The Effect of Thinking Maps on Reading Retention

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Effect of Thinking Maps On Retention Levels

The subjects of this study were fourth grade public school children from an inner city school. Typical reading abilities of these children are below grade level due to many sociological deficits not examined in this study. Current system wide elementary level retention policies allow these children to be passed to higher grades without having developed adequate educational foundations. Most readily noticeable of these deficits is that many fourth grade students are testing at much lower than grade level reading ability. These lower than grade level reading abilities impact the student's abilities to retain information given in written form.

New strategies must be used to overcome these deficiencies. A thinking map or graphic organizer is a visual approach used to organize a students thoughts that was created by David Hyerle (Hyerle, 1991). Hyerle's thinking maps create a visual approach to help students organize their thoughts, generate and expand ideas and retain information (Hyerle, 1991).

Thinking maps are designed for students of any learning level to increase their knowledge and thought processing skills. These maps are used to decode and evaluate information and are of eight basic types:

Circle Maps: Used to collect information on a specific topic. Used for defining in context during brain storming activities.

Bubble Maps: Used to describe character traits. Adjectives are commonly used with this type of map.

Double Bubble Maps: Used to describe two separate things by comparing and contrasting.

Tree Maps: Used for classifying and grouping to sort information hierarchically according to qualities.

Brace Maps: Used for analyzing whole physical objects and its parts. Used to support spatial reasoning and for determining physical boundaries.

Flow Maps: Based on flow charts. Used for showing sequence, order, timeline, cycles, actions, steps and directions. Focuses on identifying the relationships between stages and sub-stages.

Multi-Flow Maps: Used for showing causes and effects of events. More complex than a flow map, works well for expanding knowledge about events and influences of change on a topic.

Bridge Maps: Used for seeing and interpreting analogies and for discovering a wider pattern of relationship in metaphors (Hyerle , 1996).

These visual aids, thinking maps, proved to work well for students with limited English language skills as well as students who were not performing well on grade level (Hyerle 1995/1996). In "Effects of Teaching Thinking Skills on SAT Scores" (Worsham and Austin 1983), students who were exposed to thinking maps over a period of three consecutive semesters received higher verbal scores on their SAT than students not exposed to thinking maps.

The purpose of this study was to see if short term exposure to thinking maps would show measurable improvements in reading retention and as a secondary benefit, help improve the student's narrative writing skills.

Hypothesis

The use of thinking maps will have a positive effect on retention levels in reading and in addition, will improve the student's narrative writing skills. Expanding on the conclusions found in the "Effects of Teaching Thinking Skills on SAT Scores" (Worsham and Austin 1983), I will attempt to show that even over a shorter time period and with lower performing students, that the use of graphic organizers, specifically thinking maps, will improve these students ability to retain specific information from their reading assignments. As further proof I will show through their improved writing skills based on these same reading assignments that the thinking maps improve retention levels and mental organization.

Method

Participants

The subjects are 4th grade public school children. They are grouped by reading ability. The subjects are below grade level in reading. They are classified as: 9 girls and 8 boys; 2 are ESOL; 3 are EMH; 7 are Title I; 2 Hispanics, 12 Blacks and 3 Whites. The students participated in activities over a 4 week period.

Procedure

The study unit chosen was on famous black Americans at an appropriate 3rd grade reading level. The student's performance level was based on how well they could answer multiple choice questions on the following areas: main idea, details, sequencing, inferences, and vocabulary. Also, students were assessed on their narrative writing ability.

During the first 2 weeks students read stories aloud, had oral discussion (teacher directed), and then took a test after reading a selection on famous black Americans. After the students took four multiple choice test about the material included in the stories I selected two famous black athletes, Wilma Rudolph and Hank Aaron, as subjects about which the students were to write an essay. Before the writing process I explained in written form (using the overhead projector) and oral form what I intended them to express in their writing. I wanted them to compare and contrast these two athletes and to express how they personally felt about them. I allotted 30 minutes for them to work and complete their essays.

The last 2 weeks of the experiment students used thinking maps as an aid. I used three types of thinking maps; flow charts, bubble maps, and double bubble maps to assist students in their reading and writing performance. I again used the same type of assessments: multiple choice tests and narrative writing. After each oral reading about a famous black American the students as a group, guided by the teacher, created a flow chart on the person about which they had just read. The flow chart would contain information creating a time line beginning with the date of birth, important details in their

life and the date of their death (Figures 1.1 and 1.2). Students also would individually create a bubble map describing a particular person. After sharing their bubble maps with the class, students were subjected to a multiple choice test. As a test of retention the students were not allowed to look at their thinking maps during testing.

