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It's not enough to move your hands beautifully': teaching and learning at a school for deaf students in Mexico

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ABSTRACT

Little is known about the educational experiences of deaf children in Mexico. Schools for the deaf exist, but no research has examined instructional practices for children in these contexts. In this study, we adopt a sociocultural framework for language acquisition to document and understand how teachers at a bilingual (Mexican Sign Language and Spanish) school for the deaf in central Mexico support the learning of their students. Our findings indicate that teachers at this school prioritized deafness and how to leverage the visual modality to support student growth. They used a number of instructional practices familiar to English-speaking audiences, such as scaffolding, explicit instruction, and individualization, perhaps as a result of the close ties between the school and US-based collaborators. Finally, both teachers and students felt that collaboration, between the administration and teachers, among teachers, and among students, was essential. Findings indicate a need to explore these complex issues and expand burgeoning collaborations between bilingual and deaf education researchers.

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Although the history of deaf education in many ways begins in France in the early 1800s (Lane 1989), much of the research on the academic, cognitive, and social development of deaf¹ children conducted in recent years has focused on the U.S. However, this research is not necessarily useful or appropriate for teachers, school administrators, or parents of deaf children in other countries. In this study, we examine a school for the deaf in Mexico with the aim of discovering what practices are endemic to this community in order to enrich international understandings of successful deaf education in unique contexts.

International research in deaf education

A great deal of the research that is conducted on and with deaf children occurs within the United States. Very frequently, research that occurs outside of this context is based in the United Kingdom or Australia, two additional English-speaking, predominantly white countries. Very little research has explored deaf education in different contexts. A thorough database search revealed only 13 articles exploring deaf education in countries from Brazil (Skliar and Quadros 2004), Chile (Lissi et al. 2017b), China (Ching and Nunes 2015; Wang and Andrews 2017), Jordan (Al-Dababneh, Al-Zboon, and Mohammad Akour 2016), The Netherlands (van Beijsterveldt and van Hell 2010), New Zealand (McKee 2008), Sweden (Bagga-Gupta 2002; Svartholm 2010), South Africa (Weir and Aylif 2014), Taiwan (Liu, Andrews, and Liu 2014), to Tunisia (Bouزيد et al. 2016).

Most research that focuses on deaf education in international contexts specifically has been largely concerned with language and literacy. Some provided detailed information on language and literacy programming in a range of countries, such as curriculum and language use (Bagga-Gupta 2002; Skliar and Quadros 2004; Svartholm 2010; Liu, Andrews, and Liu 2014; Wang and Andrews 2017). Others examined the qualitative language and literacy experiences of deaf students outside of the U.S. (Mckee 2008; Svartholm 2010; Lissi et al. 2017a, 2017b). Several revealed negative beliefs about language and literacy among students and teachers in many countries (Mckee 2008; Al-Dababneh, Al-Zboon, and Mohammad Akour 2016; Wang and Andrews 2017; Lissi et al. 2017a, 2017b). Others have researched the development of reading and writing skills among deaf children. Specifically, some educational practices such as morphological awareness instruction (Ching and Nunes 2015) and digital educational games (Bouzid et al. 2016) hold promise for literacy development of deaf children in international contexts. Writing seems to be a particular area of challenge, with deaf students making a greater number of errors than hearing peers (van Beijsterveldt and van Hell 2010; Weir and Aylif 2014). Though these studies are valuable, they also demonstrate that very little is documented about deaf children outside of the context of the U.S. Clearly, more research is necessary to better understand deaf education globally.

Deaf education in Mexico

The research base for deaf education in most settings outside of the U.S. is slowly emerging; Deaf education in Mexico is no exception. One of the few pieces of scholarship we are aware of is a book that examines the cultural and educational impact of a school for the deaf that has been closed (Ramsey 2011). Most other research focuses on families, finding that families of deaf children in Mexico may focus on miracle cures for deafness, including the belief that deafness may be cured by eating a certain combination of foods or that smoke may be used to open up the ears of a deaf child (Pfister 2015). Additionally, it seems that familial language attitudes in Mexico may favor speech rather than sign (Ramsey and Noriega 2001). While valuable, neither of these studies provide information on schooling experiences for deaf children in Mexico.

It is difficult to drill down into country-specific information. Even basic demographic information, such as how many deaf children there are in Mexico, where they are educated, what services they receive, and what their overall outcomes are, as such information seems nearly impossible to locate. There may be as few as nine government and private schools for the deaf, with seven favoring a bilingual approach, one being fully oral, and one being a combination of sign supported speech (Faux 2006). However, we were not able to locate an up-to-date and exhaustive list of educational institutions for deaf children in Mexico. According to some estimates, it may be that as many as 84% of deaf children in Mexico receive no educational services at all (INEGI 2015, 10). Deaf children deserve an accessible and appropriate education, and in fact need such an education in order to have access to language, concepts, and opportunities to participate in society and lead fulfilling lives.

Research on this population may not only benefit teachers and researchers in Mexico. A large sub-set (19.4%) of deaf children being educated in the U.S. are from homes where the primary language is Spanish (Gallaudet Research Institute 2010). Though there is no specific data on country of origin for this 19.4% of deaf students, several qualitative case studies specifically identify deaf children of Mexican origin being educated in the U.S. school system (Cannon and Guardino 2012; Baker and Scott 2016). These findings therefore may also inform educators in the U.S. working with Mexican origin deaf children.

Deaf children, sign language and education

For many years, the dominant discourse in deaf education viewed deaf students via a deficit model (Humphries 2013). This discourse focused on what deaf children *lacked* rather than their strengths. In recent years, researchers have called for a discourse that is focused upon the unique contributions of deaf people to the world and the contribution of a visual and spatial language to cognition (Ladd

2003; Bauman and Murray 2009; Humphries 2013). Such a framework also incorporates the role of the Deaf community in education – a culturally connected group of Deaf individuals who most frequently prefer to communicate using a signed language. Research indicates that when provided appropriate education and accessible language, Deaf individuals demonstrate equal cognitive abilities to hearing people (Hall et al. 2017). The field is shifting in a direction that recognizes there is no *lack* when it comes to the abilities of Deaf people. As Jordan (1988) famously said, ‘Deaf people can do anything hearing people can do, except hear.’

