3-2014

Fifth Graders' Enjoyment, Interest, and Comprehension of Graphic Novels Compared to Heavily-Illustrated and Traditional Novels

Kimberly Ann Jennings
University of Northern Iowa

Audrey C. Rule
University of Northern Iowa

See next page for additional authors

International Electronic Journal of Elementary Education, 2014, 6(2), 257-274.

Fifth Graders' Enjoyment, Interest, and Comprehension of Graphic Novels Compared to Heavily-Illustrated and Traditional Novels

Kimberly Ann JENNINGS
Wales Elementary School, Wales, United States

Audrey C. RULE,
University of Northern Iowa, United States

Sarah M. Vander ZANDEN*
University of Northern Iowa, United States

Received: 23 July 2013 / Revised: 17 november 2013 / Accepted: 11 February 2014

Abstract

The comparative effectiveness of graphic novels, heavily illustrated novels, and traditional novels as reading teaching tools has been sparsely researched. During the 2011-2012 school year, 24 mixed-ability fifth grade students chose to read six novels: two traditional novels, two highly illustrated novels and two graphic novels. Students participated in discussion groups structured with thinking skills, and completed assignments during and after reading the books. Student comprehension and enjoyment were measured by rubric-graded assignments and rating scales. The numbers of student responses during discussions per type of novel were tabulated. The graphic novel received the highest scores in all categories. The researchers conclude that graphic novels be considered an engaging and effective method of teaching reading to fifth graders.

Keywords: Graphic Novels, Comprehension

* Sarah M. Vander ZANDEN, University of Northern Iowa, Cedar Falls, Iowa, USA, Phone: 319-273-7829. Email: audrey.rule@uni.edu

Introduction

As students read the world today, they are inundated with messages from various semiotic resources. Interactions with texts are multimodal and complex, integrating images with experience. Literacy is no longer confined to the printed page (New London Group, 1996). Classroom literacy instruction and materials need to reflect lived experiences so that students can build upon their current literacy practices in school as well as acquire additional tools to make sense of today's world. Providing a range of reading formats in classrooms, including graphic novels, is one way to increase student opportunity to engage deeply with texts and use image as a significant source of semiotic information. The use of different forms of literature in which students have interest adds to their motivation to read, ultimately improving their comprehension (Allington, 2011; Guthrie, 2001). As Guthrie (2001) notes,

> [C]lassroom contexts can promote engaged reading. Teachers create contexts for engagement when they provide prominent knowledge goals, real-world connections to reading, meaningful choices about what, when, and how to read, and interesting texts that are familiar, vivid, important, and relevant (para 3).

This study examined the efficacy of graphic novels, compared to heavily illustrated novels and more traditional novels, to increase students' comprehension and engagement with texts through literacy instructional units that provided choice of quality texts, integrating thinking skills and multimodal summative projects for fifth grade students.

Graphic Novels in the Classroom

The popularity of computer based technology for today's student population has allowed visual media to replace written media as a source of entertainment. Text has shifted from print media to screens, reasserting the role of image in text consumption (Kress, 2003). For example, Xbox Live, Facebook, and Twitter are very popular among many age levels. Jewett (2008) in her analysis of multimodality and literacy in classrooms writes:

> [T]he ways in which something is represented shape both *what* is to be learned, that is, the curriculum content, and *how* it is to be learned. It follows, then, that to better understand learning and teaching in the multimodal environment of the contemporary classroom, it is essential to explore the ways in which representations in all modes feature in the classroom (p. 241).

Teachers need to offer texts in the curriculum that address student interests and include visual media. The use of graphic novels is one way to bring multimodal texts into classrooms.

While graphic novels have recently increased in popularity, they are still a relatively new format in today's libraries and classrooms. Graphic novels may increase students' motivation and comprehension of reading, particularly because of the engaging illustrations with talking balloons that add modality to the text. Illustration has long been included as a source of meaning for emerging readers (Clay, 2000; Sipe, 2008). Unfortunately, as students gain proficiency with text, teachers tend to offer print-heavy materials, potentially removing visual supports for comprehension and motivation. Studies investigating the use of graphic novels with adolescent readers (Edwards, 2009; Snowball, 2005) and with content integration (Matthews, 2011) suggest their use improves comprehension and motivation. New technology necessitates using visual stimuli to capture the attention of students and facilitate their understanding of new topics. The following article compares three different forms of literature –graphic novels, heavily-illustrated novels and traditional novels – and provides understanding of

how each is perceived by students as well as how each affects comprehension and enjoyment of reading.

Integration of Thinking Skills

Integration of a formal system of thinking skills can support deeper literacy discussions. Edward de Bono organized the ten Breadth Thinking Skills to allow critical examination of all aspects of a situation before drawing conclusions. These skills entail: (1) rating ideas as plus, minus, or interesting (PMI); (2) considering all factors of a situation or issue; (3) creating rules for behavior regarding the situation (RULES); (4) determining the consequences or sequels of actions in different time frames (C&S); (5) defining aims, goals, or objectives (AGO); (6) making a plan (PLANNING); (7) setting priorities (FIP); (8) Generating alternatives, possibilities, and choices (APC) ; (9) reaching a decision based on reasons (DECISION) ; and (10) considering other people's views (OPV). Explicitly teaching these thinking skills provided a way to structure and enhance engagement with the texts.

