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The Effects of Multimedia Input on Comprehension of a Short Story

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Abstract

Research examined the effects of additional input, audio recordings and video recordings, on second-language readers' comprehension of a short story. Participants were 37 English-language learners enrolled in three college ESOL (English for Speakers of Other Languages) classes. Each group read Shirley Jackson's short story, "The Lottery," and discussed it; two groups then received additional input, either an audio or video recording of the story. Pre- and post-test comprehension questions were administered. The research concluded that additional video input, with its aural and visual components, is more helpful than additional audio input alone, and that both types of additional media input engage readers emotionally.

Introduction

Since Krashen (1985, 1989), second-language acquisition theory has proceeded on the twin beliefs that the most effective pedagogy involves comprehensible input and that multiple forms of such input facilitate acquisition better than a single mode. Swain and Lapkin (1995), among others, question the reliance on input alone, and claim that a student's proficiency in a foreign language is partly the result of being pushed to produce "output" in the L2.

Numerous studies have examined the relationship between multimedia input and language acquisition. Duquette and Painchaud (1996), looking at previous research on the influence of visual media on learning, concluded that "learning vocabulary in context is facilitated when the text contains contextual cues…and when…prior knowledge is activated" (p. 144). In their own research, prior knowledge included both a relationship between L1 and L2 words and a familiarity with the subject matter. They found that both video and audio cues, including extralinguistic cues, were effective in supporting the learning of new vocabulary; however,

video led to greater gains. Price's (1983) early work with captioned TV and its positive effects on understanding and vocabulary acquisition has been confirmed by others, including Neuman and Koskinen (1992), who found that the combination of text and visuals had the strongest effect.

Other studies have explored the relationship of the multimedia environment to learning and comprehension (Brett, 1997; Grezel & Sciarone, 1994). Pearman and Lefever-Davis (2006) found that CD-ROM storybooks could support reading comprehension for schoolchildren. Their work explored the use of the classroom computer; most relevant to the current research is the opportunity a CD-ROM provides to hear individual words in a text. Video presents not only images but "real language that is not simplified and is spoken at a normal speed with genuine accents" (Burt, 1999, p. 2). It also provides "contextualized information, including non-verbal cues and non-lexical cues such as stress and rhythm" (Bello, 1999, p. 20). Fazey (1999) affirmed the accessibility and interest of video, with its rich context, for poor or beginning readers, a finding that our study supports.

Baltova (1994) and Smidt and Hegelheimer (2004) expressed caution about an over-abundance of visual information, in that the less-proficient learners in their studies were more likely to attend to the wrong aspects of the lecture when responding to comprehension questions and to have more difficulty extracting relevant meaning from the material. Baltova did not find differences in general comprehension between audio and video groups; in fact, the weaker students in the video group were less able to focus on relevant information. On the other hand, students reported greater pleasure in reading accompanied by video. Smidt and Hegelheimer found that online lectures and listening activities increased comprehension in an online ESOL (English for Speakers of Other Languages) course.

Vanderplank (2009), in a review of research on multimedia in the second-language classroom setting, accepts that new technologies can have a general benefit on comprehension, but is concerned with the challenges and choices facing teachers who want to fully exploit digital technology in the language classroom and laboratory. Finally, Herron, York, Corrie, and Cole (2006) compared two foreign-language classes: one that used a packaged curriculum with a video component as its primary means of teaching new material, and a second course that relied on a more traditional textbook with supplementary media enrichment. Students in the first group made greater gains in both listening comprehension and grammar. In addition to affirming the effectiveness of video as comprehensible input, their study also "suggests the importance of a narrative structure to the video" (p. 295).

Research confirms that repetition of comprehensible information, delivered in varying forms, especially video, is associated with greater rates of measurable learning and comprehension. However, no studies have yet isolated and explored the effects of audio and video input, or compared them, on comprehension of the same short story. Our study examined this question.

Research Questions and Methods

Given the evidence that additional modalities increase comprehension, we were interested in comparing the effects of audio and video input, after reading and discussion, on college ELLs' (English language learners) understanding of complex, authentic readings. Based on the research and on our experience with ELLs, we had two hypotheses, first, that video input,

conveying both sound and moving image, would increase comprehension more than audio input alone; and that video would engage the students more deeply than audio alone.