Particular attention has been paid to the role of signed languages in the cognitive development of deaf children. Though this has been dominated by discussions of literacy development and the role that sign language proficiency (Strong and Prinz 1997; Singleton et al. 2004; Scott and Hoffmeister 2017; Scott and Hoffmeister 2018) or fingerspelling ability (Haptonstall-Nykaza and Schick 2007) play in literacy outcomes for this population, there is also research on the importance of sign language proficiency for other areas such as theory of mind (Tomasuolo et al. 2013) executive function (Hall et al. 2017), and analogical reasoning (Henner et al. 2016). Though the research on the benefits of bilingualism for deaf children continues to grow, there remains a need for further exploration and documentation of bilingualism as it relates to this population. Because this research is still emerging, we also turn to the literature on hearing bilingual education to further explore these concepts.

Theoretical framework

We collected and analyzed these data through the framework of sociocultural theories of (first and second) language acquisition. Vygotsky (1978) provided the foundation for the sociocultural framework, arguing that learning is inherently a social activity and that cognitive skills, including language, are developed through interactions with others (Mead 1934; Vygotsky 1962; Kumaravadivelu 2006). Since that time, many researchers and theorists have explored the relevance of sociocultural theories of learning for language acquisition, especially acquisition of a non-native language (Tabors 2008; Castro et al. 2011).

The sociocultural framework is relevant for deaf language learners for a number of reasons. First, for the majority of deaf children that are born into hearing families (Mitchell and Karchmer 2004), they may not have access to an environment that is supportive to language learning under the sociocultural model until they are enrolled in a formal education program. Second, bilingual Deaf children who communicate primarily through a signed language (the population who is the focus of this study) may lack social opportunities to learn their second language (the spoken language of the country in which they live) unless opportunities to interact with a fluent signer to access and discuss print are available (Kuntz and Scott 2018). In this study, we explore the instructional practices and educational opportunities provided to deaf children who interact with the world primarily through a signed language at a school for the deaf in Mexico. The sociocultural theory of language acquisition frames our interpretations and understanding of the data, and foregrounds our recognition that for this population, learning will be most successful when situated within a sociocultural context that prioritizes accessible communication and visual scaffolding for instruction.

Aim of the study

The primary aim of this study was to explore educational practices at a school for the deaf in Mexico, specifically one that uses sign language (Mexican Sign Language; LSM) as the primary mode of communication. By studying deaf education in contexts beyond the U.S., we learn more about what may and may not work for the education of deaf children. We believe it is important to specifically examine schools that adopt a bilingual approach to teaching and learning that involves the inclusion of the national, natural signed language as an instructional communication mode and the inclusion of Deaf cultural identity in teaching and learning, as this particular approach to education of deaf students is especially understudied. Our primary research question for this study was, what resources

and instructional practices do teachers of the deaf at one Mexican school use to support their students' learning and development?

Materials and methods

We took a case study approach (Yin 2017) with the intention of exploring successful practices at one Mexican deaf school. We chose a school which Author 1 had visited twice previously in her preparation as a deaf education scholar in 2015 largely because this school was like many others throughout the world – less well-recognized, less-funded, and not situated in a country's capital. We believe that this school is similar to many schools for the deaf in under-resourced countries in that it is reliant upon donations to operate, is heavily influenced by cultural outsiders, and educates students that in many cases have had few if any prior educational experiences. Like the majority of deaf schools in Mexico that we were able to locate, it uses a bilingual curriculum, though its close relationship with professionals in the United States and Canada may be less representative of other schools for deaf children in the country.

For a week in the spring of 2016, three university education researchers shadowed teachers and staff at the site. We engaged in participant observation in formal classroom spaces as well as in more informal spaces, such as lunch, the common areas, and hallways, as well as afternoon daily workshop from 2 to 4 pm. We also engaged in semi-structured interviews with stakeholders (described below). The data collected included transcriptions from interviews/focus groups, observations, and photographic documentation. Additionally, the researchers engaged in memo writing (Emerson, Fretz, and Shaw 2011) and critical end-of-day reflective conversations.

Site and participants

San Gabriel School for the Deaf (SGSD)² was one of fewer than twenty schools in the country that provided educational services for deaf students. Located in central Mexico, the school resided in a mid-sized town, San Gabriel, that was within driving distance of several cities. Founded within the previous ten years, the school provided services to deaf students ranging from elementary-age through adulthood. The students in general came from low to middle income backgrounds. At least one child took a public bus from several towns over with his mother to attend school SGSD. Through interviews with students and faculty, we learned that most of the students did not have adequate access to fluent sign language models before they arrived at SGSD. As a result, many students despite being between the ages of 25 and 54 were still in the process of acquiring LSM and their second language, written Spanish.

SGSD was a small school, at the time of data collection had 16 students, three full-time teachers, two teaching assistants, a principal, and a number of volunteers, who ran after school vocational workshops. As there were no university programs that prepared teachers to work with deaf students in Mexico, teachers frequently came from other backgrounds, such as general special education or from outside of K-12 education entirely. SGSD provided students with traditional educational experiences for part of the day (approximately 8:30 am until 12:30 pm) and utilized workshop space to support older students in learning craft and trade skills in the afternoon until they were released at 4:00.