Research Questions

This study explored two main questions: (1) How does student performance compare between the three formats (graphic novels, heavily-illustrated novels, and traditional, sparsely-illustrated texts) on written assessments made at the book's midpoint, on assessments of creative products, and on number of responses offered for thinking skill activities during book discussion? (2) How does student perceived comprehension of text, interest in the topic and enjoyment of reading, vary between the three forms?

In this study, a graphic novel is defined as a full-length story with a beginning, middle, and end, in which both image and text are of equal importance (Trabachnick, 2009). For example, *Smile* (Telgemeier, 2010) was one of our graphic novels. A *heavily illustrated novel* has at least one illustration for each two pages of text such as *The Invention of Hugo Cabret* (Selznick, 2007), which has 316 pages of illustrations to 214 pages of text or *Diary of a Wimpy Kid: A novel in cartoons* (Kinney, 2007), that has small pictures on every page of text. *A traditional novel* has one or fewer illustrations per chapter. For example, the book, *Tuck Everlasting (Babbitt, 1975)* has 144 pages of text and only one illustration.

Literature Review

In this section, the literature on student reading motivation and comprehension is reviewed, followed by previous work on literature circles and the de Bono thinking skills. Finally, other studies examining the use of graphic novels are considered.

Motivation and Comprehension

A student's ability to interpret the written word can alter his or her present and future education. Students' motivations for reading must continue to grow throughout their early education to support further academic success (Brozo, Shiel and Topping, 2008): "Reading engagement is also important to the maintenance and further development of reading skills beyond the age of 15" (p. 304). Teachers must find ways to foster this love for reading to help students stay connected. Middle school students have shown tendencies to choose graphic novels over other novels for free reading (Edwards, 2009). Graphic novels keep the interest of young adolescents inside and outside of the classroom. Lavin (1998) noted that students who read graphic novels use more cognitive thinking skills during reading than when they read more traditional novels. Additionally, the multimodal nature of this format may be useful in helping students navigate complex ideas in content areas and improve comprehension. Martin (2009)

states, “Graphic novels can be used by teachers of all subjects to research instructional techniques, current events, and social dilemmas” (p. 30).

All students may benefit from the use of graphic novels in the classroom. Graphic novels include the fast paced visual media to which students are growing accustomed. Students who struggle with reading can readily connect to graphic novels because they can use the pictures to help them visualize the text. Lyga and Lyga state, “Even students whose reading abilities deter them from enjoying reading for the inherent satisfaction are drawn to graphic novels” (2004, p. 56). Many teachers hope to foster motivation and engagement for young readers; using graphic novels in the classroom is a way to fill the void that some students seem to have when it comes to reading.

Literature Circles

In this study, effective use of literature circles coupled with graphic novels allowed for rich conversations fueled by student interest and engagement in the text in a social setting. Students learned how to start conversations, listen to conversations, and share ideas about the text in a group setting (Certo, Moxley, Reffitt, & Miller, 2010). Literature circles were designed to simulate a book club atmosphere during reading discussion in the classroom. Typically, in a literature circle, a group of peers reads the same novel, and the members of the group lead discussion rather than the teacher. A literature circle may involve rotating discussion roles, such as questioner, to ensure that every student has a chance to look at the book from every angle. As in most effective reading activities, the students must be interested in the text. According to Briggs (2010), “In order for literature circles to be successful, students need to connect the text to their own experience, to events in the world or other readings” (p. 9). Literature circles, contrasted with whole-class discussions, often help create a safe learning environment in which students feel comfortable to talk about the book and give their opinions. In an effective literature circle, students understand “… that in order to facilitate good discussion, they… [need]… to respect other group members, cooperate, and be good listeners” (Certo, Moxley, Reffitt, & Miller, 2010, p. 1). Teachers can use graphic novels in literature circles to increase student interest in the reading and to broaden their learning through discussion with peers.

Traditional literature circle roles were provided in Harvey Daniels’ book, *Literature Circles: Voice and Choice in the Student-Centered Classroom* (1994), which included discussion director, literary luminary, illustrator, connector, summarizer, and vocabulary enricher. The roles were intended to support student use of vital reading comprehension strategies as they read and discussed the novels. These roles have been criticized as possibly limiting student focus and creating an inauthentic discussion format (Peterson & Belizare, 2006; Mills & Jennings, 2011). In the current study, students initiated the discussion by choosing a de Bono skill. Students focused on one or two different thinking skills during each of their discussions. Students took turns choosing a skill and facilitating a discussion related to that skill to which each group member contributed instead of taking on more traditional literature circle roles.

Edward de Bono’s CoRT Breadth Thinking Skills

Edward de Bono (1970), inventor of the term “lateral thinking” (p.9), is an acclaimed author directly examining how people think both critically and creatively in varied situations. He has authored a CoRT (Cognitive Research Trust) thinking skills series, which contains six different sets of 10 skills each (breadth, organization, interaction, creativity, information/feeling, and action) that have been embraced by business (Michalski, 2005) and schools worldwide. The most basic set, CoRT Breadth, was used in this study. The 10 different thinking strategies provided a framework for students to examine situations from multiple perspectives, assisting them in better understanding

the conflicts and issues presented by novels. Edward de Bono (2000) explained, “The purpose of these strategies is to broaden perception so that thinkers can see beyond the obvious, immediate, and egocentric” (p.3). Thinking skill instruction benefits all students, both higher and lower achieving (Zohar & Dori, 2003). These skills are not text-specific, but are applicable to any literature or daily life situation.

