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Capturing literacy learners: Evaluating a reading programme using popular novels and films with subtitles

Faye Parkhill, Jiliane Johnson, and Jane Bates

Abstract

The multimedia AVAILLL programme is currently being widely implemented into New Zealand classrooms. The Audio Visual Achievement in Literacy Language and Learning (AVAILLL) programme is an inexpensive, innovative, multimedia, six-week intensive reading programme to supplement classroom practice. Popular, subtitled movies and accompanying novels are used with targeted literacy-based activities to engage students in reading. AVAILLL has been implemented effectively in Christchurch, wider New Zealand and US schools. The programme is particularly focussed at senior elementary students (10-13 year olds) and is appropriate for variable ability classes. This paper reports on a large experimental research study examining the effectiveness of the AVAILLL programme. Findings from six New Zealand schools indicated gains in comprehension and vocabulary, with sustainability of improvement over a six-month period. Qualitative data revealed a noteworthy increase in fluency and engagement in reading. This research provides classroom practice with experimental research support.

Keywords:

Comprehension strategies, engagement, fluency, movies and subtitles, multimedia, visualization, vocabulary extension

Introduction

In an age of multiliteracies where print, visual and audio texts are intricately linked (New London Group, 1996), traditional concepts of literacy as confined to print media may undermine students' attempts to succeed at school (see for example, Baird & Fisher, 2009; Jewett, 2006; Leu, 2002; Yelland, 2010). Being able to read multimodal forms of communication and texts is a key aspect towards becoming multiliterate. Yelland, (2010, p. 65) argues "being fluent in multimodal formats enables new forms of communication and meaning making". New pedagogies that accommodate digital literacies by using authentic learning experiences, observation, intrinsic motivation and collaboration are emerging in education. It is imperative that teachers can develop strategies to engage students in learning using digital technologies that now assume a central place for communication and entertainment in their leisure lives. Among the plethora of digital technologies available to young people today, DVDs are still a popular source of digital entertainment. In 2010 Scholastic, in conjunction with Quinley Research and Harrison Group, conducted a survey in the United States of 1045 children aged six to seventeen and their parents, a total of 2090 respondents. According to the sample group in the Scholastic Kids and Family Report (Harrison Group, 2010), 89% of six to seventeen year olds watch television, DVD's or videos each week with 68% of those viewing five to seven days within the week. Going on line and using the internet for fun, as opposed to a school focus, has 74% of the six to seventeen year age group involved each week with 37% of those in the 'almost daily use' group while 78% play video or computer

games at some point in the week. Whilst the use of DVDs in schools has grown, the presence of the subtitle facility on most recently released films creates new possibilities for reading advancement and engagement using this digital device.

The presence and engaging nature of visual media is undeniable and this is was impetus behind the development of the Audio Visual Achievement in Literacy Language and Learning (AVAILLL) programme in the United States. AVAILLL is based on the premise that using popular movies with subtitles not only enhances students' reading skills but also motivates students to read books. These advantages are deemed to be a result of movies with subtitles offering the "harmonious inputs" of simultaneous reading, viewing and listening (Parkhill & Johnson, 2009).

This premise had antecedents in Elley's (1992) analysis of the results of an early iteration of the International Association for the Evaluation of Educational Achievement (IEA) study of reading literacy. Elley speculated that the high number of hours that students in five of the top-performing countries spent watching television may have contributed to these results. These students regularly watched television and films made in English with local-language subtitles. In order to understand what was happening on the screen, the children had to learn to rapidly and repeatedly read the subtitles. Elley (1992, p. 73) concluded, "Regular experiences of rapid reading under highly motivating circumstances with pictorial cues to support meaning is apparently a productive practice for raising reading levels in younger students". During the same period in the United States, Rickelman, Henk and Layton, (1991, p. 599) reviewed research on using close-captioned television for reading teachers and concluded that "motivation and time on task is enhanced in a close-captioned setting".

Although both Elley and Rickelman et al. recommended further research on the association between reading subtitles (closed captions) on popular films/television and reading achievement, most of the focus in this area in the intervening 17 years is in relation to second language learners or hearing impaired students (see for example King, 2002; Koolstra & Beentjes, 1999; Jelinek-Lewis & Jackson, 2001) Recently however, captioned media is becoming more popular in classroom literacy programmes as teachers discover that captions not only engage a wide variety of students but also increase vocabulary and comprehension levels (Koskinen et al., 1993; National Center for Technology Innovation and Center for Implementing Technology in Education, 2010). At the time we began to trial AVAILLL in New Zealand, only a few studies addressing the effects of using movie text subtitles in English for English speakers as opposed to second language learners (see for example Koskinen et al, 1993; Kothari & Takeda, 2000) had been completed.