The participants, students taking a wide range of classes at a public college, were enrolled in three separate sections of the school's third and final ESOL class. All sections were taught by the same teacher, one of the researchers. Some had tested into this level; others had taken the prerequisite ESOL classes. All students participated in the study during their regularly scheduled class time, and no extra time was demanded of the participants. The classes had regularly engaged in reading assignments of the type used in this study, an authentic American short story. The text used here was Shirley Jackson's widely anthologized "The Lottery." The story takes place during one June afternoon in a village square. As the townspeople gather for their annual ritual, they are led to draw lots, and a mother, Tessie Henderson, draws the "winning" lot. The tension that has built up in the characters and in the reader is released in the final, horrifying moment when it becomes clear that Tessie will be stoned to death by her neighbors and family.

This story was chosen for two reasons, besides its appeal to readers. First, there are professionally produced audio and video versions of the story available, which faithfully follow the text. Second, the text, while having a strong plot, does not explicitly state the fact of Tessie's death, and this ambiguity elicits differing levels of comprehension.

It was impractical to spend class time reading the story, and therefore all students were given one week until the next class to read it once on their own. They received no pre-reading activities or other support. They were instructed to avoid any outside help or discussion about the story.

As a test of their initial comprehension, students were given seven open-ended questions, developed by the researchers, to answer prior to the next class. Based on Bloom's taxonomy, the questions served as both pre- and posttest. Questions one through three tested factual knowledge, and questions four through seven tested the ability to transfer and evaluate this knowledge of the text. The answers were evaluated holistically by the two researchers, who did this together until they agreed on whether a given answer showed high, basic, or low comprehension (see Appendix A for a complete list of questions and the assessment rubric).

These initial answers to the seven comprehension questions revealed a consistency across the sections. In each section, a third of the students were unable to answer the basic factual questions, a third answered these questions, and a third also gave plausible answers to the questions which tested the ability to evaluate, synthesize, and apply information from the text.

Since participants were asked to complete the reading and assignment on their own without outside assistance, we proceeded on the belief that they followed instructions and that their answers reflected their own level of knowledge; however, since the reading was completed outside of class time, it is possible some students received help.

As the sections were comparable in terms of size, variety of native languages, levels of comprehension on the pretest, and achievement on the school's assessment measure used for placement into ESOL classes, we used these groupings for the study; they are referred to here as the discussion, audio, and video sections. It is possible that native speakers of Spanish and

French had an advantage, since they may have been able to rely on cognates in guessing new vocabulary. These languages were more or less equally distributed among the three sections.

The discussion section consisted of twelve participants who engaged in reading and discussing the story. The audio section also had twelve participants; they also engaged in reading and discussing the story, and then listened to an audiotaped reading of the text. The video section had thirteen participants who read and discussed the story and then watched a videotaped dramatization of it.

Students in each section were divided into small groups; each group had a range of pre-test scores on initial comprehension of the story, as much first-language diversity as possible, and at least one member whose homework answers showed a high level of comprehension of the story.

Each small group was asked to use members' answers to the homework questions as a way to begin a discussion. Students were to try to come to a greater understanding of the story through discussion with their groupmates but not to amend their written answers. All the groups spent about twenty-five minutes discussing the story. This activity–small-group discussions after reading–was already familiar to participants from previous class activities. After the discussion, the homework questions were collected from all participants.

These questions were later used again as a posttest. The students in the audio section listened to a commercially-produced 21-minute reading of the story and then answered the comprehension questions a second time. The students in the video section watched a commercially-produced 19-minute video of the story before answering the same questions.

In order to gain additional information about the experience, participants were also asked to evaluate the usefulness of the discussion, the audiotape, or the videotape, and to describe what they remembered as the most vivid image or memory from the story.

For each section, the post-treatment answers were compared to the original set to see whether the intervention had any effects on comprehension. Although the students in the discussion section did not review the story again before the posttest, we include their results in Appendix B for comparison.

Findings and Discussion

By their own reports, the majority of students claimed that the small-group discussions were helpful, though not so much in terms of specific or substantive answers, as for the opportunity to hear different opinions and express their own ideas. In comparing the second-round answers of the audio and video sections, we saw that the audio review of the story proved to be helpful for only a few students in this section, as most did not change their answers to the post-treatment comprehension questions. This fact was surprising, as the increased comprehensible input did not give much return. The audio section's small gains were comparable to the gains made by the discussion section, which did not have the opportunity to review the story a second time.

