A comparison of visual and audio scaffolds in L2 English reading

Meredith Stephens¹ and Meagan Renee Kaiser²

¹Department of International Liberal Arts, Faculty of Socio-arts and Sciences, Tokushima University, Tokushima, Japan
²Institute of Liberal Arts and Sciences, Tokushima University, Tokushima, Japan

ABSTRACT

This is a study of Japanese learners’ perspectives on visual and audio scaffolds in the teaching of second language English reading. We compare the approaches of ER, according to Day & Bamford’s (1998) ten principles (outlined below) in class, and Assisted Repeated Reading (ARR) of a work of fiction to a class. ARR refers to the reading aloud of a text multiple times to students as they follow along silently (see Taguchi & Gorsuch, 2002). Two classes of students in required English classes undertook both ER and ARR. Both the ER and ARR enhanced the students’ comprehension of the texts; in the case of ER, most students chose picture books, which aided their comprehension. In the case of ARR, the embodied presence of the reader, and the modeling of prosody facilitated comprehension.

Keywords: Assisted repeated reading; bi-modal input; extensive reading; multi-modal input

INTRODUCTION

Second language (L2) learners typically learn the skills of listening and reading in isolation (Cheetham, 2005). In Japan, reading was traditionally taught by translation while reading, known as yakudoku (Gorsuch, 1998). Latterly, Extensive Reading (ER) has gained in popularity, and is described by Taguchi, Gorsuch, Lems & Rosszell (2016) as a “robust, time-tested approach” (p. 105). The principles of ER stand in contrast to those of yakudoku. Rather than intensively reading a short difficult passage with the help of a dictionary, students read extensive passages of stories of their choice without recourse to a dictionary. The current study solicits both the students’ perspectives on ER and listening to a live reading while students read along silently, in the form of ARR. First, in Table 1, we will compare Day and Bamford’s (1998) ER with our delivery of ARR.

We will explore the similarities and differences between the way we conducted ER and ARR, and provide the students’ perspectives on these approaches.

Reading aloud mediates comprehension

The act of reading aloud mediates the learners’ comprehension of the story. Vygotsky (1986) explains how written language is devoid of both the interlocutor and the sound of the language, which he refers to as a “double abstraction” (p.192), and describes how written language is devoid of the sensory characteristics of speech, “lacking the musical, expressive, intonational qualities of oral speech” (p. 191). Not only is the sound of the language important, but the embodied presence of the reader mediates comprehension of the text. Lantolf & Poehner (2008) decry Cartesian dualism while recommending a dialectic approach: “Thinking is not a reality that exists independently of the physical body, but is instead a mode of existence of the body itself” (p. 4). Rather than calling for students to understand the discrete skills in isolation that make up a text, they should be asked to strive to understand by participating in the embodied communication that is present in a live reading.

* Corresponding author
Email: merianne@tokushima-u.ac.jp
One method of scaffolding reading is by providing multi-modal input. Cheetham (2017) reviews a range of studies of multimodal input and concludes:

Despite the great differences in experimental aim and method, these studies, overall, show remarkable similarity in their findings, showing improved comprehension, improved learning, and a learning effect where comprehension and memory improve with experience of multi-modal input (p.2).

Nevertheless, he explains that second language teaching is typically mono-modal; importantly, he observes that some learners may not have been exposed to audio-visual input when they learn second language listening, and may not have achieved an understanding of the integration of sound and lip movement. Their skills in the different modalities of listening and reading may be unbalanced, and they may benefit from strengthening the skill in their weaker modality (p. 15). Cheetham recommends treating multi-modal input as the norm, rather than mono-modal input (p. 16). This observation is borne out by the many studies of silent second language reading.

The advantages of reading aloud to a class

Storytelling is a powerful multimodal way of delivering a text. As Chambers (1970) explains, “The personal communication that comprises the storyteller’s art, the mutual creation between the storyteller and his listener, can exist only when the storyteller and his group meet together and share” (p.10). Scaffolding in the form of the embodied presence of the teacher is manifested in terms of interpersonal interaction to be found in eye contact, modulation of the voice, repetition of words when necessary, mouth movements, and gestures. In contrast, ER, being silent, involves none of these interpersonal qualities. Ong explains: “Oral communication unites people in groups. Writing and reading are solitary activities that throw the psyche back on itself” (p. 68). Ong describes the transition between the group time spent when the teacher is addressing the group, to when the students read on their own: “the unity of the group vanishes as each person enters his or her private lifeworld” (p. 68). The practice of storytelling is also relevant in a second language classroom. Jacobs (2016) provides multiple advantages of storytelling to second language learners, and
highlights the social aspect and bonding that occurs between members.

