

Spring 4-9-2022

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Recommended Citation

Arpino, Katherine, "Starved for Knowledge: The Effect of Language Deprivation and “Mainstream” Education on Deaf Accessibility to the United States Education System" (2022). *Honors Scholar Theses*. 861.

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Starved for Knowledge:
The Effect of Language Deprivation and “Mainstream” Education on Deaf Accessibility to the
United States Education System

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Peoplesoft Number: 2378066
Honors Thesis
American Sign Language Department
May 2022

ABSTRACT

The prevalence of language deprivation in deaf and hard of hearing youth makes the United States public education system fundamentally inaccessible to that portion of the population. Previous research has demonstrated that depriving prelingually deaf children of an accessible, visual language during the critical language acquisition period has long-term effects on their reading comprehension, mental health, social development, and cognitive development (Friedman and Rusoe, 2015; Hall et al., 2019; Cheng et al., 2019; Hall, 2017). Furthermore, the lack of bilingual-bimodal education (or purely signed education) in the United States public education system sets deaf children up for failure, as they are expected to learn in a language that is inaccessible to them, or accessible to them only through an interpreter (Murray et al., 2019). Suppose that the deaf child has some basis of a language (e.g. is exposed to a signed language after the age of three, has a deaf non-immediate family member, parents taught them some signed language, etc.) and is provided with an interpreter at their public school. Contrary to what has been assumed by the education system and legislators, it is detrimental to the student's learning to have an interpreted education over an education instructed in their accessible language (Caselli et al., 2020). This paper will discuss language deprivation during the critical acquisition period and how it relates to numerous failures on the part of the United States' public education system to accommodate deaf children. It will also propose possible changes that the Deaf community believes to be appropriate to properly accommodate those children so that they are able to thrive.

Starved for Knowledge:

The Effect of Language Deprivation and “Mainstream” Education on Deaf Accessibility to the United States Education System

Throughout America’s history, ensuring quality education for the deaf and hard of hearing children has been an uphill battle, starting with the founding of the American School for the Deaf in 1817 (Gannon et al., 2011) and continuing to the present-day emphasis on mainstreaming. Mainstreaming, with reference to deaf students, can be defined as “the practice of placing deaf children into the ‘mainstream’ of public schools instead of placing them into residential schools for the Deaf or other Deaf-focused programs” (Vicars, n.d., para. 1).

The Deaf community has proven itself time and time again to represent American resilience in the face of adversity, having fought to preserve their language, culture, and identity throughout the centuries; despite this, the infrastructure of the United States’ public education system and social services network has failed them where it matters most. This paper will discuss the failures of the United States’ public education system to accommodate d/Deaf and Hard of Hearing children, its relation to the language deprivation of deaf children of hearing parents, and to propose possible changes that the Deaf community believes to be appropriate to accommodate those children. In this paper, I will use the “little d” deaf to refer to the overarching group of people with varying hearing losses, and the “big D” Deaf to refer to individuals and groups who use a signed language and identify within the culturally Deaf community (Bauman and Murray, 2014, p. xiii).

Linguistic Deprivation

To understand how language deprivation affects the deaf child’s accessibility to the public education system, it is first crucial to understand how language deprivation occurs.

Children, hearing or deaf, are born with the innate ability to absorb language. Hearing children are, in typical circumstances, provided with constant auditory stimuli from the surrounding world that shapes their brain's linguistic capabilities. Deaf children of Deaf adults, which comprise approximately 10% of deaf children born, are typically provided with a visual language from their parents and surrounding Deaf community. Prelingual deaf children of hearing and non-signing adults, however, are often not surrounded with a visual or auditory language. By the time that the child is placed in a signing environment, either in the form of daycare or school, the critical period for language acquisition (which peaks at two years of age and begins to decrease after five years of age) (Hall, 2017, p. 962) is almost or completely over.

In their 2016 article "Avoiding Linguistic Neglect of Deaf Children," Tom Humphries and others state:

To withhold a sign language from deaf children and to instead invest hope in their acquiring a spoken language is to miss a natural pathway to cognitive development, and it constitutes a risk not justified by historical patterns of development in deaf children. Deaf children who acquire a sign language from birth do not risk language delay or deficit, their reading abilities are better than deaf children from other backgrounds (Goldin-Meadow and Mayberry 2001; Moores 2006; Chamberlain and Mayberry 2008; Holmer, Heimann, and Rudner 2016) ... There is a strong correlation between better signing skills and better print literacy in study after study. (p. 598)

This research, alongside that which has been cited within it, proves that a child's exposure to accessible language from a young age is, at its core, their human right. If not exposed to an accessible language in the critical period for language acquisition, the deaf child will suffer from numerous, irreversible consequences that will follow them throughout their life. Specifically,

these consequences (linguistic delays, syntax confusion, decreased vocabulary, lack of reading comprehension) (Hall, 2017) will prove challenging when they are placed in some form of schooling, a setting where it is crucial that they are able to understand what is being said to them.