We consider that AVAILLL is at the forefront of using multimodal literacies to enhance reading skills practice in particular and to extend learning within the classroom in general. In this article, we describe the AVAILLL programme, consider literature pertinent to it and present and discuss the findings that emerged from our study.

Relevant Literature

Today, 'reading for a literary experience' is no longer as popular a leisure activity for students and adults as it once was. This change, according to (Crain, 2007), is in part due to alternative forms of communication and entertainment brought about by developments in technology, and it may help explain the dip or plateau in reading achievement reported in the literature of many nine to thirteen year-old students (see, for example, Brozo, 2005; Chall & Jacobs, 2003; Hattie, 2007; McNaughton, Amituanai-Tolua, & Lei, 2007; Pressley, 2006; Twist et al., 2004). Worldwide, people are increasingly communicating with others and entertaining themselves through electronic

and digital media, such as radio, film, television, computers, and various hand-held communication devices. As Daley (2009, p. 25) points out, “to be able to interpret and express oneself in the language of the screen, of sound and image, is arguably as important as being able to read and write an essay”.

Mills (2009) argues that providers of formal education have generally been slow to appreciate the role that visual literacy—screen-based literacy in particular—can play in learning situations. Teachers and school managers, she says, tend to view use of popular media in classrooms as a threat to their traditional pedagogical practice and as an unacceptable alternative to the written word, despite the fact that most students arrive at school with an established potential to engage with moving-image texts. According to Mills, many teachers see Hollywood feature films (unlike documentaries) as especially controversial teaching tools. She describes such resistance as a “word–image binary” (Mills, 2009, p. 6), a notion that she explains further:

It cannot be denied that images dominate modernist and postmodernist culture. But in the mind/body split prevalent in our culture, words are widely thought to affect action. Words are sober—unlike images which are, or can be, exciting, giddy, emotional and physically affective. Underlying this connotation of unruliness is the widespread view that the image is inferior to the word (Mills, 2009, p. 7).

Furthermore some schools are “promoting normative ways of reading texts that may be disabling the very students they are trying to help” (Mills, 2009, p. 5). She advocates that the personal and everyday literacies associated with, for example, mobile communication devices that young people use should be incorporated as ‘springboards’ for engagement in academic tasks.

Dooley (2007) claims that teachers of literacy are challenged not only by increasingly diverse populations—diverse in terms of home background and ability—but also by the continual development of wider interpretations of literacy and innovative text forms made possible by technological advances. Dooley, like Mills (2009), observes that traditional school literacy learning has privileged a narrow range of approaches that advantage some students but marginalize others. Kerkham and Hutchinson (2008) found that even teachers who acknowledge that new technologies and popular culture are powerful tools of engagement are wary of incorporating them into literacy programmes unless the decision to do is has sound pedagogical underpinnings.

Resistance is also being challenged by a growing body of literature extolling the use, particularly in the upper primary grades of schools, of rich instructional materials and methods that encourage critical analytical skills and enable transference from the kind of thinking fostered in literacy instruction to thinking that is integral to real-world experiences (see, for example, Daley, 2009; Kohn, 2008; Lankshear & Knobel, 2003; Mills, 2009). Gallagher (2009) argues from the United States that many students are in desperate need of large doses of authentic reading and that 50% of reading in school should be recreational reading that includes newspapers, magazines, blogs, and websites. Ignoring the recreational side of reading is, he says, a recipe for ‘readicide’, which he defines as “the systematic killing of a love of reading, often exacerbated by the inane, mind-numbing practices found in schools” (Gallagher, 2009, p. 2).

Despite this documented resistance in formal educational contexts to screen-based literacy programmes (i.e., programmes that use film, television, computers, and/or other digital technologies), such initiatives are increasingly common in classrooms around the world.

The National Center for Technology Innovation and Center for implementing Technology in Education (2010) reports that using subtitled or close captioning from television and movies is an effective, motivating and engaging approach and can benefit a wide range of learners. For struggling or beginning readers, they conclude that reading speed, word knowledge, decoding, vocabulary acquisition, word recognition, reading comprehension and oral reading rates can all be enhanced through same language subtitling (SLS). Linebarger, (2001) also argues that the use of onscreen print in the form of captions is a meaningful and engaging context to extend word knowledge and comprehension, particularly for those students who are slow to develop and use the alphabetic principle or those who experience difficulty transferring comprehension skills from spoken to written language. In a study of 76 children who had just completed second grade, Linebarger reported that beginning readers recognize more words, read faster and allowed for a strong focus on central story elements when they viewed television with captions.