The school was two stories, made of cement, as is the custom in Mexico, with three classrooms. The building was well-maintained and attractive, with a mural advocating Deaf pride and with healthy fruit trees, flowers, and clear and clean passageways. There was also a dining room and kitchen, where students and staff dined together for breakfast and lunch, and a walled-in courtyard where the entire school could hold large meetings or special events. For instance, since a portion of our visit overlapped with Mexican Mother's Day, families were invited to observe a performance in the courtyard. Two of the three classrooms had SmartBoards, and all were decorated with student work and resources commonly found in many classrooms, such as globes, the alphabet (both

written and manual), and frequently used math symbols. Each classroom also had a small collection of books and other materials for students to use throughout the day. The vocational workshops had trade tools for carpentry, sewing, jewelry making, and visual labels for tools and procedures. The students were divided into three groups that accounted for both age and academic ability, which roughly aligned with primary school, middle school, and high school in the U.S., though individual students were not considered to be in a specific grade level and were instead categorized in the broader bands. The primary school included four students, all between the ages of 3 and 10. The middle school was the largest group, and included eight students between the ages of 15 and 35. Finally, the high school had only four students, all aged 18 and above.

Many of the students had no or poor educational opportunities prior to enrolling, and represented a wide range of skill levels. The youngest children tended to come to SGSD having no exposure to LSM or the means to adequately access spoken Spanish – thus many of them entered school at age three or even later without a full language in place. The school itself, perhaps because of this fact about their student body, did not follow the official national curriculum for the children in primary grades. Instead, the teachers were encouraged by the principal to design lessons that met the specific language and academic needs of the students, and based on the instructional resources that were accessible to them. This is frequently also true in deaf education programs in the U.S., where there is no commonly used curriculum designed for deaf children. The lessons and units we observed at the school overall appeared appropriate and enriching. The older students, conversely, were enrolled in the online national curriculum, and upon completion would receive standard diplomas. For those students who did not complete the online national curriculum, they would not receive a diploma, and the goal for this population was that they would have gained the language, thinking, and communication skills necessary to lead a fulfilling life.

The participants for this study included the school director, all three teachers from the primary, middle, and high school classrooms, both teacher assistants, and a subgroup of six older students enrolled in the high school. Of the faculty and staff participants, only one was a man; five were women. All six were of Mexican origin and spoke Spanish fluently. The school director was a child of deaf adults (CODA) who learned LSM as her first language. The director was nationally-recognized as a leading interpreter, having interpreted for the Mexican president during televised speeches, and as an advocate for Deaf communities in Mexico. She had previously worked at the leading Deaf school based in Mexico City as a highly-respected teacher and was recruited to direct SGSD. Due to issues surrounding deep cultural misunderstandings between the foreign board of white people and the Mexican CODA director, she left the school within months of our research (Kasun, Scott and Kaneria [under review](#)). One teacher, Manuel, was a sibling of a deaf adult (SODA) and a proficient signer. The remaining two teachers had learned LSM later in life, with one still taking classes to improve her language proficiency. Maria had been working at SGSD for five years and had reached an intermediate level of sign proficiency, while Adriana was new and was still an emergent signer. Of the students, three were boys/men and three were girls/women. They ranged in age from 18 to 35 and all had hearing parents. All were profoundly deaf and used LSM to communicate. Though there is no formal evaluation of their LSM proficiency available, informal discussions with teachers and observations on the part of the researchers would estimate their signing proficiency as at least intermediate or above. We chose to conduct focus groups only with the older students because they were the most likely to have more proficient levels of LSM proficiency, which we believed would give them more capacity to both describe and reflect upon their experiences. One teaching assistant, Ana Maria, was deaf and had advanced LSM proficiency. The other, Maria Elena, was hearing and had only emergent LSM proficiency. See [Table 1](#) for basic information on participants.

Data

The authors collected the data during a one-week period from the time SGSD opened until the last after-school activity was complete. The authors each contributed an essential set of skills to data

Table 1. Basic participant demographics.

Pseudonym, Position	Gender	Years at SGSD	Age (students only)	Hearing status
Silvia, School Director	Female	1	–	Hearing CODA
Manuel, Teacher	Male	1	–	Hearing SODA
Adriana, Teacher	Female	2 months	–	Hearing
Maria, Teacher	Female	5 years	–	Hearing
Ana Maria, Support Staff	Female	2 years	–	Deaf
Maria Elena, Support Staff	Female	3 years	–	Hearing
Yolanda, Student	Female	5 years	21	Deaf
Roberto, Student	Male	3 years	21	Deaf
Arturo, Student	Male	4 years	35	Deaf
Carlos, Student	Male	3 years	18	Deaf
Josefina, Student	Female	5 years	25	Deaf
Gloria, Student	Female	2 years	18	Deaf

collection and analysis. Author 1 has previously been a teacher of the deaf at bilingual schools in the U.S., is proficient in American Sign Language (ASL), and had previous connections to the school and knew limited LSM. Author 2 was a bilingual education expert and former teacher in the Mexican school system, and researches the transnational experiences of Mexican students (Kasun 2015, 2016, 2017). She had no prior knowledge of any signed language. We note a limitation is that none of us was Deaf nor Mexican-origin, as researchers from ‘inside’ communities are often more equipped to both speak on behalf of and understand the communities about whom they write. We dedicated a great deal of on-going effort to be reflexive about our work (Scott, Kasun, and Bedolla *in press*), recognizing gaps in our perceptions despite our areas of expertise.

Interviews and focus groups

Interviews (Rubin and Rubin 2012) were conducted one-on-one with the faculty, and in two focus groups consisting of three students each. Interviews lasted approximately one hour on average, ranged from 40 to 120 min, and were semi-structured. The director’s interview was divided into two sessions of about one hour each. The procedures for the interviews with the faculty were as follows: Author 1 asked a question in English, which Author 2 translated to Spanish. The participant responded in Spanish, which Author 2 translated into English. All spoken Spanish interviews were audio-recorded and transcribed by a graduate research assistant.

An LSM interpreter was present for the focus groups with students and with the support staff. The procedures for the focus groups was as follows: Author 1 asked a question in English, which Author 2 translated to Spanish, and the LSM interpreter signed. The students responded in LSM, which was translated by the interpreter into Spanish, and Author 2 into English. In the support staff interview, one staff member was deaf and the other hearing. The same procedures were followed for this interview as were noted above for student interviews, however, during the support staff interviews the LSM interpreter also translated the hearing support staff member’s responses into LSM. All signed interviews were video recorded as well as audio recorded in both languages. A graduate research assistant in deaf education transcribed interpreted interviews. Whenever the audio recording was unclear, we referred to the video recording.