I chose for their narrative writing two famous black American explorers, Matthew Henson and Guy Bluford. Using a bubble map for each explorer, students recorded information describing each individual (Figures 2.1 and 2.2). As a group we made a double bubble map which combined information about the two explorers in order to compare and contrast their lives (Figure 3). I again expressed in written and oral form the criteria(same as in the first 2 weeks) I was using to assess them in their essays. Students were allowed to use their thinking maps they created by themselves and as a group to assist them during the writing assignment.

Results

I first studied and compared the scores on the multiple choice test given to the students throughout the experiment. I tallied how many students got correct answers on each of the following categories: main idea, details, sequencing, inferences, and vocabulary. I then averaged the number of students who got the correct answers when using thinking maps verses when students were not exposed to them. I found the following information when I compared the averages. Most student's as individuals and the class as a group had improved scores when they used thinking maps. Students particularly scored higher on questions relating to sequencing and details from the stories (figure 4).

When assessing the students' narrative writings I saw a significant difference in the students writing abilities when using thinking maps. Students improved in areas such as organization and including specific details in their writing. Most students finished in the allotted time when using thinking maps (figures 5.1 and 5.2).

Discussion

The findings of this study indicate an improvement of performance level when low performing and achieving students use thinking maps. In tests on readings, students eagerly expressed rational thought when analyzing problems of certain characters. In their written essays, students appeared more self confident and independent. Students were able to write longer and organize their thoughts better when using their double bubble maps. Also, students did not ask for assistance as often when using their thinking maps during their writing. Teachers should consider the benefits in using thinking maps in other content areas such as math and learning concepts such as problem solving.

Although at first glance the test results support my hypotheses, I must consider the validity of my study. For this research to be truly valid the subjects must not have been exposed to thinking maps prior to my research. Since thinking maps have been used for several years, predominately by Title I and EC Teachers, as well as by regular classroom teachers, I could not get a true sample of unexposed subjects for this project.

In regards to my own knowledge of how thinking maps should be taught, I admit I am not trained in am therefore, not truly qualified to teach this type of learning approach. Teachers need to be trained on how to introduce and model for students in order for this

type of learning approach to be successful (Hyerle, 1995/1996). Although I asked for professional input from my Title I teacher, especially when I became confused about the double bubble map, I still did not feel completely comfortable teaching this area of thinking maps. I believe it takes collaboration among teachers across grade levels and curriculums to successfully implement this type of progressive learning.

