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The effects of students' ability to recall information based on teacher methods

Keanna Marie Ross
Rowan University

THE EFFECTS OF STUDENT'S ABILITY TO RECALL INFORMATION BASED ON TEACHER METHODS

by
Keanna M. Ross

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Dedications

I dedicate this manuscript to my parents for their everlasting love and support in all of my aspirations.

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Abstract

Keanna Ross
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Roberta Dihoff, Ph.D
Master of Arts in School Psychology

Technology runs the modern day world. Children whom are born in this generation are highly dependent and easily soothed by the electronics and television. Statistics show that children from ages 6 to 11 spend around 28 hours a week watching television. 71% of adolescents 8-11 have a television in their bedroom. (Television TV and Children: Your Child, n.d). Is it possible that this dependency on electronics have infiltrated our children's awareness in the classroom? Smartboards are very popular in schools today. In some schools, they are used throughout the entire day. Smartboards are used for basic instruction, interactive classroom games, displaying videos, and used a classroom tool for most teachers in America. This study is primarily aimed to determine if children are able to recall information more accurately by the means of electronic devices or by general education teaching methods.

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Chapter 1

Introduction

Purpose

The ability to recall information is imperative to learning. The purpose of this study is to gain a solid understanding of how to present information to students in a manner that they will be able to accurately recall information. New Jersey's Core Curriculum Standards for language arts literacy has three standards which focus on the ability to recall information. First, Standard 3.1.2.1, states that the student must demonstrate the ability to recall facts and details of a text. Second, Standard 3.4.1 Listening comprehension focuses on recalling information from listening to stories, poems, television, and film. Third, Standard RL.1.2, is retelling stories including key details, and demonstrate understanding of their central message or lesson. (English Language Arts Standards, Reading: Literature Grade 1., n.d.). This study covers both standards which are imperative to a student in the first grade (New Jersey Department of Education , 2017) The two most common teaching methods in an elementary classroom are through direct instruction or with the use of technology. In this study there will two groups of 1st grade students. Both classes will listen to the story *Harry the Dirty Dog* by Gene Zion. One group of students will have the story read to them while sitting on the carpet. The second group of students will listen and watch an animated version on the interactive whiteboard.

Hypothesis

It is hypothesized that students will be able to retell information more accurately when the story is presented with an audio visual model compared to the students who were read the story by the teacher.

Operational Definitions

The following operational definitions are used throughout the study:

Interactive White Boards- a tool used in the classroom that projects computer images on a board using a digital project. Images on the boards are able to be manipulated by the user by either a computer or the screen. (BBC, n.d)

Smart Boards- an interactive white board with *SMART* technology. (PLB, n.d)

Working Memory- the temporary storing, sorting, and managing of information that includes learning, reasoning, and comprehension (Medical Definition of Working memory., n.d.).

Assumptions

Assuming that since there is a constant desire of technology in children, students will pay more attention the video animated version of the story compared to the voice of the teacher. Students especially at the elementary age are infatuated with television and animated characters. Students who are sitting on the carpet listening to the teacher talk will be much more distracted than those who are watching the animated version of the story.

Limitations

The students that are being read the story by the teacher, will be sitting on the carpet next to one another compared to at their desks. This could increase the chance of

distractibility in some students. There is a possibility that the students may have been exposed to the literature prior to this study. This sample may not accurately represent all students whom are in the first grade in other regions of the United States.

Chapter 2

Literature Review

Stages of Life

Students in the early elementary ages are in Erik Erikson's Psychosocial Stages called Industry vs. Inferiority. During this stage, individuals range from ages 6 to 11, otherwise known as the school age years. During this stage, students are spending the majority of their time dedicated to their school work (Cherry, 2016 Very Well). This study primarily focuses on students in this particular stage. The children in this study are ages 6 to 7 years old. Also, according to Piaget's Stages of Cognitive development, the students are in the preoperational stage ranging from ages 2 -7, and the concrete operational stage ages 7 to 11 (Television (TV) and Children: Your Child, n.d). During this stage students are to understand language, engage in symbolic play, begin to think logically as they age (Anthony, n.d) According to Morin, there are certain cognitive milestones that students in the first grade at ages 6 and 7 should reach. Students should be able to learn based on what they hear and read (Morin, 2014). This skill is especially helpful towards learning and retaining new material.

