Short Communication

Shared reading activities: A recommendation for deaf children

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There should be a focus on fun in shared reading activities with preschoolers in order to prepare them for later literacy, particularly those at risk of a poor foundation in a first language (L1), including deaf children (here "deaf" covers hard of hearing, as well). We look at how shared reading activities (SRAs) develop pre-literacy skills and describe bilingual-bimodal ebooks aimed purely at producing enjoyment, so families will engage in SRAs frequently.

Keywords: Ebooks, shared reading, deaf children, literacy

Literacy: SRAs

In 1985 the USA National Academy of Education Commission on Reading concluded, "The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children" (Anderson *et al.* 1985; 23). Research since then has concluded repeatedly that SRAs with small children are primary among the factors that positively affect the development of literacy skills (Trivette *et al.,* 2010). Effectiveness of SRAs with preschoolers is connected to interaction and interest (Deckner *et al.,* 2006), not to explicit pedagogical exercises.

Literacy: Language development

Language interaction is foundational to literacy – far more important than phonological awareness (Mayberry *et al.,* 2011). Therein lies an answer to why SRAs are critical: an enjoyable SRA includes extensive language interaction, which develops skills necessary for literacy (Whitehurst *et al.,* 1988). Frequency of SRAs, number of children's books at home, and frequency of library visits combine to increase vocabulary and teach narrative skills for literacy development in an L1 or a second language (L2) (GrabeandStoller, 2013). When hearing adults

read aloud with hearing children, children show improved speech skills if the discussion relates the story to the children's experiences, includes positive feedback about the children's understanding of the story, and involves higher level facilitative language techniques (FLTs), such as open-ended questions, rather than lower level FLTS, such as linguistic mapping, labeling, and directives (Trivette *et al.,* 2010). On a first reading, one might ask what the child thinks the main character will do next. This leads to vocabulary expansion and a Theory of Mind (ToM). On a fifth reading, instead, one might ask what the child would do in the main character's situation. Children can develop a storyline considering their knowledge, abilities, needs, and desires. This teaches characterization and narrative structure.

Deaf Children and Literacy

Deaf children demonstrate lower academic achievement than hearing peers, where many attribute this to lack of comfortable facility with language. Often deaf children raised strictly orally do not access speech well enough to develop good language skills (Humphries *et al.,* 2012). Further, deaf children raised with sign (often in conjunction with speech) many times do not have a good signing model available to them.Much attention has been given to literacy of deaf children, with some focus on SRAs (Justice and Kaderavek, 2002). But lack of a

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comfortable language in which to communicate with the child is an inhibiting factor in the frequency of SRAs.

Pedagogy-oriented Efforts

The Laurent Clerc National Deaf Education Center maintains a webpage to teach adults how to share books with deaf children. Their guidance builds on behavior deaf adults adopt with deaf children to enhance L1 development and preliteracy skills (Kuntze, 1998).

Starting in 2012, the NSF Science of Learning Center on Visual Language and Visual Learning (VL2) has been producing bilingual-bimodal ASL-English ebooks accessible on an iPad (and some on Android tablets) for use with deaf children (http://vl2storybookapps.com/). They come with lesson plans for building a bridge between ASL and written English and for development of ASL. They are recommended for the child aged 5 and up. Others have jumped in with pedagogical ebooks for deaf children – such as iStoryTime Inc., and Signed Stories, which features renowned ASL storytellers. The latter come with interactive learning games.

Certainly, a technology-oriented approach is promising: the use of interactive virtual reality (VR) improves storytelling skills in deaf children, where the younger the children begin such activities, the better their storytelling achievements (Eden, 2014).

But beyond pedagogical books, we need books that are simply fun for at least two reasons. First, a pedagogical approach can be stressful since all recognize there are goals to achieve and may experience anxiety. Hearing parents of CI children give evidence of anxiety in SRAs by adopting "literacy strategies" and "teacher techniques", and asking closed-ended questions (DesJardin *et al.*, 2014). They try to elicit specific reactions, rather than allowing interaction to progress organically, led by children's interests. Certainly, deaf children and their parents have as much right to fun in SRAs as hearing children and their parents.