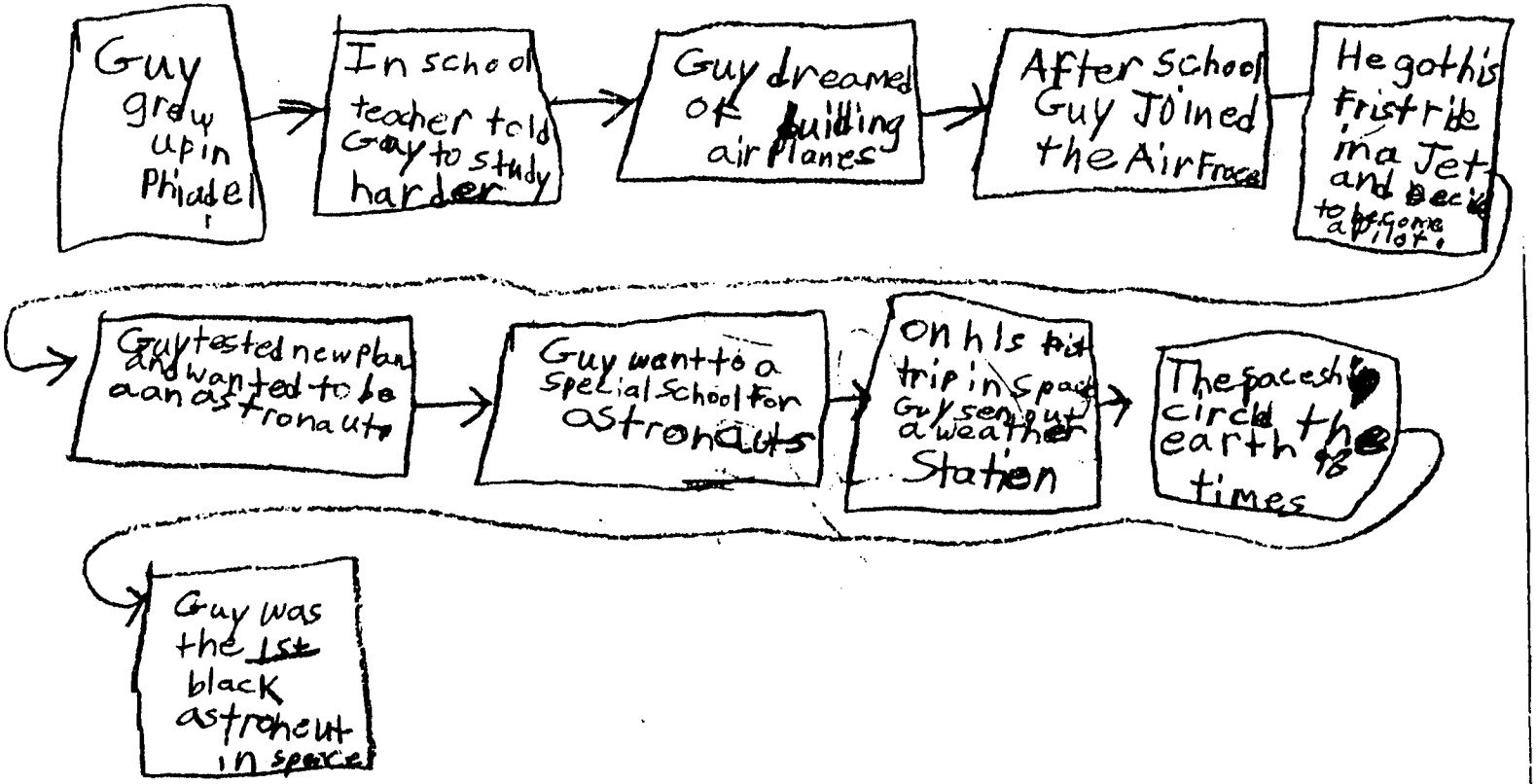


Figure 1.1. Flow Chart