**Reading aloud as communication**

Ong (2002) explains how the meaning of words in oral cultures includes “gestures, vocal inflections, facial expression, and the entire human, existential setting in which the real, spoken word always occurs” (p. 47). The act of reading aloud to a class conforms to the delivery according to Ong’s description. Previous studies of the reading aloud of a text to a class of second language English learners compared students’ preferences for reading aloud or listening to audiobooks (Stephens, 2017; Stephens, Kurihara, Kamata & Nakashima: 2017). The 64 students in the Stephens et al. study (2017) preferred the live delivery of the text by the teacher because of the benefits of embodied communication; they provided examples of this such as gestures, facial expressions, warmth, observing the movement of the mouth, modulation of the voice, and being spoken to in front of the students’ eyes.

**Observing facial expressions while listening**

Kawase, Sakamoto, Hori, Maki, Suzuki and Kobayashi (2009) explain how supplementing audio input with visual observation of the face of the speaker facilitates the comprehension of degraded speech, and highlight “the tightly coupled audio–visual multimodal sensory interaction in the brain” (p. 1234). Van Wassenhove (2013) describes the facilitative effect of watching a speaker’s face on comprehension: “the kinematics of the face articulating speech can robustly influence the processing and comprehension of auditory speech” (p.1). Nevertheless, Sekiyama & Burnham (2008) suggest that there is interlanguage variation between the integration of audio-visual elements of speech perception, in their comparison of native Japanese and native English speakers. The English speakers are more reliant on visual cues for speech perception than the Japanese speakers. They attribute this to the greater phonetic complexity of English, manifested in the larger number of vowels in English (five for Japanese versus fourteen or more in English), and a larger number of consonant contrasts. They argue that the Japanese language does not make as strong a demand on audio-visual integration in speech perception as the English language, arguably because English is a “phonologically complex and visually distinctive language” (p. 318). This suggests that because visual cues, and integrated audio-visual speech perception are a more important feature of learning L1 English than L1 Japanese, Japanese learners of L2 English may benefit from devoting increased attention to lip movement than they would in their own language. This suggests one possible benefit of reading aloud to Japanese learners of English.

**Differences between reading along to a live reading and silent reading**

Havelock (1986) explains that writing is “a visual artifact designed to trigger the memory of a series of linguistic noises by symbolic association” (p. 112). Accordingly, a comparison of reading along to a live reading to silent reading reveals that the former supplies both the sound and the artifact, whereas the latter provides just the artifact. Fodor (2002) argues “Prosody is mentally projected by readers onto the written or printed word string” (p. 1). Gross, Millett, Bartek, Hampton Bredell & Winegard (2013) explain “the inner speech of reading seemingly contains some of the prosodic richness typical of lively speech” (p. 198); the native English speaking participants in their study displayed evidence of the use of prosody in silent reading, coming to the important conclusion; “there is growing evidence that suprasegmental prosodic sensitivity plays a role in skilled, silent reading” (p. 198). They suggest that beginning or struggling readers be alerted to the connections between the rhythm of speech and that of writing. The facilitative effect of reading aloud on reading comprehension has been noted by Kuhn (2004). In her study of struggling Year 2 readers of L1 English, she advises:

We argue that this skill also extends to readers of L2 English. In the second language context, a method called ARR has been developed, in response to the Repeated Reading (RR) method used with L1 readers, developed by Samuels (1979, cited by Taguchi & Gorsuch, 2002). ARR includes the repeated provision of either a live or audio-recording while the students read silently (Taguchi & Gorsuch, 2002). Similar to ARR is Reading While Listening, which does not necessarily include repetition. In Texas, Year 10 students demonstrated superior reading comprehension when undertaking Reading While Listening to silent reading (Verlaan & Ortlieb, 2012). Reading While Listening was defined as follows: “Reading of a text while simultaneously listening to an audio recording of that same text, often referred to as reading while listening (RWL)” (p.31). (This is similar to ARR, but ARR concerns repeated RWL.) Verlaan and Ortlieb found that RWL not only resulted in improved comprehension across the cohort, but a larger improvement for struggling readers. They conclude that RWL is an effective form of scaffolding.