Observations, photographs, and reflections

The research team also observed instruction in all classrooms at least twice. A subset of these observations was video-recorded. For those observations that were not video-recorded, the observer took detailed notes on instructional practices and classroom interactions between students and the teacher or other adults. In addition, we took pictures of each classroom and examples of student work as part of our documentation.

The researchers closed each day by writing qualitative memos (Emerson, Fretz, and Shaw 2011) and engaging in a critical reflection of the activities and interviews. These reflective discussions

explored issues and themes that we noticed, as well as provided a space to document activities and connections. These reflective discussions were audio-recorded and transcribed.

Analysis

The data were analyzed following Yin's (2017) recommendations for inductive case study analysis and grounded theory analysis (Strauss and Corbin 1990). Specifically, Author 1 analyzed interview transcriptions, using an emic process to identify codes within the data (for instance, Deaf Students as Spanish Language Learners, Considering Prior Knowledge, Students Enjoy Hands-On Learning). Examination of classroom artifacts (e.g. pictures of student work and classroom set up), observation of video recordings and notes, and reading transcriptions of reflective discussions was undertaken to identify new codes (for instance, Using Film as an Instructional Tool, Modeling, and Morning Meeting) and triangulate existing codes. New codes specific to these other data sources were identified and the interview transcripts were reread to determine where they might be applied via the constant comparative method (Glaser and Strauss 1967). Analysis was reviewed by Author 2 to confirm the findings.

Results

We identified three primary codes related to teaching and students needs in our data: Recognition of the Importance of Deafness in Education, Instructional Practices, and Collaboration. Each of these overarching codes has several sub-codes within them. We explore each of these in detail below.

Recognition of the importance of deafness in education

Our participants made frequent comments regarding ways in which deafness, sign language, and the Deaf community specifically impacted teaching and learning at SGSD. Within this broader code, we identified two significant sub-codes: *Deaf students as Spanish language learners* and *learning and the Deaf community*.

Deaf students as Spanish language learners

All the teachers, assistant teachers, and the school director described their students as Spanish language learners who have specific challenges associated with learning Spanish as a *second* language and LSM as their first or primary language. This stands in contract to oralist notions of deaf children treated as 'a broken ear with a child attached' (Lane 1999, 228). In other words, a deaf child should be considered as more than simply their hearing loss, but as a whole child who may be learning a signed language as a first language and a spoken language as a second language. The teacher Maria stated simply, 'Spanish is kind of a difficult topic, because it's just difficult learning in a second language.' One teacher, Manuel, shared with us his method of comparing the two languages as a means of supporting understanding of written Spanish:

Sometimes I give them stories so that they read them at home and they come back and at first I don't say, tell me what it is in Spanish. [Instead] I say, 'First tell me what you understood in sign language and then we'll check it in Spanish.'

He described the explicit use of translation between LSM and Spanish as an approach to support reading comprehension for his students. This is an activity that has theoretical underpinnings in bilingual deaf education in the U.S. (Hoffmeister and Caldwell-Harris 2014). Implicit in this assumption is that the first language of the child is a signed language (LSM), and that LSM can be used as a scaffold to access Spanish as well as other content. Unlike spoken language teaching where translation as a teaching strategy is usually avoided, LSM was used in order to make explicit connections between print words and signs. This frequently occurred because a deaf child may not have access to the

spoken form of the word and may require explicit connections between print and meaning in sign language to be made.

All participants, including students, discussed the role of LSM during instruction. For instance, Student Arturo shared, '[Since] it is in sign language, we can participate more in our learning.' Teachers and assistant teachers all spoke of how important LSM mastery was for their students' learning, and specifically the ways in which LSM was used as a scaffold to Spanish print. Manuel explained: 'So the objective is to get the general idea first in sign language [...] first transmit in sign language and then work on the Spanish.' There is evidence from ASL that the process of generating and refining ideas in sign language before writing them in English may be beneficial for the writing of deaf students (Wolbers, Dostal, and Bowers 2012; Dostal and Wolbers 2014; Wolbers et al. 2015).

Observations of teaching and classroom spaces reflect this fundamental perception of students as Spanish language learners and the importance of LSM to daily instruction. All classrooms had Spanish print, pictures of signs, and fingerspelled words as labels for objects and concepts. Videos of classroom instruction revealed across grade levels teachers simultaneously exposing students to print and LSM. For instance, an observation of the elementary-level classroom included reading a picture book, *The Wizard of Oz* (Francia and Baum 2014). The text was displayed where children could see it while the reader translated it into LSM. This was an interactive lesson accompanied with asking the children comprehension questions, writing down important words, and drawing pictures on a whiteboard. Connections were frequently made between LSM signs and Spanish words, with the bulk of the teaching and learning happening in LSM.

Students shared prior educational experiences having few or no fluent language models. Student Carlos shared during his focus group, '[My previous school] was not a good school because they didn't know sign language. They [didn't] have anything for us. They [didn't] know how to communicate.' Student Yolanda agreed strongly, signing, 'They [didn't] use sign language [well]. It was horrible.' For even the oldest students, the majority were still developing their LSM proficiency while at the same time acquiring written Spanish and learning in the content areas. The status of the majority of these students not just as Spanish language learners, but as *language* learners, adds a layer of complexity to the education provided at SGSD.

Learning and the deaf community

Both students and faculty members considered the Deaf community important for the educational experience of deaf students. Membership in a Deaf community involves a 'nomadic citizenship' (De Clerck 2016, 135) that exists outside of a particular place, and includes a common (signed) language, artistic endeavors, and cohesive group members coming together in Deaf clubs, at deaf schools, and other potential sites of cultural transmission (Ladd 2003). This came in two forms: first, the importance of connecting to Deaf culture and issues around deafness during instruction, and, second, the importance of physically and socially connecting with other deaf individuals around the country. Of the first, Manuel stated:

On occasions when there's something relevant or some news about the Deaf Community, I try to share it with them or get them excited to get more involved, because here the Deaf Community is really small. [I] try to share things with them that are happening out of the country, other important news about the Deaf community, or maybe something that has happened with a deaf person – some kind of achievement.