Additionally, while many doctors recommend for cochlear implants (CIs) to be installed at a young age, the combination of CIs and spoken language is often not sufficient alone to combat language deprivation. There are often high hopes from the parents that the cochlear implant will essentially make their child become “hearing;” they are often told by their primary care physician and audiologist that a CI is their child’s only opportunity to access language, and that it is crucial that they surgically implant them as soon as possible. However, even with all available intervention practices and advancements in CI technology, half of elementary-aged implanted children have spoken language skills below the 16th percentile (Caselli et al., 2020, p. 1324). Furthermore, even if the child is put through the surgery and is one of the few cases that adapts well to their CI, they are still deprived of language for the first six to twelve months of their life without access to signed language.

In his 2017 article “What You Don’t Know Can Hurt You,” Wyatte Hall discusses how, even when a child receives a cochlear implant at a young age, non-signing implanted children still face the same cognitive setbacks that are seen in non-implanted language-deprived deaf children, and score similarly to them on standardized language tests. Implanted children that are raised in an environment that regularly uses a signed language, however, score comparatively to their hearing peers on standardized language tests (p. 962). This shows that signing from birth does not impede a deaf child’s ability to comprehend English; instead, it provides a solid foundation of linguistic knowledge that allows them an advantage in comprehending English.

Additionally, while there is no empirical evidence that CIs and/or spoken language only approaches are the most effective when raising deaf children, there is scientific evidence that suggests that exposure to sign language leads to a better quality of life overall. Furthermore, lack of language exposure can lead to “cognitive delays, mental health difficulties, lower quality of life, higher trauma, and limited health literacy” (Hall, 2017, p. 961). From this research, one can conclude that deaf children should be raised in signing environments.

However, this raises the question of what kind of environment proves to be most beneficial in a school setting. There are four main methods of instructing deaf children: oralism/spoken language only, signed language only, bilingual/bimodal,¹ and interpreted education. When addressing mainstreaming in public education, it is most common for deaf children to be placed in classrooms that solely use spoken language, oftentimes with the instructor being interpreted by an educational American Sign Language interpreter. Contrary to legislation stating that this is an appropriate and accessible learning environment for deaf children, there is evidence to suggest otherwise.

History of Deaf Education

To understand why the United States developed and legislated mainstream education for deaf students, we must first look back to the country’s origins of deaf education. Starting in 1817 with the opening of the American School for the Deaf (then known as the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons), deaf education in America has been a highly debated and ever-changing field. While Deaf teachers were highly sought after at first (comprising just over 40% of the teaching force at deaf schools by 1858), policies would

¹ Bilingual/bimodal, or “bi-bi” education, can be defined as an educational approach “which includes establishment of language foundations and access to learning through two modalities, e.g., auditory and visual, and two languages, e.g., ASL and English” (Nussbaum et al., 2012, p.14). It differs from interpreted education in that the instructor is able to teach in both American Sign Language and English, instead of the instructor teaching in English with an educational interpreter simultaneously conveying the instruction in American Sign Language.

later be put into place that would bring that number down to 14% by 1981 (Cerney, 2007, p. 12). The main factor that contributed to the decline in Deaf educators for deaf students was the rise of Oralism as the main instruction method. Oralism, which first gained international support during the Milan Conference of 1880, is a method of instruction for deaf students that “emphasize[s] lipreading and speech and prohibit[s] the use of signs” (Cerney, 2007, p. 11).

By 1920, 80% of deaf students were in educational settings that did not utilize American Sign Language (Cerney, 2007, p. 12). This was, for the most part, caused by Alexander Graham Bell’s eugenicist push in the late 1800s and early 1900s, resulting in isolation of deaf children and adults alike.

Based on his assumption that deaf marriages lead to deaf children, he found deaf residential schools, deaf community events, socializations, and the hiring of deaf teachers disturbing and intolerable in nature because they could lead to intermarriage. ...

Ultimately, he was able to use [the National Education Association’s] lobbying powers to win the hearts of politicians and public school teachers for the oralist movement. (Cerney, 2007, p. 12).

