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Developing reading comprehension with moving image narratives

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Abstract

This paper reports the findings from a small-scale exploratory study that investigated how moving-image narratives might enable children to develop transferable reading comprehension strategies. Using short, animated, narrative films, 28 primary-aged children engaged in a 10-week programme that included the explicit instruction of comprehension strategies in small group settings. Baseline and final data relating to children's reading accuracy, rate and comprehension of written texts were gathered using a standardised reading assessment. Findings show that children's reading comprehension scores showed significant improvement after the programme. Furthermore, reading accuracy scores also improved beyond expected levels even though no decoding of written words had occurred in the programme. While further research is needed, these findings offer a challenge to models of reading that potentially over-simplify the complex relationship between the word recognition and comprehension. More importantly, the findings point at the importance of using alternatives to written texts within the reading curriculum.

Key words: comprehension; reading; moving image media; primary literacy

Introduction

The study reported here investigates the potential of short, animated, narrative films in the teaching of reading comprehension strategies. Specifically, it sought to determine whether the discussion of moving-image narratives (in this case short, animated films with

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little or no spoken or written text) would enable primary-aged children to develop comprehension strategies that could then be transferred to reading. The rationale for the study was to consider moving-image narrative as a text resource with similar affordance for inference generation as written text (Marsh and Millard 2000; Kendou, Bohn Gettler, White and van den Broek, 2008). The skills of reading comprehension, of which a central feature is inference generation, could be then taught explicitly and separately from the skills of decoding, as the processing systems required to make meaning from moving image narratives, whilst having some similarities (Marsh and Millard 2000), do not involve the decoding of words. This could lighten the burden on young readers for whom decoding is difficult (Parker 1999) and allow for the development of inferential skills, ‘that could later transfer to reading’ (Kendou et al 2008: 270). This approach would also support an exploration of the relationship between word level decoding and reading comprehension, as the latter could be examined independently of word level skills (van den Broek 2001; Kendou et al 2008).

The study is located in a socio-cultural paradigm that treats reading as a situational event in which readers bring their own prior knowledge and existing schema to the ‘activity’ of reading (Pearson, 2009; RAND Reading Study Group, 2002). Readers use a range of comprehension strategies to make connections between what they know and what the text presents (Palincsar and Brown, 1984). This transaction (Rosenblatt, 1994) can be viewed as a dialogic process between text and reader (Maine 2013) with meaning created in the space between. This theoretical location was an important starting point for the study as it emphasises the agency of readers in creating their own meaning from text, it also centralises the importance of talk, with interpretations open to discussion and debate between readers. Taking this perspective, moving-image narratives can be seen to provide the same opportunities for reader response as written text (Parry 2013): the dialogic model of

interaction between reader (or viewer) and text is still applicable with teaching focused on the promotion of tools to support higher order comprehension.

In this paper, we begin by reviewing literature which considers the relationship between word decoding and comprehension within reading, the strategies that can be taught to support children's comprehension, and the affordance of moving image text with no written or oral language. We then outline our methodology for a small-scale exploratory study that investigates moving-image narrative as a resource for developing reading comprehension. We present our findings, and conclude by discussing the insights that this design has given in considering the relationship between decoding and reading comprehension and the value of using non-verbal texts to teach the transactional strategies of reading.

Literature Review

Our review is organised into three sections. The first explores the relationship between reading comprehension and word level decoding particularly focusing on the 'simple view of reading' (Gough and Tunmer, 1986), the model of reading which is most influential in directing current UK policy. Then we review literature that highlights the importance of explicit teaching strategies for comprehension and how children can be motivated to read; before finally considering the affordance of moving-image media, specifically narratives, as modes of text useful to a broad and balanced reading curriculum. In order to fully realise the affordance of short animated films in the teaching of reading comprehension, it is necessary to first define the elements of reading which may be affected.

The relationship between word decoding and comprehension

Much recent attention given to the development of early reading in particular has focused on the development of word decoding skills. Abandoning models which highlight

context, semantic and phonological cues as key strategies for reading, policy in the UK since 2006 has returned to an earlier model (Gough and Tunmer, 1986) which divides reading into two axes: word-recognition and language comprehension. Using this 'simple of view of reading' (Rose, 2006; Stuart, Stainthorp and Snowling, 2008) the teaching of word recognition, through the use of phonological knowledge, is prioritised as the primary strategy in learning to read. This approach is based on the assumption that decoding using phonics has the most impact on early reading and that in order to achieve fluency, speed and automacy, using phonics as the primary 'resource' for the decoding of words will assist readers better than if they are directed to use context and semantic cues first to predict what words might be.

