

A Preliminary Look into the Efficacy of Bilingual ASL-English EBooks

Rehana Omardeen

Swarthmore College

### **Abstract**

In the fall of 2014, a class was joint taught on the campuses of Swarthmore College and Gallaudet University, by professors Donna Jo Napoli and Gene Mirus. The class was a collaborative project among students of both schools to make eBooks for deaf and hard of hearing children to read with their families. This study is a pilot to examine the efficacy of these eBooks, by examining their use by select families with deaf or hard of hearing children. Families engaged in shared reading of the eBooks while being video recorded, participating in two video sessions over a two-week period. Their interactions during the shared reading sessions were analyzed for further information for a future study, as well as to gather feedback on the eBooks to make improvements in future books created.

## Introduction

### **The case for bilingual approach to literacy**

Our eBooks are created to be bilingual, to promote shared reading between parent and child. The benefits of a bilingual approach to deaf education have been extensively discussed in the literature, but with specific regards to building literacy, the ties between proficiency in ASL and written English have been shown to be strong (Strong & Prinz 1997). Research has also suggested that this strong link persists across age groups: a higher fluency in ASL leads to higher reading performance in written English in both children and adults (Chamberlain & Mayberry, 2008).

### **Shared Reading**

Shared reading has been extensively studied as a source of tremendous contribution to literacy and linguistic development. Previous research has addressed its effectiveness in promoting literacy among hearing (Snow, 1983; Valdez-Menchaca & Whitehurst, 1992; Button & Johnson, 1997) as well as deaf children (Maxwell, 1984; Rottenberg, 2001). Additionally, shared reading has been shown to promote literacy among children in at-risk reading environments (Foorman et al, 1999; Whitehurst et al, 1994).

Why is it that shared reading is so instrumental in literacy? Shared reading can promote critical skills that are central to literacy development, including joint attentional capacities, familiarization with narrative structure. Shared reading has

the opportunity to change a child's reading experience. It gives children access to books and stories they may not have access to on their own. It also has the potential to make reading fun, and allow children to develop a love for books and reading at a young age.

In efforts to develop effective and engaging strategies for shared reading with Deaf children, attention has shifted to adopting and incorporating the shared reading strategies of Deaf parents. These parents are able to quite naturally engage in shared reading in a way that is particularly accessible to the deaf child. The Laurent Clerc Center of Gallaudet University has designed a Shared Reading Project, in this program, reading strategies of Deaf parents, as outlined in the research of David Schleper (1997) are used to educate parents of Deaf children on how to create effective shared reading situations.

Notably, shared reading is highly effective when it is an interactive process, with parent and child both engaged and involved. In order to encourage this sort of storybook reading, we have tried to produce books that are appealing to both reading parties, keeping both readers in mind, whether they be deaf or hearing, parent or child.

### **Use of Technology**

While most of the research on shared reading has been done with picture books alone, recent technology has opened us up to a new arena for book sharing: eBooks. With these new technologies available, it is now possible to incorporate signing directly onto the page. The inclusion of video in such eBooks

allows for the possibility of including visual language alongside written text, a way of presenting both languages side by side on the page in a way that had not been possible before.

Within the past few years, there have been many ASL-English bilingual eBooks created. These books range from stories brought to life and distributed through the free Apple software iBooks author and the iBookstore, as well as entire storybook apps, like those created by the Visual Language and Visual Learning (VL2) Center at Gallaudet University. These books incorporate both the written text as well as videos in ASL of skilled signers retelling the story on the page.

As outlined in Stone's (2014) analysis of the current ASL eBook canon, there is a pretty strong divide in the formats of the eBooks currently available; they either fall into the category of iBooks or storybook apps. The iBooks, are created using iBooks Author, free Apple software, allowing users to create apps solely for distribution through the iBookstore, and only available for use on Apple devices. As expected, since this software is free, the creators of these eBooks are somewhat limited in their creativity by the software available to them. As Stone notes, these books are usually produced by individuals or small groups, as opposed to storybook apps that are produced by large organizations.

