Adult Learning Support
Making a difference for life

Putting the story on screen:
digitally supported reading for adult learners
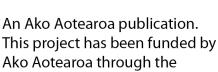
Project Report

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Contents

Introduction

The Digitally Supported Literacy (DSL) resource in the context of this report refers to the use of digital media to create an on-screen reading experience with embedded learning support.

This resource, created by Adult Learning Support Nelson Inc (ALS), is a template for creating and using DSL media. It is intended for educators working with adult literacy learners and adult learners themselves. The resource models and teaches key aspects of the reading process associated with fluent readers.

The resource consists of:

- Three templates, using different software options, for creating an audio-supported slide show.
- A guide to using the template with each software package.
- Five short stories presented in DSL format. Each story consists of a series of text slides with accompanying narration. Built into the slide shows are visual prompts/aides that support independent reading and aim to improve reading skills, especially fluency. Different versions of each story with varying levels of support allow the reader to build and practice these skills.
- A Tutor's Manual providing detailed guidelines on the use of the resource in relation to the stories and an outline of the research on which it is based.

Identification of the need

The DSL resource had its genesis in discussions between trainee adult literacy tutors who noted the limited availability of appropriate reading material for adult literacy learners and the usefulness of audio books. The tutors considered the changing technology - the gradual disappearance of cassette tapes and the increasing use of video formats and mobile devices for communication – as significant developments that had implications for how we might address the needs of adult learners. The discussion turned towards the computer and the wizardry of technology and whether it would be possible to create a computer version that would transform the audio book into an integrated format that would offer more sophisticated support.

Selection of material

ALS had previously published two collections of New Zealand short stories primarily intended for developing and/or reluctant male readers. These stories had been read and enjoyed by adult literacy learners and provided appropriate content. The team re-read the stories and five were selected for adaptation. The authors gave their permission for their stories to be used under the Creative Commons Licence.

Creating the on-screen version

The stories were each read several times by members of the team and were broken down into self-contained screen-sized bits of text, usually one or two sentences of an average of four lines. A light coloured beige background with black fonts was identified as the most comfortable colour contrast for the on-screen resource. The font and text size were also chosen to create visually pleasing and easy to read 'pages'.

When considering how to present the stories, the team reviewed current knowledge/research on learning to read and the skills that distinguish fluent from beginner readers. Two key behaviours of fluent readers were identified and features incorporated into the resource that would train the reader into these behaviours.

The first behaviour was associated with eye movement. Written material is less meaningful if read word-by-word, so consequently the eyes of fluent readers may not pause at, or rest on, single letters, groups of letters or even single words. Rather, the eyes of fluent readers saccade across lines of text. Typically, they 'read' a 'chunk' of text, then pause briefly and shift to the next group of letters or words. The fluent reader's eyes also move smoothly from the end of a line back and down to the beginning of the next line. In an attempt to train less fluent readers, the lines of text in the DSL resource on each slide are broken down into meaningful 'chunks' and visual prompts used to train the reader's eye movements and improve/increase their eye span. A hoop (an arcing line above the line of text) marks the words to be read as a unit of meaning and a line indicator helps with directionality.

The second behaviour was associated with the types of thinking typical of fluent readers. Fluent readers continually summarise or form a gist of what they read. They also think beyond the text as they read, and they also predict what might happen next. In the DSL resource, question breaks are integrated into the slide shows (and appropriate questions provided in the Tutor's Manual) to train less fluent readers to adopt the thinking behaviours of fluent readers. There are three types of questions for each story. These variously require the reader to make predictions, to summarise events and to make/draw inferences about what has been read.

Finally, reading fluency relates directly to speed of reading. To accommodate this behaviour, each story in the DSL resource is narrated at 120 and at 150 words per minute. This trains the reader to increase reading speed on subsequent readings as familiarity with the story and word recognition improves.

Key vocabulary for each story has been identified and included as word lists in the Tutor's Manual that can be used as pre-reading preparation as well as for monitoring the acquisition of new vocabulary.

A significant feature of the resource is that each story has four possible readings with decreasing levels of support encouraging the reader to move towards greater independence with each reading of the story.

The technical process

How it looks and the reading supports

The aim was to produce an adult learning resource that worked, that was based on research and that was easy to use. At a technical level we were keen to make the on-screen resource easy to read, and to incorporate reading aids that were of minimal distraction to the reader. Technical aspects of the resource are:

Hoops: Armed with the knowledge that fluent readers read in 'chunks' we set out to find ways to help train the eye/brain to do this. We found that a hoop with a slight curve encouraged the reading behaviour we wanted to model. We then worked on the colour and opacity to get a balance between the hoops being visible and not too distracting.