Although numerous schools across the world have adopted these skills in their curriculum, the pool of published research data confirming their efficacy remains small. Other references in the literature that have validated their use with students include integration into technology project work (Barak & Doppelt, 1999), a summary of school use of these skills (Melchior, Kaufold, & Edwards, 1988), a third grade instructional unit on birds (Rule & Barrera, 2006, 2008), use as an organizing structure for discussions at a special education conference (Rule & Stefanich, 2012) and a guide for activities in a middle school literacy-science unit on prairies (Salisbury, Rule, & Vander Zanden, in review). The current study will compare student performance (measured by correct number of ideas generated) across the three types of novels in discussions using these thinking skills.

Graphic Novels

Graphic novels have all of the necessities of text-only novels such as character development, plot, and setting. Because graphic novels have been looked at as a particular text format rather than their own genre (O’English, Matthews, & Lindsay, 2006), for this paper we refer to graphic novels as a format. Graphic novels are texts in which students can get lost with the characters, dialogue, and the pictorial representations of the story. Students may be drawn to this format because of their constant exposure to visual media on computers, television, and video games. Martin (2009) stated, “Today many authors and artists adapt works of classic literature into a medium more user friendly to our increasingly visual student population” (p. 30). That medium is often the graphic novel.

Graphic novels have been available for over fifty years and are related to comic books and manga. “Graphic novels grew out of the comic book movement in the 1960’s and came into existence at the hands of writers who were looking to use the comic book format to address more mainstream or adult topics” (O’English, Matthews & Lindsay, 2006, p. 173). Since this beginning, more authors have recognized the potential of graphic novels for increasing engagement in reading, resulting in their popularity. Martin observed (2009), “Because of its rich history, this literary [format] is quickly gaining acceptance as [a] viable and popular tool to get students enthused about reading and into school libraries” (p. 30).

Graphic novels not only motivate students to read but use of graphic novels has been shown to improve students’ reading comprehension by motivating them through complex materials and providing other modalities for learning. Edwards states (2009), “Reading a graphic novel requires the reader to infer and construct meaning from the visual representations while using the text to develop not only meaning, but to foster comprehension” (p. 56). Because graphic novels consist of words and pictures, they do not require students to depend solely on text-based reading strategies to access the full extent of the story’s content as a text-only novel would require; students may gain comprehension meaning from the lively illustrations or interplay among panels. As students read graphic novels, they are able to analyze the images of characters, their facial expressions, and their stances. Also, the perspectives of setting and other pictorial representations are revealed with graphic novels. As Edwards (2009) pointed out, “The students liked the graphic novels because the additional details provided by the pictures helped them understand the material” (p. 57). Using graphic novels allows

teachers to incorporate different types of text to address current topics and helps readers make connections to text through visual representation. Graphic novels' visual appeal helps engage and motivate students while simultaneously assisting those who struggle by providing pictorial representations (Martin, 2009).

A counterbalanced-design in a previous study conducted with fifth graders (Bosma, Rule, Krueger, 2013) comparing graphic novels to traditional well-illustrated novels about the American Revolution showed that the students recalled more complex facts from graphic novels than from illustrated texts. Overall, groups of students under both conditions (graphic novel and illustrated texts) showed comprehension of the texts read, but the students using graphic novels found graphic novels significantly more enjoyable to read. Students increased the number of responses that they provided on the posttest when the thinking skills were used in a problem-based learning setting. Additionally, students showed excitement about learning and discussions when the thinking skills were incorporated into the unit.

Method

Participants and Research Setting

Twenty-four fifth grade students (13 male, 11 female; 22 Caucasian, 1 Hispanic, 1 African-American) of mixed abilities in a self-contained classroom at an elementary school in the Midwest of the United States participated in the study. Permission to conduct the study was obtained from the overseeing university's human subjects review committee and the school district. All students and their parents consented in writing to participate.

Research Design

The research design was counterbalanced with all students experiencing the three different types of novels – graphic novels, heavily-illustrated novels, and more traditional, sparsely -illustrated novels as shown in Table 1. Students worked in six variable groups of mixed ability students (four or five students each group) during the lessons. At any one time, two groups were reading graphic novels, two groups were reading heavily-illustrated novels, and two groups read more traditional novels. Each student read exactly two graphic novels, exactly two heavily-illustrated novels and exactly two traditional novels. All books chosen for the study received favorable reviews or awards indicating their quality (see Table 1).

The routine of lesson activities for each book followed this sequence: (a) students met in literature circles three times, applying two de Bono thinking skills to what they had read each time; (b) students read further in the novel and wrote in their journals in response to prompts; (c) at the midpoint of reading and discussing the book, students completed a written assessment; (d) students met two more times in literature circles, applying the remaining four thinking skills to the reading; (e) students wrote two more journal entries in response to prompts; (f) students chose and completed the final creative project; and (g) students completed a survey of ratings of interest, enjoyment, and perceived understanding of the book.