Second, in the early years of life, when the brain is characterized by extensive plasticity, the child is primed to absorb information through the various perceptions and through language (Huttenlocher, 2009). The job is largely to segregate points of interest from background, store information about previous experience with points of interest, and test one's interpretations of the world against incoming sensory input (FahleandPoggio, 2002). This implicit learning happens naturally in the early years. For most small hearing children, explicit literacy training is limited to school environments, which means that their home environment allows them to be like sponges, soaking up information through perceptions, experience, and language. Small deaf children raised in a hearing environment definitely need explicit help gaining language competence,and may need extra information input since much of the incidental learning that happens in an environment of accessible language does not occur

for them (Powers *et al.*, 1998).But beyond that, we hope they would be allowed the freedom to learn implicitly just like hearing children – to reason their way through perceptual, experiential, and linguistic information during the time when their brains are so very ready to do exactly that.

Fun-oriented Efforts

Several non-pedagogical works for deaf children have appeared in recent years. Many of these are in the form of videobooks, in a variety of languages, and can easily be found on youtube and viewed on any computer (see Appendix A for a partial list, some of which are animated films, others acted films, and others texts and illustrations with signing). There are also several non-pedagogical ebooks, available via iTunes (see Appendix B for a partial list). Typically, they include text, illustrations, and signing. Most charge a fee.

A New Kind of Ebook

We and our students have been producing non-pedagogical ebooks offered at no cost. Our goal is to produce books that promote the kind of SRAs that develop preliteracy skills. Our underlying givens are three. First, if SRAs are pleasurable, they are more likely to be repeated. Second, frequency of SRAs is important to literacy development. Third, the primary value of SRAs for deaf children is language development. These are the foundation for our focus on fun.

The principles that guide us in developing reading materials are:
1. Good stories are more likely to produce pleasure.
2. Appropriate storytelling methods lead to better language development.

To this end, in fall 2013, the authors taught a course on making bilingual-bimodal ebooks at our two campuses, Gallaudet University and Swarthmore College. We used the only free software available at the time: iBooks Author, which made the resulting ebooks accessible only on compatible platforms. All students were literate in English and could use ASL; thus all could communicate via writing in English or via ASL when face-to-face. The students collaborated on six ebooks through class visits to each other's campuses, email, and electronic visual communication. First drafts circulated within our class and were constructively criticized by all students. Second drafts were tested at deaf schools, and feedback helped in revision. Final drafts were uploaded to the Internet. In fall 2014, we repeated the course, more efficiently this time, and produced ten ebooks with the same number of students (12 from each campus).

Effects of Guiding Principle 1: Good stories are more likely to produce pleasure

We selected stories with strong appeal to deaf children; ones which feature senses other than auditory and with

scenarios deaf children can relate to their life experiences (Dennis *et al.,*2012). The themes include standing tall against adversity, striving to achieve goals, and developing sources of inner strength and enjoyment. We chose books with illustrations of things from daily life or things we typically teach small children about, such as African animals.

To assure artistic quality, we used published stories. Four were classics hearing adults might already have positive associations with. In this way we gave those classics to the deaf child, since they are rightfully part of the American heritage. Three classics were in the public domain, while one was under copyright with Penguin, who gave us their kind permission to use it with the stipulation that the ebook be available free only to families or classrooms with deaf children. The fifth book was modern (ROCKY THE CAT WHO BARKED, hereafter ROCKY) and under copyright reverted to author and illustrator by the publisher. Both gave their kind permission without stipulations. The sixth ebook also used ROCKY, but the video was in Fiji Sign Language, since we had a deaf student from Fiji.

In the second year, we used a mix of nonfiction and fiction books. With respect to nonfiction books, National Geographic (NG) gave us kind permission to use four of their books with the stipulation that the ebooks be available free only to families or classrooms with deaf children. The other six books were fiction. We had deaf students from Nepal, Korea, and Brazil, as well as the USA, so we reached out globally. Since we had already produced ROCKY in Fiji Sign Language, we chose it as the base for our ebooks in languages other than English/ASL. We lost nothing by doing this, given that classic books in the USA would not be part of the literary tradition in other countries. And by keeping a fixed base, we reduced workload in formatting, which allowed time to arrange for translation of the English text into the text of the appropriate spoken language. We produced ROCKY in Nepali/Nepali Sign Language, Korean/Korean Sign Language, and Brazilian Portuguese/LIBRAS. Our students chose the final three fiction books. One was a classic in the public domain. The other two were offered on the Internet for anyone's use, allowing manipulation of illustrations and text.   One of these latter two was translated into Brazilian Portuguese with a video in LIBRAS. The other two needed text revisions to meet the highest quality standards and one needed illustration cutting as well. Text revision was supervised by the Swarthmore College instructor, a well-published children' author, and illustration cutting was supervised by the Gallaudet University instructor.

