Developing Bilingual Literacy in Deaf Children

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1. Introduction

The content of this chapter rests on the following premises. First, the brain has no predilection for spoken languages; as such it will not reject the input that a natural Signed Language can provide (Petitto, et al 2001; Petitto, 2009). The brain's only preference is that the input it receives comes from a complete and natural language. The early access and exposure to this input is imperative for its development and required for future literacy and bilingual competence (Petitto, 2009; Mayberry, 2007; Morford & Mayberry, 2000). Irrespective of the hearing status of an infant (hearing, deaf, hard of hearing), a natural Signed Language, such as ASL, can initiate the language acquisition process (Mayberry, 2007; Petitto, 2009). Second, being bilingual is a positive and desirable quality. Bilingual individuals follow similar developmental paths as do monolinguals and this dual exposure can result in mental flexibility, creative thinking, and communication advantages (Hamers, 1998). Lastly, Deaf children have the right and the ability to become competent bilinguals via the provision of bilingual programs that incorporate their natural Signed Language and the spoken/written language of the community in which they live. This chapter will address the elements of a Bilingual Model for Deaf Education where the use of a Signed Language has equal status with the spoken/written language.

Historically, in the United States and other countries, a Signed Language has not been incorporated in the education of Deaf

children (Humphries, 2012; Grosjean, 2010; Swanwick, 2010). Early educational attempts opted to use 'signing' but not a natural Signed Language to deliver the content for students who failed within an oral-only approach. When a natural Signed Language was used, it was considered the means to an end because the goal was primarily to promote the development of spoken/written language. These programs functioned much like Transitional Bilingual Programs where the goal is to achieve fluency in the majority language at the expense of the minority language. The dissatisfaction with the educational outcomes of these programs created a push for a bilingual design that placed Signed Language at the same level as the spoken/written language. In order to develop functional bilinguals, a program must aim for the full development of two languages. A Maintenance Bilingual Program considers the social and academic functions of both languages, promotes their consistent and strategic use in the classroom and aims to deliver content instruction in both languages making it a viable design for Deaf children (Gárate, 2012).

2. Bilingual Skills for Deaf Children

Deaf Bilingual Education advocates for the development of the natural Signed Language of the Deaf community and the majority spoken/written language. Like hearing bilingual students, Deaf students are expected to develop receptive and expressive proficiency in two languages. For Deaf students, these skills can be grouped into signacy, literacy and oracy. Fingerspelling skills are seen as a bridge between the Signed Language and the written language. Each of these areas is further described below.

Nover, Christensen & Cheng (1998) used the term *signacy* to give proper attention to the ability to attend to and comprehend face-to-face messages, view and comprehend recorded signed messages, and

produce appropriate messages in face-to-face and recorded situations. Whether a Signed Language is the students' first or second language, it is considered the students' most accessible language because it bypasses the auditory channel and capitalizes on the students' visual skills. However, because so many deaf children come to school with limited access to a Signed Language, students may need to develop signacy skills at school. Teachers must act as language planners and monitor students' signacy skills not only when they are delayed but also when they are on target to ensure that they are progressing as the student matures.

Within the framework, *literacy* is defined as the development of reading and writing. Evidence-based instructional strategies which address literacy as a developmental process include reading aloud, shared reading and writing, guided reading and writing, independent reading and writing, writers' workshops, interactive writing, and language and word study (Fountas & Pinnell, 2000, 2006). The increasing use of visual information as a result of technology and multimedia access has led to the addition of 'visually representing' and 'visually interpreting' as elements of a language arts curriculum (Tompkins, 2009). This addition first occurred within curriculums for hearing children, and it is equally if not more relevant in the education of Deaf children. Together, these practices follow a developmental continuum, support socio-cultural practices, and encourage growth that moves from being dependent on others to being independent users who create and manipulate information.

For some students, *oracy* skills development refers to listening and speaking skills that require accessible and consistent spoken language models in natural contexts. For others, oracy may be the use of speech reading and recognition of environmental sounds. Within the framework, oracy skills are not viewed from a deficit standpoint.

Instead of using models of intervention and rehabilitation where the students are removed from the classroom, the speech-language specialists and the teachers work to facilitate spoken English skills within education settings at the level that is appropriate for individual students and in ways that are authentic.

