Contemporary Educational Psychology 38 (2013) 170–179

Contents lists available at SciVerse ScienceDirect

Contemporary Educational Psychology

journal homepage: www.elsevier.com/locate/cedpsych

Investigating video as a means to promote vocabulary for at-risk children

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ARTICLE INFO

Article history:
Available online 19 March 2013

Keywords:
Vocabulary
Video
Multimedia
At-risk
Dual Language Learning

ABSTRACT

Two studies on the role of video on vocabulary learning were conducted in kindergarten classrooms with substantial numbers of children from low-income and Dual Language Learning (DLL) backgrounds. In the first study ($n = 78$), the effect of video viewing was compared with the effect of book reading on vocabulary learning. In the second study ($n = 89$), the effect of repeated viewing of video was compared with the effect of single viewing of video on vocabulary learning. Pre-test and post-test receptive and expressive vocabulary measures, which were aligned with the content in the studies, were administered. Analysis of Variance was used to test the effect of condition (i.e., video viewing versus book reading and single versus repeated reading) on children's word knowledge. Results showed no difference in vocabulary learning between the video viewing and book reading conditions. Findings showed that there was no difference in vocabulary learning between children in the single and repeated viewing condition on the receptive measure, but children in the repeated viewing condition showed higher gains in vocabulary on the expressive measure. No differences were found in either study between children with higher and lower vocabulary knowledge.

1. Introduction

Young children with limited vocabulary knowledge are at risk for encountering difficulties in reading throughout school (Hemphill & Tivnan, 2008; Snow, Porche, Tabors, & Harris, 2007). Due to limited experiences with words in a variety of contexts, children from low socioeconomic backgrounds and children from homes in which English is not the primary language often have substantially lower vocabulary knowledge than their more advantaged peers (Hammer, Farkas, & Maczuga, 2010). Therefore, supporting early word learning, especially for children most at risk of having limited vocabulary knowledge, is an important objective in early childhood education. There is considerable evidence that introducing words through read alouds, particularly repeated read alouds, is an effective way to ameliorate this problem (e.g., Beck & McKeown, 2007; Biemiller & Boote, 2006; Coyne et al., 2010). Given the rich language in books, read alouds are an ideal context for vocabulary instruction (De Temple & Snow, 2003). Recent research suggests that the use of video might be another context ripe for vocabulary instruction in elementary schools, particularly for Dual Language Learners (i.e., DLLs) who are learning English in school and speak a language other than or in addition to English at home (Silverman & Hines, 2009). Videos bring stories alive through sound, action, and zoom shots. Therefore, they offer more multifaceted nonverbal support than books (Kamil, Intrator, & Kim, 2000; Verhallen & Bus, 2010). This nonverbal support may be especially helpful for supporting the word knowledge of children with limited vocabulary. Yet, many teachers shy away from showing video in their classrooms because videos have garnered a reputation as non-instructional babysitters (Hobbs, 2006). What is needed is further research on the use of video in schools to determine the potential of video as a medium for vocabulary instruction.

This paper reports on two quasi-experimental studies investigating the effects of video viewing on vocabulary learning. Both studies use content from educational television programming for children produced by WGBH Boston, an affiliate of the Corporation for Public Broadcasting. The studies are set in kindergarten classrooms in public schools with high numbers of children from low socioeconomic and DLL backgrounds. The first study compares the effect of read alouds and video viewing on vocabulary learning. The second study examines the effect of video viewing once versus three times. Both studies examine differences for children with higher and lower vocabulary knowledge. The small number of classrooms and the short duration of the studies presented here require that the results be seen as exploratory in nature. However, the findings of these studies will add to the limited research base on the use of video to support word learning for at-risk children.

1.1. Theoretical framework

According to the Dual Coding Theory (Paivio, 1986), there are two paths for information processing in the brain. One path processes verbal information and the other processes nonverbal

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0361-476X/$ - see front matter © 2013 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.cedpsych.2013.03.001

information. These two paths operate somewhat independently of each other, and may even have separate memory systems (Reed, 2006). Presenting information verbally and nonverbally distributes the cognitive load of either system (i.e., neither system needs to carry the entire cognitive load on its own), and connecting information across the two systems provides a more complete representation of a concept than could be established through either system alone (Mayer & Moreno, 2003). Thus, coding information verbally and non-verbally results in greater learning and retention over time. Applying the Dual Coding Theory to vocabulary learning, it is likely that hearing a word in spoken context and seeing a visual representation of the word together would provide more support for word learning than either simply hearing the word in spoken context or seeing a visual representation in isolation.