These storybook apps are typically created by large teams, and are afforded much more creativity due to the fact that they are able to design and write code to do what they want. These are also not just books, but entire story applications, which means they are slightly different in that they can present the

story in more than the single page-by-page experience of the iBooks. For example, the VL2 books include several options of storytelling, reading through with written English and signed ASL, retelling of the entire story in ASL, as well as a glossary feature to build vocabulary. That being said, these storybook apps like those produced by VL2 are more didactic than others, aimed specifically at language instruction, with built in tools like glossaries to teach ASL vocabulary and fingerspelling. Our books are instead produced with the intention of promoting shared reading experiences between caregiver and child, producing a reading environment that can be enjoyed and appreciated by both parties. We want deaf and hard of hearing children to love reading, and to do so, we need to make reading fun. The aim is to create stories that both parent and child want to read again and again, stories that they can become so familiar with that they can tell and retell over and over, and discuss and pull apart.

Research on educational video viewing among deaf children has shown that exposure to such material increases literacy behaviours independently of the ASL skill level of the child (Golos 2010). This, along with the findings through research with a Blues Clues clip, that the more a child watches a video, the more they comprehend (Crawley et al., 1999), is encouraging evidence for the present series of eBooks. We hope that our books are fun, so that parent and child want to read and watch them repeatedly, and in doing so they begin to understand more and more of the signing, despite their background.

## **Our eBooks**

In the Fall of 2013, Professors Donna Jo Napoli, and Gene Mirus teamed up to co-teach a class on the campuses of Gallaudet University and Swarthmore College. The class aim was to create a series of bimodal, bilingual eBooks for deaf and hard of hearing children. The class, offered at Swarthmore for Linguistics credit, was not aimed towards any didactic educational strategy in promoting literacy; instead it aimed to create books that could be enjoyed by parent and child alike in a shared reading environment. The books created adapted stories of the American children's literary canon, incorporating tales from well-known children's authors, nursery rhymes, as well as other classic children's stories.

The aim was to make stories like these more accessible to young deaf children, and provide them with stories both in sign and print. Each book of the original RISE series (Reading Involves Shared Experience) contains the original story, told in written English, as well as signed in ASL. The eBooks were put together with parent and child in mind, with input from both sides of the spectrum. Each book was produced by a group of students consisting of Gallaudet as well as Swarthmore teammates who collaborated to produce the final project. Each book features the original written text and illustrations, as well as signed versions of the text on each page.

In the first semester the class was taught, six eBooks were produced, including tales such as *Humpty Dumpty*, *The Little Engine That Could* and *The Night Before Christmas*. The class is currently being taught for a second semester, during the fall of 2014, and several more books are being produced,

including one of Napoli's books (herself, a well-known children's author), that has been translated into several different languages including Korean, Brazilian Portuguese, Nepalese and Fiji, to produce eBooks to make available to the deaf communities of those countries.

The first set of books was produced using free Apple software called iBooks author. This software allows users to create and publish iBooks (but only on the iBookstore). The second set of books were also created using iBooks Author, but other measures are being put into place to increase their accessibility, specifically adapting them to the VL2 storybook app format, as well as making a version available for access via internet browser.

## Experimental design

### **Purpose**

The aim of the present study is to carry out a preliminary analysis of the pilot study presented by Professor Napoli and Professor Gene Mirus of Gallaudet University. The pilot study is designed to gauge the efficacy of the eBooks. The initial pilot study design as proposed in the NEH Humanities Start-Up Grant application is as follows:

We will study the use of all our eBooks in home settings in a pilot study, consisting of videotaping dyads of adult-child in SRAs (*Shared Reading Activities*) over a two-month period, analysing those tapes, and assessing the eBooks' effectiveness. We will divide families into two groups: one using our eBooks, the other using didactic eBooks. We will ask parents three questions at the start and end of their eBook period, and six months after the period ends: (1) How often do you visit the library with your child? (2) How many children's books do you have in your home? (3) How often do you engage in SRAs with your child? We will film SRAs three times over the period, analysing them for: frequency of use of higher level FLTs (*Facilitative Language Techniques*) in comparison to lower level FLTs, vocabulary expansion and range of linguistic structures used, evidence of enjoyment by parent and child, evidence of development in responses to literature, including discussion of story themes during SRAs, and

embodiment in a way that shows recognition of narrative structure with respect to sequential ordering of story events and character actions and reactions. In assessing language structure, we will use discourse analysis tools adapted to sign languages. We will note ways in which readers navigate the eBooks via an iPad, and look for whether techniques Deaf parents use with their DHH children (see environmental scan) occur without instruction with either kind of eBook. (Napoli & Mirus, 2014)

While I tried, initially to follow said design as closely as possible, with just an alteration to the time frame, I encountered quite a few obstacles, as outlined below. My recommendations for Professor Napoli and Professor Mirus are also outlined in a below section, and I hope they will be informative and useful in the study they conduct.