The ability to fingerspell and to read fingerspelling is considered a skill that serves to bridge the two languages. For some Signed Languages (e.g. ASL) the manual alphabet allows for the representation of graphemes, which provides students with the ability to access new vocabulary manually. The sequential nature of a manual alphabet emulates the sequential characteristics of written language. Students' ability to read fingerspelled words stimulates sequential memory and helps them remember new vocabulary (Haptonstall-Nykaza & Schick, 2007).

Originally proposed by Nover, et al (1998) as a list of abilities that Deaf students needed to acquire, sigancy, oracy, literacy and the use of fingerspelling have become the core elements of a Deaf Bilingual framework that aims to emphasize the development and maintenance of all skills in two languages. The framework has been adapted over the years to reflect the growing understanding in the field of Bilingual and Deaf Education research.

3. Deaf Bilingual Education Premises

The framework for bilingual development is adapted here to reflect the prominent influence of Cummins' (1981, 2001) work that proposed that the skills achieved in one language could aide in the acquisition of a second language and that children acquired two levels of proficiency in a language, a social and an academic level. Cummins termed these levels Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP). Simply

described, BICS refers to the use of language for face-to-face social interactions such as the day-to-day communications that we have with the people in our environment whether they are our peers, teachers, parents or strangers on the street. CALP refers to the language of school, tests, and textbooks containing discipline-specific terminology and complex grammar. Cummins' descriptions of BICS and CALP provide a way to conceptualize the place of Signed Language in a Deaf Bilingual Education program to guide planning and instruction.

Cummins' description of skills that transfer between languages is not limited to experiential activities like the physical act of reading and writing. They also include the cognitive skills that support these activities. Students must experience the ability to organize, analyze, evaluate, and compare information in their first language before they are expected to apply these skills in their second language. Developing higher order thinking skills in their first language can be accessed and applied to learning a second language in the same way that developing skills and knowledge in a second language can further enrich the first language. This transfer is not simply a hypothesis. It has been evidenced in both general bilingual research (see Genesee, Lindholm-Leary, Saunders & Christian, 2006 for a review of the literature) and Deaf Bilingual research (Hoffmeister, de Villiers, Engen & Topol, 1997; Padden & Ramsey, 1998; Strong & Prinz, 1998; Cummins, 2006). These studies have reported on the positive relationship between skills in American Sign Language and performance on a variety of literacy tasks in English. More recently, Easterbrooks & Huston (2008) reported that the ability to retell a story originally written in English into fluent ASL was positively related to reading comprehension skills. A study in the Netherlands found positive correlations between sign vocabulary tasks and reading vocabulary tasks (Hermans, Knoors, Ormel & Verhoeven, 2008). Similar findings have been reported for students in

higher education. A study conducted on college level Deaf students attributed 68% of the variability in reading comprehension to their Signed Language proficiency (Freel et al., 2011). Ongoing research on language activation tasks with deaf and hearing bimodal-bilinguals reports on the use of ASL when only English knowledge is required on a task and a co-activation of both when bilingual skills are needed (Morford, et al., 2011). With this knowledge in mind, the goal of the next section is to emphasize the impact that planned instruction of both languages can have on bilingual fluency.
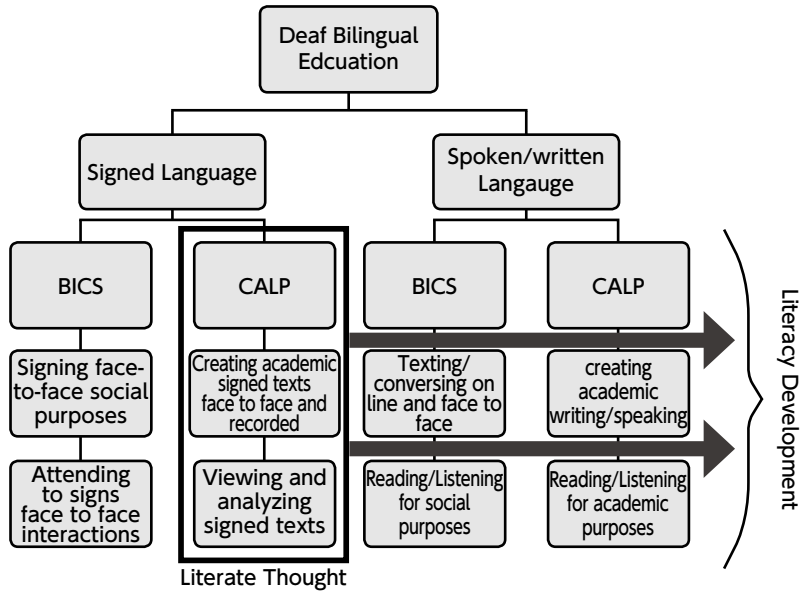

Figure 1: The importance of developing CALP in a Signed Language on Deaf students' bilingual literacy outcomes.