While this time also coincided with the 1864 founding of what would later be known as Gallaudet University, it was still a time of rampant abuse—both mental, verbal, and physical—of deaf children in schools. Cerney (2007) cites how “in enforcing the oralist teaching framework, children were subjected to sitting on their hands, having their hands tied behind their backs, and receiving other hideous forms of punishment to deter them from signing” (p. 13).

Additionally, the shift from signing education and towards oralism, combined with the Education for All Handicapped Children Act of 1975, resulted in the push towards the concept of public school, mainstream education for deaf children. This act was welcomed by most hearing

parents, who were happy to have an option to keep their children at home by sending them to their local public school instead of a deaf residential school; on the other hand, it was abhorred by most of the Deaf community. To them, this shift represented a systematic cleansing of their culture and the community they held so dear. This bill, albeit unintentionally, had resulted in the stripping of funds from Deaf residential schools in order to fund the mainstreaming programs; numerous schools for the Deaf had to close their doors as a result of this (Cerney, 2007, p. 14). The bill promised a “least restrictive environment” for the children in the program; unfortunately, it would have the opposite effect. As of 2012, 80% of deaf children in the United States are educated in mainstream classrooms instead of schools for the deaf (Caselli et al., 2020, p. 1325).

Problems with Mainstream Education

Inaccessible Education

Despite being deemed “inclusive,” most deaf children in mainstream education programs face social isolation and subaverage test scores compared to deaf students in signing-only education. This is in part due to accessibility barriers brought forth by interpreted education. Cerney (2007) cites four major barriers deaf children face in an interpreted classroom: lag time between the spoken message and the interpreted message, rapid rate of discussion with overlapping speakers, insufficient space for the deaf student(s) to visually see the entire classroom, and inability to build social and working relationships with classmates without an interpreter as a go-between.

When it comes to accessibility and communication barriers, lag time in interpretation and rapid rate of discussion with overlapping speakers go hand in hand. Both result in the student not being able to access the full wealth of information and knowledge being presented to them, as well as result in a decreased ability to participate in classroom discussion. The main methods of

participating in a classroom involve voicing opinions and asking questions relevant to the topic at hand; if a student is even a minute behind in the instruction, they will not have the same opportunity that their classmates have to interject. It is likely that by the time they want to raise their hand to participate they will no longer have the opportunity to do so, resulting either from participation time being over or from a classmate already making the point they wished to express. If they are unable to participate, they will instead take an “observing” role in class discussion, which has been shown to not induce the same cognitive growth that taking an “active” role does. Cerney (2007) cites two studies in her book that illustrate this point clearly:

Bell et al. (1985) studied conversation tasks and determined that children working with peers showed more cognitive growth than children working alone. However, the children who derived the most from peer learning were *actively engaged* in problem-solving activities and not merely observing a more advanced peer (Bell, Grossen, & Perret-Clermont, 1995). (p. 6)

Even if the student does not actively wish to participate, the ability to do so is their right within the classroom, and the lack of accessibility to that key portion of learning results in an unequal educational environment.

Similarly, the lack of accessibility to overlapping conversations and peer comments also results in an unequal educational environment. Cerney (2007) cites how, in a mainstream classroom she studied, the educational interpreter failed to interpret communication between students as well as questions and contributions made by classmates when relaying the lesson to the deaf student. This results in the deaf student not receiving the same stimulus that their hearing peers do; it is crucial that students participate in shared educational communication, not only for the sake of social development, but for linguistic and cognitive development as well (p.

32). It is nearly impossible for one singular interpreter to properly convey multiple people talking simultaneously in a manner that is understandable; a solution to this would be to hire multiple interpreters, but with the current state of United States educational budgets, it is unlikely this idea would ever see fruition.

This ties in with lack of adequate space for the deaf student to visually see the entire classroom. Even if they are able to understand through the interpreter what is being said by their classmates and there is no overlapping communication taking place, if they are not in a position to see who is actively doing the talking, they are robbed of a key aspect of classroom participation. Overall, the lack of conversational ambiance that deaf students in mainstream education experience—especially in collaborative settings—leaves them falling behind their peers in more ways than one.

Social Isolation

Lack of adequate peer-to-peer communication contributes to the academic shortcomings that deaf students face in a mainstream classroom; similarly, it also contributes to the social shortcomings that those students face as well. Social interaction is as crucial of a component to cognitive development as classroom instruction is. If the deaf child's only interaction with their hearing peers is through their interpreter, they do not receive the same quality of one-on-one and group social interaction as they could if their peers shared their language. Cerney (2007) cites how "most interaction takes the form of directives or evaluation, and the hearing children tend to adopt a patronizing attitude toward deaf children. Signed conversations between hearing and deaf students are limited to the signs the hearing students know" (p. 36). Even if the student takes the time throughout the school year to teach their peers sign language, and their peers are

able to gain a deeper understanding of the language beyond basic commands or patronization, they will need to start all over again with a new class in the next school year.