Arguments for the importance of phonic strategies 'first and fast' (Department for Education 2010) cite research evidence to suggest that fluent readers do not use context cues to support their decoding of unknown words, and that struggling readers who are too reliant on context cues are unable to quickly decode words and therefore lose their sense of meaning. Reflecting on the role of short term memory in the reading process, Andreassen and Braten (2010) point out that 'the reason for the predictability of word recognition skills for comprehension is usually said to be that automatic or efficient word recognition allows readers' cognitive resources to be allocated to comprehension' (p. 266). Thus, achieving automacy in word recognition should free up short term memory space for the engagement in higher order comprehension processes. Advocates of concentration on word recognition skills first would assume that it is only 'once the reader can decode printed words... their meanings are activated in the language system' (Stuart et al, 2008, p. 61).

However, some literature focusing on the relationship between phonological decoding and reading comprehension provides evidence of a more nuanced relationship between the two activities. For example, a study by Berninger and colleagues exploring the

comprehension of written text (2003, p. 108) found that ‘explicit instruction in word recognition or reading comprehension or in both word recognition and reading comprehension significantly improved phonological decoding over practice alone’, indicating improvements in word recognition and comprehension are linked. This evidence suggests that the two axes of the ‘simple view of reading’ – word recognition and comprehension – are not as independent as their orthogonal representation suggests. In other words, increases along one dimension are associated with increases in the other, at least in a probabilistic sense. As a ‘phonics first and fast’ approach views word recognition as a necessary precursor to comprehension, it would be unsurprising that increases in word recognition would result in improved comprehension. However, evidence that improved comprehension (through instruction targeting only comprehension skills) is associated with better word recognition is less expected. In the discussion of their findings, Berninger et al. remark that it is ‘intriguing to consider why explicit comprehension instruction might facilitate learning to decode written words - the skill on which at-risk readers have most difficulty’ (2003, p. 112). They speculate that this could be because ‘explicit instruction in reading comprehension develops broad-based meta-linguistic awareness that may generalise across levels of language in the functional reading system’ (ibid). In another study focusing explicitly on children with poor comprehension (compared to their decoding ability), Clarke, Snowling, Truelove and Hulme (2010) found that interventions targeted at supporting Oral Language (OL) had significant long term benefits to reading comprehension, which in fact were more significant than interventions based on the teaching of comprehension (TC) or a combination of both (COM). Both of these studies point to a complexity of relationship between comprehension and language.

In their discussion of the ‘simple view of reading,’ Stuart et al. recognise the relationship between word recognition and reading comprehension, describing the two axes

as ‘distinct and related at the same time’ (2008, p. 59). While this accommodates evidence of a relationship between the two axes, it undermines the representation of an even two dimensional space. In fact, the extent to which the axes of the model can simultaneously be both ‘distinct’ and ‘related’ is questionable: if evidence suggests that changes along one axis are accompanied expected movement along the other, then the two axes are related rather than distinct. Thus, the simple view of reading provides a useful conceptual device for analysing the relationship between phonological decoding and reading comprehension, but research evidence and the notion of ‘distinct’ and ‘related’ processes hints at greater level of complexity than is portrayed in the model’s two axes.

The research project described here sought to better understand comprehension and its relationship to word recognition by focusing solely on the development of comprehension in isolation of word recognition. This was not achieved through de-contextualised comprehension activities, but rather through the use of alternative texts (specifically moving image media) that were intended to engage children and promote higher order comprehension thinking and response to narrative. It started with the observation that the labour of decoding leads some children to make only superficial meaning from texts, so that while on a surface level they are reading words fluently, they are struggling with comprehension beyond the literal. In fact, citing earlier evidence, Clarke et al. (2010) suggest that this might be true for up to 10 per cent of primary aged readers, whose problems might be hidden by their apparent ‘fluency’. While specific reading problems are not the focus of this study, Clarke et al.’s suggestion is relevant, as it indicates that the cognitive strain of both decoding and comprehending are significant (for example, see also Andreassen and Braten 2010; Oakhill and Garnham 1988), and this is potentially true for readers who are not yet fluent, even if not displaying a significant or specific reading comprehension difficulty.

The teaching of comprehension strategies

Comprehension is the goal of reading, and research literature indicates that readers infer meaning from text through the use of a range of comprehension strategies that include questioning, clarifying, predicting, summarising (Palincsar and Brown, 1984). In addition to empathising, extending the story (Maine, 2013) and evoking images (Keene and Zimmerman, 2007), these strategies can be seen to transcend written forms of narrative, as they draw on and develop knowledge of texts and narrative structure as a whole. They enable readers to create meaning through a transaction with the text, inferring meaning beyond the literal, bringing to the text their own prior experiences and knowledge, and drawing from it their understanding of narrative genre and story.

Studies have shown the impact of the direct teaching of 'transactional strategies' for comprehension of written text to be positive (Keene and Zimmerman, 2007; Palincsar & Brown, 1984; Pressley, 2006; Spörer, Brunstein, & Kieschke, 2009) particularly when the teaching involves discussion and response to text. This is a key feature of the seminal work undertaken by Palincsar and Brown (1984) where children took on the role of experts to lead small group discussions about written text in a 'reciprocal teaching' approach. Other research shows that genuine response, modelled and encouraged by teachers where interpretations are open to debate, and space is allowed for pupil meanings to be reached, proves challenging and motivational for children (Dombey, 2010; Swain, 2010).