The video input, on the other hand, had a distinct and powerful effect, especially on the poorer readers. By the end of the intervention, all students in the video section had a factual understanding of the story, and a majority of these students showed an ability to apply this

knowledge. This finding, that the video input allowed even the weakest students to focus more productively on the story, is contrary to research that has suggested that poorer students are more easily distracted by the multitude of cues in an authentic video (Baltova, 1994; Smidt & Hegelheimer, 2004). The congruence of the video and the text may have helped here. (Findings on comprehension are summarized in the two charts in Appendix B.)

Dan, who watched the video and originally thought the townsfolk stayed there in the hope that they might someday win the lottery, wrote, "First time I did not get it. I was confused because of the name of it. 'Lottery' I thought it would be something that is prise, winner will be happy." Once he abandoned the idea of 'winning' the lottery, he was freed to think more deeply about the story: "I think they stay because it is their town, it is the tradition … they are scared to live [leave] their town."

The effectiveness of the video input supported our hunch that this particular form of comprehensible input can increase comprehension. Watching a story on screen that closely follows a text acted as a strong corrective to misunderstandings, and at the same time reinforced and refined what readers had gleaned from the text and discussion. In other words, the video was helpful to those with all levels of comprehension.

The question of the perceived usefulness of the input was decisively answered, and went counter to our hunch that video would be more engaging than audio. The data show that both audio and video were emotionally engaging experiences for almost all the participants in these sections, according to their own reports. This perception is particularly interesting in light of the fact that audio treatment did not result in comparable gains in comprehension. Carla, who saw the film, seemed to speak for many in both the audio and video sections when she wrote, "It was a more great experience because first it take more further my imagination, second my feelings are more strong about the story, and third it makes me understand every specific detail." Both listening to and watching the story, after having read and discussed it, seem to have added a powerful emotional element.

Responses to the final question make it clear that video did engage the students' attention in a different way. Asked to name the most vivid image from the story, almost all the students in the discussion and audio sections nominated the violent conclusion, Tessie's stoning. In contrast, most of the thirteen participants in the video section focused on the penultimate moment of the film. This scene in the text reads rather quietly, "The children had stones already, and someone gave Davy Hutchinson a few pebbles" (Jackson, 1991, p. 785). The film, by directing the eye, provides a more powerful and salient image, and Sam's answer was a typical response: "The most vivid image was when a woman give a little boy a rock to throw it on his mother, basically they wanted him to kill his mother." In this way a subtle but critical image, which readers might have missed, was brought to life, and the tale made more vivid in the process.

Conclusion

Our research indicates that a reading program for adult ELLs in college, which includes individual reading of short stories and group discussion, can be powerfully supplemented by multimedia versions of those stories. Audio and video input were both attractive to readers. Although the audio input did not increase comprehension, the video input did, especially for

poorer readers. The video input takes advantage of students' listening and speaking strengths, the natural interest in seeing a story unfold, and the satisfaction of working with material high in interest and dense with contextual cues that recall the text.

For most ELL readers, simply participating in small-group discussions is helpful, but not sufficient, to ensure an understanding of high-level, authentic readings. Audio input, while not affecting comprehension appreciably, did engage students powerfully. Video input both elicited an emotional reaction from participants and strongly affected their comprehension. These findings suggest that any form of comprehensible multimedia input is beneficial.

Because technologies like DVDs, CDs, and the resources of the Internet are readily available, these findings have practical, real-world applications in the classroom. Indeed, the entire video version of the video used in this research is now freely available on YouTube. The data from this study show that additional forms of media input, closely related to the text, increase students' overall enjoyment of the text, and that video increases not just enjoyment but comprehension.

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Appendix A: Comprehension Questions and Scoring Rubric

Reading Comprehension Questions

1. What is the story about?
2. What happens at the end of the story? Why does it happen?
3. Describe the ritual of the lottery in your own words.
4. What is your opinion of what you read? What did you think of the story?
5. Do you think the story is believable? Try and explain your answer.
6. The townspeople live in their town even though they, or someone in their family might win the lottery. Why do you think they stay in this town?
7. What point is Jackson attempting to make? What is the message of this story?