In India, where at least one third of the country's population lacks functional literacy, Kothari and Takeda (2000) used same language subtitled (SLS) song programmes as a tool to improve reading. They found this practice effective in raising children's reading because it motivated the children to sing along and learn the lyrics. More specifically, Kotahri and Takeda found that SLS more than doubled the percentage of children who became good readers and halved the percentage of those who remained illiterate. They concluded that the improvement in reading was "a subliminal by-product of widely popular entertainment" (Kotahri & Takeda, 2000, p. 130). They also found that this tool allowed the reading skills learnt at school to be readily practiced at home, thereby (they assumed) enhancing the children's reading ability.

Findings from studies on the effectiveness of using subtitles for second language learning (e.g. Danan, 2004; Koolstra & Beentjes, 1999; Meyer & Lee, 1995; Stewart & Pertusa, 2004) suggest that such students can acquire vocabulary in a subsequent language when using subtitles while watching television. All of the researchers involved recommended ongoing investigation of use of subtitles for students whose home language differs from the one used in their schools. Danan (2004), having documented an increase in language comprehension among second language learners, concluded that using subtitles is a powerful pedagogical tool for second language users, providing that the learners are taught active viewing strategies. Stewart and Pertusa (2004) surveyed second language learners engaged in a study that involved watching and reading subtitled movies in formal educational settings. The participating students said they had gained benefit in respect of their reading and many reported that they had continued, after the study ended, using subtitles either all or some of the time when watching films. In the light of the above review, a more substantial study on SLS using popular movies as part of a short-term enrichment programme was timely and appropriate.

The AVAILLL programme

AVAILLL uses a combination of image and word to foster comprehension and fluency in reading. The programme includes explicit literacy activities that interweave acquisition of literacy skills with watching movies (on DVDs), reading the subtitles on these movies, and (later) reading novels. Students 'read-watch' movies and complete a range of games and activities designed to keep them on track when reading the subtitles and therefore provides opportunity for purposeful and focused reading. Movies such as *Hook* (Spielberg, 1991), *Holes* (Davis, 2003) and *Bridge to Terabithia* (Csupó, 2007) and the accompanying novels form the basis for Part One of the programme. In addition *March of the Penguins* (Jacquet, 2005) is used to encourage visualization and oral fluency.

AVAILLL is delivered as a six-week unit that includes one hour of concentrated (focused) reading per day along with the variety of other activities, which students complete either individually or in pairs, groups, and teams. All activities are designed to target the key skill of reading comprehension; reading fluency, vocabulary exploration via dictionaries, and imagery (visualization). Some of the explicit teaching activities include:

- Surprise subtitles: Encouraging rapid reading through chunking of text
- Next word hunt: Focussed vocabulary teaching
- Take a dictionary to the movies: Extending word meanings
- Fostering fluency: Providing an oral/written link and reading with phrasing and fluency
- Read it-see it: Teaching visualization to extend comprehension and recall
- A movie's worth a hundred words: Building personal vocabulary knowledge

The common feature of the programme in respect of reading both subtitled movies and books is the emphasis on the use of imagery; through read-watching, the students read it, see it, and so get it. According to Hibbing and Rankin-Erickson (2003), many reluctant and low-progress readers “see nothing” when they read because they are unable to create pictures in their mind. The researchers explain that continuous exposure to images on television, film, and other digital technologies create visual representations for the viewer, unlike traditional reading comprehension tasks, where readers have to draw on their own experiences to create the internal visual images that emanate from the text.

AVAILLL had its genesis when its developer, the late Dr. Alice Killackey, a teacher educator in science in the United States, discovered upon returning to the classroom that many of her first-year high school students did not have the reading skills in English to engage successfully in the study of science. She observed, however, their interest in, and deep comprehension of, visual media in science. This realization motivated her to develop a programme that would, she hoped, engage her students in highly focused reading by giving them opportunity to watch popular movies and simultaneously read the English subtitles of those movies. In an unpublished study of 387 students in their first year of high school, Killackey used *The Group Reading and Diagnostic Evaluation* (American Guidance Service, 2001) comprehension test to pre and post-test students after receiving the six-week programme. Overall, below average readers increased by an average of 2.16 years and average and above readers by .65 years. These outcomes inspired her to bring the programme to New Zealand, a country which she considered to have a worldwide reputation in literacy-based research and practice. The pilot study that Killackey undertook in New Zealand indicated that the greatest gains in reading literacy occurred for low-progress readers and boys from ethnic minorities (Parkhill & Johnson, 2009). The results reflected those of her initial trials in the United States. Overall, the results indicated that the AVAILLL programme had a noticeable positive impact not only for students reading at a lower level than expected but also for average or higher-level readers. This heightened achievement along with the rich qualitative data derived from students' evaluative comments at the end of the six-week programme informed the decision to go ahead with the much larger and more rigorous study the following year. AVAILLL is available at low cost to schools and includes a teacher's guide, the six-week programme guide and the appropriate DVDs. It was never intended to be a large-scale commercial literacy programme but one that targeted schools concerned with the level of reading achievement.