Additionally, the relationship between motivation and reading is well documented (Gottfried, 1990; Taboada, Tonks, Wigfield and Guthrie, 2009; Wigfield and Guthrie, 1997) with Wang and Guthrie (2004) combining a series of models to argue that intrinsic motivation factors have an impact on reading comprehension. They identify curiosity, involvement and preference for challenge as the key motivational factors and suggest that teachers who engage their students in meaningful, interesting and challenging interactions with text will have a positive impact on reading comprehension ability.

Conceptualising comprehension as 'thinking that is a dynamic and continuous process of thought rather than a series of pre-packaged skills' (Smith, 2010: 66) taps into the motivational elements of curiosity, preference for challenge and engagement as suggested by Wang and Guthrie (2004). Thus, research indicates that the comprehension is best developed in reading contexts that contain elements of ambiguity, engage children and promote dialogue.

The affordance of moving image

21st century literacy extends far beyond the written word, and children's experiences of moving-image texts (film and television in addition to digital modes) outside school mean they are able to comprehend sophisticated narrative structures in these modes beyond their abilities with written text modes (van den Broek 2001; Kendou 2008; Bazalgette 2010; Parry 2013). The RAND Reading Study Group (RRSG) defines comprehension as 'the process of simultaneously extracting and constructing meaning through interaction and involvement with written language' (RRSG, 2003, p.11). However, this can be extended to embrace non-written modes of text where the same generic text structures apply, for example between different modes of narrative. The existing knowledge that children have about moving-image media, together with their expectations about story, inform the meaning that they construct when reading films, so they are able to extract and construct meaning using narrative comprehension strategies common to both written and moving image modes.

Marsh and Millard (2000) explore the similarities and differences between print-based and moving image narratives, highlighting that whilst each has a separate set of affordances there are commonalities in the processes that readers and viewers use to make meaning from the different modes. Whitney (2010, p. 77) furthers this point by suggesting that, 'critical understanding can be transferred across different modes and media and so impacts on a child's understanding of a print-based text'. She describes cultural codes which are generic to

film and written text and technical codes which only exist in moving-image media and cites the example of listening to a soundtrack to support generation of prediction as a point where these cross-over. Parry (2013: 58) synthesises this by arguing from a more semiotic standpoint, that, ‘the reader of any text is thus involved in making a complex series of inferences based on the symbolic resources available to the storyteller, this depends to a great extent on the media through which the story is told’.

The work of van den Broek (2001) highlights the importance of drawing on children’s existing narrative experiences beyond the classroom context, demonstrating that very young children can develop reading comprehension skills, well before they learn phonic strategies for decoding, when they have experienced moving image forms of narrative (in this case television animation) as pre-schoolers. A subsequent study (Kendou et al 2008) furthers the claim that comprehension skills are similar across modes, and develop independently of vocabulary and decoding. These studies highlight the overlaps in narrative mode with the implication that inferential skills learnt through non-written forms can later transfer to the reading of written text.

A study to motivate boys' writing (United Kingdom Literacy Association, 2004) used film alongside other multimodal text forms and found that watching and discussing films had a positive effect on reading. Similarly, projects led by the British Film Institute have shown the value of embedding film narratives within the realms of a literacy curriculum (Bearne & Marsh, 2008), though studies undertaken by Bearne and colleagues (2007) demonstrate that the affordance of multi-modal texts (of which moving-image narratives are just one form) as a tool for developing children’s comprehension has not been fully realised within a reading curriculum. Parry (2013: 204) argues that children whose ‘narrative experiences are predominantly made up of media texts... are all too often excluded from the discussion’, and found that allowing children to draw on their film and media experiences had valuable

impact. By including moving image within the literacy curriculum, this study also sought to legitimise these narrative experiences and skills.

Based on this evidence, we propose that the affordance of moving-image narratives to support children's development of comprehension strategies is three-fold:

- moving-image narratives are engaging text sources which appeal to children as they have experienced them beyond the classroom and choose to engage with them;
- moving-image narratives hold many similar generic features to written narratives with which comprehension strategies can be practised;
- moving-image narratives remove the pre-requisite of word recognition skills, allowing for a development of higher order comprehension unhindered by ability to decode text at a 'surface' level, and allowing for cognitive processes to be fully engaged in making meaning.