### **Differences in experimental design**

The present study differs from the proposed pilot in the following ways. Due to the nature of the thesis project, to be completed within a semester, the study had to be shortened for obvious reasons. Initially the time period of Napoli and Mirus' pilot study was to be 8 months long, with three video sessions taking place over the span of 2 months (one at the beginning of the period, one 1 month later, and a last session 1 month after the 2<sup>nd</sup>, and 2 months after the first). After the video sessions, families would then be sent a follow up questionnaire 6 months later. In this shortened version, sessions were initially

planned to take place over the span of 1 month, with three video sessions two weeks apart. However due to issues in recruitment, the study was further condensed to two video sessions over the span of 2 weeks. The original questions from the pilot study were preserved, despite the fact that they were not necessarily as applicable due to the shortened time span.

Additionally, instead of two groups of families, one assigned to didactic eBooks, and the other assigned to our RISE eBooks, the families in the present study were asked to read both a didactic eBook as well as one of our RISE eBooks. This was due, again to the difficulty in recruitment of families. As only two families responded to the call for volunteers, we had to alter the study to make sure one family read both books.

## **Participants**

Recruitment of families proved to be the most difficult aspect of the study. After hitting many dead ends in sending out the information about the study, I found some success through a contact in the Delaware County Intermediate Unit (DCIU). Through the help of a school psychologist in the DCIU program, Lauren Walker, I was put into contact with Kristen Palermo, a teacher at the program. Kristen was extremely helpful in sending out my information, but again, responses were limited. As to why these responses were limited, my guesses on this will be discussed further in the section on **Issues, Speculations and Recommendations**. Two families eventually contacted me as being interested in the study, and these are the families included in this paper.

The reading dyads in this study are both comprised of mother and daughter. Both of the little girls are deaf/hard of hearing children born to hearing parents. They both have cochlear implants and neither have been exposed to sign language in a formal sense, both are currently enrolled in an oral education system.

- Riley\* is five years old, owns her own iPad, and is great at gymnastics. She read with her mother, Stacey\*.

- Esther\* is four years old, smiles non-stop, and lives in a bilingual Chinese-English household. She read with her mother, Annie\* and her older sister.

(\*All participants agreed to use their real names, instead of pseudonyms.)

## **Materials**

The books used in this study came from two groups. The first group of books was the VL2 storybook apps, created by Gallaudet University's VL2 (Visual Language Visual Learning) center. The two books from this series were *The Baobab* (an original story written by the VL2 staff, as opposed to stories published elsewhere as used with the RISE books) and *The Boy Who Cried Wolf*. The other group of eBooks used was the RISE eBooks created by Professors Napoli and Mirus and their classes. From these books, a larger selection was read, including *The Little Engine That Could*, *Rocky The Cat Who Barks* and *The Tale of Jemima Puddleduck*. Books were downloaded onto the families' iPads and left there for the duration of the study for easy access.

## **Methodology**

For each family, I arranged to meet them at their homes. Upon arrival, I introduced myself and gave them a more in depth overview of the study, explaining the information sent in the recruitment material, as well as what would be expected of them, and the time commitment. I then gave the consent forms to the parents to read and sign, while I read through the consent material with the girls. Then I had them answer the survey questions.

I presented each family with both our RISE eBooks as well as two of Gallaudet University's VL2 storybook apps. The books were downloaded onto the family's iPad, and they were asked to read one of each book together while being videotaped. In between books, children and parents were allowed to take as much time as they wanted to recuperate and relax before starting the next. After completion of both books, the dyads were free to read more if they so desired or just stop there.

The dyads were asked to sit and read wherever they felt most comfortable and natural, wherever a shared reading activity would normally take place in their home. For both families, these sessions took place in the living room of their homes. I set up the video camera across from the dyads, facing the parent and child as they read. Once they were finished with the books, I packed up and was on my way.

## Observations

### **Riley**

#### Session 1:

Riley is a bright, energetic five-year-old. She is extremely friendly and chatty, and immediately set me at ease in her home by starting to chat me up as soon as I sat down. She showed me her iPad and how it could connect to the TV and her apps (she had a lot of apps). This was reassuring to me because firstly if she had all these apps, she definitely knows her way around the technology, and the fact that it was her personal iPad meant that she would potentially have it at her disposal to explore the books on her own in her free time.