Reading illustrated books to children is one way to connect verbal and visual support for word learning (De Temple & Snow, 2003). However, videos provide not only words and pictures, but also action, zoom shots, and sound effects that may enhance children's word knowledge. Viewing video, with its many audio and visual affordances, may support children in developing more robust conceptualizations of words than viewing the static pictures in books (Neuman, 1992). Information about words that is presented redundantly (e.g., audio and visual) may support children in learning word meaning more deeply (Mayer & Moreno, 2002). Additionally, features of video such as zoom shots and sound effects may more effectively, perhaps, draw children's attention to salient information essential to word meaning (Kamil, Intrator, & Kim, 2000). Such saliency may be particularly important for vocabulary instruction when words refer to an action or a specific part of an object that is not easily conveyed through text in print or speech. Nonverbal support for word learning may be especially important for children with limited vocabulary knowledge because these children have fewer words with which to comprehend new words through verbal communication alone (Silverman & Hines, 2009).

While providing verbal and nonverbal information about words is one way to support children's vocabulary acquisition, repetition is another way to encourage children's word learning. Research suggests that children's word learning increases with multiple, meaningful encounters with words (e.g., Jenkins, Stein, & Wysocki, 1984; Nagy, Anderson, & Herman, 1987; Stahl, 2003). With each exposure, children's memory for the connections between words and their referents strengthens incrementally (Nation, Long, & Richards, 2007). Young children and DLL children who may need additional time to process the language they hear need multiple opportunities to associate words and their meanings (De Temple & Snow, 2003; Penno, Wilkinson, & Moore, 2002; Sénéchal, 1997). Combining multiple exposures with both verbal and nonverbal information may be particularly supportive for children who need extra support with vocabulary learning. Studies on reading books to children have shown positive effects for repeated reading (Biemiller & Boote, 2006), and research suggests that repeated exposures to video may also promote vocabulary learning (e.g., Verhallen, Bus, & de Jong, 2006). However, research is needed to replicate and extend findings on the effects of repeated video viewing on vocabulary learning with different populations and content.

1.2. Effects of video viewing on vocabulary

Research on vocabulary instruction through read alouds suggests that instructional practices such as acting out and illustrating words, defining words, contextualizing words, and analyzing words are related to children's vocabulary growth (Silverman & Crandell, 2010). In fact, Nagy and Scott (2000) suggest that focusing on the multidimensionality of words may prove optimally supportive of children's word learning. Given the potential of video for showing various aspects of words through audio, visual, and action features, it is no wonder that researchers have explored whether using video might support word learning. For example, Wright et al. (2001), studying the effect of television viewing by children ages two to five, found a strong correlation between children's viewing of educational programs and their vocabulary knowledge. Similarly, Rice, Huston, Truglio, and Wright (1990) found that viewing *Sesame Street* at age 3 had positive effects on the vocabulary of children at age 5. Additionally, Uchikoshi (2006) found that bilingual kindergarteners who watched *Arthur* and/or *Between the Lions* at home grew faster in vocabulary than their peers who did not watch these shows at home. Accordingly, some school-based interventions have begun to incorporate the use of video (e.g., Chambers et al., 2008; Neuman, Newman, & Dwyer, 2011).

However, this line of research does not shed light on how viewing video compares to listening to books as contexts for word learning. While many studies show an advantage of video over print presentations (e.g., Furnham, De Siena, & Gunter, 2002; Molen & Voort, 2000; Xin & Rieth, 2001), other studies suggest that learning is equal across these media (e.g., Neuman, 1992), and still other studies indicate that live reading of print leads to more learning than video (e.g., Terrell & Daniloff, 1996). Two studies, in particular, are relevant to the present research. On the one hand, Verhallen et al. (2006), working with 5-year olds learning Dutch as a second language, found that children's language skills improved more after viewing electronic books that included animated features (i.e., video, sound, and music) than after viewing electronic books with static pictures (i.e., similar to printed text). On the other hand, Korat and Shamir (2007), comparing listening to adults read a printed text versus listening to an electronic book with kindergarten children from low and middle socioeconomic status (SES) backgrounds in Israel, found that children in both intervention groups improved in vocabulary and both gained more than a control group, but children in the two intervention groups did not differ in vocabulary learning. Given the discrepancies in the extant research base on how print and video media compare as contexts for vocabulary learning, more research is needed along these lines.

1.3. Repetition and video-viewing

Following studies that show positive effects on children's vocabulary of repeated exposure to picture books during read alouds (Biemiller & Boote, 2006), researchers have investigated the effects of repeated exposure to electronic books that include video. For example, in their study comparing electronic books with static pictures versus animation, Verhallen et al. (2006) found that, "The added value of multimedia books was strengthened over sessions" (p. 410). In another study comparing effects of repeated exposure, Korat and Blau (2010) evaluated effects of multiple readings of an electronic storybook, which included "dynamic visuals that dramatize story details ... as well as extra music and film effects that may 'bring the story content to life'" (p. 453), with preschool and kindergarten children from lower and middle socioeconomic groups. Children in the experimental condition experienced the electronic storybook three or five times. There were differential effects by grade level and economic background. For kindergarten children, there was an effect of repeated reading over children in a control condition on vocabulary learning, but there was no difference for three versus five readings. Pre-kindergarten children from low-income backgrounds improved in word knowledge over the controls after five readings whereas pre-kindergarten children from middle-income homes improved in word knowledge over the controls after only three readings. Given the divergent effects