Effects of Guiding Principle 2: Appropriate storytelling methods lead to better language development

Videos were held to the highest cinematic standard by using the professional filming studio at Gallaudet University and encouraging innovative interaction between signer and text and/or illustration. Videos were also held to the highest narrative standards. Actors worked under the supervision of the Gallaudet University instructor, a former actor in the National Theater for the Deaf, to provide a good language model and storytelling techniques that would support language and literacy development.

A Good Language Model

For many deaf children and their parents, there is no good signing model in the home. Too often language interaction is minimal – a serious issue, since skills in a sign language are the best predictors of deaf children's literacy skills (Mayberry *et al.*, 2011). Deaf children with non-signing parents do, indeed, learn a sign language from signing peers and adults outside the home (Meier, 1991), and deaf children who have only home-signs, when brought together, quickly form a full language (Senghasand Coppola, 2001). Still, most deaf children meet signing peers and adults only when purposely brought into contact with them, and the frequency and regularity of these meetings vary. Thus deaf children can benefit from as much signing in the home environment as possible. Even poor signing by parents can help children's language development (Singleton and Newport, 2004). Deaf children whose hearing family members sign with them demonstrate language expressiveness and ToM on a par with hearing children of the same age (Schick *et al.*, 2007).

Further, not just deaf children, but everyone in the family needs help learning to sign. The ebook videos help: all signers are deaf and signing is their primary and preferred mode of communication. Language learning, even for L2 learners, is boosted by a range of factors not explicitly pedagogical, such as context-driven understanding (Chalhoub-Deville, 2003), where visual and linguistic information rapidly integrate (Tanenhaus*et al.*, 1995), and knowledge of real world possibilities, which helps in language interpretation (Chambers *et al.,* 2002). So small deaf children can rely on videos, illustrations, and what they know about how the world works in acquiring a sign language as L1, while hearing family members can use that same information with the addition of the text in learning a sign language as L2/M2.

Story Telling Techniques Supportive of Language and Literacy Learning

We were careful to make frequent use of those sign-language, "visual vernacular" (Riggs, 2003) techniques that support language and literacy development. One technique is: *Vary perspective from long shot, middle shot, to close up.* This technique is particularly appropriate for deaf children, since picture book illustrations use it (Goldstone,2001). While hearing

children can get reinforcement for short-distance changes from reader modulations in voice volume (Greene Brabham and Lynch-Brown, 2002), deaf children often miss such auditory cues. Signing videos, then, supply reinforcement.

Another technique from the visual vernacular is: *Change speed of motion to match narrative structure.* Again, hearing children get reinforcement of narrative structure from voice speed (Greene Brabham and Lynch-Brown, 2002), while videos supply this reinforcement for deaf children.

A third technique is: *Role shift.* Role shift enhances viewers' understanding of character interactions. With hearing children, adults might vary voice quality (pitch or accent) to indicate different characters' speech and thus strengthen children's ability to follow the storyline (Greene Brabham and Lynch-Brown, 2002). Role shift, analogously, distinguishes between characters in actions and emotions, giving deaf children support in understanding who is doing what why.

These three techniques are common to pedagogical ebooks, as well. But there is one more technique we employ that distinguishes ours from others that we have seen that include a written text: *Retell the story, setting the stage for all characters and actions.* We encouraged our signers to think about the story, then tell it in a way natural for them, rather than to translate. The results were uncompromised. For example, consider the simple line "The stockings were hung by the chimney with care," from our ebook TWAS THE NIGHT BEFORE CHRISTMAS. The signer tells us (the viewer) the following (with a loose translation into English):

Consider the house, now take a close look. The family decorated everywhere. The chimney rises tall. A fire is going there. The mantelpiece has loops of decorations. Along that mantelpiece are hung red stockings with white tops.