Table 1. *Books used in the Study*

Book	Type of Novel	Evidence of Quality	Number of Students Reading this Novel during the Study
Bone: Escape from Boneville (Smith, 2005)	Graphic Novel	1, 2	9
Amulet (Kibuishi, 2008)	Graphic Novel	8	12
Smile (Telgemeier, 2010)	Graphic Novel	5	19
Into the Volcano: A Graphic Novel (Wood, 2008)	Graphic Novel	4, 9	8
Adventures of Captain Underpants (Pilkey, 1997)	Heavily-Illustrated Novel	2, 3	5
The Invention of Hugo Cabret (Selznick, 2007)	Heavily-Illustrated Novel	6	19
The Diary of a Wimpy Kid (Kinney, 2007)	Heavily-Illustrated Novel	8, 10	7
The Doll People (Martin & Godwin, 2000)	Heavily-Illustrated Novel	11, 12	17
Brian's Winter (Paulsen, 1996)	Traditional Novel	3	11
BFG (Dahl, 1982)	Traditional Novel	7	6
Tuck Everlasting (Babbitt, 1975)	Traditional Novel	13	9
Secrets of Droon, The Magic Staircase (Abbott, 1999)	Traditional Novel	3	4
The Phantom Tollbooth (Juster, 1961)	Traditional Novel	3	5
Night of the Twisters (Ruckman, 1984)	Traditional Novel	3	13

[1]Reviewed and recommended by Children's Literature Reviews in Children's Literature Comprehensive Database

[2]Bank Street College's Best Children's Books of the Year

[3]Reviewed and recommended by Children's Literature Reviews in Children's Literature Comprehensive Database

[4]American Library Association's *Booklist of Best Books for Young Adults*

[5]Boston Globe-Horn Book Award honor book

[6]Winner Caldecott Medal

[7]National Educator's Association Survey *Educators' Top 100 Children's Books*

[8]Reviewed and recommended in *Bulletin of the Center for Children's Books*

[9]Reviewed and recommended in *Children's Literature*

[10]Reviewed and recommended in *Publishers Weekly*

[11]*Child Magazine'*s Best of the Year

[12]ABC Children's Booksellers Choices Award

[13]California Department of Education recommended literature

Two short picture-book lessons were delivered before the start of the study so that the Edward de Bono CoRT Thinking Skills could be introduced and practiced by all students. The two picture books that were used in these lessons were: *The Three Questions* by Muth (2002) and *Click, Clack, Moo Cows that Type* by Cronin (2000).

The teacher delivered a book talk to introduce each title of possible novels that were chosen for the study, after which the novels were passed around the classroom. Students ranked their choices to indicate the novels they would prefer to read in a literature circle. The teacher then worked out a schedule so that each student would read two graphic novels, two heavily-illustrated novels, and two traditional novels, giving students their preferred book choices as much as possible.

Students met in their literature circles five times over each two-week period to discuss the novels with the teacher present. The teacher's role in the literature circle discussion sessions was to record the ideas presented and facilitate if the discussion lagged. The students led the discussions by choosing one of the ten de Bono skills (on display on a poster in the classroom) and applying it to the story. The student who chose the skill provided an initial idea, which was then recorded with the title of the skill on the electronic white board. Then other students contributed ideas about how this thinking skill could be applied to the story. When ideas for applying this thinking skill to the novel had been exhausted, the teacher asked another student to volunteer to suggest a new de Bono skill and use it to discuss the story. The teacher made sure that in the five discussion periods that the book was explored, each of the ten thinking skills was addressed at least once. When students were not meeting in their literature circles, they individually read their assigned book and responded to journal prompts and other reflection activities in their reading notebooks. Example reading notebook responses included: make five predictions on what will happen in the story and supporting them with evidence; draw the setting for the current chapter so that someone looking at your drawing would know exactly where this novel takes place; and free write your thoughts and emotional reactions to the events or people in the book.

Assessments

As a midpoint assessment on each novel, students were asked to respond in writing to a question connected to the story using the de Bono thinking skills (see Table 2). The scoring rubric had five two-point criteria for a possible score of ten points; half-credit was sometimes given. The criteria were: (a) the requested number of ideas were provided by the student; (b) the ideas made sense in connection with the novel; (c) creativity of ideas (added drawing, unusual ideas, elaboration and detail); (d) particularly insightful ideas (skill, cleverness, deep thinking, extra considerations); and (e) complete, correct steps or presentation of everything necessary.

Table 2. *Book Midpoint Reflective Writing Prompts Based on de Bono's Thinking Skills*

Week	Thinking Skill	Reflective Writing Prompt
Weeks 1-2	C & S Determining Consequences and Sequels for different time frames	Choose a main action or conflict in the story and describe it. Then list and explain three different possible consequences or sequels (1 immediate, 1 short term, and 1 longer-term) that might follow this action or conflict. These three things should be events that did not happen in the story- they are new ideas you made up.
	DECISIONS Making Decisions based on reasons	Considering the consequences and sequels you listed, make a decision on what the character should do and explain your reasons.
Weeks 3-4	CAF Consider All Factors that are related to the issue	Identify a problem in the story for a character. Identify all the factors that influence the solution of the problem. List at least 5.
	PLANNING Create a logical plan that takes into account various factors	Make a plan for a character in the story to solve a problem, telling the title of the plan, the materials and equipment needed, the steps of the plan, the possible problems, and underline changes made to the plan to solve or avoid these problems.
Weeks 5-6	AGO Determine Aims, Goals, Objectives of actions	Select a situation from the story that is problematic. List at least 3 possible aims, goals or objectives the character might have concerning the solution to this problem. Choose a possible solution to the problem.
	PMI Rate ideas as Plus, Minus, or Interesting	Rate this action with two pluses, two minuses, and an interesting consequence of this action.
Weeks 7-8	APC Determine Alternatives, Possibilities, Choices	Select a situation from the story and generate at least five alternatives, possibilities and choices for reacting to or solving the situation.
	RULES Create Rules	Write three rules that you think the character should follow regarding the situation.
Weeks 9-10	OPV Consider Other People's Views or other points of view	Choose a character's actions in the story. Make up three different character's opinions or views of these actions. The characters can be people you make up that were not mentioned in the story, but they need to make sense with the story.
Weeks 11-12	FIP Determine the First Important Priority and prioritize actions	Give three possible suggested actions or reactions to a character who is doing something. Think about which would be most important and put these three ideas in order according to priority, giving a reason for the order of each.