Memory Encoding

One of the most important and crucial skills that children at this age need to gain is the ability to recall and retell information. This is a skill that will be useful and beneficial throughout a lifetime. The first initial step to creating a memory is memory encoding. Encoding gives the brain the opportunity to create either a short-term or long term memory (Human Memory, n.d). In this particular study we are focusing on the ability to recall specific information from a short story. This is considered as working

memory. Working memory gives us the ability to manipulate information and recall information. (Kulman, Dr. Randy, and James Daley, 2016) This specific function takes part in the central executive section of the prefrontal cortex. The prefrontal cortex has two neural loops. The first is the visual cortex of the brain which helps us recall visual information. For example, if one were to watch a movie, he or she would remember specific clips of the movie when trying to remember a certain part of the film. Using the visual cortex, we remember in pictures. The second loop is called the phonological loop which processes words. This creates the "inner voice" we may hear in our head when retrieving information. Using the same example, instead of viewing a mental picture of what occurred, we are able to retrieve what have previously heard (Human Memory, n.d). Our attention, regulated by both thalamus and the frontal lobe, causes neurons to fire more frequently creating a memory. Depending on the type of stimuli we are receiving, depends on how our brain chooses to store them for later use. In this study we are comparing two different types of teaching methods with the curiosity of understanding how students will be able to recall the information based on its presentation. The group of students that are watching the video of *Harry the Dirty Dog*, will be engaging in visual encoding. Visual encoding takes the images that we see and temporarily stores them using the amygdala (Human Memory, n.d).

U.S Television Statistics

In the year of 2016, it is not news that television plays a large role in the household. Statistics show that children from ages 6 to 11 spend at around 28 hours a week watching television. 71% of adolescents 8-11 have a television in their bedrooms. (Television TV and Children: Your Child, n.d). Television plays a very active role in the

home life of a child. Adolescents at this age are especially spending a considerable amount of time watching various television shows compared to playing outside or pursing tasks that are related to education. Needless to say, in the eyes of a child watching television is glorified and is desired by the child. (Television (TV) and Children: Your Child, n.d).

Teaching Methods

The style of teaching methods, that teachers engage in will have a direct effect on their students. There are two types of teaching methods. They are teacher-centered approach and student-centered approach. In the teacher-centered approach, the teacher is the main focus of the classroom and the sole authority figure in the room. The teacher is viewed as the source of knowledge while students are portrayed as an "empty vessel" (Teaching Methods, n.d). The teacher centered approach focuses on student achievement, and understanding what the student is gaining from the lesson academically. The educator in this case is more concerned with the content of the lesson rather than how well the students are processing the information that is being presented to them. (Brown, K.L, 2003). In this approach to learning, the primary end goal of the lesson is test and assessment to ensure that information that is being passed onto students is being retained. (Quinonez, N, 2014.) Within the teaching centered approach, stands one sub-category named direction instruction. Direction instruction refers to the most common and primary style of teaching. In this sub-category there are three tiers; formal authority, expert, and personal model. Teachers who participate in formal authority demonstrate that they are academically superior to their students. An ideal lesson for this particular model is a PowerPoint lecture. Students are held accountable for their actions by placing great

emphasis on rules and classroom expectations (Teaching Methods, n.d). The expert teacher continues to display superior knowledge in comparison to students, but instead try to guide students in the right direction through the learning process. Last, in the personal model teachers lead by example. The teacher demonstrates and shows students how to understand by copying the teachers process. By mimicking, students are expected to learn through observation (Teaching Methods, n.d).

The second teaching method is called, student-centered approach. In this model, the teacher remains to be the authority figure but, the student plays a more active role in the classroom. Unlike the teacher centered approach, both student and teacher share an equal amount of work. Assessments that measure student knowledge are not limited to formal assessments. Teachers can or will incorporate group projects, portfolios, as well as class participation as a check in to view students understanding of the lesson (Quinonez, N, 2014). In the student centered approach, there are two subcategories; inquiry based learning and cooperative learning. Inquiry based learning grants students a hands on approach in learning. There are three tiers to inquiry based learning; the facilitator, personal model, and the delegator.

In the facilitator model, the teacher-student relationship is crucial. Due to the fact that teachers and students share an equal amount of work together, they also engage in the learning process together as well. The teacher is as more of a guiding supporting figure in the classroom than a knowledgeable dictator. The facilitator model also promotes a great deal of student independence. The personal model, like the teacher centered approach by using the teacher as an example to facilitate learning. Teachers who operate in the delegator model play a more passive role in the classroom (Teaching

Methods, n.d). In this model, students are expected to consistently participate in group instruction. The instructor in this case is used a "resource" in order to answer any material that is unfamiliar or unclear (Quinonez, N, 2014).