The above review has set the context for the research. By demonstrating how the apparently clear, 'simple view of reading' alludes to, but does not fully accommodate, the complexity of the relationship between decoding and comprehension, we have provided a rationale for an exploration that attempts to unpack this relationship further. In the new English curriculum, statutory in UK state schools from 2014, (Department for Education, 2013) strategies for comprehending text are included, but there is no explicit reference to non-written alternatives as valid resources for the teaching of reading. We have highlighted the strategies that are common to print and moving image narratives, and propose that moving-image texts might have a role to play in the development of reading. These premises led to the main research question for the study:

To what extent can the use of moving-image narratives as a text source enable children to develop transferable reading comprehension strategies independently of phonological decoding skills?

This question led to a research design that allowed for the explicit teaching of reading comprehension strategies using short, animated film as a text source. The next section describes the study and the findings from the quantitative data collected.

Methodology

In order to examine the use of moving-image narrative as text source for reading comprehension instruction, six teachers were recruited to identify a small group of children from their classes with whom they would engage in a 10-week programme of intervention. The programme was designed so that the teachers could use already designated group-reading time to engage in the programme with their selected children. Sessions were structured around the viewing of short, animated films and subsequent reflective, small-group discussions, initially guided by the teachers, but becoming increasingly reciprocal (following Palincsar and Brown 1984). Each session focused on a specific comprehension strategy and language that would support its use. For example in one session, children were encouraged to make connections to their existing knowledge by starting their responses with, 'That reminds me of...'. In another session the children used 'I think....because' to justify their predictions of what might happen next.

Berninger et al (2003) describe 'explicit instruction' as flexible and involving talk and teacher modelling, rather than more directive questioning at one end, and the 'constructive instruction' of merely practising at the other. In this research, this principle of 'explicit instruction' was followed with an emphasis on the children increasingly taking the lead in the discussions as the programme developed. The teachers all engaged in two professional

development sessions, one before they commenced with the sessions and one after the first session to discuss any issues and questions. They were supplied with a teacher guide outlining the main comprehension focuses and key language prompts for each session, and in the professional development sessions took part in the same type of discussions that they were being asked to lead, with techniques modelled for them by the lead researcher.

The films chosen were short (less than eight minutes), animated narratives that were freely available online, uploaded by their directors to Vimeo (www.vimeo.com). They were chosen as films that would be engaging and interesting to the children, often with ambiguous storylines. However, they all emphasised inference generation over oral or written decoding, with this tied to the visual and musical codes of the text rather than spoken language. As moving image media they contained typical ‘technical code’ (Whitney 2010) features such as choice of shot length and angle, and a musical score. For example in the session where children were prompted to ask questions about the text (using, ‘I wonder’, ‘maybe’ and, ‘perhaps’) they watched a short film called ‘Once in a Lifetime (Gulledge 2011). In the film, a man stranded on an airship tries to tether his ship to a flock of flying turtles, but when the rope breaks he takes a leap of faith, jumping from his ship onto the back of a turtle, leaving everything behind. With no explanation of how he came to be there, or where he is going, the film offered ambiguity and the opportunity for the children to raise genuine questions that they had, as they engaged as, ‘active, aesthetic and cultural readers of film’ (Parry 2013: 199).

The groups met on a weekly basis over a period of 10 weeks, with each session lasting about 20 minutes. In total, 28 children participated in the study. They were all from Key Stage Two, and included children from Year Three and Year Six. In five of the six groups the group comprised five children, but in one group the teacher was keen to work with a smaller group so worked with three children. All of the groups ended up missing out one of

the last sessions, so they all met nine times. Typical sessions included the same films for all the children, though there were two weeks when, whilst the comprehension strategy taught was the same, the children accessed more specifically age appropriate texts. The films were normally watched as ‘whole’ texts, with discussion following. Where points of clarification were needed, specific points in the text were highlighted and re-watched, in the same way that in a written text reading session, the group might return to a specific part of a written text to review it and clarify understanding. When the strategy of ‘prediction’ was the focus, the film was stopped at key points to encourage inference and predication based on evidence in the text.

The relatively small sample size is due to the exploratory nature of the study, in which the emphasis was more on raising questions and scoping possibilities for future research than reaching definitive conclusions. As an exploratory study, our primary goal was to identify relationships that might be more fully explored in a larger experimental design. Thus, in place of a control group, we opted for an age-adjusted, standardised measure of reading performance against which our intervention could be compared. Although there is no untreated reference group, outcomes can be compared to the known distribution of scores on which the instrument was standardised. On one hand, this increases our ability to draw inferences from a relatively small sample without loss of statistical power associated to allocating half of the sample to a control group and allows us to identify key areas for future investigation. On the other hand, it limits the validity and generalizability of findings, which should be the focus of future research.

Data were collected on children's initial and final reading abilities using the York Assessment of Reading and Comprehension (YARC) (Snowling et al., 2011). The YARC measures reading comprehension, accuracy (in the decoding of words) and rate on a standardised scale with a mean of 100, a standard deviation of 15, and a range of 70 to 130.