Cheetham (2017) explains the importance of overlap, which occurs when information is provided through several modalities, and argues that overlap leads to redundancy and therefore facilitates accurate processing. The combination of these modalities leads to a superadditive effect, which “produces an integrated input greater than the sum of those separate modalities” (p.14). Cheetham indicates that extensive bi- and multimodal input is necessary for the superadditive effects, which greatly facilitate language acquisition (p.
Finally he argues that not enabling the superadditive functions is analogous to the artificial imposition of dyslexia upon learners (p. 22).

The respective advantages of ER and ARR

The purpose of our provision of both ER and ARR was to provide students with the merits of both approaches. ER has advantages that are absent from ARR, and vice versa. The advantages of ER that are absent from ARR are variety and choice of reading materials, and the intrinsic rewards of reading (see Day & Bamford, 1998). The advantages of ARR that are absent from ER are the extra scaffolding that the teacher can provide regarding prosody, intonation, pitch, stress, teacher commentary, and responses to student questions. In the absence of such scaffolding, the students may supply an undeveloped prosody to their silent reading, or translation in their inner speech.

We sought to explore students’ insights into differences between visual and audio scaffolds in more detail by eliciting their perspectives. We examined how the pictures in the picture books, and the embodied delivery of a live reading, supported their comprehension of the text.

METHOD

Assisted repeated reading (ARR) approach

An American and an Australian teacher read the narrative A Girls’ Guide to the Islands, by Suzanne Kamata, to their respective compulsory first and second year English classes over the course of 15 weeks. As the teachers read the narrative they substituted ten of the words in the chapter they were reading to synonyms. Students were asked to identity the ten synonyms and submit them to the teachers as a weekly test. Hattie and Yates (2014) explain that within all learning theories, whether behaviourist, cognitivist or constructivist, it is essential that students provide an active response (p. 47). This synonym replacement exercise entailed the provision of an active response when listening to the text.

Extensive reading approach

Students were instructed to carry out ER for about fifteen minutes each week in class, according to Day & Bamford’s (1998) ten principles. It was stressed that they should choose a book at a level that suited them.

Participants

The Australian teacher’s class was comprised of 28 first year Biology majors. The American teacher's class was comprised of 22 second year Medical Nutrition majors. Both classes were required English classes. The reason for including two different teachers working with students in different departments was to be able to do purposive sampling (Kennedy, 2006).

Data collection

Two forms of data collection were used to elicit student perspectives. Separate written consent was obtained from the participants for each. The first was video recorded small group roundtable discussions. The roundtables were conducted in the final week of the 16 week semester. Participants were encouraged to answer in whichever language was more comfortable for them, either English or Japanese. Circumstances allowed for three roundtable discussions to be carried out, two with students from the American teacher’s class and one with students from the Australian teacher’s class. We acknowledge that it would have been preferable to have had an even balance. The roundtables with the American teacher's students were made up of groups of ten and eleven students respectively. The roundtable with the Australian teacher's students was made up of a group of six students from the class.

The second form of data collection was an online anonymous survey. The online survey was English and Japanese bilingual. All students in both classes were invited to participate in taking the online survey. The Japanese questions were checked for accuracy by a native speaker. Participants were asked to write comments explaining or giving reasons for their choice in the case of multiple choice questions on the survey.

Data analysis

For transcribing the Japanese content of the roundtable discussions, a colleague who is an L1 speaker of Japanese was enlisted for assistance to help insure accuracy of language and nuance. Intelligent verbatim style transcription was used, meaning fillers, background noises, and false starts deemed not to affect meaning or nuance were removed. Notes on group reactions and relevant gestures and facial expressions were included in the transcripts. The questions in the roundtable discussion varied slightly between the Australian teacher and American teacher’s classes regarding support activities. For both the roundtable discussion sessions and the online survey, a thematic content analysis approach was taken to analyze the data.