Additionally, even if the deaf student is met with another deaf student (or a hearing student who knows sign language), it does not give them the same right to choose who to participate in social interactions with that their hearing peers have. That is not to say that this necessarily always results in a “forced” friendship of the students; the problem with it is the lack of choice on the deaf child’s part. Their peers have the privilege to be able to pick and choose their friends; they are merely pushed together with someone who shares the same language they do. Cerney (2007) writes, “While hearing students can choose their friends, deaf students are often stuck with whoever chooses to learn sign language. While hearing students can exercise some control over their interaction with others, deaf students are severely limited and must rely heavily on the interpreter” (p. 71).

This lack of power that deaf students experience mirrors the oppression that the Deaf community has been experiencing for generations—the isolation of forced oralism never left Deaf Education spaces, it just transitioned to forced assimilation. These environments are actively detrimental to deaf students’ success—studies have shown that, even though mainstreamed deaf students may become accustomed to the isolating nature of their education, deaf students that are or were immersed in signed-language environments (i.e. Deaf schools, both day and residential) show noticeably stronger senses of confidence and empowerment when interviewed (Cerney, 2007, p. 72).

Another source of isolation and lack of power for deaf students is the inability to participate in extracurricular activities. It has been proven by numerous studies that participation in extracurricular activities—whether they be arts, humanities, scholarly, or sports—result in the

child having a stronger sense of enjoyment of school, more developed social and cognitive skills, higher academic achievement, positive peer recognition, higher self esteem, and a stronger sense of belonging within their community (Kluwin and Stinson, 1993, pp. 89-91). If a deaf student is unable to access extracurriculars, they are already a step behind their hearing peers in all of these factors.

Even if the student is not suffering from language deprivation and is able to understand the teacher's instruction in the classroom through interpretation, this does not take into account what happens to the child once the final bell rings. Extracurriculars are often run by the school—however, there is not a guarantee that a qualified interpreter will be accessible during the after-school hours. Kluwin and Stinson (1993) cite how deaf students who regularly participated in extracurricular activities were more likely to have interpreters than those who participated irregularly or infrequently (p. 95), meaning that the student would need to attend the meetings for the club on a regular basis, possibly making them feel pressure to stick with one niche and not explore other options.

Lastly, even if the student is able to get an interpreter on a regular basis, the problems that occur in the classroom with interpreted instruction can be assumed to still persist here. This is not equal access to everything a school has to offer. At signing schools for the deaf, whether day schools or residential, these problems seldom exist—there are no communication-based barriers for the student to work around in order to have a well-rounded, fulfilling academic and social experience in their place of education.

Abilities and Qualifications of Interpreters

Caselli et al. (2020) cite *Endrew v. Douglas County*, a court ruling that specifies how individualized education plans (IEPs) must be “reasonably calculated to enable the child to make

progress appropriate in light of the child's circumstances," as a caveat to the legal responsibilities public schools have to provide students with a free and appropriate education (p. 1325). In mainstream education, if the deaf student utilizes sign language, the primary mode of communication between the deaf student and the rest of the world is through the interpreter. It should be noted that, despite interpreters being considered to be the default option for accommodating deaf students, there are numerous reasons as to why they may not work for a specific student.

For example, if a deaf child is raised without sign language, they would need to first learn a signed language before being able to utilize the interpreter. Interpreters typically are not qualified or trained on how to teach American Sign Language, nor are they trained on how to properly communicate with someone who has very little knowledge base of any language. Infants are able to learn language passively, but that ability begins to trend downwards as they age, meaning mere exposure to interpreted education will not be enough for the child to fully understand the instruction—they will need deliberate and immersive language instruction in order to combat the consequences of language deprivation (Caselli et al., 2020, p. 1324).

Since there is no standardized way of testing the extent of how language deprivation has affected the deaf student, it is often up to the individual school districts' subjective discretion on how best to accommodate them (Caselli et al., 2020, p. 1327). Unless they have a specialist on-site or are able to contract out services to someone who can best determine the student's linguistic proficiency, this is done by unqualified individuals (teachers, school psychologists, school nurses, administration, etc.) who are not trained on how to properly assess and accommodate a language-deprived, deaf student.