We were cognizant, moreover, that gains for older students via short-term interventions are difficult to locate in the literature. We were also mindful of Paris' (2009) caution that it is very hard to change achievement in comprehension and vocabulary acquisition in two months at the upper primary level of the school (10-13 years), and so were keen to analyze data using both quantitative and qualitative methods.

In 2009, a three-member New Zealand-based research team (Parkhill, Bates, and Johnson) decided to investigate if a larger experimental study could provide enough evidence to position AVAILLL as a short-term enrichment programme that would assist in raising reading levels and reading engagement in the upper primary (elementary) school. There is much evidence (see below) that effective reading programmes at this level of the school require teacher knowledge of literacy processes and that, regardless of reading level, teachers plan explicit instruction around text, with vocabulary knowledge and comprehension strategies recognized as two key areas. Prompting and questioning for metacognitive strategies, fostering critical reading literacy approaches through use of authentic discussion about text, and making connections to the students' life experiences are all hallmarks of effective practice (Lai et al., 2009; Pressley, 2006; Taylor et al., 2002).

Method

We employed both quantitative and qualitative methods of data collection: using the former to explore numerical trends in achievement in vocabulary acquisition and reading comprehension and engagement; and using the latter to gather participating students' personal responses to the programme. Given the relationship between achievement and engagement in reading (Gay, Mills, & Airasian, 2006), and because we considered that this mixed methodology approach would allow us to investigate more fully the effectiveness of the programme, we apportioned equal weighting to both approaches.

We invited six urban schools to take part in the study. None of these schools was familiar with AVAILLL. Three of the schools were intermediate schools (these schools cater for Year 7 and Year 8 students only) and the other half were full primary schools (catering for Year 1 through to Year 8 students). According to the New Zealand Ministry of Education's decile ratings (Ministry of Education, 2010), all six schools were in the mid-decile range, that is, four to six (deciles provide a measure of socioeconomic status, where 1 is the lowest level and 10 is the highest).

Each school nominated three comparable classes of Year 7 and/or Year 8 students of mixed ability to participate in the study. The groups' baseline data was compared using a one-way analysis (ANOVA). There were no significant differences between the groups on the initial testing. Each class was randomly assigned to one of three groups: Experimental Group A, Experimental Group B, and Control Group C. The teachers of these classes attended a one-day training session to become familiar with the AVAILLL programme by experiencing many of the activities as learners themselves. During the day, we explained the research project to the teachers and discussed with them the methods we would be using. The research design was described in full with roles clearly defined.

Each of the three members of our research team assumed responsibility for two schools and administered a pre-test to the selected classes in those schools. The pre-test comprised measures of reading comprehension and vocabulary from the Progressive Achievement Test (PAT) 4 (Darr et al., 2008). PAT tests are developed and standardized for New Zealand schools, and so allow teachers to determine the level of achievement of their students relative to the achievement of students in the same level

in Years 4 to 10. The revised PAT in reading includes both narrative and factual texts and assesses both literal and inferential comprehension. Each passage is approximately 100 to 300 words in length and is followed by questions that have four or five possible responses. The vocabulary test contains a question focused on a key word that is presented in bold in a short sentence. The task is to select a synonym from five possible alternatives that best represents this word. The developers claim that the words selected represent the “10,000 most frequently used word families in the English language” (Darr et al., 2008, p. 11).

During the six weeks of the intervention, Experimental Group A received the full Part One AVAILLL programme. One example of the activities outlined previously is “Take a Dictionary to the Movies”. This has proved to be one of the most popular activities as reported by the student participants. Before viewing the allocated section of the movie, the teacher organises the students into groups of five with one dictionary per team. Each student on the team is coded with a letter – A, B, C, D or E with the E’s being the most capable students with a dictionary and the A’s being the least. (This allows for a balance of ability within each team). The movie is paused on a pre-planned subtitle containing a challenging word. The teacher calls out which team member participates for that round – for example “All Student C’s compete!” Student C’s access the team dictionary, look up the word then call out the page number within the dictionary. The first team to do so earns 10 points. The points gained increase each teammate’s score on the vocabulary quiz. This is filled in on to a prepared grid after the day’s section of the movie is completed, along with the description of the word and its meaning in context.