The second sub category is called Cooperative Learning. In the cooperative learning models students rely and use each other to promote learning. A common technique that is used in a cooperative learning classroom is "Think Pair Share" (Teaching Methods, n.d). During "Think, Pair, Share", students are asked to first think about the presented question. Pair up with the student sitting next to them and converse about the question. After students talk for around 2 minutes, the teacher regroups and expects students to share their ideas. This style of teaching also promotes the idea of reciprocal teaching. Reciprocal teaching is the strategy of teachers sharing the role of the student. Students are able to lead and guide a lesson by including four strategies; predicting, question generating, summarizing, and clarifying (All about Adolescent Literacy, n.d).

Modern Educational Television

For those who supervise children on a daily basis, it is very easy to soothe a child by turning on the television. By turning on the T.V, the child is nearly glued to the television screen, unbothered by everything else going on around him or her. During this time many parents or those who are in immediate care of the child, will turn on educational shows so that he or she is exposed to information in hopes of benefiting their academic success and social understanding to the world around them. Currently, some of the most familiar educational television shows for children are *Dora the Explorer, Sesame Street,* or maybe even *Bubble Guppies*. These shows are wildly popular for

children who are toddlers but not our upcoming elementary students. While these shows may be popular, it is important to recognize the content and skills that these shows promote.

CNN proposed a list of educational television shows that are for optimal for children ages 5-9. All television shows that are mentioned are also all broadcasted by PBS (Public Broad Casting Service). CNN recommended six shows that promote literacy skills, Animalia, Arthur, Martha Speaks, The Electric Company, Wishbone, and WordGirl Bryson, C, 2016). These shows teach children different vocabulary words, how to put words together, and demonstrate different reading skills. Math shows are not nearly as popular as shows that promote language arts. Two shows that promote a mathematics based curriculum are, Cyber Chase and Design Squad. Four shows were recommended to inform children about different parts of the world, different animals, and nature. These shows are as follows, Wild Kratts, SciGirls, DragonFly TV, and Fetch! With Ruff Ruffman. Two shows that were suggested to teach the younger generation about culture and foreign languages are Maya & Miguel and Postcard from Buster. (Bryson, C, 2016).

Digital Learning

Worldwide there are 3 million classrooms that have a Smart Board and 57% of American classrooms use an interactive white board. There are Digital lessons in math, science, and language arts accumulate are extremely popular, gaining more than 3 billion dollars a year (*Television (TV) and Children: Your Child:*. N.p., n.d. Web. 2016). 77% of teachers use the internet for instruction. Several different companies offer online digital software which is used on a daily basis in the classroom. For example, the students in

Katz Dalsey use a variety of digital software for literacy, reading, language arts, and mathematics. *Pearson Success Net*, is used for language arts and mathematics (Pearson, n.d). In first grade, *Scott Foresmans' Reading Street Common Core* is implemented and offers a total of 5 units for the students. Each unit comes with interactive games for students to be used with the interactive white board, as well as read aloud stories. The mathematics software used in Katz Dalsey is *enVision Math Common Core* which offers 17 topics with interactive games. As well as, student and teacher editions that can be displayed and used on the board. Students also have the ability to take quizzes after each lesson using the interactive white board (Pearson, n.d). Students have the opportunity to learn to read. This particular school used a program called *Reading Mastery, by McGraw Hill Education*. Reading Mastery gives students from kindergarten to fourth grade the core foundations useful for reading. (Reading Mastery, 2016). This program is displayed each morning. This program has its own block of instruction during the school day. Unlike *Pearson* and *McGraw Hill, Reading Mastery* is solely operated by the teacher and uses the teacher centered approach.

Chapter 3

Methodology

In this study it is hypothesized that students who watch the video animation of *Harry the Dirty Dog by Gene Zion,* will be more successful in recalling information than the students who will be read to by the teacher.

Participants

The participants in this study are elementary school students in southern New Jersey. Considering that all students are minors, parental permission was granted for all students to participate in this study. In the participating school, only the students of the 1st grade were offered the opportunity to volunteer in this study. There are a total of 48 students, 27 males, and 21 females. There are 80% of the students are Hispanic or Latino, 16% are Black, 4% Asian, and no students reported as White.

Materials and Design

An assessment was created by the researcher in order to measure how well students were able to recall information from the story. The participants watching the animated version of *Harry the Dirty Dog by Gene Zion,* will receive Form A, the participants listening to the story will receive Form B. Both forms are identical. The assessment consists of ten multiple choice questions. There were three options for each question. The assessment questioned students on character names, details from the beginning, middle, and end of the story. It also required students to remember sources of conflict for the main character.