The signer introduces each object – house, decorations, chimney, fire, mantelpiece, stockings – then comments on it. This syntactic structure is the cognitively most transparent in a visual modality (Napoli and Sutton-Spence, 2014). The rendering is, thus, natural and appropriate, and, in fact, it is in line with what deaf parents do with their deaf children (Berke, 2013).

By encouraging our signers to trust their intuitions in telling the story, we found that many established a meter and used repetition to narrative advantage. Since reading aloud in a spoken language also establishes a meter (Guaïtella, 1999), whatever advantage that gives hearing children might well now be given to deaf children.

Effectiveness of the New Ebooks.

Our findings from two pilot studies are encouraging (Mirus and Napoli, forthcoming). Children mimic the videos and modify the storytelling in personal ways, expanding active language use. When multiple children share the book, they use higher-level FLTs with each other. Children ask for repetitions of the SRAs immediately and for months afterwards. These are characteristics of effective SRAs (Whitehurst and Zevenbergen, 2003).

Teachers also responded with enthusiasm, though in the classroom children tended to appropriate the ebooks for themselves; the teacher became incidental. On the other hand, parents were uninterested in the videos. All parents we observed had preschool children with CIs and were strongly encouraging oral skills; none had (yet) recognized a need for signing.

CONCLUSION

Varied reading materials need to be offered to deaf children, just as they are to hearing children. But for preschoolers, we recommend a focus on fun thatresults in extensive language interaction. The non-pedagogical ebooks described here are our contribution toward achieving this goal. These non-pedagogical ebooks are free andmore information can be found here: http://www.gallaudet.edu/american_sign_language_and_deaf_studies/bilingual_ebooks.html

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Appendix A: Video books in other languages
In Argentina:
http://www.videolibroslsa.org.ar/
In Austria:
http://signlibrary.equalizent.com/books
In Germany:
http://kinderbuecher.gmu.de/#geschichten
https://www.youtube.com/watch?v=hVjraA6AD1k
http://www.kestner.de/n/verlag/produkte/manu/manu-inhalt.htm
In Italy:
https://www.youtube.com/watch?v=4gQ-5I0q_uE
https://www.youtube.com/watch?v=l6TNXNJxqhU
https://www.youtube.com/watch?v=B57OYpQ4RN0
https://www.youtube.com/watch?v=6Y0XH08rbbY
https://www.youtube.com/watch?v=j2GLSMlkCxk
https://www.youtube.com/watch?v=0jKI1gU3gNc

Appendix B: Other non-pedagogical ebooks in ASL/English
Original ebooks in ASL/English (including some modern takes on classic tales):

2012. *Pointy Three* by Adam Stone and Joyce Hom, published by Adam Stone ($3.99): https://itunes.apple.com/us/book/pointy-three/id538361566?mt=11

2012. *Strollin with little baby Owen*, published by Owen Tales ($1.99): https://itunes.apple.com/us/book/strollin-little-baby-owen/id550867985?mt=11

2013. *Alistair the Armadillo*, by Mike Brumby andCipta Croft-Cussworth, published by Michael Hughes($3.99): https://itunes.apple.com/us/book/alistair-the-armadillo/id646337878?mt=11

2013. *The manual alphabet with the death hands*, by Benjamin Vess, published by Vess Studios ($4.99):https://itunes.apple.com/us/book/manual-alphabet-death-hands/id698018882?mt=11

2013. *Zoey goes to the dog park*, written by Rachel Berman Blythe and Jena Floyd, published by Rachel Berman ($4.99): https://itunes.apple.com/us/book/zoey-goes-to-the-dog-park/id590329905?mt=11

2014. *Zoey goes camping*, written and published by Christopher Blythe: https://itunes.apple.com/us/artist/christopher-blythe/id662768262?mt=11

2014. *Zoey goes to the beach*, written and published by Rachel Berman Blythe (free): https://itunes.apple.com/us/book/zoey-goes-to-the-beach/id878332614?mt=11

2015. Once Upon a Sign series from Dawn Sign Press