Judging by her first interactions with the book, Riley seemed very interested in the video feature. As soon as I downloaded the book onto her iPad, and showed her there was ASL video, she was immediately attracted to the video, more so it seemed than the text. She was very attentive to it initially – probably because it was so novel.

When she read the book with her mother however, she was a lot less interested in looking at the videos. For the first couple pages, Stacey played the videos, and then just stopped after a while. She afterwards said to me that “Riley looked at me (Stacey) like, what are you doing?” Because Riley doesn’t know ASL so she was confused as to why Stacey was playing the videos for her.

The first reading didn’t produce many interactions between parent and child; it was much more of a parent reading to child than shared reading. That

may be my fault in explaining; I probably should have made it clearer to read as you naturally do, interacting with the book.

Maybe even in future studies, we could have them read their favourite storybook as well, one they're most comfortable with reading, just so we can have some basis for comparison, or we can get them into their story-reading/story-sharing mode before they begin, so this will flow naturally from that mind set.

#### Session 2:

As soon as I came over, Riley grabbed her iPad and started to swipe through it with me, showing me apps and the two storybook apps I had shown her. She said she liked the Baobab one more out of the two. I asked her mother if they had been reading the books since I'd last been there, if they'd opened them up a couple times or not really. "Not really, to be honest", Stacey replied almost apologetically to me. She did however say that it is entirely possible that Riley could have been poking around the books herself on her own, especially as she spends a lot of time with her iPad, and they're right there at her disposal.

They didn't appear to use the signing video feature either in the second session. It seems that even though Riley had the books at her disposal, she probably didn't read them herself, especially as she did not seem familiar with the plotline. Even though Riley specifically picked out Jemima Puddleduck as the one she wanted to read, when Stacey asked Riley a question about the fox in Jemima Puddleduck, Riley had no idea what was going to happen next in the

story. Possibly the fact that she hadn't really been exploring the books on her own could contribute to the fact that she didn't show much interest or get much use out of the signing.

## **Esther**

### Session 1:

Esther is four years old and in Pre-K. Her home is a bilingual one, where Chinese and English are both spoken, her mother migrated from China years before Esther was born, and still maintains speaking in Chinese to her children.

As soon as I downloaded the books, Esther and her sister and her family friends who were also visiting immediately swarmed them. They were particularly interested in the videos, probably due to the novelty of the sign language. When Esther's mother, Annie, saw the videos, however, she said "Look that's the sign language. But Esther doesn't know sign language, I didn't teach her". They played with the videos quite a bit while I went through the consent information and pre-study questions with Annie.

The actual reading experience was very different from that of Riley and Stacey, Esther's sister (who is 7 years old) joined her mother and sister in reading, and the three of them all sat together on the couch. For the first book, the RISE eBook, they used the voiceover feature that spoke the words in English, and after each voice clip, Annie translated that portion of the story into Chinese. During the story, she talked to her kids in both Chinese and English, and they responded mostly in English. Esther followed along well, but at times

she got distracted, her eyes wandered or she started to pick up things, when she did that, her mother held her chin and refocused her on the story by gently turning her to orient herself to face the book again.

Esther and Annie did not appear to use the ASL video feature while reading. This makes sense, because they don't know ASL. It remains to be seen whether or not they will use the feature in future weeks, if the family gets curious and decides to play with the signing.

#### Session 2:

Going into the second session with Esther and her family, I got there and they were in the midst of their homework. But they were really excited about the books, and really wanted to read. Annie assured me that they'd been reading those books all the time during the interim period.

Esther did seem to love the books, and before we started, she sang the humpty dumpty song as her mother pulled up the eBook, and was so excited. AS they read along it became apparent that they had in fact been reading these books a decent bit because Esther seemed really familiar with the story. When we were done, she started requesting "Jemima", so they read that one next.