Scores are standardised on a national scale, and include 95% confidence intervals for each of the three scores. It is important to note that variation in comprehension scores is larger than that of rate and accuracy, and so are the resulting confidence intervals. Comprehension is measured through a set of open-ended questions which are given orally to the children after they have read passages aloud. The questions are designed to test different types of inference, from cohesive devices through to evaluative inference and logical reasoning (Snowling et al 2011, p103), and the manual includes detailed guidance on the acceptability of different reader responses.

In order to reduce the practice effect associated with multiple measures on the same instrument, the YARC includes multiple test papers so that students do not repeat the same comprehension exercises twice. The test is also age-adjusted, meaning that “standard scores have the same meaning irrespective of a child’s age” (p. 66) and thus expected age-related progression over the period of study is zero. In addition to reading scores, data on participants’ age and gender were collected to allow examination of their influence on outcomes. The YARC test was conducted by the lead researcher to ensure consistency across all groups.

The comprehension scores for the baseline test were broadly in line with the expected population average based on a standardised reading test, with a mean of 104.0 and standard deviation of 11.0 against an expected mean of 100 and standard deviation of 15. These baseline results suggest that the sample was broadly representative of children for the given age group. The resulting sample of children represent a broad spectrum of reading abilities; with some already scoring quite highly using the standardised test.

Standard BERA (2011) ethical guidelines were followed regarding consent from caregivers and anonymity. Parents were asked for consent with the teachers clear that they were the gatekeepers of the children's involvement and the children were clear about the use

of the data gathered which included them. Prior to data collection, an ethical review of the study was conducted and approved in accordance with the researchers' institutional policies.

Findings

Descriptive summaries for each of the variables collected are given in Table 1. Variables broadly conform to expected distributions defined for the instrument, particularly for the initial test, suggesting that data collection was generally unproblematic and that data obtained should be treated as reliable measures of their respective underlying constructs. Although the tests were given only three months apart, the age-adjustment of the instrument is sufficiently detailed to compensate for age-related increases over this time period

Table 1.

	N	Mean	Standard Deviation	Min	Max
Initial Scores					
Rate	28	101.3	9.7	84	124
Accuracy	28	100.5	6.8	82	110
Comprehension	28	104.0	11.0	81	125
Final Scores					
Rate	28	101.8	10.4	81	126
Accuracy	28	104.4	7.8	91	119
Comprehension	28	112.5	12.6	88	130
Covariates					
Gender (% Female)	28	50%	--	--	--
Age (Years)	28	8.9	1.4	7.7	11.6

Table 1: Descriptive statistics for all variables used in the analysis. Ages are measures in decimal years (not years and months).

Changes in test scores were tested using a within subjects design to account for the effects of repeated measurements for each student (i.e. an initial and final test). It is important to keep in mind that the normalised scores are age-adjusted, and therefore one would expect

student scores to remain constant over time with normal age progression. However, results from paired sample t-tests (Table 2) showed significant increases in scores for comprehension and accuracy, but not for rate. The results are particularly interesting for comprehension: given the relatively large variation in comprehension scores, a statistically significant increase is unexpected. The average increase of 8.54 represents a change of more than half a standard deviation, or 22 percentiles.

Table 2.

	Difference	Std. Deviation	Std. Error	<i>T</i>	<i>P</i>
Comprehension	8.54	9.42	1.78	4.79	0.001**
Accuracy	3.93	5.72	1.08	3.64	0.001**
Rate	0.46	4.48	0.85	0.55	0.588

Table 2: Paired-sample t-test results for initial and final scores of reading comprehension, accuracy and rate.

In relation to the substantive focus on moving-image narratives and comprehension, the increase in comprehension scores suggests that it is possible to improve reading comprehension independently of any instruction that involves decoding. This demonstrates that comprehension skills used in reading written texts are applicable to other communicative meaning situations, but in relation to the research question, it is the transferability of this skill to written forms of text which is worthy of note and further investigation.

In contrast, the lack of a significant change in rate scores is unsurprising, as the activities undertaken by the children were unrelated to decoding and would therefore not affect their rate of reading. The consistency of rate changes also substantiates the validity of the instrument by demonstrating that under normal circumstances there is no age-related

increase in standardised scores. The change in accuracy is perhaps most surprising: although the moving-image narrative activities did not relate to decoding in any way, children’s reading accuracy increased significantly (although the average increase is less than comprehension).

Analysis of bivariate correlation values provides some insight into the relationship between decoding and comprehension skills. We examined the correlation between comprehension, accuracy and rate in three ways, calculating correlation values for the three possible variable pairs for initial scores, final scores, and changes in score (Table 3). For both initial and final scores, comprehension shows no significant relationship to accuracy or rate, although accuracy and rate have a significant, positive correlation. Thus, children with faster reading rates were more likely to read accurately in both the initial and final test.

Table 3.