Manuel indicated the important and inherent motivation students may have in learning about other deaf people and their accomplishments, and simultaneously the importance of supporting them as they became involved in their own community.

Silvia also specifically shared her desire for the students to become connected with deaf people outside of their town. Originally from Mexico City, which had a much larger Deaf community, Silvia recognized the role this might play in her students' education. For this reason, she advocated for the school to join a camping trip with other deaf students despite of the resistance from the board of directors to this idea.

So, for example this camp with the deaf, there were two days of camping [and] two days of training. I understand it was for teachers and interpreters. [...] But it looked like it was too expensive for the teachers and all the students to go to four days. So, then I stopped insisting and so I just gave up and said I was grateful for the two days for the kids to go to the camp.

The desire to connect the students, who were educationally and socially isolated in many ways, was a salient part of the role of this school. The students enjoyed the times they could connect with other deaf students, as exemplified by Student Gloria's comment, 'I liked to have contact with other people. Because in [San Gabriel] there are not too [many] deaf people.'

Instructional practices

Through interviews with teachers and observations of classroom instruction, we noted a number of instructional practices used to support learning, including: *building a knowledge base*, *explicit vocabulary and grammar instruction*, *individualization*, and *scaffolding practices*. Though these practices are common in the U.S., deaf education at this school had a basis in trilingualism that was apparent within many of these instructional approaches in which LSM and written Spanish were present for all students at all stages; however, the older students also completed units of the online/digital national curriculum in English during our visit as part of Mexico's requirements for graduation.

Building a knowledge base

During interviews, all the teachers described the need to build students' foundational knowledge. In many ways, this appeared to be directly tied to the students' having limited previous exposure to accessible education and communication, and therefore less knowledge of concepts. For instance, teacher Adriana shared this anecdote:

In the reading there was the planet Earth and then in that reading one of the students asked, "Well, what's that?" So then as they were trying to tell her what planet Earth was, we couldn't just do that so we started talking about the other planets and [that] planet Earth has life, and we went from there to talking about space and ultimately, we were talking about the entire universe.

We observed a similar phenomenon during our observation of a read aloud in Adriana's classroom. When reading the children's book version of *The Wizard of Oz*, one of the first major events in the story is a tornado. The children in Adriana's classroom had not only never experienced a tornado before, but they did not know what a tornado was. In order to build this schema, the teacher connected it with the sign and print and other types of weather phenomena that the students were more familiar with. Maria also described using a similar process: 'Before giving them whatever activity or topic, I have to think, well [...] how much [do] they know about this?'

Explicit instruction

Providing explicit instruction is another practice supported by deaf education research in the U.S. (Miller, Lederberg, and Easterbrooks 2013). The teachers and students in this study frequently described the need for explicit instruction, including activities such as explicitly breaking down complex ideas into smaller chunks, directly teaching vocabulary, and providing students with explanations of information and events. For example, Maria shared, 'And [I] break it down and explain it by parts.' Manuel concurred, stating that, 'A little bit of what I do is explain the content because of the difficulty of the Spanish.' In both cases, the teacher emphasized a need for direct, explicit instruction to support students' learning. Student Josefina signed, 'I think we don't have the complete information and teachers try to explain [it to] us if something is happening.' We observed such instruction in the vocational workshops which were run by volunteers, mostly white, hearing Americans. Despite linguistic and cultural barriers, the volunteers walked students through the skills such as making an intricate and high-quality piece of jewelry, embroidering a towel or tablecloth, or building a chair and table set from wood (see [Figure 1](#)). This explicit instruction typically occurred through demonstrations

of proper techniques and kind corrections as students attempted to mimic and usually succeed at what the volunteer modeled.

However, the issue of explicit instruction seemed to be most salient around issues of language. Teacher Maria especially noted the need for clear and explicit instruction around Spanish vocabulary: 'We make lists of the words, [...] that frequently appear on tests like analyze, represent.' Manuel also provided direct instruction not only around the connection between Spanish print and LSM signs, but also between Spanish print and English print. English print appeared frequently throughout the school beside Spanish print and pictures of LSM signs. Ana Maria, the deaf support staff, also described using technology to provide explicit support of language development, specifically Spanish, among the younger students:

We have to practice little by little, for example the use of articles in Spanish [...] We use the iPads with the little ones because it's a way that we can make [stronger] the learning [of] this type of material.

Individualization

The students at SGSD came from various home, educational, and language backgrounds. They also ranged in age from as young as three to middle-age adulthood. Perhaps for these reasons, teachers discussed individualization as a salient component of their instructional practice. Individualization seemed to come in two primary forms: the adaptation of activities for students' abilities, and the connection of instruction and concepts to students' lived experiences.

Individualizing activities to be appropriately scaffolded for the needs and strengths of students is a common practice in the U.S. (US Government Accountability Office 2011). Adriana explained, '[To individualize instruction], I change the level of complexity within an activity.' In this way, students participated in a common activity that has been adjusted to their individual needs. She also thought of this individualization in terms of modes of presentation:

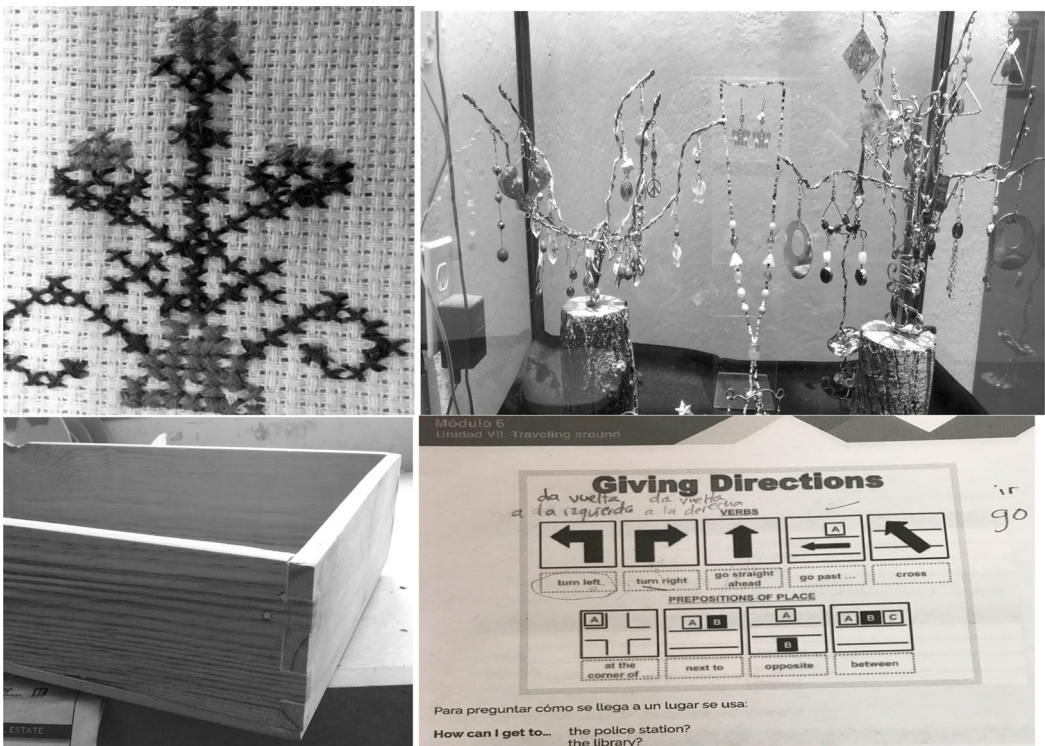


Figure 1. Photographs of student products.

I have two students. One who is a very visual learner, [and] I have another student who doesn't have the same amount of attention and gets distracted. So I have to come up with more interactive ways of working with him so that he can be involved and can learn in that more kind of kinetic [way].

Teachers also individualized instruction by making specific and clear connections to students' experiences. Manuel and Maria, for example, shared that they both strove to connect with their students' families and understand their contexts to provide instruction that would be meaningful to them. We also observed the teachers drawing on the students' immediate context in San Gabriel, drawing their students' questions about their environment into their lessons. Manuel shared that his students did research on the large presence of people from the U.S. in San Gabriel.

Scaffolding practices

Teachers and students both reported educational scaffolds used at SGSD to support learning. The most common were visual scaffolds. All three teachers reported specifically providing students with visual information, such as pictures, videos, and other types of graphics. This was confirmed in classroom observations, where teachers draw and write on whiteboards and easel paper. Classrooms themselves provided evidence of these scaffolds with pictures, words, and representations of sign language on walls and in resource areas.

Additionally, Adriana explicitly stated that she used modeling during teaching to support her students' learning, while Manuel described using prompting strategies to encourage students to describe the reasoning behind ideas and arguments. As an example, he described helping a student brainstorm for a writing project:

I think you like it because you really like to decorate and you enjoy decorating cakes. Do you like to do the preparation? It relaxes you and sometimes it's just that simple so that they can see that they can give reasons.

Students commented most frequently on the ways that visual scaffolds helped them to learn. 'For example, with the [bullying] movie, we [relate more with] the suffering we can provoke [than we would without having seen the movie].'

Both support staff also described using LSM and other visual supports in their attempts to support the learning of their students. Maria Elena, who is hearing, shared her attempts to support learners development of math concepts through manipulatives. 'I try to make these things to give them materials [so] they can see it.' Ana Maria, similarly, referred specifically to using LSM as an instructional scaffold: 'I try to model with them some signs, try to [...] give them more signs to learn about different things.' These physical and linguistic scaffolds that aim to provide children with the tools they need to learn and master material appeared to be commonplace across all levels.

Collaboration

Collaboration was the final major theme that was commonly discussed among the director, teachers, and students. We have subdivided the concept of collaboration into two sub-areas: *learning as a social activity and supporting faculty development*.

Learning as a social activity

During interviews, the teachers, students, and the director described learning as a social activity, specifically the use of interactive and cooperative learning opportunities, peer modeling, and active questioning. Teachers Maria and Manuel both described having students complete work or assignments in teams, sharing the work and responsibility and learning from their peers in addition to the teacher. Manuel stated, 'What I try to do a little bit is combine work, maybe one [that] has a little bit more ability can work with someone [for whom] it's a little harder.' The teachers discussed ways to engage their students in interactive dialogues and provide them with opportunities to benefit from one another's skills. The students noted and appreciated the ability to learn through interactions with

their peers. For instance, when asked about the dynamics in the classroom, Student Yolanda said, ‘We talk between everyone. [We are] equal.’

Observations also reflected these beliefs about cooperative and interactive learning, with students at all levels frequently working in pairs or teams to complete projects or answer questions. In Manuel’s class, students took turns explaining to their peers concepts they were learning, while their classmates asked them questions to clarify.

Student Yolanda is standing in front of the class with a block of text displayed on the SmartBoard behind her. She reads the text word by word in LSM. When she pauses, Manuel explains the meaning of what was written on the board in fluent LSM. Gloria raises her hand to a question about the text. Yolanda turns to Manuel, who comes to the front of the room to explain. Yolanda remains at the front of the room with him and adds and rephrases his explanation. From here, Yolanda scrolls down to display more text and continue her instruction, this time with questions from Josefina.

Yolanda had the opportunity to present new information to her peers and respond to questions. Manuel was ready to engage with the students to clarify any misunderstandings. This provided students with the chance to learn both from their peers and from their teacher.

During vocational workshops there was abundant evidence of learning as a social activity. Students worked in small groups and collaborated with one another as part of the learning process. We observed:

The students are together in the carpentry room gathered around the volunteer who is demonstrating how to use a piece of equipment. The volunteer is using body language and speaking to the students in English while they watch and sign to one another. Occasionally, Student Carlos seems to notice that other students may not be following, and he steps in and describes what he believes is being taught in LSM.