As a summative assessment for each novel, students completed a project that showed the main elements of the story. Students chose from the list in Table 3. The rubric used to score the final project had five criteria, each worth two points with partial credit given. The criteria were: (a) five significant events were depicted; (b) the ideas made sense and were ordered in connection to the story; (c) creativity of the product (unusual ideas, elaboration and detail); insightfulness of ideas (skill, cleverness, deep thinking, extra considerations); and (e) overall appearance and quality of the product.

Table 3. *Choices for Summative Project*

Product	Description
Movie Poster	Create a movie poster for the book showing five important scenes that tell the main events of the complete story.
Timeline	Create an illustrated timeline showing at least five significant events
Bag or Objects	Draw a suitcase or bag containing five objects that could be used to recreate the entire story. Each object represents a significant story event. Describe the objects and their symbolism in order according to story events.
Puzzle	Create a five-piece puzzle that tells the main events of the story in order. On the front of each piece, draw an important scene from the story and, on the back, explain the significance of the scene.
Collage	Create a collage of pictures from magazines that represent five main events of the story. Put them in order clockwise around a circle and write an explanation on the front or back.
Diary Entries	Create five illustrated diary entries for the main character of the story showing the most important story events in order.
Crown	Create a story crown or hat that is decorated with five illustrated main story events and number them in order or use arrows to show their progression.
Mobile	Create a string and paper mobile that shows the five main events of the story. Illustrate them, and write a sentence on the back of each piece explaining their significance.

Ratings of Interest, Enjoyment, and Perceived Understanding

At the end of work on a novel, students rated the novel by circling a number from 1 to 10 on a brief survey instrument to indicate how interested they were in the topic after reading the novel 1 = not interested at all; 10 = very interested). They also circled a number from 1 to 10 on how much they enjoyed reading the novel (1 = did not enjoy at all; 10 = enjoyed very much) and, again, circled a number from 1 to 10 to indicate their perceived understanding (1 = did not understand it at all; 10 = understood it very well).

Results

Student Attitudes toward the Different Types of Novels

Table 4 shows that students reported greatest enjoyment in reading, most interest for the story and greatest understanding of graphic novels followed by heavily-illustrated novels and then traditional novels. Several *t*-tests were conducted to determine if the differences in ratings were statistically significant and the effect sizes of those

determined significant were calculated using Cohen's *d* (Cohen, 1988). These are reported in Table 5.

Table 4. *Mean Students-Reported Attitudes on a Scale of One to Ten with Ten Indicating Most Enjoyment, Greatest Interest, or Greatest Understanding*

Area Of Student Attitude	Mean Rating of Type of Book Being Read		
	Graphic Novel	Heavily-Illustrated Novel	Traditional Novel with Few Illustrations
Enjoyment of reading	9.0 (0.9)	8.2 (1.6)	7.4 (1.9)
Interest in the story	8.9 (0.9)	8.1 (1.8)	7.5 (1.9)
Student perception of understanding the story	9.2 (0.9)	8.9 (1.6)	8.0 (1.9)

Note: Standard deviations are shown in parentheses.

Table 5 reveals that there were significant differences of enjoyment of reading between all three types of novels. The differences between graphic novels and traditional novels regarding enjoyment of reading were greatest with a large effect size. The differences between graphic novels and heavily-illustrated books were also significant with a medium effect size. Regarding interest in the story, there were significant differences between graphic novels and traditional novels with a large effect size, and smaller yet significant differences between graphic novels and heavily-illustrated novels with a medium effect size. There was no significant difference between heavily-illustrated and traditional novels in student interest in the stories. Finally, concerning students' perceived understandings of the story, there was again a large, significant difference between student ratings of self-understanding between graphic novels and traditional novels with a large effect size, but in student perceived understanding, the difference between graphic novels and heavily-illustrated novels was not significantly different. A significant difference occurred between heavily – illustrated and traditional novels with few illustrations that indicated a medium effect size.