Variable Pairs	Correlation (Pearson’s <i>r</i>)		
	Initial	Final	Change
Comprehension-Accuracy	0.036	0.124	0.343*
Comprehension-Rate	0.039	0.249	0.283
Rate-Accuracy	0.674**	0.574**	0.186

Table 3: Correlation values between initial, final and changes in test scores for all measured variables. Rate and accuracy are highly correlated in initial and final test scores, but changes in comprehension and accuracy are highly correlated.

However, examining *changes* in scores (rather than the absolute value of scores themselves) reveals a different set of relationships between variables. Changes in comprehension and accuracy have a positive, significant correlation. This suggests that

improved comprehension is linked to improved reading accuracy, even when there are no obvious reasons for improvements in decoding skills.

These results are most interesting when interpreted in relation to the simple view of reading, particularly the notion of the 'distinct and related' axes of word recognition (measured here as reading accuracy) and comprehension. On one hand, the low correlation between the variables at for both initial and final scores supports the notion of 'distinct' axes: the variables are almost entirely independent of one another. Thus, Figure 1 (below) demonstrates a two-dimensional field with an even distribution of points. However, when the focus changes from *values* of word recognition and comprehension to *changes in values* (Figure 2), the joint probability distribution appears much more 'related.' This relationship is probabilistic and likely subject to constraints; although the correlation is of moderate magnitude (Cohen, 1988), there is clearly a great deal of variability and possible limits to the relationship that have yet to be established. Nevertheless, these findings highlight a complex relationship between rate, accuracy and comprehension that transcends written text and reinforces the importance of regarding 'text' more broadly than just written forms.