In this observation, we saw students not only gathered together in a group to learn a new skill, but we also observed them interacting with and supporting one another during the learning process.

Supporting faculty development

Teachers and administration also mentioned the development of teaching ability and language proficiency in the context of collaboration. Silvia took an active and hands-on role in developing her teachers to be more skilled in both signing and teaching: ‘It’s not enough to beautiful[ly] move your hands – no? You need more than that [...] This is something that I try to share with the teachers.’ Silvia described her style of supporting teachers as entering their classrooms and modeling teaching strategies for them. We observed Silvia taking the lead on several lessons in which, more often than not explicitly, the classroom teacher observed Silvia’s teaching and participated in the lesson as they were able. Observation notes below describe one such instance.

Silvia is teaching a class that she calls “Human Development.” She has all of the older students in the upper classroom, where she stands in front of the SmartBoard. The SmartBoard displayed images of types of families – two men, two women, a man and a woman, some with children, some without. Manuel and Maria (two teachers) are both observing. Silvia points out members within each family and asks questions about them. She shows pictures of her own family members and describes them.

In this lesson, Silvia both directly teaches the students and models the instruction she wishes to see from her teachers. This type of instruction was interactive, personalized, and visual.

In addition to her support during the school day, the authors observed Silvia after school hours providing instruction to teachers, volunteers, and staff workers in LSM. The informal class not only supported them in the LSM proficiency, but also was a space to explore Deaf cultural norms and practices in visual rather than auditory ways of interacting with the world. The presence of teachers in a beginning to intermediate LSM class demonstrates a complex dynamic that SGSD, and many schools for the deaf internationally, face – the desire to provide instruction for the students in a signed language, but a lack of teachers with signed language fluency. In fact, there are fewer than 20 official LSM interpreters in Mexico (Ruiz Bedolla, personal communication). In several interviews, faculty, staff, and students told us of a teacher who had weak signing skills and showed no desire

to improve these abilities. She was eventually laid off, demonstrating a commitment to building LSM fluency among faculty. However, some students were still receiving instruction in LSM from a teacher who had not yet mastered the language.

What was missing

Though SGSD provided its students with highly accessible and important educational experiences, both faculty and student voices identified areas that were lacking. These included a desire for greater connections for the students, both within the local Deaf community and the larger Mexican Deaf community, and a need to meet educational and psychological needs that the students bring to school.

The students were part of their school community, but in many ways still isolated. Manuel noted that frequently the students seemed to work in isolation even from one another rather than working as a community of learners.

You come here every day, you see each other every day, but outside you never get together. Maybe there's a couple of kids, young girls maybe go to the park or [for] coffee. [...] They just don't get together out of school. Even here there's some that have problems among themselves. [...] So, their deaf community is the school and outside of the school there is no community. And the one that's here inside isn't [that] united.

Manuel explicitly hoped for his students to have more opportunities to connect with one another. In addition to this, the students themselves desired connections beyond the boundaries of their town. Several students spoke of the positive experience with other deaf students from around Mexico at the camp that Silvia championed. Some even desired connections with deaf people internationally. Student Yolanda shared, 'I can see different videos on Facebook with deaf people that I know and that I don't know, for example American deaf people, or from other countries.' She described how she would look at the friends of her Facebook contacts, try to connect with them, and watch the videos they posted.

Silvia believed a number of the students came to SGSD with trauma that had not been dealt with successfully. She stated, 'I think that the experiences that they had [at the previous school] [...] I think they were very hurt. [...] These kids really need psychological attention.' Although she felt strongly that her students needed a trained counselor or therapist, she struggled to convince the board of directors to look into providing such services. This speaks to a greater need for SGSD not only to provide strictly academic services, but to consider the totality of needs that their students may have. Student Yolanda shared, '[I like] the way I was given information to take care of myself, with my sexuality [...], addictions, or things that can be erased for us.' Yolanda recognized the holistic care that Silvia provided and appreciated learning not only about academic topics, but also about herself.

Finally, SGSD was a school that strove to be a bilingual space for deaf students that provided the bulk of its instruction in LSM. However, there were a number of people at the school who interacted with students in significant ways who had not mastered LSM. As noted above, many of the volunteers in the vocational workshops were American expats who spoken only English – the vast majority had little to no skills in either spoken Spanish or LSM. Two of the three teachers, as well, were either beginning or intermediate LSM signers. All of these individuals were providing direct instruction to SGSD's students without full (or much) mastery of the language of instruction.

Discussion

In this case study of a bilingual school for the deaf that served students in Mexico, the authors analyzed interviews with faculty and staff, focus groups with students, observations of classroom instruction, instructional artifacts, and researcher reflections to answer the question of what was successful in this context. What we did *not* see, however, was constant translation while teaching, overuse of

worksheets, students seated in rows, nor other 'traditional' methods. There was purposeful structuring of strategies and classrooms toward the students' linguistic and academic achievement.

All participants described deafness specifically as a factor impacting education and learning. This was both in terms of the linguistic backgrounds and needs of the students, as well as the importance of connecting students with peers and role models who shared their cultural affiliation with the Deaf community. However, while there were attempts to discuss deafness and Deaf culture with the students, and even to connect the students with other Deaf students around Mexico, the students at SGSD were still isolated in many ways. Research in deaf education in the U.S. has identified a need for the opportunity for deaf students to interact with Deaf role models (Watkins, Pittman, and Walden 1998) and some have called for the incorporation of more Deaf texts, such as sign language poetry and stories (Christie and Wilkins 1997), and sign language rhythm and rhyming games (Holcomb 2018) in classrooms for deaf children. Extending the incorporation of these elements into classroom instruction through technology (videos and video conferencing) may be one way of centering deafness in the classroom and thus increasing the highly-desired improved contact among deaf individuals and communities.