When I asked them about which features of the books they liked, they said the voice over. In fact Esther liked the voiceover so much that she didn't want to read the VL2 books because they didn't have a voiceover (so I said, "Sure! Of course you can read two of our RISE books"). I think in particular for this family, because her mother Annie isn't the most fluent reader of English, the voiceover is

particularly appealing to Esther. When they read together, they play the voiceover, and then Annie translates into Chinese for Esther, occasionally repeating and reading some phrases in English. Esther responds mostly in English but occasionally in Chinese. When I asked if they used the video feature at all, Annie responded saying “No, not at all”, because she is not teaching Esther sign, she is teaching her English, trying to give her an education centered on English.

### **Similarities, Differences, General Observations**

Between both families, I noticed a couple things stand out to me. First, both children were immediately captivated by the signing videos when they first saw the books. Immediately they were swiping around the book and playing them, pretty much ignoring the text. This was true even in Esther’s house for her friends and sister, who were all hearing. They all crowded around and to check out the video. This can be due to a couple reasons; first off, for these children, sign language is something they’ve probably not seen before or had much exposure to, so in that sense, it must be very interesting to see. Also the children were all fairly young, so it makes sense that they weren’t terribly excited by the text on the page.

That leads into my next observation, which also touched on recruitment issues. One speculation I had going into this study was that it would be difficult to get families to participate in this study because the books we are testing are ASL-English bilingual and they may not want their children to be exposed to ASL

because they're in an oral education system. I found that in both cases, parent and child did not use the signing videos at all while reading.

It seemed that for Riley and Stacey it just didn't make sense to use the videos, because the Riley had no idea what the signers were expressing. After reading the first book, Stacey asked me afterwards if that was alright, "I started playing the videos, but Riley just looked at me like 'What are you doing?' so I just kind of stopped. Neither of us knows any ASL." For them, the video didn't add much to the storybook reading because it was very different from their normal story routine first off, to look at video, and did not seem to add value to their reading experience to look at video of a language that neither of them knew. Stacey didn't seem particularly threatened by the presence of ASL in the books however, her attitude seemed very much like, and 'this is a language that I just never decided to teach my child'.

Annie on the other hand, seemed to take a little stronger of a stance in relation to Esther learning ASL. When I asked whether or not they used the video features in the eBooks, she responded, "No, not at all", that she was teaching her daughter English, and she was in an oral English education system. She didn't seem displeased that the books had the ASL as an option, but she was clear that that was not an option that she wanted for Esther.

Both families did however really enjoy the voiceover feature of the books. For the parents, they loved it because they didn't have to read through the text, and the children enjoyed the voice of a stranger coming out of the iPad. Especially in the case of Esther and Annie, Annie isn't the most fluent reader of

English text, so the voiceover gave the example of a native English speaker reading through clearly, then Annie could retell the story in Chinese.

In terms of our books versus the VL2 books, in these families, the voiceover feature made a huge difference. So much so, in fact that Esther specifically requested to read another RISE book instead of a VL2 book because she didn't like the no voiceover in the VL2 stories.

## Issues, Speculations and Recommendations

### **Recruitment**

I ran into a great deal of issues in recruitment of families. After contacting many different avenues and hitting dead ends, I can only speculate to the reasons behind the lack of responsiveness. I attribute it to the following potential factors: 1) Families do not want to help with this kind of project (lack of trust/confidence perhaps), 2) Families did not think they were best suited for the study (because their child does not know ASL), 3) Families do not own iPads or 4) I spent my time looking in the wrong places.

These issues bring up the question of trying to do this project on a large scale and how recruitment will work. If the difficulties I've encountered have to do with me being a student at Swarthmore, with very few credentials to my name, doing a fairly small scale and seemingly insignificant thesis project, then it may not prove to be an issue for Professors Napoli and Mirus, both well-established scholars. Both are distinguished professors in their respective fields, and perhaps their status as Professor will grant them more credibility and access to volunteers for the pilot study.

However, I could still see the larger study run into issues in recruitment due to the following issues: first, regardless of the experimenter, parents of children who believe firmly in an oral approach to education for their deaf child may feel that a bilingual eBook is not what they want to expose their child to. Hopefully this will change in the future, with the wealth of new research and new

recommendations soon to break on deaf education, in particular those that recommend sign language exposure for all deaf and hard of hearing children from birth onwards (Napoli et. al, forthcoming).