Line indicators: We applied the same principles, used for the hoops, to the line indicators. We started with an arrowhead that, based on feed back, evolved to a smaller, less distracting circle. Initially we tried animating them so they slid from line to line, but the excess movement was distracting. In the final versions the line indicator appears and disappears.

Colour: The background and font colours were based on suggestions from David Whitehead's research and agreed on by all the group. These colours were confirmed by testing with the learners and tutors.

Font, line spacing and whitespace: We selected an easy to read serif font to mimic the reading experience of books. There is extra line spacing allowing for easier reading and to fit in the hoops above the text. We allowed plenty of whitespace around each block of text.

Number of lines per page: When working with the scripts we limited the number of lines per slide. There are no more than 5 lines of text/slide for the movie versions and 6 lines of text for the slideshow versions. We had to think carefully about how best to place sentences and paragraphs together so that each individual slide made sense.

Audio

Initially, we tested different reading speeds for the stories by slowing down the audio. We identified 120 wpm and 150 wpm as appropriate speeds for adult learners working towards acquiring reading fluency. This was later confirmed by our testing.

Narrator: We chose a professional narrator (local radio personality) and led him through the process we wanted him to follow. We gave him the timings for both readings and explained that we wanted the timing to be created by 'enunciated reading chunks' and pauses in punctuation, rather than by just slowing the reading speed right down. This was to give the story a meaningful flow with pauses to allow the reader time to catch up.

Professional recording studio: We used a professional to record the audio. In the recording booth we had both the narrator and the producer. The producer was there to check on the speed for reading each page and to check the script for any reading errors or omissions.

Over 3-4 recording sessions we recorded all 5 stories at both speeds. They were then checked by all the resource development group and re-recorded where word(s) had been changed or missed out. Once all the changes were made, final audio files were delivered from the studio and we incorporated them with the text.

Iteration process

Initially we started using Powerpoint. However, we soon realised that we needed to use a more powerful software program in order to create and control of the reading aids. It would have possible in Powerpoint but a video-editing suite (like Final Cut Pro X) gave us a fine-grained control over the timing of all the elements.

We developed a basic outline using one of the stories. We prototyped the reading aids, layout and style and tested them with both tutors and students. It was also heavily tested within the team. We used all the feedback to iterate and refine the final product.

How we built it

Final Cut Pro X: We decided to produce all the output (stories on screen) for this project in Final Cut Pro X to more easily facilitate adding the hoops and line indicators. It would have been prohibitively difficult in any program that was not a fully-fledged video editor (like Powerpoint or Keynote) due the difficulties in timing the animations. Following the plan outlined in the Tutor's Manual we then created four versions of each story.

Workflow

We had 'chunked' the text prior to starting the process of integrating it with Final Cut but found it made more sense to follow the phrasing set by the narrator as he read. This is the workflow that we followed in Final Cut to create the versions.

To simplify the process we made up templates for the repeatable pieces.

Using Motion (a companion animation tool for Final Cut) we made:

- A template for the credits;
- A paragraph style (text box) including font and style information for the slide text;
- A title sequence to display the name of the story and the author.

Using Adobe Illustrator we made:

- Hoop image files of different sizes.

In a new Final Cut file we:

- Put in the background colour;
- Added the audio file.

Using the paragraph style, we

- Added all the text and timed it to flow with the audio;
- Created line indicators using circle generators in Final Cut;
- Inserted, resized, placed and timed hoops;
- Rendered out final video.

We were able to copy the Final Cut files to make the various versions without having to repeat the full process for each file. However, it was still a time consuming exercise. The first story took a long time. We tested it intensively, refined the format. We got faster as we got into a workflow.

Sharing: We found the best option for us to share the videos, both within the group and with our learners was to upload the videos to YouTube. Vimeo or a similar video sharing services would also work well. This enabled us to render out one large HD (720p) video file, which YouTube, then converted into different sizes for us. This allows the videos to be played back on multiple devices (iPad, smart phones etc.) without extra work on our part. Rendering video is time consuming and limiting the numbers of renders required is very helpful. The other advantage of YouTube is that the learners are already familiar with it.

Creating templates

Once we had finished the stories we stripped the template down to the key elements required for others to develop similar resources. We considered how people with only access to Powerpoint and the Mac equivalent, Keynote, could use our method to produce their own resources.

Final Cut: We made new templates for the title, paragraph text and the credits that were easy to edit. We also made the default font one that will be installed on most computers.