FINDINGS

Our research question sought to explore students’ insights into differences between (1) visual and (2) audio scaffolds in more detail by eliciting student perspectives.

Analysis of the roundtable discussion and the online survey data revealed themes expressing the value placed by students on visual support for comprehension, raising interest, and for motivation. As for audio scaffolds, themes emerged around value placed by students on the live readings as important shared experience and also essential modeling for English prosody and expression.

Pictures scaffold meaning

Most of the students across both classes, when asked to pick their own books for ER, chose picture books. No guidelines were provided to the students about whether
they should choose picture books, so we were interested to understand why that decision was so prevalent. Data gathered in the online survey and observation of the books students chose for silent reading in class indicated that the headword count for most fell in a normal range between Elementary and Intermediate on the Extensive Reading Foundation graded reading scale, an expected range for most first and second year students in a compulsory English course at university in Japan.

A few participants indicated that it was just a coincidence that the book they chose included pictures, but the majority of students who responded had specific reasons for choosing picture books. For meaning and comprehension related reasons, those comments split into three categories. First, some students saw pictures as a tool for using prediction as a pre-reading or during reading strategy.

*E ga aru koto de wakaranai tango wo yosokute dekita.*
I could predict words I didn't know because of the pictures.

*Yaku ni tatta. Wakaranai tango ya atte mo, e wo mite imi wo suisoku dekitakara.*
It was helpful. I can guess the meaning by looking at the pictures.

Next, and most commonly, many students viewed pictures as a straightforward scaffold and aid to comprehension during reading. Pictures helped fill in the gaps in understanding when students faltered slightly on words or grammar here and there and generally helped with a global comprehension of the story.

*E ga aru ho ga, wakaranai tango ya bunpo no toki demo, hanashi wo rikai suru koto ga dekiru kara.*
Even when I couldn't understand some words or grammar, I could understand the story because of the pictures.

*E ga atta ho ga naiyo ga haitte ki yasui node, e ga aru yatsu wo erabimashita.*
It's easier to get the content in books with pictures, so I chose books with pictures.

Finally, some students saw pictures as valuable because of the depth they added to understanding of the story. Visual information was not only a scaffold, it was an enhancement to the experience.

*Shashin ga aru to jokei ga ukabi yasukatta kara.*
It was easy for the scene to emerge when there were pictures.

*Shashin wo miru koto de rikai ga fukunatta node yokatta to omoimasu.*
The pictures gave my understanding more depth, so I think that was good.

In the American teacher’s class, the students indicated throughout the semester that they struggled more with understanding the content of *A Girls’ Guide to the Islands* than the students in the Australian teacher’s class seem to have done. To address this issue, the American teacher tried adding visual scaffolding to the story, eventually settling on a strongly visual pre-reading activity - asking students to introduce the artwork in the chapters of *A Girls’ Guide to the Islands* to each other using printed photographs. There are indications that it mattered. Students in general showed positive feeling toward the activity and some comments like this one emerged:

*Shashin wo chanto mi ru yo ni natte kara, wakaru yo ni natta to omoimasu.*
When we could look at the pictures properly, I came to be able to understand.

**Pictures support interest levels and motivation**

Another theme that came forward was the value students put on pictures as a tool for increasing motivation or reducing anxieties about reading in English.

*Sai sho no koro wa eigo no hon wo yomu koto ni teiko ga attakara, ehon nara kigaru ni yometa.*
I had some resistance to reading English books in the beginning, but reading picture books put me at ease about it.

The pictures gave students a willingness to continue.

*Wakariyasu ka, mitte aki nai.*
It's easy to understand, and I don't get tired of looking at it.

And, of *A Girls’ Guide to the Islands*, students who struggled with the story a bit said of the visual pre-reading activity:

*...rikai shiyo to dekita node, yokatta to omoimasu.*
...I was able to find the motivation to try to understand, so it's good I think.

*Nan no hanashi wo shite iru ka no ga nakunatta kara yokatta to omoimasu.*
My feeling that I had no idea what the story was about went away.

A book which is difficult is not ideal for ARR, but if it happens that a few students struggle, it seems that pictures can offer a scaffold which helps those students to meet the challenge without giving up.