Unfortunately, as it stands here, and in several other places around the world, signing is discouraged as a means of education for deaf children, and bilingual approach to education is pushed aside. Specifically in the Delaware County school district, oral education is the norm, and the two children who participated in my study both have been completely oral in their education up to this point. This means that this study has not only been limited in recruitment by number, but also by diversity of experience. While it does give the valuable perspective of children in an oral education system, these are the only families represented are those with children in a solely oral system of education with no exposure to sign. Additionally, the children in the study were from a fairly constrained age group (ages 4 and 5 years old). Because we have made several books, targeting different ages and different reading levels, it would be interesting to see how they are received across different age groups.

The second and potentially graver issue concerning recruitment of families for this study is that in order to qualify, families must have their own iPad. I see this as a great barrier to participation. Although this cannot be confirmed as a main reason for lack of responsiveness in recruitment, I can only imagine it played a significant factor. The fact of the matter is that iPads are expensive pieces of technology that many families cannot afford. The families that did respond to the call for volunteers may be quite biased and non-random due to

the fact that they are well off enough to afford an iPad. It is important to remember that higher socioeconomic status has been shown to correspond with advanced reading ability in children with cochlear implants (Svirsky & Neuburger, 2004; Szagun & Stumper, 2007). While this doesn't invalidate the results of the present study, it is important to take this into consideration when preparing for a larger scale pilot study and aiming to target a wider range of children.

Also important to note is that this year's Fall 2014 eBooks production class is working towards producing eBooks on different platforms to make them more accessible to those who do not have apple devices. Potentially by the next series of eBooks, we will be able to produce stories that can be shared on non-Apple devices, as well as even accessed on a website. But again, this constraint of working within the Apple system is a calculated tradeoff, as it allows us to create and distribute the stories at no charge using the free Apple eBook creating software, iBooks Author.

In fact in this semester's batch of books, some have been produced in a Google doc format, to view online in any web browser. But one important thing to note is that if we do expand accessibility, we must keep in mind the effect it has on the reading experience. While making books available online will allow much wider circulation, it takes away the 'storybook reading' feel that you get from reading on an iPad or tablet. On a handheld device like this, children control over the reading experience is literally at their fingertips, they can swipe across to turn pages, use their fingers to make video and pictures blow up, drag objects on the page around with just a swipe. These devices are also similar in size to actual

picture books, and are perfect size to curl up in a couch with, as you would with any normal book. Having them online in Google doc form will lose all of the interactive features, as well as bring us further away from the book reading experience.

A potential solution to this problem is now available to us. We have signed an agreement with Gallaudet's VL2 Center who is willing to share their software used in building their storybook apps. With this new software, we can increase accessibility to our eBooks by making them available on other platforms, not just Apple. Additionally this software will give us a lot more freedom to create with the books, adding many more interactive features, and generally working outside of the constraints of iBooks Author.

So while this is an issue that has been known all along, and work is definitely being done to remedy this situation. However, I think that the study must be revised in order to really get a good sampling of children included. I suggest moving the study from the home to the school, and recruiting teachers and students at a school for the deaf. While this will target a different type of shared reading experience, between teacher and child as opposed to parent and child, (the former, a relationship which will always carry a more didactic tone) as well as potentially changing the reading interaction from a one-on-one dyad to a one-to-many teacher reading to multiple students scenario, this setting can still give useful insight into the efficacy of the books.

As far as working with what we've got right now, we are well equipped to tackle a school setting, especially as most schools today have iPads available for

use in their school libraries. This pretty much guarantees access for any teacher and students choosing to participate in the study. Additionally, we currently are in the process of creating versions of our books on Google docs, which can be projected in a classroom. While this is very different from the reading experience as discussed above, this kind of shared reading can be watched by the whole class and facilitate classroom discussion about the stories.

### **Experimental set-up**

In terms of the experimental set-up, there are definitely a few recommendations I have for the pilot study to be carried out by Professors Napoli and Mirus. While videotaping the shared reading activities (SRA's), the video camera was set up directly across from the dyad as they read both books (see appendix for illustration). Upon completion of the study and analysis of the video, I realize now this may not have been the most effective videotaping strategy for several reasons.

For one, this placement of both the video equipment and myself placed me right in front of the dyad, manning the video camera, in a position that was fairly distracting to the children. Especially as a stranger in the household, I think I was a fairly distracting presence in the room. With both families, the girls frequently looked up at me while the story was being read, to make eye contact, either curiously, or mischievously. Their eyes, when wandering from the page, often either found me, or began to inspect the camera equipment in front of them.