Powerpoint & Keynote: We were able to bring everything to Powerpoint and Keynote except the hoops. Technically, the hoops are easy to construct, but controlling the intricacies of timing the hoops is very challenging, and beyond the technical capabilities of most people. We also made changes to the default fonts and decided on a slightly different background colour for Powerpoint because of the colour rendering of most PC screens.

The skills that people are least likely to be comfortable with are the recording of audio and the role of a producer. To enable users to create resources similar to ours we needed a technical manual specific to each program that guides the user through the process. Each manual contains specifics for that program and an overview of the audio and production process.

Using the resource

The resource is grounded in two complementary approaches to reading instruction: the Repeated Readings approach (Samuels, 1979) to reading instruction whereby multiple readings of the same text are used to improve fluency and ultimately comprehension, and the Neurological Impress Method (Heckelman, 1969) whereby a reader and tutor read the same text almost simultaneously, with the tutor's reading serving to reinforce the learner's reading. The resource is structured around repeated readings of the story selected, with each version providing a different level of support so that subsequent readings improve word recognition and encourage greater independence. The audio support in the form of a narrator provides a paired and supportive reading experience with the option of muting or removing the narrator as the reader's skill and confidence grows. (Comprehensive instructions for using the resource are provided in the Tutor's Manual.)

Initial testing

A draft version of one story was presented to six learners at ALS. Learners then answered a questionnaire that sought feedback about the features and technical aspects of the resource. Their feedback was incorporated into the subsequent revised versions of the resource. A draft version of one story was also presented to 15 adult literacy tutors who also responded to the questionnaire.

The final version of each story was then presented to another group of five adult learners who completed the same questionnaire and engaged in a semi-structured interview about their experience with the resource.

Evaluation

The initial testing did not cover the following important aspects.

- How easy is the process of creating new DSL materials using the templates provided.

- What is the impact of the DSL resources on learner outcomes.
- Did the Tutors manual allow tutors to use the resource as intended.

Evaluation of template

This needs a variety of people to use it before we can gather feedback. A feedback form is attached to this report in Appendix B and is available online on our website. We are actively seeking responses from people who are creating resources using the templates. We will evaluate those responses as they come in and base any future revisions of the material on those responses. We have handed out the evaluation forms at the presentations we have given.

Evaluating the Tutors' Manual

The stories are all available on our website in a format that showcases their recommended use. The tutors manual is readily downloadable from this section of our website. In order to properly evaluate the manual, we are encouraging all tutors who use the resource to fill out an evaluation form online. Future iterations of the manual will incorporate feedback gained from these evaluation forms. A feedback form is attached to this report in Appendix B and is available online on our website. We have handed out the evaluation forms at the presentations we have given.

Impact of DSL learner outcomes

Project member, David Whitehead a senior lecturer at the University of Waikato, is currently conducting an evaluation study of the resource on a number of ALS learners in Nelson. He is extending this study to include learners at Literacy Waikato, another Literacy Aotearoa poupou (branch). The results of this study will be published in a peer reviewed journal. The intended publish date is later in 2012. This study should provide a good indication of the effectiveness of the resource on learner outcomes. Any points arising from this study will be key aspects to investigate for future revision of this resource.

Spreading the word about the DSL project

The DSL project has been presented to a number of conferences in the adult education field in New Zealand. We were invited to present at the ACE conference in Wellington in June, at the National Hui for Literacy Aotearoa in August and presented at the Region 3 (South Island) Hui for Literacy Aotearoa in May.

Initial reaction to the project has been very positive and we have been excited by the positive reaction to the project and its resources.

Final thoughts

We are delighted with the project, its outcomes and its reception so far. We can see future possibilities and are excited by the opportunities it has opened.

The project was far more complex and time intensive than originally anticipated and we are really grateful to all the volunteer time given by team members and for the support and patience of the staff at ALS.

The project development team

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Acknowledgements

Appendix A

Validation of pilot version of DSL resource: analysis and recommendations

We shared a draft version of the DSL resource with 15 tutors and 10 learners. After using the resource they completed a semi-structured questionnaire (see Appendix B) that invited their response to different components of the pilot version. The semi-structured questionnaire provided opportunities for the developers to obtain qualitative and calibrated responses to the pilot version of the DSL resource.

Table 1 summarises the Likert scale responses from tutors and learners to questions about the resource's background colour, cursor (renamed as *line indicator* in the final version), hoops and reading speed. All these questions produced positive ratings from the tutors and the learners. Although some tutor and learners were diffident about the line indicator and some learners equivocal about the hoops, there was general support for the key components of the resource.