4. Planned Signed Language Acquisition at school

The development of a Signed Language as part of the curriculum brings attention to the true nature of bilingual education where the

minority language is given equal status within the classroom and the school. The Signed Language is seen as having an academic role in the education of Deaf children. Unlike the medical perspective and special education models, a Deaf bilingual model recognizes the centrality of a visual language, visual learning, and ways of being Deaf/deaf, as well as the importance of becoming literate in both languages. To this end, expressive and receptive signing skills development must become daily practices where students have the opportunity to learn about their first language. It is not sufficient to use Signed Language at school to communicate about the everyday situations or use it as a medium of instruction to teach content. The Signed Language has to become the subject of study much like the study of mathematics and science.

In the same way there is a time dedicated to learn how to read, to write, to study the grammar and vocabulary of the spoken language, there needs to be a time to learn to sign for different purposes, to analyze signed sources, to study grammar, and to increase signed vocabulary. Deaf students should spend time analyzing videos to identify the elements and organization of formal presentations. They need to view and discuss the differences in types and construction of signed poems. Through this process, the teachers should help students focus on sign choices made by the presenter and together they need to talk about their meaning and the purpose they serve in the narrative, story or poem. The ultimate aim of these practices is to raise Deaf students who have metacognitive and metalinguistic knowledge of their most accessible language and a firm foundation that can support further bilingual development. As stated earlier, fluency in a language is achieved in two levels: the social and the academic. The next section addresses considerations that should be made in bilingual planning and the research that supports them.

5. Basic Interpersonal Communication Skills and Bilingual Literacy

Bilinguals use two languages to communicate and meet their needs and must know how to adapt their language use with different people and for different purposes (Baker, 2006). Proficiency at a social level includes understanding what others know and do not know about a topic, monitoring clarity of the message produced and the feedback received to identify the need for clarification. Social level proficiency also includes knowing appropriate norms for interaction. This knowledge is learned via social practices, which come with the opportunity to use both languages in many different situations and with many different people. Deaf children are rarely afforded these incidental opportunities for social language use. At home, they may not have access to social interactions in Signed Language. In the community, they may shy away from social interactions that depend on spoken or written language. At school, Padden & Humphries (2005) state that historically deaf children have been educated in separate spaces and using different approaches. This has denied them access to critical mass that provides rich social interactions and social learning. Limited access to interaction with fluent language users often leaves Deaf children unable to adapt or change their language to match their social context. They have little variety in language use, or may say inappropriate or unrelated things during conversations. Some students are able to ask questions and greet people, but have difficulty maintaining and expanding on a topic. These problems can impact the student's social relationships and socialization into both hearing and Deaf culture. Like all language skills, social uses of language need to be learned, and for Deaf students with limited social engagement they will need to be explicitly taught, especially because social language development is seen as an access point to academic language use. Therein lies the importance of creating spaces within the school for

Deaf children to use both languages for social purposes.

5.1   Social uses of Signed Language

Students need to be exposed to a variety of language models with which they can converse. In school, there are vast opportunities to practice the social purposes of language. These include morning and class meetings, organized games, expanded discourse alongside hands-on activities, after watching a movie or during a school trip. Students can create personal video-logs to practice expressing their views and opinions. Access to video-based communication devices such as FaceTime and videophones offer more options for students to connect with others who are not familiar with their communication style. While these practices are meant to be authentic opportunities for social language use, teachers need to model, guide, and monitor students as they learn pragmatic skills.

5.2   Social uses of written language

In an increasingly technologically global world, writing is fulfilling many communicative, social and personal needs. Deaf children are active participants in this process and schools need to capitalize on their interest in social media. Teachers are increasingly using on-line chat environments, interactive writing and journaling, blogs, texting, emailing, Twitter, and educational platforms that resemble Facebook to engage students in writing for social and communicative practices.