Table 5. *Statistical Significance of Differences in Student Ratings of Enjoyment, Interest, and Understanding*

	Graphic Novels Compared to Traditional Sparsely-Illustrated Novels	Graphic Novels Compared to Heavily-Illustrated Novels	Heavily-Illustrated Novels Compared to Sparsely-Illustrated Traditional Novels
Enjoyment of reading			
p value from T-test	$p < 0.001$	$p < 0.01$	$p > 0.05$
Cohen's *d*	1.08	0.62	0.46

Table 5 (Cont). *Statistical Significance of Differences in Student Ratings of Enjoyment, Interest, and Understanding*

	Graphic Novels Compared to Traditional Sparsely-Illustrated Novels	Graphic Novels Compared to Heavily-Illustrated Novels	Heavily-Illustrated Novels Compared to Sparsely-Illustrated Traditional Novels
Effect size interpretation	Large	Medium	Medium
Interest in Story	$p < 0.01$	$p < 0.02$	Not significantly different
Cohen's *d*	0.94	0.56	-
Effect size interpretation	Large	Medium	-
Perception of understanding	$p < 0.01$	Not significantly different	$p < 0.01$
Cohen's *d*	0.81	-	0.51
Effect size interpretation	Large	-	Medium

Academic Performance: Project and Mid-Book Scores

The data in Tables 6 and 7 show that students scored higher on the midpoint assessment when reading graphic novels. The midterm assessment was given in written form when all students were half way through reading each novel. The midterm assessment questions consisted of applications of two Edward de Bono Thinking Skills in which the students had to use their knowledge of the skills and the novel itself to answer each of the questions. A rubric was used to examine creativity in the student responses, connection to the novel, adherence to the de Bono Thinking Skills steps and overall thoughtfulness of the response. An analysis of the midterm assessment data showed that students averaged a higher score on this assessment for graphic novels, followed by heavily-illustrated novels, and then traditional novels. The difference between scores of students when reading graphic novels compared to traditional novels was a large effect size, but the differences between graphic novels and heavily-illustrated novels and between heavily-illustrated novels and traditional novels were small. This indicates that the students' answers connected to graphic novels were more in-depth and creative. Students were able to interpret the pictures and story line of graphic novels when they were writing their responses to the midterm assessment. Heavily-illustrated novels scored second highest of the three types of novels. The pictures throughout the novel likely assisted students in following the storyline and allowed for good responses on the midterm assessment.

Similarly, the final project was evaluated using a rubric based on the creativity of student responses and connection to novel, but this assessment focused on the overall comprehension of the entire novel rather than the half completed at the midpoint. The students chose one of eight possible projects, a noted in Table 3, to complete for each novel. These projects were designed with similar components so that a general rubric could be used to score each of them. The data from the summative projects showed that the students scored, on average, highest for graphic novels, followed by the other two formats. Statistical calculations from Table 7 indicate that the difference between graphic novels and heavily-illustrated or traditional novels had a medium effect size. Students' illustrations were directly connected to the graphic novels and facilitated students' focus on the content of their project. The graphic novel summative projects were more colorful, had more pictures describing the events of each novel, and needed less student explanation of the drawings. Students reading traditional novels and heavily-illustrated novels scored very similarly on this project assessment. Students were able to use the text or illustrations provided to follow the storyline and create the summative project assessment with their personal insights.

The third row in Table 6 shows the average number of volunteered student responses to de Bono skill exercises discussed during class. Students provided more responses when the de Bono skills were being applied to graphic novels. This difference was statistically significant, but had a small effect size.

Table 6. *Mean Summative Project Scores, Mean Midterm Scores, and de Bono Thinking Skill Exercise Scores for Different Types of Novels*

Assignment	Graphic Novels	Heavily-Illustrated Novels	Sparsely-Illustrated Traditional Novels
Mean Midterm Test Score (Out of 10 Possible Points)	8.1 (1.0)	7.7 (1.1)	7.4 (1.0)
Mean Project Score (Out of 10 Possible Points)	7.5 (1.0)	6.9 (1.1)	7.1 (1.0)
Mean number of student volunteered responses to de Bono Skill Exercises during class	3.2 (1.0)	3.0 (1.0)	3.0 (1.0)

Note: Standard deviations are shown in parentheses.

Table 7. *Statistical Significance of Differences in Student Performance*

	Graphic Novels Compared to Traditional Sparsely-Illustrated Novels	Graphic Novels Compared to Heavily-Illustrated Novels	Heavily-Illustrated Novels Compared to Sparsely-Illustrated Traditional Novels
Mean midterm score	$p < 0.001$	$p. < 0.01$	$p = 0.025$
Cohen's *d*	0.70	0.38	0.29
Effect size interpretation	Large	Small	Small
Mean project work score			
p value from T-test	$p < 0.01$	$p < 0.01$	Not Significant
Cohen's *d*	0.41	0.56	-
Effect size interpretation	Medium	Medium	-
Mean number of student volunteered responses to de Bono Skill Exercises during class	$p < 0.001$	$p = 0.01$	Not Significant
Cohen's *d*	0.19	0.19	-
Effect size interpretation	Small	Small	-

The data in Table 8 show that on two skills, Plus Minus Interesting and Other People's Views, the numbers of student responses for the corresponding skill for the different types of novels were significantly different. These two skills ask the student to generate ideas from different perspectives; graphic novels may support students in seeing situations from various views. Certainly, the illustrations in graphic novels often show a scene from various perspectives – for example, in *Amulet* (Kibuishi, 2008) there is a series of panels that show the main character learning about the disappearance of her mother, while her little brother is learning about the house in which they found their grandfather and his role in the mother's disappearance. This may allow the reader to unconsciously adopt this multiple perspective viewpoint.