**Live reading and shared experience**

The second part of our research question concerned the effect of the teacher reading a story aloud. A student in the American teacher's class, very directly stated, "I feel
ichitaikan unotokoro mo minna to issho ni yondara, wagatta iru hito no iru node, kitara jibin mo rikai ga dekuri yo ni narushi, tasukatte yondara de iran de, sono hon ni tsuite yori rikai wo fukameru koto ga dekuri yo ni naru to omoisasu.

...but even in places where you don't understand, if you read together with everyone, there is someone who understands. If you ask, you also come to understand. You're helping each other as you read, so you can come to understand the book more deeply, I think.

Hito ni kiitari suru to, jibin ga omotte iru men to wa chigau men dattari, so iu mikata wo suru no ka tte iu no ga nan nin no iru node, so iu tokoro de, hoka no mikata to iu no wo, kangeukata wo erareru tte iu tokoro wa totomo yokatta to omoisasu.

When I listen to what other people say, their thoughts are sometimes different from what I thought. There are a lot of people with that perspective, so that place in this, understanding other perspectives... I think it's very nice to get that way of thinking.

Shared experience within the class was a more or less expected outcome, but a kind of empathetic shared experience with the author and her daughter also emerged. The very first comment from the Australian teacher's students about the book was an empathetic one.

I : What did you think about Girls' Guide to the Islands?
S : Fijikaruna mondai wo motteru no ni, so katte ni ittari koka, soto ni katsudo shi ni iku te iu ka, sugoi yuki no aru hito da to omouisu.
To just decide to go places, and be active out and about, despite having a physical problem... I think she has a lot of courage.

Later in the roundtable discussion, another student said the following:

Yappari sensei ga ikata teki ni, kaiteiru hito no kimochi wo kometa yona ikata wo shite iru to omotta node, rikai suru no ni, risuningu ga tanoshikatta to omoushi...

Because of the way the teacher spoke, I think she expressed the feelings of the person writing. I think it was fun to listen.

These kinds of comments did not appear in the discussion and comments made by the American teacher's class. More difficulty with the book content is one possible explanation. Another possibility is that the teacher having skill in expressing emotion in storytelling during the live reading played a significant role.

Live reading and multi-modal scaffolding

There was support for the positive benefits of multi-modal scaffolding again as in previous studies. Students felt the value of a live example in terms of pronunciation, expression, rhythm and body language for their own language development. Participants from both classes talked about valuing the opportunity to hear "native" pronunciation and that it helped to improve listening skills.

Students in the Australian teacher's class, a teacher more familiar with taking on the role of storyteller than the American, spoke far more about expression, rhythm, feeling and gestures. The art of storytelling matters. A student in the Australian teacher's class, in talking about class activities began talking about the properties of spoken English, and English in contrast to Japanese in this way:

Syaberu toki wa bunpo yori no, motto rizumu toka, hyogen. Tan. Tan. Tan. te, eigo no nihonno no, nattei kana, hanashi no naka de, rizumu to kyochi suru basho ga akusento toka atte, sore no chigai ga wakatta no ga, wakari yasukatta to omoisasu.

When speaking, it's more rhythm or expression than grammar... like tan, tan, tan. English is... Japanese is... what should I say... In the story, there are places to emphasize rhythm and expression. I think it was easy to find the differences in that.

Not only were students noticing the features of spoken language, those features were also scaffolding understanding of meaning.

...kanashikattara, kanashisou ni yonde kuretari toka, tanoshikattara, tanoshisou ni yondekuretari suru node, sono tango no imi te iu no mo sugoku wakari yasukatta to omoisasu
... if it was sad, our teacher read it in a sad way... if it was fun, our teacher read it to us in a fun way... I think it was very easy to understand the meaning of specific words.

There are also indications that students found having the live reading itself helpful for understanding the content.

Wakaranai tango ga atte mo, yonde kuretara, funiki de imi ga wakattari tsugi ni susumeru

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Even when there were words I didn't understand, because we were read to, I could get the feeling / sense of what was happening and I could keep going.”