5.3   Social uses of spoken language

Deaf children who have sufficient auditory access to benefit from spoken language also need to learn the use of this modality to satisfy social needs. Recommended practices in this area include oral read aloud time for pleasure, spoken-language/listening centers, grouping

students by language modality during snack/meal times and play, and the access and exposure to language peers (Nussbaum, Waddy-Smith & Doyle, 2012; Gárate, 2011).

6. Cognitive Academic Language Proficiency and Bilingual Literacy

A discussion about CALP elicits references about literacy skills and schoolwork. This term is readily ascribed to the academic demands in a spoken language primarily because schoolwork has traditionally been evaluated in the creation of written text. How then do we discuss the existence of CALP in a Signed Language that does not have a written form? A starting point is to consider the construction of text not simply as something written but in the wider sense where texts are cultural products that can be the center of critical analysis. Kuntze (2008) argues that the term "text" should be understood more broadly to include 'content that has been linguistically recorded in one way or another' (p. 153). This content should also be permanent to allow "one to step back and deliberate the manner by which the content is organized and how language is crafted to convey it" (Kuntze, 2008, p. 153). For ASL, a video recording acts as a collection of linguistic symbols organized with a purpose around a topic. The physical form or the medium in which it is represented is secondary to its purpose.

Furthermore, cognitive academic proficiency exists in the manipulation of information for different purposes (e.g. comparing, evaluating, analyzing) exhibited in context-reduced situations and without the use of written language. Thus, the discourse used in classrooms, academic settings, and formal forums for those purposes is also part of CALP. Understanding and condensing large ideas into fewer words and sharing those ideas requires the use of higher order thinking and reasoning skills. As such, a frozen form that can be viewed and reviewed without altering its structure can serve

as the source of academic content and analysis when it has been constructed to follow specific linguistic structures. In Cummins' terms, Deaf students need to experience the decontextualized use of language for cognitively demanding activities, to reflect upon information, and to solve problems. However, Deaf children are often learning a first language while learning content via that language. Similarly, metalinguistic analysis requires a certain level of knowledge and skill in a language. Without planned language instruction and practice, students' language development does not reach the cognitive thresholds needed for fluent bilingualism. Thus, Deaf children must be provided with instruction that develops these skills within a bilingual program.

6.1   Academic uses of a Signed Language

Access to a variety of technology that allows video recording, editing, and production of multimedia pieces provides the ideal platform for teachers and students to view and create academic pieces in Signed Language. The accessibility of recorded materials in Signed Language gives way to its use in the classroom. Teachers can guide the analysis by viewing videos and pausing to discuss organization, content, and sign choices. They can check for comprehension, encourage students to make predictions, discuss the signer's perspective, and provide their opinion. Seeing good (and not so good) examples of academic presentations serves as models for students to understand which characteristics are desirable and which are not. Mediation and repeated viewing of signed stories paired with instruction has been studied with positive results found in increased sign vocabulary production (Cannon et al., 2010) content vocabulary (Golos, 2010), improved narrative retelling (Kaderavek & Pakulski, 2007), enhanced engagement behaviors (Golos, 2010), story

comprehension (Cannon et al., 2012), and the use of classifiers (Beals-Alvarez, 2012). Additionally, using videos as the source of instruction allows students to see the inclusion of a Signed Language as part of the school day and not only in relation to the spoken/written language.

Alongside the exposure and analysis of academic Signed Language, students should experience creating their own videos. To this end, teachers need to guide students to plan, organize ideas, select transitions, discuss sign choices, and deliver their message. The process is similar to planning how to draft, write, edit, and revise a piece. Because the audience is not present, the message must be planned and delivered so that it is understood on its own merits without the benefit of additional clarification. During the process, students can solicit peer feedback and edit their video before the final version is completed. Developing literate thought requires understanding the use of persuasion, interpreting ideas, considering multiple perspectives, evaluating, and applying information. Creating recorded pieces using Signed Language for academic purposes is tied to this type of thinking. Thus, teachers need to develop activities that scaffold students' use of language to organize and express their thinking via recorded messages in these critical ways.