Assessment Rubric

We assessed comprehension holistically. Questions 1 – 3 asked for factual knowledge of the story; 4 – 7 asked for higher-level comprehension skills such as analysis, application, and synthesis. "Low comprehension" means the student showed poor or no evidence of factual knowledge of the story, implausibly answering at least one of the first three comprehension questions above; "Basic Comprehension" required plausible answers to factual questions one through three, and "High Comprehension", required in addition plausible answers to at least three of the four higher-skills questions.

The rubric for this assessment allowed for a range of answers. The criterion of "plausibility" was judged by looking at whether or not the student included the following information in his or her answer:

q1 The townspeople take part in a lottery; one member 'wins'.

q2 The 'winning' person is killed.

q3 On one day every year the whole town gathers. There is a leader. Lots are drawn, first by family, then individually.

q4 Answers vary; the opinion takes into account that a person is killed.

q5 Answers vary; one or more details are provided that support the opinion.

q6 Answers vary; one or more relevant details from the text or the writer's experience are provided to support the opinion.

q7 Answers vary; the answer may speak about the particular characters and plot of the story, but should also address larger issues such as small-town isolation, or the unquestioned weight of tradition.

Appendix B: Pre- and Post-Treatment Findings

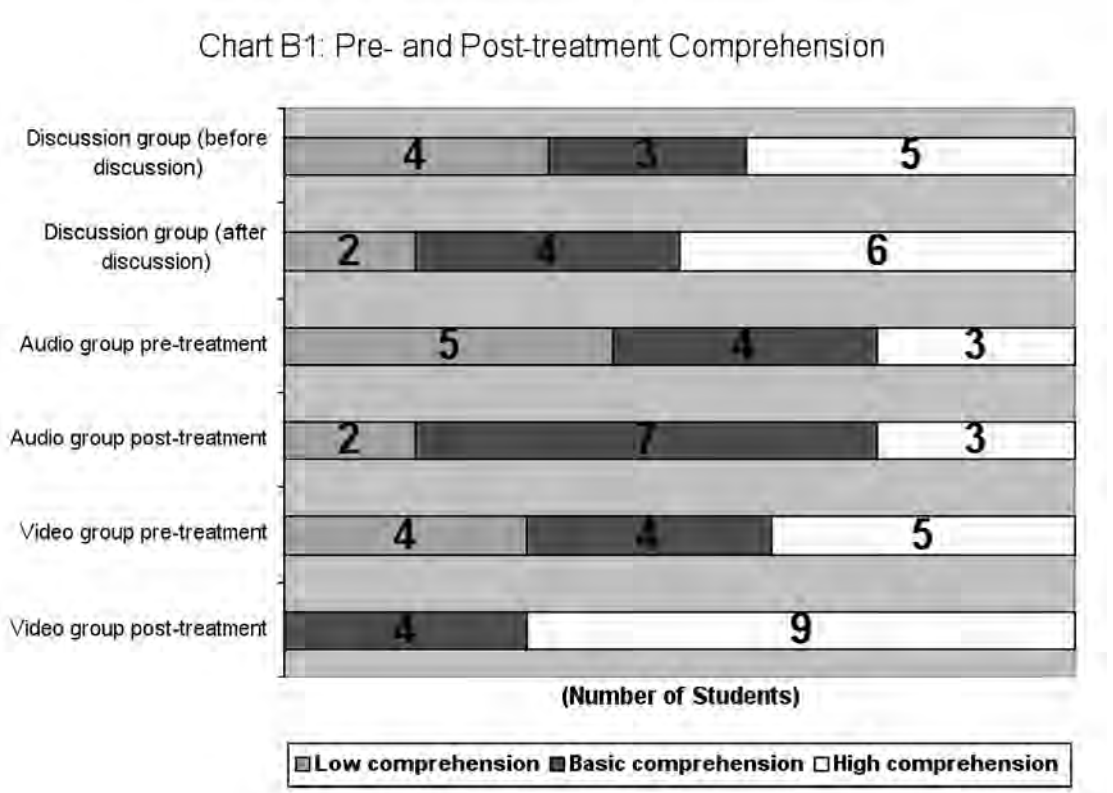

Chart B2: Changes In Comprehension
From Pre-test to Post-test