Table 8. *Number of Ideas Generated by Students for the Individual de Bono Skills*

de Bono Thinking Skill	Graphic Novel	Heavily Illustrated Novel	Traditional Novel	Significant Differences and Effect Size
Plus, Minus, Interesting (PMI)	3.3 (0.6)	3.1 (0.6)	2.9 (0.4)	Large effect size between graphic novels and traditional novels; Medium effect size between heavily-illustrated and traditional novels.
Consider All Factors (CAF)	3.1 (0.9)	3.0 (0.6)	2.8 (0.6)	
RULES	3.4 (0.9)	3.2 (0.7)	3.0 (1.2)	
Consequence and Sequel (C&S)	2.9 (0.8)	3.0 (0.8)	2.8 (0.7)	
Aims, Goals, Objectives (AGO)	3.1 (0.7)	3.3 (1.1)	3.2 (1.0)	The differences were not statistically significant
PLANNING	3.6 (1.5)	3.2 (1.2)	3.6 (1.0)	
First Important Priorities (FIP)	3.6 (1.2)	3.5 (1.3)	3.3 (0.9)	
Alternatives, Possibilities, Choices (APC)	3.2 (1.0)	3.0 (1.0)	3.4 (1.3)	
DECISIONS	2.9 (1.0)	2.6 (0.9)	2.6 (0.6)	
Other People's Views (OPC)	3.0 (1.0)	2.6 (0.9)	2.7 (0.8)	Medium effect size between graphic novels and traditional novels

Conclusion

Summary of Results

In this study, reading of graphic novels stimulated more student discussion using the structure of thinking skills and greater story comprehension. The mean number of student responses to the de Bono thinking skill prompts initiated by students was higher for the graphic novels than for either of the other two novel forms. The heavily-illustrated novels and the traditional novels had the same number of student responses to discussions centered on a thinking skill question. This finding may indicate that graphic novels allow students to process literature information more deeply because of the text-image integration. Graphic novels also increased student comprehension as measured by the midterm assessment writing prompts and final project scores, providing further support for this argument. Student midterm assessment responses for

graphic novels showed higher assessment scores than either of the other two novel forms. On this measure, the heavily-illustrated novel scored higher than the traditional novel. Students' final project scores were higher for graphic novels than either of the other two novel forms with traditional novels receiving higher project scores than heavily-illustrated novels. The survey results showed that the students reading graphic novels reported greater enjoyment of reading and stronger interest in the story than when reading either of the other two novel forms. These differences were associated with large effect sizes when ratings of graphic novels were compared to traditional novels and medium effect sizes when compared to heavily-illustrated novels. These differences in student perceptions show the power of graphic novels to motivate and engage students.

Student ratings of perceived understanding of the story were greater for graphic novels compared to traditional novels with a large effect size, but no significant difference in perceived understanding was found when graphic novels were compared with the heavily-illustrated novels. This finding highlights the important role that illustration use in directly telling the story plays in comprehension.

Recommendation

The potential of the graphic novel as a powerful tool to increase the 21st Century student's interest in reading was demonstrated in this study. The graphic novel proved to be superior to both the heavily-illustrated novel and the traditional novel in all of the categories that were studied. Today's elementary students live in a society where free time access to visual media is increasing daily; naturally, text will also evolve. Perhaps we are witnessing the beginning of a new era in learning, in which graphic novels will replace traditional novels in the manner similar to the way television replaced radio. It would be interesting to extend the study to more classrooms and a larger sample to determine if the trends witnessed here continue. At the very least, this study indicates that graphic novels should be made available to students to increase their interest and enjoyment in reading. However, the use of graphic novels also improved student comprehension and deeper understanding of reading material. While further research in the graphic novel text format should be conducted to confirm what was found in this study, the value of the graphic novel as an educational tool cannot be dismissed.

● ● ●

Kimberly Ann JENNINGS is an elementary school teacher with a focus on literacy who completed her Master's degree in Education of the Gifted at the University of Northern Iowa.

Audrey C. RULE is an Associate Professor and Coordinator of the Education of the Gifted Graduate Program at the University of Northern Iowa, teaching graduate courses in creativity, problem-solving, gifted education, and science education.

Sarah M. Vander ZANDEN is an Assistant Professor in Literacy Education in the Department of Curriculum and Instruction at the University of Northern Iowa.

References

Abbott, T. (1999). *The Secrets of Droon: The Magic Staircase.* New York: Scholastic.

Allington, R. (2011). *What really matters for struggling readers*, 3rd *Ed*. New York: Allyn & Bacon.

Babbit, N. (1975). *Tuck Everlasting.* New York: Farrar, Straus and Giroux.

Barack, M., & Doppelt, Y. (1999). Integrating the Cognitive Research Trust (CoRT) programme for creative thinking into a project-based technology curriculum. *Research in Science and Technological Education,17*(2), 139–151.

Bosma, K., Rule, A. C., & Krueger, K. S. (2013). Memorable, enjoyable reading about American Revolution with graphic novels. *Social Studies Research and Practice, 8* (1).

Briggs, S. R. (2010). Using Literature Circles to Increase Reading Comprehension in Third Grade Elementary Students. ERIC Document Reproduction Service No. ED 511 091.

Brozo, W. G., Shiel, G. & Topping, K. (2010). Engagement in Reading: Lessons Learned from Three PISA Countries. *Journal of Adolescent and Adult Literacy, 51*, 304-315.