Table 1

Tutor and learner responses to key features of the resource

	Tutors (N=15)	Learners (N=7)	Combined Mean
How comfortable on your eyes is the background colour? /6	5.5	4.9	5.2
How helpful is the cursor moving down the side? /6	4.4	4.4	4.4
How helpful are the hoops over top of the words? /6	5.6	4.3	5.0
Is the reading speed (1) too fast (2), too slow (3), about right	3.0	2.9	3.0

The design of the questionnaire included qualitative questions to solicit reasons underpinning these Likert scale responses. Below is recorded the thematic analysis of responses from tutors and learners to each open ended question.

What affect did the cursor (line indicator) have on your reading?

Tutors
Most tutors commented that the cursor was useful in helping them navigate the text and keep their place, but at the same time was unobtrusive enough not to be a distraction. However, one respondent commented it was distracting to see a cursor move on the left when his eyes were focused on the right.

Learners
The more able readers (Step 4) indicated that they did not need the cursor, indeed one read in advance of the cursor. Others did not notice the cursor, although it could have had some subliminal effect. Some less able readers indicated that it helped them maintain directionality and that it 'tells you which place you are at if you get lost'. Others indicated it was a distraction.

There was general support for the inclusion of a cursor but, predictably, the diverse needs and abilities of the learners resulted in a range of responses.

What affect did the hoops have on your reading?

Tutors
Some commented that the hoops helped them 'chunk or phrase' their reading, and others that it trained their eyes, that is, took their eyes away from individual words, especially given the hoops preceded the segment of text to be read. Others noted that the hoops focused their attention and were comfortable.

Learners
Comments from the tutors were reflected in those from learners. Learners followed them and found them helpful because they 'broke down [the text] when you read, otherwise too long', helped them maintain attention and 'understand sentence structure'. However, more able readers (Step 4) indicated that they did not need the hoops, and that they 'didn't take a lot of notice' of the cursor.

Both the tutor and learner responses suggested to us that the hoops were a useful component of the resource.

What did you think of the questions?

Responses varied. One said they were 'odd', of 'no affect' and of 'nuisance value' and that they didn't really want to answer them. However, some of these learners later contradicted themselves during discussion with the tutor and decided that they thought 'actually the questions might be useful'. Initially, another leaner said 'what question?' – because she was just enjoying the story. Less flippantly, she suggested the questions might give her a purpose for reading and 'put more interest in the story'.

One student thought the questions made it easy to follow the story, and another that they were 'alright, useful' and helped them predict. Another said they were a 'good idea' and helped him recall the text, but suggested they might be better at the end.

Taken together, the feedback suggested to us that our design decisions needed to be guided by the principle of 'flexibility', and to re-think the placement of questions and processes around the use of questions.

What might be done to improve this resource? Is there anything else you would like to say about this resource?

Tutors
There were no substantive suggestions for change from this group.

Learners
Suggestive of their dependence on external support, less able readers suggested the hoops could be darker. However, the major finding from an analysis of responses related to the use of questions. In the pilot version, we inserted these at points through the resource. Learners found this placement 'unexpected', 'disorientating', and 'confusing'. They were not sure what they were supposed to do, and some ignored them. This response prompted us to rethink the role and delivery of questions in the resource.

Acting on other comments would require a more sophisticated and expensive-to-produce resource. These comments included a resource controlled by the user, illustrations, the use of different voices for different

characters and sound effects. Others mentioned a component of the resource dealing with key vocabulary, which at this stage in the resource design process was under consideration.

Recommendations

Taken together, the responses to the questionnaire led us to reconsider our guiding principles and refine the resource. A number of beliefs that emerged from our discussion of the data obtained from tutors and learners underpinned these revisions. These beliefs were that:

1. Learners should take responsibility for their own learning;

2. Given the diverse needs of learners, there should be options available to meet those needs;

3. Tutors should be given the professional responsibility to decide what was best for each learner;

4. The resource should have maximum flexibility in respect to how it might be used.

Based on these beliefs, and on the feedback from tutors and learners, we made the following changes to the pilot version of the DSL resource.

1. *The use of questions*

   We decided to work on a version of the resource with removed questions from the 120 wpm version of the resource and printed them in the Tutor's Manual and that signalled opportunities to ask questions using an icon.

   We decided to work on a version of the 150 wpm version that included questions, which appeared before learners read a chunk of text. This would give learners a purpose for reading and an opportunity for tutors to test comprehension.

   We decided to work on a version of the 150 wpm resource that had no questions, bullet cursor or hoops.