Procedure

Once Board of Education approval was received by Katz Dalsey Academy, all students were recruited by the principal researcher. The students were recruited by handouts that were sent home to the parents, along with the parental consent form. The parental consent form explained to the parent or primary caregiver, the nature of the study as well as soliciting the student's voluntariness to participate in the study. In order for the student to participate in the study, it was required that the form must be signed and returned by the parent.

Since the study was operated during normal school hours, the participants were pulled out of class to complete the study. The participants were split into four groups using an online randomizer. Students were spilt into four separate groups due to room capacity and available desk space. Students were pulled out of class into one room. The first two groups will receive the animated version of *Harry the Dirty Dog by Gene Zion.* The researcher will show the animation on the Smart Board, to students. After the video is completed, the researcher will pass out Form A. All questions and answer choices will be read to students. The second and third group will sit on the carpet and only listen to the story *Harry the Dirty Dog by Gene Zion.* The story will be read to the students by the primary researcher. After the story is completed, the students will return to their desk and begin assessment B. All questions and answer choices will be read to the students. All assessments are anonymous.

Chapter 4

Results

The first hypothesis was that students who received the animated version of the short story would be able to recall the information better than those were read the story. There were a total of 45 participants that volunteered for this study. One of the participant scores were omitted due to the lack of anonymity. The participant wrote their name on the test assessment. Group 1 who watched the animation version of *Harry the Dirty Dog* by Gene Zion, reported an average 92.1739. Group 2 who received the auditory version of short storfy reported an average of 85.7143. An independent t test between determined the results were not significant, t (42), p= 0.307. *Table 1* illustrates the scores of this particular study.