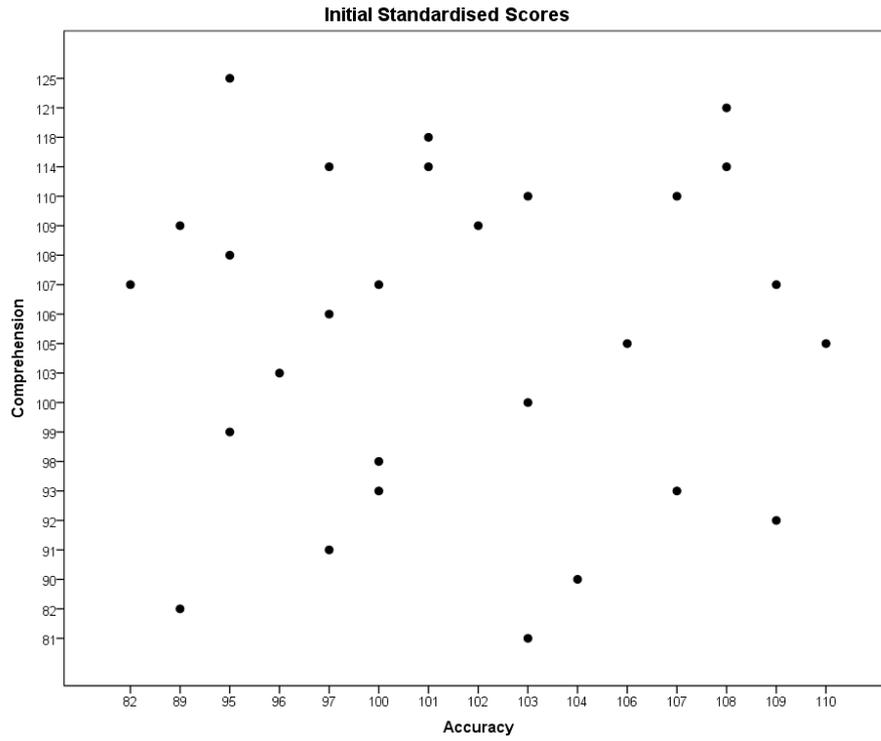


Figure 1

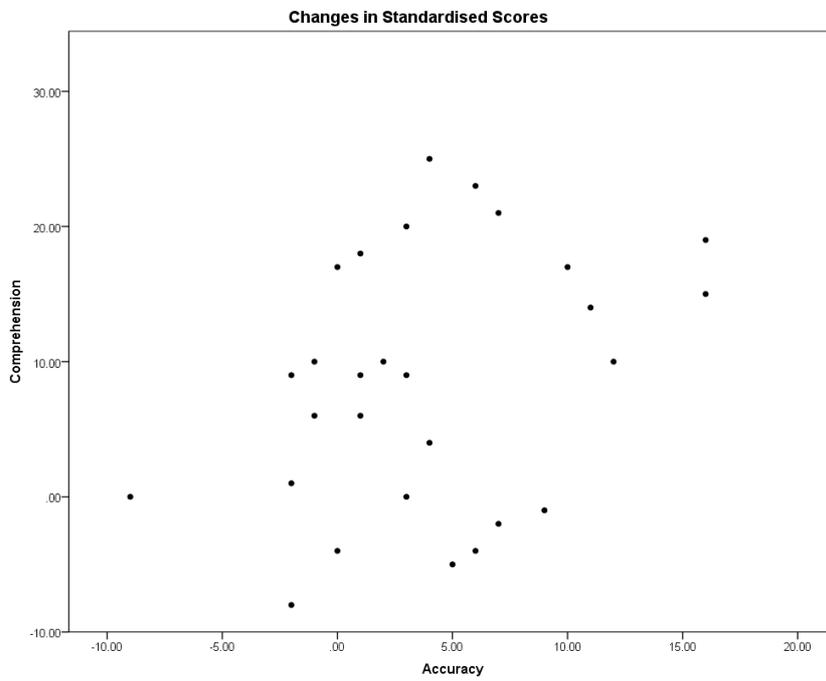


Figure 2

In addition to the analyses presented above, we examined the relationship between changes in comprehension, accuracy and rate scores by gender and age. Neither of these predictors was significantly related to the outcome variables, nor was there any indication of an association that might be explored in further research. Rather, it appears that gains in outcome variables associated with instruction using moving-image narrative were consistent across gender and age. We also analysed the correlation between children's initial comprehension scores and the change in their scores in order to determine whether the instructional approach is better suited to a particular ability level. The correlation value was negative of moderate magnitude ($r = -0.243$, Cohen, 1988) although not significant ($p = 0.106$). This suggests that children with low initial comprehension scores experienced the largest increase in scores, a proposition that could be examined in future research using a larger sample and detailed qualitative analysis of how these children were contributing to the sessions.

Discussion

Results from this small-scale exploratory study provide further insight into the development of comprehension skills and the relationship between word recognition and reading comprehension. With respect to the former, the use of moving-image narrative and associated reflective discussion add to existing evidence (van den Broek 2001; Kendou et al 2008) that it is possible to develop the higher order skills that support reading comprehension through non-verbal texts. Concentrating on the main strategies for comprehension, the children were able to engage in discussions about the texts focusing on meaning and interpretation. Because the texts were short, they enabled the skills of summarising and determining importance of main events to be learnt and practised. Questioning and prediction skills, which draw on inference, were enabled by the use of texts which had recognisable narrative structures, yet some ambiguity and features that were open to

interpretation. Practising these skills with the moving-image narratives, seemed to not only support the development of the skills, but also to help children to recognise the similarities between different text forms and how they could take knowledge from one into another (Marsh and Millard 2000). In one session where the children listened to the musical score of the film before viewing it, their awareness was drawn to skills that they already had, using their 'technical code' (Whitney, 2010) knowledge of film to judge the genre of the film by making inferences based on the type of music used. In another the children discussed the connections that they could make between the film and other stories that they knew, either as films or written text. They were then able to discuss how meanings could be communicated through moving image or print-based text, drawing on their knowledge of both. Of course, there are written texts or other visual texts, such as picturebooks, which might offer the same potential for inference generation and are equally ambiguous. The use of the moving image media, however, allowed the children to draw on their existing visual inference skills (Bazalgette 2010, Parry 2013) within that mode and to use these to talk about narratives. Parry argues that, 'Children, whose narrative experiences are predominantly made up of media texts (not literary texts) are all too often excluded from the discussion' (2013: 204). Here, the children were able to legitimately draw on their familiarity with the animation genre, and bring their knowledge of it to the table.

The children were able to try out their responses to the text, encouraged by an open discourse and genuine engagement of the teacher, and in line with the 'explicit instruction' pedagogy promoted by Berninger et al. (2003); the reciprocal teaching approach proposed by Palincsar and Brown (1984); and a dialogic pedagogy of reading (Dombey 2010). An additional advantage of the films was that the whole text could be viewed within a few minutes (also highlighted by Reid 2003), meaning that skills, such as summarising the main points, might not have been overly taxing on the short term memory recall, and thus more

cognitive attention could be given to determining the importance of events in the narratives, and discussing them. As a result, children were able to recall the text as a whole, and their memory of it was also supported by the other children in the group as they worked together to highlight important features, and read beyond the literal.

With respect to word recognition and reading comprehension (and by extension to the simple view of reading), the results appear to confirm Berninger et al's (2003) findings that instruction in comprehension alone results in noticeable improvements in word recognition. Our research suggests that this association holds true even when comprehension development is entirely separated from word decoding, as was the case in the moving-image small-group discussions. Treatments that involve instruction in comprehension of written text inevitably involve some word decoding activities, whereas the discussion of moving-image narrative is essentially free of word decoding. Similarly, the research that Clarke and colleagues undertook to investigate the impact of oral language (OL) on reading comprehension is relevant (Clarke et al. 2010). They found that an intervention focusing on OL had significant impact on reading comprehension. However, when looking specifically at vocabulary, Kendou et al's findings (2008) were less clear, suggesting that whilst 'inference generation was related to vocabulary skills, the exact pattern was not consistent across media and age levels' (p268). Their findings highlight the complexity of these relationships, the need for further exploration, and, as noted by the authors, questions over the reliability of their vocabulary testing.