6.2   Academic uses of written language

Traditionally, teachers control the use of print in the classroom. They prepare the presentation, handouts, and notes. They assign the reading, pose the questions, and translate a lot of the written information into sign. If students are going to learn to use written language for academic purposes, teachers need to explain these purposes and the structures that academic language follows. Students need to use that type of language in class. Teachers can ask students

to restate, paraphrase or summarize in writing information they read or a new term that was introduced. Students can describe a process, the steps in solving a problem, and use thinking maps to organize information before writing out a report or creating a PowerPoint presentation on a topic. Teachers and students can use on-line environments to have synchronous conversations or asynchronous discussions about the content covered in class. Students can work together using wikis to complete reports, essays, and research papers, or to caption a presentation. The class can also establish a time when the written language is the mode of communication for academic purposes. During this time, the teacher can assign questions that students need to answer together and they can use any of the synchronous on-line environments to accomplish this task. The purpose of using only writing as a mode in class to answer questions or create summaries is to allow students to engage in dialogue that requires them to express their ideas, and to ask and to provide clarification about the topic in the same language that academic content in textbooks is published.

6.3   Academic uses of spoken language

As appropriate for individual students, many of the activities related to academic writing can be applied to spoken language. Students working on a report can have an opportunity to discuss their topic and process at the spoken language area. Working with peers and teachers, students learn to elaborate, clarify, support ideas with evidence, and build on ideas. A student who is learning to sign or a student who has sufficient auditory access should be able to create oral reports that can also be captioned to make it accessible to peers. Much like other areas, skills in oral academic language need to be developed within the curriculum for those students who benefit from

this access.

While these elements were discussed separately, they are all parts of a system working to support each other. Students who understand and use one ability in one language have the potential to influence and strengthen abilities in the other language. In that sense, the social use of Signed Language exposes students to social norms and registers and it has benefits for the students' use of the spoken/ written language for social purposes. Similarly, when Signed Language is used for academic purposes, Deaf children access metalinguistic skills, develop knowledge and use of their most natural language that can be tapped when they are introduced to the academic purposes of the spoken/written language. Creating and analyzing academic pieces in Signed Language allows students to explore ideas and negotiate meanings to deepen understandings and make connections. The cognitive activities involved in that process are also needed for reading, writing, and using oral academic language.

7. Conclusion

This chapter described a framework for Deaf Bilingual Education that emphasizes the equal value that both a Signed Language and a spoken/written language have in the bilingual development of Deaf children. Deaf children have the right and the potential to become functional bilinguals when their most accessible language is given a place in the daily social and academic activities of classrooms.

Developing bilingual literacy skills require the development of social and academic proficiencies in two languages. Until recently, many programs for deaf students had not given Signed Language an academic role in education. Signed Language has been used to support the spoken/written language but not as an equal contributor to the bilingual proficiencies of Deaf children. This approach fails to

understand that without learning, developing and using the cognitive skills associated with academic practices in the most accessible language, students lack the knowledge and experience they need when it is time to address these same practices in their second language. To a lesser degree, programs have ignored the social role that written language has for Deaf children. Addressing the social and academic aspects of each language allows us to look at each of the areas bilingual programs must address in their daily planning and instruction.

Bilingual literacy is achieved via consistent and strategic access to two languages. This is more critical for Deaf children who experience delayed or limited exposure to one or both languages. Planned Signed Language acquisition becomes the responsibility of the school and the design of a Deaf Bilingual program becomes central to this goal. Signed Language cannot be seen simply as the means to communicate content. It must become the content children study. In order to be on equal grounds with the spoken/written language, Signed Language must assume academic roles at school and become the source of analysis and the medium of recorded thought. Teachers have a great responsibility in this regard for they must mediate, model, and scaffold the access to videotexts and their creation.

Literacy as a social practice requires that we rescue the perspective of others who have preserved their ideas in a frozen form using their language of choice. Deaf students need to have experiences that resemble these practices in both their languages. Thus, the school day needs to allow for time to focus on developing their language separately. Research has shown the benefits of repeated and mediated viewing of signed videos on sign development and on reading. This supports the knowledge that developing a child's primary language does not delay, but rather can positively influence the development

of literacy skills. More research is needed on the impact that guided signing may have on the quality of students' signed productions.

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