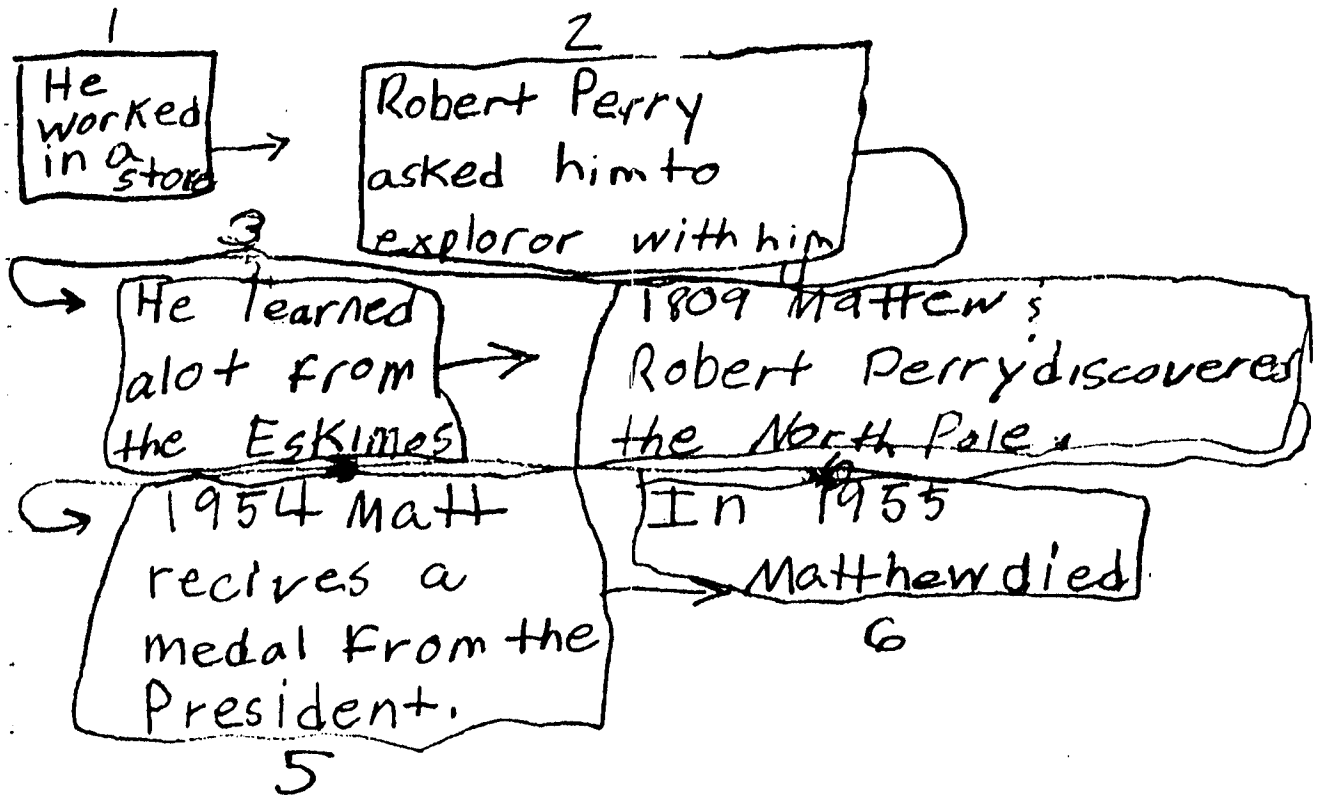
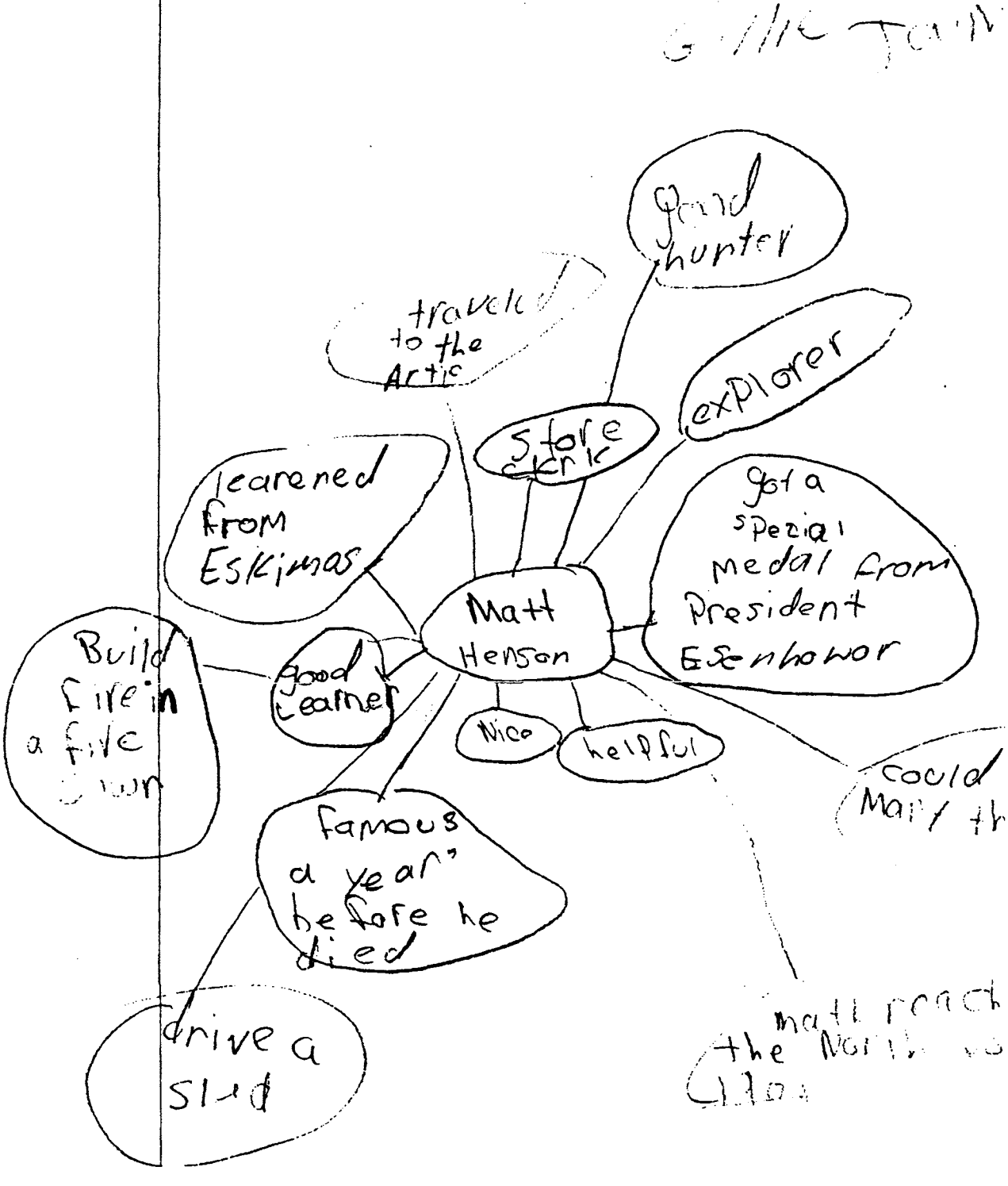