Another example is “Read It – See It”. This literacy activity promotes individual reading with imagery so that the purposeful reading comprehension of academic texts throughout the student’s education may become a lifelong and valuable skill. The teacher informs the students they will learn a technique in which they make pictures in their mind (visualization) to increase what they understand when reading. For example, having previously viewed and completed activities based on *The March of the Penguins*, the students read a selection entitled, “Arctic Polar Bears and Global Warming”. First, the students read a short section containing four sentences. The students let an image pop into their minds and they briefly sketch those images on a prepared sheet. The process then continues paragraph by paragraph with the students reading and making one sketch each time. Words are never written in this activity, only pictures. When the selection is completed the teacher runs a ‘visiting quiz’ where the student is asked to recall and explain what any of the sentences or paragraph sections is about according to their sketch.

Experimental Group B classes watched the movies with subtitles on for the same period of time as did the Experimental Group A AVAILLL classes. The researchers prepared separate packs of the movies with a precise timing guide list for the sessions of movie viewing. Within the hour, movie watching of subtitles would typically occupy 20-30 minutes. For example; Session 18: Movie: *Bridge to Terabithia* - Start 00:04 – Finish 22:08. Unlike the Experimental A classes who stopped at sections within the timeframe for the target literacy learning activity, in this case *Take a dictionary to the movies*, the Experimental B groups viewed the movie for the proscribed number of minutes without any discussion or follow-up.

The control group received the normal New Zealand classroom literacy programme which included shared and guided reading approaches and other literature-based such as group novel studies. New Zealand teachers enjoy a degree of autonomy of choice in the selection of instructional reading methods and therefore the practices varied across the control classes.

The teachers worked independently of the researchers over the six-week period. At the end of this time, we post-tested the students using the comprehension and vocabulary measures of PAT 5. PAT reading comprehension and vocabulary have several comparable tests for Years 7 and 8 allowing students to complete different forms across different occasions.

We also asked Experimental Group A to respond in writing to four questions aimed to elicit descriptions of their experiences and reactions to AVAILLL, and whether or not they considered it had improved their reading. The questions were:

1. How did you find the AVAILLL programme?
2. What was your favorite movie?
3. What was your favorite activity and why?
4. Do you think that there is anything from AVAILLL that you can use in your school work?
5. Do you think you have got better at reading? Tell us about it.

The pre-test was administered to 448 students, of whom 234 were boys and 214 were girls. The numbers in each of the three groups included 156 in the experimental group, 140 in the group who watched subtitles without the AVAILLL activities, and 152 in the group receiving the normal class programme.

In order to measure for sustainability of achievement, we retested all Experimental Group A classes in comprehension and vocabulary near the end of the year (approximately seven months later). Unfortunately, because PAT 6 included normative data for Year 8 only, we could obtain sustainability data for the Year 8 students only. Also, we were unable to determine sustainability of results for students in Experimental Group B and Control Group C due to the schools' desire for all students to participate in AVAILLL before the academic year concluded. These circumstances account for our having sustainability data for 73 Year 8 students only.

We used analysis of variance (ANOVA; significance level 0.05) to determine if the mean differences on the pre- and post-test PAT scale scores and stanines (a national reference sample divided into nine categories with stanines four, five and six representing where most students achieve) for each group were significant (this approach allows for the likelihood of differences between the samples being due to chance or sampling effects; Burns, 1997). A one-way between- groups analysis of covariance was conducted to compare the effectiveness of the three different teaching methods on vocabulary and comprehension scores. The outcome variable was the post-test measurement with teaching method as the independent variable and the respective pre-test score as a covariate. After adjusting for the pre-test score there was no significant difference between the three groups for any of the comprehension and vocabulary measures, summary details can be found in Table 4 (see below). Effect sizes are negligible.

We also used repeated measures of ANOVA to determine sustainability across the three assessment points. For sustainability, differences between the groups were not measured because our main aim was to assess the long-term effects solely for those who had received the AVAILLL programme.

We coded the students' written responses to each of the five questions according to specific words or descriptions. We then categorized the responses under the headings *positive response*, *negative response*, and *neutral response*. These codings and categories were the same as those used in the earlier pilot studies of AVAILLL.