Connecting with deaf role models through virtual technology may also be important for forging connections with the local, national, and even international Deaf community. Silvia and Manuel both shared how important they felt it was for their students to connect with one another, as well as with other Deaf youth in Mexico. Such network building may prove to be a boon for students both in terms of their personal identity and cultural development, but also in terms of their language and communication, and future options for employment and vocation. Given the limited ability of many of the students at SGSD to travel outside of their home communities, incorporating more video texts or even inviting virtual guest speakers to supplement these texts would both make more effective use of the existing technology and provide more opportunities for students to interact and engage with sign language texts and cultural artifacts.

SGSD identified itself as a bilingual program. The language of the classroom was LSM, and the two teachers who were not fluent signers were enrolled in an after school LSM program. We did not observe teachers simultaneously using both LSM and spoken Spanish during our week at the school, a simultaneous communication method which frequently results in difficult-to-understand signs that follow spoken rather than signed language grammatical structures (Tevenal and Villanueva 2009). The students were referred to by teachers during interviews as Spanish language learners, with teachers attempting to capitalize on their linguistic strengths in LSM to scaffold their development of reading and writing in Spanish. This was a strength of the program in terms of their adherence to a coherent instructional message and approach. The authors recommend more explicit celebration of bilingualism – even multilingualism – both specifically at SGSD as well as internationally in deaf education. Such a multilingual approach also would benefit from further research on its impact on deaf children. However, because not all individuals who were providing direct instruction to the students were fluent users of LSM, it may be more accurate to describe SGSD as a school that *strives* for a bilingual deaf education model. Continuing to support faculty and staff as they acquire language is necessary for the school to become truly bilingual.

Finally, collaboration between adults and among students was identified as an important component of education at SGSD. These connections wherein adults support one another's learning and practice may result in a supportive environment that promotes personal and group development. This type of environment was echoed in the classroom spaces, where teachers spoke of the importance of collaboration opportunities between students, as well as in the vocational workshops. In workshops, the authors observed the students working together to learn useful new skills and create. It may be that collaboration is a Deaf cultural trait that transcends national boundaries (Ladd 2003). Perhaps in addition to collaboration between the director and teachers, and among the students, it may be beneficial for schools like SGSD to also encourage cross-classroom collaboration. Teachers, even those working at very different grade levels, may benefit from one another's suggestions and knowledge. We argue as well that researchers in both spoken and signed

bilingualism should increase their collaborative efforts, and that both spoken and sign bilingualism advocates could both inform and learn from one another's work (Scott, Kasun, and Bedolla *in press*). In our observations, collaborative opportunities for both teachers and students yielded some of the more positive and successful interactions during our time at SGSD.

The findings presented here also beget larger questions about education and access for deaf children the world over. What does it mean when only a slim margin of Mexico's deaf students has access to education, and when high quality, linguistically accessible education for deaf students is so difficult to achieve? While there are local and international advocacy groups fighting for the right of deaf children to be afforded an accessible and appropriate education (such as the American Society for Deaf Children and the World Federation of the Deaf), it seems that there are regions of the world where the norm for this population is little or no educational opportunities. How might global advocates of spoken language bilingual education link arms with deaf education peers as the most natural of allies for advancing the knowledge base and application of research for deaf children worldwide?

Limitations

There are limitations to what this study could achieve. First, this study was an examination of a single school for deaf students in Mexico, and as such is not reflective of deaf education in Mexico more generally. While we believe this documentation of practice is a critical step for understanding deaf education as it exists in Mexico, further research into the variety of settings and practical approaches to teaching Mexican deaf students is necessary. Additionally, all students in this study were signers enrolled in a bilingual education program. Though chosen by design, findings cannot be generalized to other types of classrooms.

We also, due to time and resource limitations, were only able to conduct this study over a one-week period. It is possible that our presence resulted in observer effects and does not reflect everyday practice in this school. However, based on the level of candor and honesty that participants demonstrated during their interviews, we believe that the instructional practices they reported and which were triangulated through observations were likely similar to their typical practices. Despite this, similar future research efforts should allow for a greater period of time with teachers and students to reduce the possibility of observer effects.

During interviews, because of the complexity of languages used by researchers and participants, responses from deaf participants were conveyed via an LSM interpreter who translated into Spanish, and then a second interpreter who translated from Spanish into English, and vice versa. We chose to focus on older students because of their longevity in the program and likelihood of having a more developed first language. However, not including younger children is a limitation, as they would have different experiences to report. Additionally, our knowledge of the students' backgrounds and educational histories would suggest a limited amount of experience working with interpreters, nor were all of these students were highly proficient in LSM. Both of these facts are likely to have influenced their ability to fully and clearly share their experiences and beliefs with the research team.

Finally, as noted in the section on positionality, both of the researchers who conducted this study were outsiders to both cultures represented here – Mexican and Deaf. For this reason, there may have been nuances that they did not perceive or interpretations made that cultural insiders may not. Future research should seek to include and raise up voices from within these cultures. However, despite these limitations, we believe that this study provides a significant contribution to the literature on deaf education, specifically within Mexico, but potentially may inform how we understand deaf education in other countries.

Conclusions

SGSD is one of a small number of schools that provide accessible educational opportunities to deaf students in Mexico. SGSD supports its students in a number of ways: The teachers and school director

centered the unique strengths and needs that come with deafness in the classroom, and made attempts to both create a sense of community and make connections for students in the larger Deaf community. We also observed instructional practices, such as explicit instruction, scaffolding, building background knowledge, and individualizing instruction to meet student needs – all practices that are identified as appropriate for deaf students in the research literature. Finally, opportunities to collaborate were fostered and celebrated as a way of supporting success for the development of both teachers and students. Though more research is needed on the context of deaf education in Mexico and how to best support these learners, SGSD seems to have made great strides for its deaf students' development.

Notes

1. When discussing deaf individuals or hearing loss generally, the term 'deaf' will be used. When discussing Deaf culture and community in specific, the term 'Deaf' will be used.
2. All names are pseudonyms.

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