2. *The use of an arrow cursor*

   Responses from tutors prompted us to trial a cursor that first faded and reappeared against the next line. Learners were insensitive to this change, but did comment that the cursor was intrusive. Therefore, we changed the arrow cursor to a bullet line indicator the same colour and opacity as the hoop lines. This resulted in a less intrusive line indicator. We successfully assessed that learners' eyes were still sensitive to the movement of the line indicator.

3. *The use of hoops*

   Tutors and less able readers appreciated the supportive function of the hoops. We made a decision to retain this feature as a component of the resource.

4. *Tutor professionalism*

   We decided to work on a version of the resource that indicated locations were tutors might ask questions and that would provide tutors with opportunities to decide whether the use of questions was appropriate to the learner and the learning session. We also decided to indicate in the Tutor's Manual the option of asking any other questions the tutor deemed appropriate.

Appendix B

Semi-structured interview questions for tutors and learners

1. How comfortable on your eyes is the background colour?

Very uncomfortable　　1　　　2　　　3　　　4　　　5　　　6　　　Very comfortable

> I want you to imagine that you are not such a good reader, and you have been asked to read this story. (deleted for learners)

2.1 How helpful is the cursor moving down the side?

Not at all helpful　　　1　　　2　　　3　　　4　　　5　　　6　　　Very helpful

2.2 What affect did the cursor have on your reading?

2.3 How helpful are the hoops over the top of the words?

Not at all helpful　　　1　　　2　　　3　　　4　　　5　　　6　　　Very helpful

2.4 What affect did the hoops have on your reading?

3. Is the reading speed…

1. Too fast?　　2. Too slow?　　3. About right?

4. What effect did the questions have on you as you read the story?

5. How do you think less able readers might respond to this resource? (for tutors only)

6. Do you think older, less able readers would enjoy this story? (for tutors only)

7. What do you think of the questions?

8. What might be done to improve this resource?

9. Is there anything else you would like to say about this resource?

DSL tutors evaluation form: for tutors using the Stories Online

DSL Tutor Evaluation Form

Thank you for using the Stories Online resource. We would really appreciate your feedback on how this resource was for you to use.

Please return this form to :
Adult Learning Support
PO Box 1263
Nelson, 7040
Email: info@adultlearning.co.nz
or fill one out online
www.adultlearning.co.nz/stories online

Which story/stories did you use?

☐ Smasher   ☐ Big Dave

☐ Rough Justice   ☐ Grounded

☐ The Eel Contest

Please circle the number that best represents your experience in the following areas.(0 = none, 5 = lots).

Was the tutors manual easy to follow?

1   2   3   4   5

extremely difficult   *very clear*

Did the stories hold the interest of your student(s)?

1   2   3   4   5

not at all   *very interested*

Do you think it helped improve your student(s) reading?

1   2   3   4   5

not at all   *great improvement*

Would you use it again?

1   2   3   4   5

not at all   *definitely*

How comfortable with computers/technology are you?

1   2   3   4   5

no skills   *very skilled*

How comfortable with computers/technology are your student(s)?

1   2   3   4   5

no skills   *very skilled*

What device did you use it on?

☐ *computer*   ☐ *iPad/tablet*   ☐ *iPhone/smart phone*   ☐ *TV*   ☐ *Other*

Was there anything else you would have liked to have seen included?

Highlights to share:

Any Issues and Solutions:

DSL Tutor Evaluation Form - using Stories Online

Evaluation form for using DSL resource templates

DSL Creation Evaluation Form

Thank you for using the DSL resource. We would really appreciate your feedback on how this resource was for you to use.

Please return this form to :
Adult Learning Support
PO Box 1263
Nelson, 7040
Email: info@adultlearning.co.nz
or fill one out online
www.adultlearning.co.nz/stories online

What did you use to create your resource?

☐ Created a DSL Keynote presentation

☐ Created a DSL PowerPoint presentation

☐ Created a DSL FinalCut Pro X presentation

Please circle the number that best represents your experience in the following areas.(0 = none, 5 = lots).

How comfortable with computers/technology were you before you started?

1	2	3	4	5
no skills				very skilled

Did you learn anything new?

1	2	3	4	5
no				lots

Was the manual easy to follow?

1	2	3	4	5
extremely difficult				very clear

Did the resource allow you to build what you wanted?

1	2	3	4	5
not at all				absolutely

Did you complete creating your resource?

1	2	3	4	5
gave up		got halfway		completed

Would you use it again?

1	2	3	4	5
never				absolutely

Were you aware that Adult Learning Support could have helped you with this? [Y / N]

Was there anything else you would have liked to have seen included?

Highlights to share:

Any Issues and Solutions:

DSL Evaluation Form - Creating a resource