Results

We present the results first in relation to achievement, including sustainability over seven months, and second in relation to engagement, that is, the students' responses (on the questionnaire) to the programme. Because of an outbreak of swine flu during the course of the study, many students were unavailable for the second phase of testing. We were unable to select another time to retest the absentee students due to the school year/holiday break. Numbers were reduced from 448 to 323, with a reduction of approximately 40 in each of the three treatment groups, as shown below in Table 2 (see below). In Experimental Group A, the number of participants dropped to 111; in Experimental Group B, the number dropped to 101. The number of participants in the control group dropped to 111.

Achievement

The students in Experimental Group A made gains in comprehension but so did the students in the control group (C) and those who watched subtitles without the associated teaching activities (Group B); see Tables 1 and 2. Overall, there were no statistically significant differences between the groups after six weeks of the AVAILLL programme.

Table 1: Students' pre-test and post-test achievement on PAT reading comprehension and vocabulary acquisition

	Student Group A		Student Group B		Student Group C	
	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>
Comp Scale 1	53.85	10.76	55.38	11.98	53.23	11.34
Comp Scale 2	57.34	8.95	58.85	10.40	57.28	9.89
Comp Stanine 1	4.23	1.67	4.54	1.87	4.59	1.71
Comp Stanine 2	4.71	1.41	5.13	1.68	5.18	1.58
Vocab Scale 1	55.15	11.69	56.15	12.81	53.48	12.22
Vocab Scale 2	56.93	11.14	57.89	11.57	55.39	10.63
Vocab Stanine 1	4.50	1.58	4.66	1.80	4.52	1.65
Vocab Stanine 2	4.72	1.56	4.88	1.59	4.74	1.44

Table 2: Students' gains in PAT comprehension and vocabulary acquisition scores and stanines, by group

	Group A		Group B		Group C	
	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>
Gain comp scale	3.49	6.71	3.47	8.06	4.05	7.82
Gain comp stanine	0.48	1.16	0.58	1.30	0.59	1.19
Gain vocab scale	1.78	7.56	1.74	6.55	1.91	7.43
Gain vocab stanine	0.23	1.11	0.22	1.05	0.22	1.09

A one-way between groups analysis of covariance was conducted to compare the effectiveness of the three different teaching methods on vocabulary and comprehension scores. The outcome variable was the post-test measurement with teaching method as the independent variable and the respective pre-test score as a covariate. After adjusting for the pre-test score there was no significant difference between the three groups for

any of the comprehension and vocabulary measures, summary details can be found in Table 4 (see below). Effect sizes are negligible.

Table 3: Analysis of Covariance results including the effect size for the teaching method

	F	Degrees of freedom	p-value	Effect size
Comp scale score	0.180	2, 319	0.835	0.001
Comp stanine	1.663	2, 319	0.191	0.010
Vocab scale score	0.175	2, 319	0.840	0.001
Vocab stanine	0.065	2, 319	0.937	< 0.0005

However, the Year 8 students ($n = 73$) in Experimental Group A continued to sustain progress over the six-month period following completion of the programme (see Table 3). By the end of the academic year, these students' mean comprehension scale score had increased from 54.89 in the pre-test to 62.95, and the mean stanine score had increased from 4.12 to 5.45. The gain in the vocabulary scale score was from 55.91 to 60.54. The mean stanine score increased from 4.34 to 5.08.

Table 4: Students' PAT comprehension and vocabulary acquisition scores and stanines across all three testing phases

	Test 4 (end of May) <i>N</i> = 73		Test 5 (middle of July) <i>N</i> = 73		Test 6 (December) <i>N</i> = 73		Repeated measures ANOVA	
	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Std Dev</i>	<i>F</i> (degrees of freedom)	<i>p-value</i>
Comp scale score	54.89	9.68	57.92	8.34	62.95	7.59	58.71 (2, 144)	< .0005
Comp stanine	4.12	1.53	4.49	1.34	5.45	1.29	57.94 (2, 144)	< .0005
Vocab scale score	55.91	10.15	56.74	9.95	60.54	8.37	19.72 (2, 144)	< .0005
Vocab stanine	4.34	1.42	4.56	1.39	5.08	1.18	20.44 (2, 144)	< .0005

The stanine scores for the PAT tests are based on national norms, and the expectation is that students remain on the same stanine if progress is made during the year. C. Darr (personal communication, 25 March 2010), one of the developers of the PAT tests, indicated that a group gain of 0.3 of a stanine over the period of a year is statistically significant. McNaughton et al. (2009), in a large New Zealand study, spanning three years, of 8 to 13-year-olds, reported an overall stanine gain of 0.97,

representing a gain of approximately one year in addition to expected national progress. To achieve this result, gains of between 0.30 and 0.50 were achieved for each of the three years (Lai et al., 2009). Therefore, in our study, a gain of 1.33 of a stanine for comprehension and 0.74 for vocabulary in seven months represented significant progress for this subgroup.