figure 1.2. Flow Chart

Figure 2.1. Bubble Map



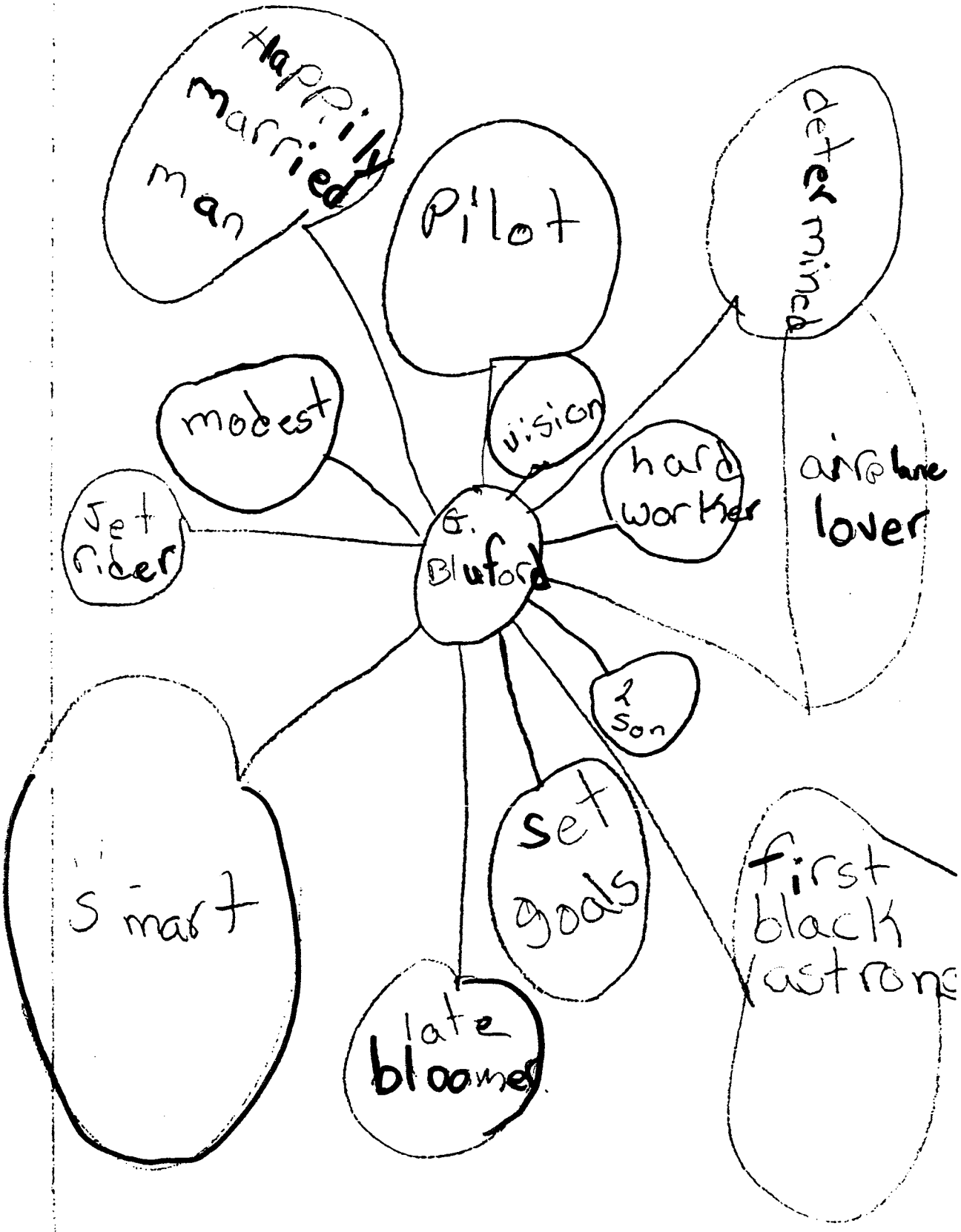


Figure 2.2. Bubble Map

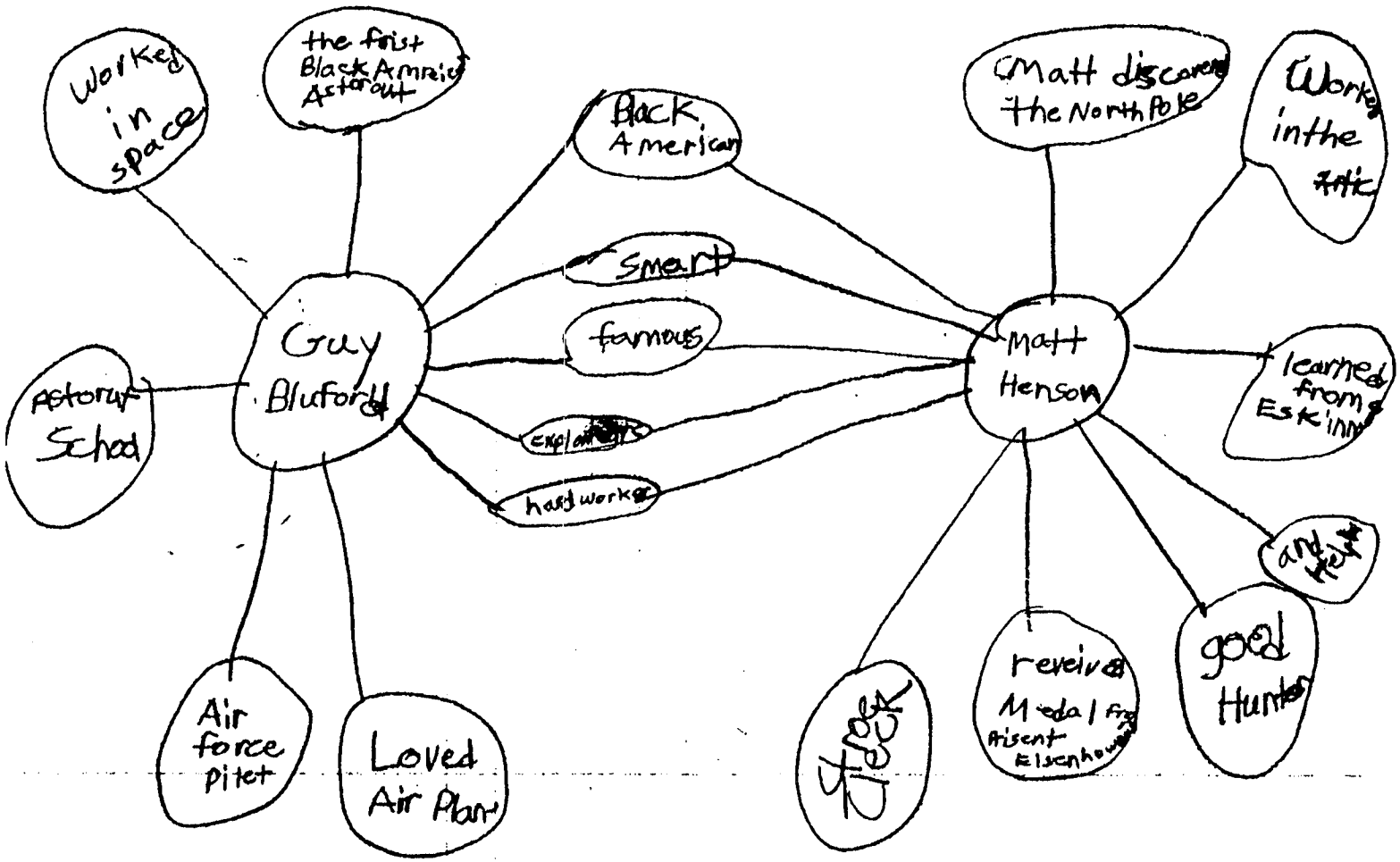
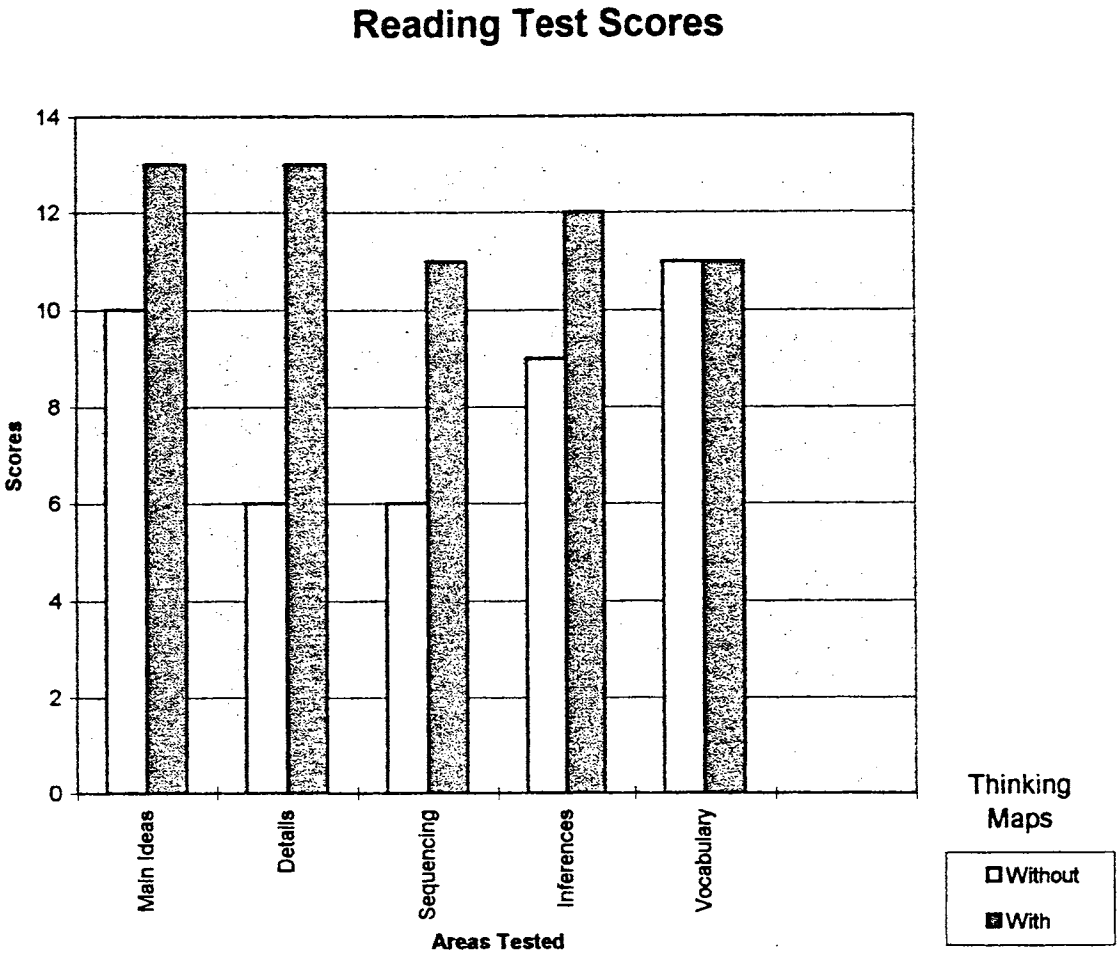


Figure 3. Double Bubble Map



Note: Scores shown in this chart are averages for number of correct answers from multiple choice tests.

Figure 4.

Kenneth

Henry Aaron and Wilma Rudolph were alike in many ways. When they were kids they played sports. When they were kids

Figure 5.1. Students Essay

Figure 5.2. Student essay using thinking maps

Kenneth Blkford

We have read about Guy and Matthew Henson

I am go to write about how they are alike and. different

Guy and Matt are hard workers. Guy and Matt alike cause they are both famos. They are black Africans. Guy and Matt are good explorers. Ind smart black Africans.

They are different in many ways such as:

Guy loved airplane. and was the first black astronaut. Guy was a jetrider and very smart. he was happily married.

Matthew was a helpful person and was a fur clothing maker, he was a brave hunte. Matthew was a furous explorer and discoverer the North pole.

I like to read about them cause Guy is like me cause I like airplanes

References

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