Secondly, in this position directly in front of the families, it was very difficult to see the book as the dyads interact with it. In many cases, it was hard to see what aspect of the book they were focused on at a given time, be it the written text, the illustrations, or even playing the ASL video. While the front facing camera did do well in picking up the attention and eye gaze of both parent and child, I think that a different angle would give access to much more information for example finger pointing or finer tuned detail of attentional direction.

My third issue with the placement of the video camera was simply that at times it felt like the parent and child dyad was putting on a show for me rather than reading in a natural way. This feeling was the most pronounced when Riley in fact turned the book to face me, and began pointing out illustrations and text to me. This, combined with the distraction of my person behind the camera, I feel really altered the reading experience, hindering me from getting at the most natural shared reading activity of the pairs.

How can this be altered? This is a tricky question. Professor Napoli has suggested placing cameras on either side of the dyad as they read, this may involve putting them in a slightly less natural placement, but as they settled into the reading routine, it seemed that they became comfortable wherever they were, even moving from place to place. Or potentially, one camera could film from in front, and the other could film from a side angle, with the experimenter manning the side camera. While this may not solve the problem of distraction of the child, it would allow the video footage to capture the actual interface with the book from a better angle. Perhaps the cameras could even be unmanned, with the

experimenter in the other room, in order to minimize distraction, however, this may not truly solve the problem, and it may be worth the loss of the benefits of having the experimenter in the room.

There is only one potential benefit I see to having the experimenter in the room and that is to man the video camera. Because you're filming young children reading, they get fairly restless and start to move about and fidget, having someone in the room can help refocus the filming when child and parent move about, but this is definitely not critical and may not be worth the distraction for the child of a stranger watching them read.

### **Pre and post study questions**

The pre and post test study questions were well chosen in the context of the longer study, spanning several months, however I must make a note that I wasn't sure they were quite as applicable to my shortened version of the pilot study. I say this because these three questions are mostly focused on longer term changes that could arise as a result of reading the books. For example, I don't expect the family to radically change the number of times they go to the library within a short three-week period. (However, I was quite surprised when Annie told me her family had just gone out and bought a lot of books at a book sale, but it seems more coincidence than anything given the terribly short time period.)

If this shortened version preliminary study is continued, I suggest questions that focus a little more on behaviours related to the books in the interim

period between filming. Specifically for the posttest, even in a shortened time frame (or maybe specifically in my shortened time frame), I thought it would have been useful to ask in the post-test how many times had they read the eBooks over the between-session period.

Another question that I think would be interesting to ask in either the pre or post or both is about specifically the eBook reading habits of the family – do they read eBooks off their iPad frequently, or do they usually read normal print books? This can give us a little more insight into what they expect from an eBook, and definitely how they use our eBook.

## Conclusion

Despite all the bumps in the road, I think this preliminary look at the success of our eBooks can offer a few valuable perspectives going forward. Firstly, recruitment may be an issue in a forthcoming pilot study, and in order to reliably secure a population of children for the study, the solution may involve adapting it to a school setting, where shared reading between teacher and child are studied. However, that being said, it is also important to study our eBooks in a home setting, and given the few suggestions made, it may be possible to recruit a wider variety of deaf children and families for the study.

Along with the few technical tweaks to the videotaping method, as well as addition of a few more posttest questions, the study is definitely well designed. I think it would be helpful to get some video in of deaf children in bilingual education systems, where they have been exposed to sign in some capacity and see how they interact with the videos, to compare with the video we have currently of just children in an oral education system with no signing experience. With this data along with other data potentially to be collected in the spring, I hope that Professors Napoli and Mirus will be well positioned to being their research upon receiving their grant.

### **Final Suggestions**

- Look into recruiting participants from a school setting, with teachers reading to students
- Ask about iPad (versus print) storybook reading habits in the pre and post test questions. For example “Do you read books off the iPad, if so how often?”
- Include in the posttest questions that specifically ask if and how frequently families read our eBooks in the period between video sessions
- Ask parent and child to read their favourite book to begin to get in “reading mode” as well as to have a basis for comparison
- Have multiple cameras at different angles in filming shared reading activities
- Have the experimenter set up the video apparatus then leave the room while the pair reads to not be distracting
- Include a section at the end of the eBook containing guidelines on how to engage in shared reading with your child using this kind of book
- Include a voiceover option in all of our eBooks
- Include a full, uninterrupted run-through of the story in sign in the eBook

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