Our results also critically examine and extend some aspects of the 'simple view of reading,' in particular, the notion of word recognition and comprehension entirely separate processes. While values along the two axes are very much independent from one another, *changes* in values are not. Our results suggest that improvements in comprehension – even when completely decoupled from practice in word recognition – are associated with

improved word recognition. Although these findings should be confirmed, contextualised and parameterised through further research, we concur with Berninger and colleagues (2003) that a plausible explanation lies in enhanced contextual awareness and an associated ability to anticipate and decode likely words. It also means that arguments to demote the teaching of context cueing as a strategy for decoding words are questionable, and overly simplistic.

Rather than undermining the simple view of reading altogether, evidence that changes in the two axes are interrelated offers evidence of a more complex underlying process that involves interplay between its constituent activities. This presents an opportunity to extend the model and better understand reading as a process that is perhaps ‘deceptively simple.’ The apparent paradox of ‘distinct and related’ axes is thus somewhat resolved: while measurements of comprehension and word recognition are very much *distinct*, our evidence suggests that through the process of learning these two activities are very much *related*. While Stuart et al. (2008, p. 60) argue that ‘word reading is a prerequisite for text comprehension,’ our evidence suggests the interaction between decoding and comprehension development is complex and multi-directional. In addition, the arguments that link decoding of words to automacy (and by implication, rate) as explained by Andreassen and Braten (2010) suggest a higher cognitive strain is placed on readers who are unable to quickly read words, yet the findings in this study suggest that comprehension is not impeded by rate, as while comprehension scores improved, rate scores did not.

While findings are highly relevant to theories of reading comprehension and related instructional approaches, our study inevitably suffers from the limitations of a small-scale exploratory study that should be considered when contextualising our findings. The relatively small sample size prevents the identification of significant covariates and interaction effects. A larger sample would allow for the identification of significant interactions that would identify groups or characteristics of children for which the intervention was particularly

effective, as well allowing for a multilevel analysis and examination of group-level variables. Additionally, a control group would be desirable, although this is somewhat mitigated by the YARC's age-adjusted standardised scores. The effects of repeated measurement (i.e. a practice effect) were also countered by the use of different test papers for initial and final scores.

There may have been other influencing factors on the children's increased reading test scores. For example, they were clearly motivated by the programme, being involved and challenged by the films (Wang and Guthrie 2004) and the teachers reported that they were very enthusiastic about the films. Additionally, the children were aware that they were involved in a project and so it could be argued that they were motivated to do well in the second test. In a future study, the moving-image narrative instructional narrative would ideally be complemented and compared with other instructional techniques, (following Berninger et al 2003). In particular, a similar pedagogical approach, but using alternative written text sources, could be included.

Thus, rather than presenting definitive conclusions on moving-image narrative and reading comprehension, the study presented here should serve to raise questions for a larger study with a number of additional variables and a more complex design. This study would also help to establish whether the pedagogy of teaching in a small group, highlighting discussion and a dialogic discourse was a factor, as whilst the teachers all regularly conducted 'guided reading' sessions prior to the project, they did not explicitly teach transactional strategies in the manner prescribed in the intervention programme.

Conclusion

In relation to the research question, our study found that the use of moving image narratives as a text source appeared to enable children to develop transferable reading

comprehension strategies independently of phonological decoding skills. However, by uncoupling comprehension from decoding, our study does not suggest that the processes of reading should be compartmentalised with word decoding and comprehension taught separately or discretely as decontextualized, pre-packaged skills. As the UKLA argue, 'reading is not just pronouncing written words. Children who become avid and accomplished readers focus on making sense from the start: they develop a habit of mind that expects the words they decode to make sense (UKLA, 2010, p. 4). They continue by proposing:

‘a balanced approach means that, as well as working to master the mechanics of reading that allow them to lift the words of the page, children are encouraged and supported to focus on making sense of written text, and to see its uses in ordering, enlarging, enjoying, and making sense of their lives’ (p. 5).

Our study proposes that embracing a full range of quality texts, including moving-image media, which inspire discussion and individual interpretation, can promote all aspects of reading, not least because of their motivational and engaging qualities. Here the texts that were used were chosen because they offered response, engagement and discussion opportunities. Our study is timely as the, British Film Institute has invested substantially in the lottery-funded *5-19 Film Education Scheme* (BFI 2014) to promote film and media in schools, encouraging ‘watching, making and critical understanding of film’. The scheme, delivered by Into Film (Into Film 2014), aims to place film at the ‘heart of young children’s learning’, establishing a firm footing for film in its own right. The research reported here shows the value of also embedding moving image into the literacy curriculum, highlighting the affordance of different modes of narratives as a text source for teaching reading.

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