DISCUSSION
This study has underlined the benefits of visual and audio scaffolds for second language readers of English. Cheetham (2017) has noted the tendency for monomodal input in second language (L2) reading. Silent reading is prevalent in many classrooms in Japan, but our study suggests that visual and audio scaffolding for learners who are not yet able to make meaning readily from texts be provided. Cheetham (2017) explains the importance of overlap; scaffolding provides what may be considered redundancies by able readers, but such overlap facilitates comprehension for learners.

Firstly, we will consider the importance of visual scaffolding. In his study of teaching L2 reading in English with a graphic novel, Shelton (2017) argues, “Both the scaffolding provided by the illustrations and glossaries provided rich exposure to authentic discourse not available in simplified texts.” (p.29). An unanticipated finding of our study was how many students chose picture books and how important the pictures were to their comprehension. We did not provide students with graphic novels from the library; rather, the students chose graded readers which had been written for children. Despite the unsuitability of the age level, the students appreciated the picture books. Further research could address this by the provision of graphic novels for second language learners rather than just picture books.

However, visual scaffolding alone is inadequate. As Sekiyama and Burnham (2008) have argued, English is characterized by phonological complexity, and looking at the face while someone is speaking is necessary for audio-visual integration. Observation of lip movement is necessary to appreciate this phonological complexity, and this is absent from ER and graphic novels. Moreover, as teacher-researchers we are aware of the role of prosody in reading comprehension, and anticipated that the students would perceive this too as we were reading aloud to them. Indeed, many students commented on their appreciation of “native pronunciation,” one even ironically commenting that the teacher’s pronunciation was “too native”. This indicates the gap between the pronunciation of their English inner speech, and proficient inner speech, and lends support to the practice of reading aloud to a class to provide a model of complex features of English pronunciation, such as consonant clusters, and prosody.

A further advantage of reading a story aloud was the bonding that developed between group members. Ong (2002) observed how collective reading united a group, and silent reading entailed the readers retreating into their private worlds. Similarly, our students appreciated the unity in group reading, and the importance of peer scaffolding when some members of the group did not understand the text but others did.

Finally, an unanticipated finding was the pleasure some students derived from ER, in accordance with Day and Bamford’s (1998) principle, “Reading is its own reward”. As teachers we are familiar with students who will tell us that they do not enjoy reading. Some students commented that this was their first time to read a book in English, and others that it was a “precious experience”. We consider the pleasure derived from reading to be critical, because as Baddeley (2014) explains, when children are interested in something they devote attention to it, whereas when they are bored, their attention drifts elsewhere (p. 71). Although the purpose of our study was to investigate visual and audio scaffolding, because of its importance for learning, this unanticipated finding is worth mentioning here.

CONCLUSION
Our study has confirmed the facilitative effects of visual and audio scaffolds on second language reading comprehension. As Cheetham (2017) argued, multimodal input is a “superadditive effect”. The overlap in input which would be considered redundant for proficient readers provides a valuable scaffold for learners. The visual scaffolding, consisting of images of artwork in the story, provided by the American teacher to her class, was perceived by her students to facilitate their comprehension. Furthermore, for many students the pictures in the ER readers greatly assisted their comprehension. Importantly, many students enjoyed ER, and some summed it up as a “precious experience”. As for the audio scaffolds, the embodied presence of the reader was a catalyst for comprehension, in terms of pronunciation, the emotions carried by the prosody in the teacher’s voice, and the shared experience of emotion both with other members of the class and with the protagonists in the story. We call for increased scaffolding in the form of reviving the traditional embodied art of storytelling as learners follow along silently in their own texts, and a greater availability of graphic novels which are suitable for second language readers.

Further innovation in the teaching of second language reading in Japan is required. One positive finding derived from this study was the pleasure that the students derived from ER. This was salient for the teacher-researchers, because it was an indication that an important objective had been achieved. Interest leads to attention (Baddeley, 2014), and attention is a prerequisite of learning. Therefore further action research needs to be directed to how to help learners understand that second language reading is not simply a punitive gate-keeping measure, but rather a source of pleasure and empowerment. Secondly, further studies could investigate the learning that occurs in the act of reading along to a live storytelling. Studies could investigate how a dramatic reading by the teacher could
facilitate students’ comprehension not only of prosody, but also the feelings of the protagonists, and the emotional response to the text by the reader.

REFERENCES