Additionally, even if the interpreter is fully fluent in American Sign Language and able to understand the nuances of deaf identity and language deprivation, they are also not trained to provide an ASL assessment or informal evaluation on the student. Furthermore, the code of ethics followed by certified ASL interpreters dictates that interpreters must not “provide counsel, advice, or personal opinions” to or about the deaf individual (Caselli et al., 2020, p. 1327). Nevertheless, as they are likely the only person in the room able to directly communicate with the deaf student, they are also likely the only person able to accurately assess the ASL and language skills of the student. Without the interpreter being able to relay this information to the individuals providing accommodations, the student is stuck. This is not to say that the interpreter is required to not generally address suspected language deprivation and lack of linguistic proficiency in the child; however, there should be action taken to properly intervene and place the child in a signing-rich environment after that is brought to the attention of the school, as the interpreter is unable to intervene to the extent necessary on their own.

In order for a deaf student to understand the classroom instruction, the interpreter must be able to clearly and correctly interpret the speech of the teacher and classmates. However, the fluency requirements of American Sign Language interpreters varies from state to state. Thirty-one states only require a 3.5 out of 5 on the Educational Interpreter Performance Assessment (EIPA), indicating that they have “knowledge of basic vocabulary, but lack vocabulary for more technical, complex, or academic topics ... with some errors in sign production, grammatical production, and notes these interpreters may require repetition or assistance to understand ASL” (Caselli et al., 2020, p. 1326). Additionally, eleven states require a 4.0 out of 5 on the EIPA rating system, meaning that the interpreter is fluent but struggles with complex topics and rapid turn-taking (Caselli et al., 2020, p. 1326).

There are a handful of more minor problems with interpreted education that cannot go without comment. Interpreters have been known to have a tendency to “over-support” the deaf student; this leads to the student not having the same independence and problem solving capabilities that other students in the classroom are allowed by default (Cerney, 2007, p. 32). Additionally, interpreters are sometimes treated as classroom aids or paraprofessionals by the teaching staff, leading to the deaf child not having adequate interpretation during crucial instructional moments. Overall, the standard of relying on the interpreter to be the only go-between for the deaf student and the rest of their educational world is something that is incredibly harmful both for the child’s cognitive development as well as their psychosocial development.

Summary

Linguistic deprivation does, in many ways, lead to the inaccessibility of the United States public education system for deaf children. By depriving a child of accessible language in their formative, language acquisition heavy years, adults in that child’s life are setting them up for failure for years to come. While the early focus of Deaf education on residential schools with fully immersive American Sign Language education was indeed beneficial, the Milan Conference of 1880 resulted in the gutting of those programs and redirecting of funds to oral method education and, later on, mainstream education. Depriving an already linguistically deprived child of immersive accessible language that can only be accessed at schools for the Deaf only further sabotages their educational career.

Furthermore, even if the deaf child has some rudimentary knowledge of a signed language, interpreted education has been proven to not have the same benefits that in-language instruction does. The reliance on interpreted education by mainstream educational programs

ostracizes an entire population of deaf children whose family did not expose them to signed language before they enter school; they are unable to access the spoken language, and are unable to understand the signed language. Additionally, the vast majority of interpreters are not equipped or qualified to provide adequate aid to children struggling with linguistic deprivation.

Finally, the reliance of doctors on recommending cochlear implants for deaf children is another factor that sets these children up for language deprivation and inaccessible education. Cochlear implants are not a cure for deafness, and should not be treated as such by those in the medical field. Even if the child adapts well to their CI—which they seldom do when prelingually deaf—they are still deprived of accessible language for approximately the first year of their life.

There are numerous changes that can be made culturally, medically, and governmentally in order to best support deaf children (who are born to non-signing parents) and their educational careers. Firstly, more resources could be allocated to Deaf schools that instruct in ASL and/or utilize bilingual-bimodal education; if, due to budget constraints, it is impossible to directly fund Deaf schools, there should be a school within each county that has a specialized Deaf education program with intervention services for language deprived children. This would also solve the issue of the social isolation of deaf children, as the deaf children would be learning amongst deaf peers. Second, there should be improved accessibility for Deaf teachers to pass certification exams (which are conducted entirely in written English) and overall prioritization for Deaf individuals to go into the Deaf education field. Lastly, there needs to be an overhaul of interpreter certification requirements—specifically for educational interpreters—to ensure that, if a deaf child chooses to pursue an interpreted education, the interpretation is as informed and fluent as possible.

In full, the push from Deaf schools to mainstream education has done more harm than good in the realm of accessibility. In order to give deaf children (particularly those of non-signing parents) a fair and equal chance in their education to their hearing peers, it is imperative that we begin to provide them with environments that are actually conducive to their learning, rather than those that let them slip through the cracks.

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