Table 1

Ability to Recall Information

	N	Mean
Animation	23	88.2609
Auditory	21	92.3810

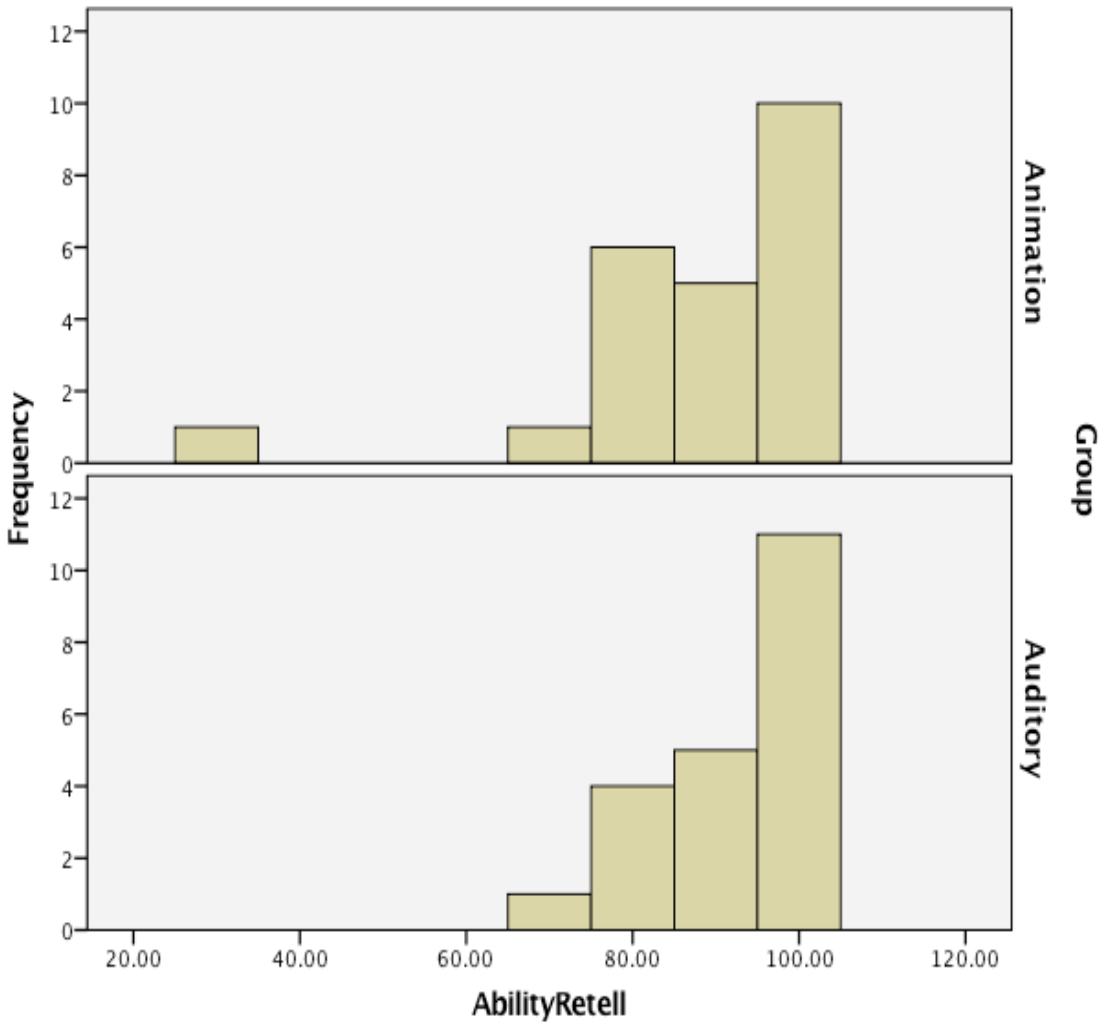

Figure 1. Comparison of Animation and Auditory Scores.

Figure 1 show the comparison of the test scores based on the variables presented. It is clear that there is a slight difference in test scores. The majority of students scored about an 80 percent.

Chapter 5

Discussion

Summary

The purpose of this study was to determine if there was an ideal teaching method that aids in helping children at the elementary level recall information. Teachers and educators are consistently finding new ways to reach students within the classroom. As discovered by my results, this study has suggested that there is no significance in teacher methods and the students' ability to recall information. When comparing the mean of both groups, Group 2, the auditory group performed slightly better. As a result, the hypothesis was rejected.

As discussed technology, plays a huge role in students in both the classroom and in their everyday lives. Educators are insistent on promoting the use of technology in the classroom that aids in learning. Smartboards and interactive white boards have made their way into the classroom. According to Smart Technologies, over 3 million classrooms worldwide have a Smart Board in the classroom. 57% of classrooms in America use the interactive white board (*Television (TV) and Children: Your Child:*. N.p., n.d. Web. 2016). Interactive white boards are increasing in popularity due to their enriched learning and teaching experience, student interaction, and the access to a variety of information and resources. (The Advantages of SMART boards in the classroom, 2014).

Limitations

This current study suggests there was no significant difference in the styles of teaching and the ability of students being able to recall information of a story. Since no significance was found there are a number of limitations to be considered. First, is the

book of choice, *Harry the Dirty Dog* is a fairly easy read for students who are in the first grade. The animated version of this book ran for 4 minutes and 52 seconds. Reading the book aloud was 6 minutes and 3 seconds. There is a possibility that the story was too short therefore, it was very easy for them to know the majority of the answers. If the students were presented with abstract material of a higher difficulty, the results may have turned out differently.

Second, students at this age are exposed to several different read aloud stories whether they are at school or at home. It is possible that some of the students were already exposed to the story. In the event that the students have already read or listened to the story, they would pass the test fairly easily.

Future Direction

The research in this study certainly opens a stage for further research. In elementary settings there are a variety of stories that children are exposed to. As previously mentioned there is a possibility that some of the children may have be exposed to the selected text prior to the study. In the future, it would be interesting to see how children would respond to a random topic and tested on their ability to remember specific facts about the information they were presented. Future studies should consider a larger sample size across various categories of socioeconomic status and ethnicities.

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Appendix

Harry the Dirty Dog Assessment

1) What is the dog's name?
   a) Betty
   b) Harry
   c) Duke

2) What didn't the dog like?
   a) Taking a bath
   b) Going for walks
   c) Getting the newspaper

3) What did the dog do with this brush at the beginning of the story?
   a) Eat the brush.
   b) Buried it in the back yard
   c) Play with the brush

4) How did the dog get dirty?
   a) Playing tag with other dogs
   b) Swimming in a lake
   c) He didn't get dirty

5) When the dog came back why didn't his family know it was him?
   a) He was taller
   b) He was missing his dog tag
   c) He was too dirty

6) How did Harry feel when his family did know it was him?
   a) Sad
   b) Happy
   c) Angry

7) How did the dog get clean again?
   a) He took a bath
   b) He jumped in the lake
   c) He shook the dirt off.

8) After dinner what did the dog do?
   a) Go back outside
   b) Play with his family
   c) Go to sleep.

9) Who was the main character?
   a) The mom
   b) The dog
   c) The sister

10) What color was the dog
   a) White with black spots
   b) Brown
   c) Yellow