Certo,J., Moxley, K., Reffitt, K., & Miller, J. (2010). *I Learned How to Talk About a Book: Children's Perceptions of Literature Circles Across Grade and Ability Levels. Literacy Research and Instruction, 49*(3),

Clay, M. (2000). *Becoming literate: The construction of inner control*. Portsmouth, NH: Heinemann.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cronin, D. (2000). *Click, Clack, Moo Cows That Type*. New York, NY. Simon & Schuster Children's Publishing Division.

Dahl, R. (1984). *The BFG.* New York: Puffin Books.

Daniels, H. (1994) Literature Circles: Voice and Choice in the Student-Centered Classroom. York, ME: Stenhouse.

de Bono, E. (1970). *Lateral thinking: Creativity step by step.* New York, NY: Harper and Row Publishers

Edwards, B. (2009). Motivating middle school learners: The graphic novel link. *School Library Media Activities Monthly, 25*(8), 56-58.

Guthrie, J.T. (2001). Contexts for engagement and motivation in reading. Reading Online, 4(8). Available: http://www.readingonline.org/articles/art_index.asp?HREF=/articles/handbook/guthrie/index.html

Jewett, C. (2008) Multimodality and literacy in school classrooms, *Review of Research in Education*. 32(1)241-267.

Juster, N. (1961). *The Phantom Tollbooth.* New York: Random House, Inc.

Kibuishi, K. (2008). *Amulet: Book One: The Storekeeper.* New York: Graphix.

Kinney, J. (2007). *Diary of a Wimpy Kid.* New York, NY: Amulet Books, 2007.

Kress, G. (2003). *Literacy in the new media age*. New York, NY: Routledge

Lavin, M.R. (1998). Comic books and graphic novels for libraries: What to buy. *Serials Review, 24*(2), 31–46.

Lyga, A., & Lyga, B. (2004). *Graphic novels in your media center: A definitive guide*. Westport, CT: Libraries Unlimited

Martin, A. (2009). Graphic novels in the classroom. *Library Media Connection, 28*(2), 30-31.

Martin, A., & Godwin, L. (2002). *The Doll People.* New York: Hyperion Books for Children.

Matthews, S (2011). Framing preservice teachers' interpretations of graphic novels in the social studies classroom. *Theory and Research in Social Education*, 39(3), 416-446.

Melchior, T. M., Kaufold, R. E., & Edwards, E. (1988). How schools teach thinking: Using CoRT thinking in schools. *Educational Leadership, 45* (7), 32–33.

Michalski, R. (2005). Forward thinking, sideways. *C M A Management, 79*(2), 20.

Mills, H. & Jennings, L. (2011) Talking about Talk: Reclaiming he Value and Power of Literature Circles. *Reading Teacher*, 64(8), 590-598. doi:10.1595/RT.64.8.4

Muth, J. (2002). *The Three Questions*. New York, NY: Scholastic Press.

O'English, L. Matthews, J. G., & Lindsay, E. B. (2006). Graphic novels in academic libraries: From *Maus* to manga and beyond. *The Journal of Academic Librarianship, 32*(2), 173-182.

Paulsen, G. (1996). *Brian's Winter.* New York: Random House.

Peterson, S. , & Belizaire, M. (2006). Another look at roles in literature circles. *Middle School Journal, 37*(4), 37-43.

Pilkey, D. (1997). *The Adventures of Captain Underpants.* New York, NY: The Blue Sky Press.

Ruckman, I. (1984). *Night of the Twisters.* New York: Harper Collins Publishers Corp.

Rule, A. C., & Barrera, M. T., III. (2008). Three authentic curriculum-integration approaches to bird adaptations that incorporate technology and thinking skills. ERIC Document Reproduction Service No. ED 501247.

Rule, A. C., & Barrera, M. T., III, (2006). CoRT thinking skills guide PBL science. *Academic Exchange Quarterly, 10*(4), 145-149.

Rule, A. C., & Stefanich, G. P. (2012). Using a Thinking Skills System to Guide Discussions during a Working Conference on Students with Disabilities Pursuing STEM Fields. *Journal of STEM Education: Innovations and Research, 13*(1), 1-12.

Salisbury, K. E., Rule, A. C., & Vander Zanden, S. M. (in review). Performance of high-potential versus identified gifted middleschoolers during a prairie restoration project.

Selznick, B. (2007). *The Invention of Hugo Cabret.* New York: Scholastic.

Sipe, L. R. (2008). Young children's visual meaning making in response to picturebooks. *Handbook on Research on Teaching Literacy through the Communicative and Visual Arts*, *2*, 381-392.

Smith, J. (2005). *Bone: Out from Boneville*. New York: Graphix.

Snowball, C. (2005) Teenage reluctant readers and graphic novels, *Young Adult Library Services*, 3(4) 43-45.

Telgemeier, R. (2010). *Smile.* New York: Graphix.

Trabachnick, S. (Ed.). (2009). *Teaching the Graphic Novel*. New York, NY: The Modern Language Association of America.

Wood, D. (2008). *Into the Volcano: A Graphic Novel.* New York: The Blue Sky Press.

Zohar, A., & Dori, Y. J. (2003). Higher order thinking skills and low-achieving students: Are they mutually exclusive? *The Journal of the Learning Sciences*, *12*(2), 145-181.