions during the professional learning community that will occur after each professional learning session.

1. Think back to before our PL sessions. Can you describe what it was like to teach students with hearing loss?

    a. What strategies worked well for you?

    b. What areas/ topics were hard for you to accomplish?

2. How will you implement some of the strategies or ideas shared during the professional learning session?

3. What challenges or barriers do you foresee with implementing these strategies?

4. What additional topics would you find beneficial to discuss in the future to help improve inclusive practices for students with hearing loss?