The AVAILL programme began, for our students, in late May and ended in the first week of July. Although a substantial amount of other learning may have influenced the gains in both comprehension and vocabulary, it is also possible that the learning from the AVAILL programme gained momentum as the year progressed. This is particularly plausible with the self-reported improvement (see below) in fluency. It should be noted that no professional development of teachers in literacy occurred during this period.

Engagement

164 students provided written evaluations of the programme when it ended. Not all of these students featured in the achievement data because of absences during one of the three phases of testing. The findings that emerged from the engagement data aligned very closely with those obtained in the earlier pilot studies (Parkhill & Johnson, 2009).

For the purposes of this, we report the students' responses to Questions 1, 4, and 5 only, as these three questions addressed levels of engagement.

When the 164 students were asked how they "found" the AVAILL programme, 90% of them gave a positive response, 8% a negative response, and 2% a neutral response. Many of the respondents used more than one adjective to describe how they felt about it. Therefore, the number of positive responses does not match the overall total response percentage of 90%.

Of the students who responded positively, 44% said the programme was *fun* and/or *enjoyable*, 33% thought it was *cool* and/or *awesome*, *exciting*, *amazing*, 32% said it was *good* or *great* and/or that they *liked it*. Just over 10% said it was *interesting* and/or *entertaining*. Of the students who gave a neutral response, 70% said AVAILL was *okay* or *alright*. The 2% who rated AVAILL negatively all deemed the programme *boring*.

Eighty percent of the 164 students considered that their reading had improved. Forty-three of these students mentioned greater fluency in reading or being more confident when reading aloud. Thirty said their comprehension had improved or that their reading ability had got better, commentary confirmed by these children's test scores. The following quotes from the children's questionnaire answers reflect these positive developments.

- *[It] was fun because you got to watch and read at the same time.*
- *[It's good] because I look at the words and use my peripheral vision to see both at once and understand at the same time.*
- *[H]eaps better than reading in a group and it's fun reading.*
- *You have to keep your eyes glued to the screen, and I reckon I have got better at reading.*
- *[It's good] because I tend to read books more often and I understand better.*
- *[I know I have got better] because I can read fluently and not sound like a robot.*
- *... when I read aloud to my Mum and Dad I don't stutter as much and I'm more fluent.*
- *I think that searching for sound effects is a great way to improve your vocabulary and find new adjectives and other words to use in stories and your report writing.*
- *[The programme has been good] because when I read I normally miss paragraphs out, skim over them and miss the story, but now I don't.*
- *I now get pictures whilst reading and writing.*

The student who wrote this final response also commented on the usefulness of AVAILLL to his school work: *“I will write better as I now get images in my head”*.

Responses to Question 5 indicated a reported increase in students choosing to read in their out of school time. When giving reasons as to why the AVAILLL activities engaged them, the students mentioned the appeal of the competitive aspects, learning new words and dictionary skills, the challenge of memory, being able to read faster and more fluently, and building up of focus and concentration.

Discussion

Although the experimental groups and the control group all showed improvement in reading according to their scores on PAT tests over the course of the six-week AVAILLL programme, these findings may have been mediated by other factors. For example, the random selection of the teachers resulted in at least two of the most effective teachers (according to senior management) assigned to the control classes which may have accounted for the higher scores in that group.

However, the sustainability findings suggest that AVAILLL did have ongoing benefit. The results for the Year 8 students in all of the Experimental Group A classes showed improved stanine averages well beyond those expected over seven months of schooling (C. Darr, personal communication, 25 March, 2010; McNaughton et al., 2007). According to these researchers, when the number of students on the lower stanines shifts closer to the average or higher, the literacy ‘culture’ in classrooms is likely to be enhanced. This is because higher levels of reading skills among students free up teachers to focus more on extending comprehension and vocabulary through critical literacy approaches as well as fostering engagement through a more in-depth exploration of literature.

But again, we advise caution when considering this finding for the Experimental Group A Year 8 students. It would be unwise to attribute their sustained improvement solely to AVAILLL. Nevertheless, we can, when assessing the efficacy of this programme, take into consideration that the pedagogical principles underlying it, such as collaboration and contributing (group activities) along with critical thinking using language, symbols, and texts facilitated through engagement in popular media and new technologies are “capabilities people need in order learn, work, and contribute as active members of their community” (Ministry of Education, 2007, p. 11).

A positive correlation between students’ active engagement with learning tasks and academic achievement is reported frequently in research (e.g., Alverman, 2002; Guthrie & Wigfield, 2000; King, 2002). Moreover, many commentators (e.g. Duke & Pearson, 2002; Hattie, 2003; Johnston & Costello, 2005; Ministry of Education, 2003, 2006, Pressley, 2006) maintain that an essential component of effective literacy pedagogy is that students are able to self-assess their current use and/or non use of comprehension strategies. Such authors contend that engaging in this process allows students to formulate their own goals and take ownership of learning. Student participants in this study are accustomed to such self-reporting as it is integral to New Zealand classroom programmes (Ministry of Education, 2007). Nearly all of the children who participated in the trial of the AVAILLL programme reported in the present study considered that their reading had improved and commented positively on the nature of the programme. One school principal who actively monitors literacy achievement within the school noted that he could identify the classes in his school where the AVAILLL programme was operating because of the intense engagement during the one hour of instructional time.

As we observed earlier in this article, researchers constantly search for motivating instructional approaches that will engage students in learning activities. For example, as Slavin et al. (2008, p. 22) observe, "... middle schoolers who haven't mastered reading in their early grades may have no patience for materials and methods designed for younger children. They need instruction tailored to their interests and social situation". Blanton, Wood, and Taylor (2007, p. 222) concur. They suggest that reading instruction today is not addressing the needs of many readers (adolescents, in particular) and "that alternative ways of thinking about instruction are needed to meet these needs".

In their three-year case study in South Australia, where student interests and expertise were exploited using visual and computer-mediated technologies, Kerkham and Hutchinson (2008) reported gains in both literacy performance and engagement. The three key outcomes for discussion from their study, namely, engagement, entertaining/informing literacies, and enhancing collaboration, reflect not only the qualitative data revealed in the AVAILLL study but also key underlying principles and competencies in *The New Zealand Curriculum* (Ministry of Education, 2007). The AVAILLL programme provides a socially interactive learning context conducive with the key competencies in this document.

In a world that is increasingly defined by the internet, hypermedia, emailing, and text messaging and the multiple forms of texts that these allow, critical reading assumes a key role for success. Mills (2009, p. 12) argues that "we need to start by addressing the primacy of the word that underpins so much teaching and learning in literacy and ... that it could lead to new ways for our students to learn how to consolidate their informally acquired skills in an image-based culture in the classroom and take this learning back to the community". AVAILLL provides an additional enrichment to a balanced and effective programme. It is not a substitute for current programmes that are known to be effective for students, especially those in the upper level of the primary school where, as previously mentioned, interest and achievement in reading tends to wane or plateau, but it does appear to add a depth of engagement for students that is rare.

The widening gulf and mismatch between out-of-school practices with popular culture texts and school print-based literacies may well assist to explain this reported disengagement and lessening of in achievement. We, along with others in recent literature, suggest that teachers need to acknowledge students as active participants in screen technologies and textual cultures and to capitalize on this expertise during learning contexts in a manner that encourages students to "engage critically with those textual practices" (Snyder & Bulfin, 2008, p. 823). As King (2002, p. 520) says, "When students are provided with well structured activities designed to promote active viewing and involvement for making the most of learning opportunities from films, there is no doubt that DVD feature films are the most stimulating and enjoyable learning material for the e-generation".

Conclusion

Our study did not produce the gains in achievement for the experimental groups relative to the control group that were evident in the earlier pilot studies. However, other outcomes warrant further investigation in an even larger and more robust assessment of AVAILLL. These outcomes include the improvement in the comprehension and vocabulary results over the school year for the experimental groups and the self-reported increase in reading fluency and improvement overall after only six weeks.

The self-reporting by students of fluency outcomes (reinforced by teacher anecdotal comments and observations) of the AVAILLL programme supports the current focus,

particularly in the United States, on this critical component of reading that, according to Pikulski and Chard (2005), has been a neglected area. We also note that despite little research reporting an increase in fluency as a result of independent reading engagement, there is much reporting of positive correlations between the amount students read, reading fluency, and comprehension levels.

Many of the social and technological changes over the last decade or more may have contributed to the decline in reading enjoyment described earlier in this article. AVAILLL, however, indicates a meaningful and motivating way of using digital technology to promote and support the development of reading. AVAILLL, through its integration of well-designed explicit teaching (Pressley, 2006; Taylor et al., 2002) and intrinsically motivating and seemingly effortless learning provision for ‘e-generation’ learners, appears to offer not only a reading-enhancement programme of a kind whose time has come but also a contribution to the growing scholarship positioning audiovisual and digital technologies as rich resources in pedagogical settings rather than as ‘mere mediums’ of entertainment.

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