A Comparison of Two Different Teaching Methodologies in Learning Vocabulary Words-Computer and Flashcards

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In this study, we compared the results of subjects using flashcards to learn the definitions of a series of vocabulary words and using a computer program to learn the same definitions. Both subjects completed timings and data was plotted on a standard celeration chart. The subject who used flashcards used the see/say learning channel, while the subject who used the computer program used the see/type learning channel. We looked at words known before completing the timings and words known after completing the timings and generalization to other learning channels. We also looked at the benefits of both methods of learning the vocabulary words.

Method

Participants and Setting

There were two participants in this study. Participant one was a 17.9 year old female. Most recent testing lists her IQ as 84. She was working at the 11th grade level. She was diagnosed with Conduct Disorder; Oppositional Defiant Disorder, Mood Disorder and Adjustment Disorder. Academic testing indicates a reading decoding grade equivalence of 10.8 and a reading comprehension grade equivalence of 5.8. Participant two was a 17.2 year old male. Most recent testing lists his IQ as 104. He is working at the 10th grade level. He was diagnosed with ADHD, Oppositional Defiant Disorder and Conduct Disorder. Academic testing indicates a reading decoding grade equivalence of 10.2 and a reading comprehension grade equivalence of 12.2.

Both participants attended school at the Judge Rotenberg Center (JRC) and lived in JRC's group homes. Both participants were in the same classroom during the academic day and worked with the same instructor for this study. Participants were chosen based on their classroom, the relevance of the work required of them for the study, and similar grade equivalences.

Measures and Instruction

Words used for this study were taken from the book Huckleberry Finn; twenty words were chosen. They were broken into groups of five words. Deck one was comprised of words 1-5, deck two was comprised of words 6-10, deck three was a review deck of words 1-10, deck four was comprised of words 11-15, deck five was a review deck of words 1-15, deck six was comprised of words 16-20 and deck seven was a review deck of words 1-20. Participant one completed timings using flashcards. On one side of the flashcard was the word and on the other side was the definition. The flashcards were made at the school, using index cards. The word and definition were printed on paper,

which was glued onto the flashcard. It took approximately 75 minutes to create the flashcards. Participant two completed timings using the computer. The exact same words and definitions were entering into the proprietary JRC software, Vocabulary Builder. The decks set up into the software followed the same pattern as the flashcards, with the same decks. Typing the words and definitions into the software took approximately 20 minutes.

Participant one completed ten, twenty second timings each day. She looked at the definition and said the word (see definition/say word). She did not complete any practice timings, or any other activities with the words used. If she got a word incorrect while completing a timing, the instructor moved the card aside, while she was completing a timing. She did not receive any verbal correction or instruction. The instructor did not go over incorrect words. The participant did receive verbal praise if she mastered a deck of words. Mastery was defined as twenty correct words in twenty seconds, with zero incorrect responses. All data was plotted on a standard celeration chart.

Participant two completed ten, twenty second timings each day. He saw the definition on the computer screen, and typed the word in. He did not complete any practice timings, or any other activities with the words used. If he got a word incorrect, to include misspelling the word, a red x appeared next to his answer. No other feedback was given. If the participant mastered a deck of words, he received a golden token, which he used to purchase various edible rewards. Mastery was originally defined as twenty correct words in twenty seconds, with zero incorrect responses. This was later changed to fifteen correct words in twenty seconds, with zero incorrect responses. All data was plotted on a standard celeration chart.

Results

Participant one mastered all seven decks, after completing a total of 57 timings. This is approximately 19 minutes of work, completed over a span of nine days. Participant two mastered all seven decks, after completing a total of 180 timings. This is approximately 40 minutes of work, completed over a span of seventeen days.

Participant one was able to generalize from the see/say learning channel to the see/type learning channel, as shown by the pre and post test data points in Exhibit 1. Participant two was able to generalize from the see/type learning channel to the see/say learning channel, as shown by the pre and post test data points in Exhibit 2.
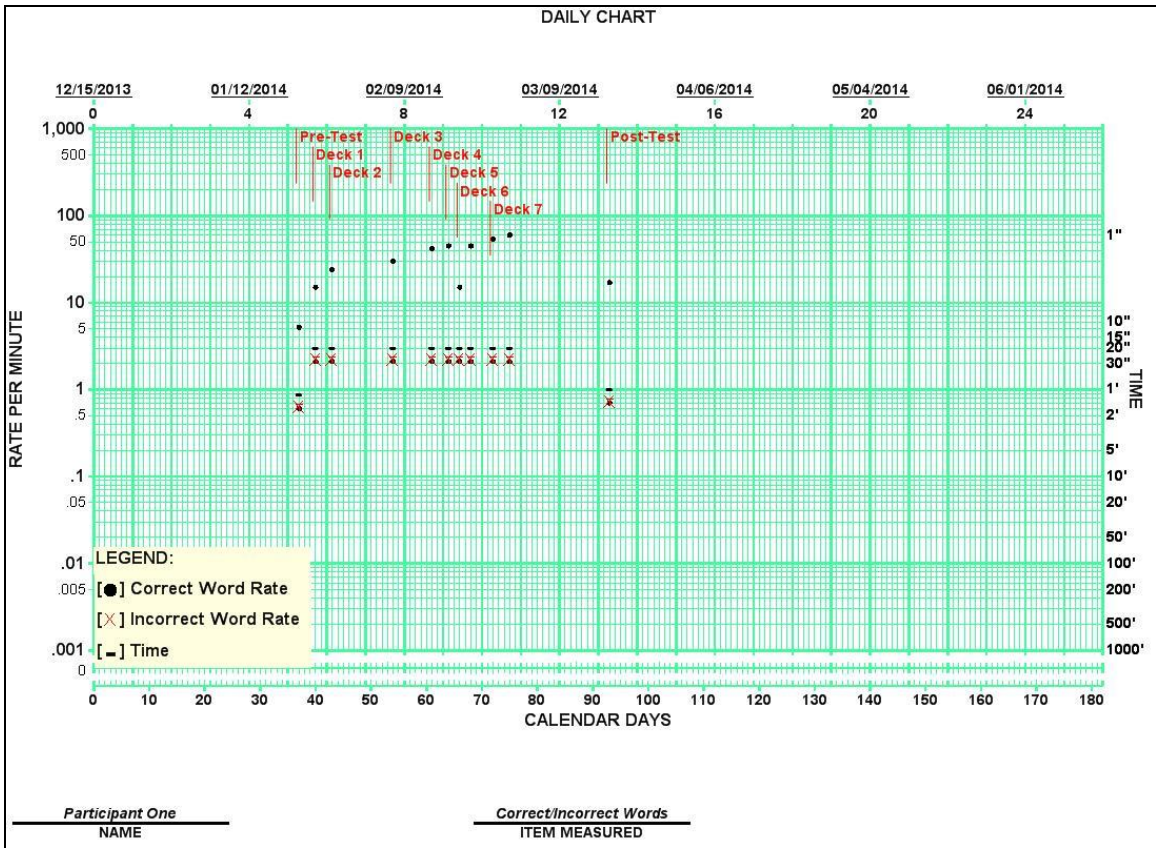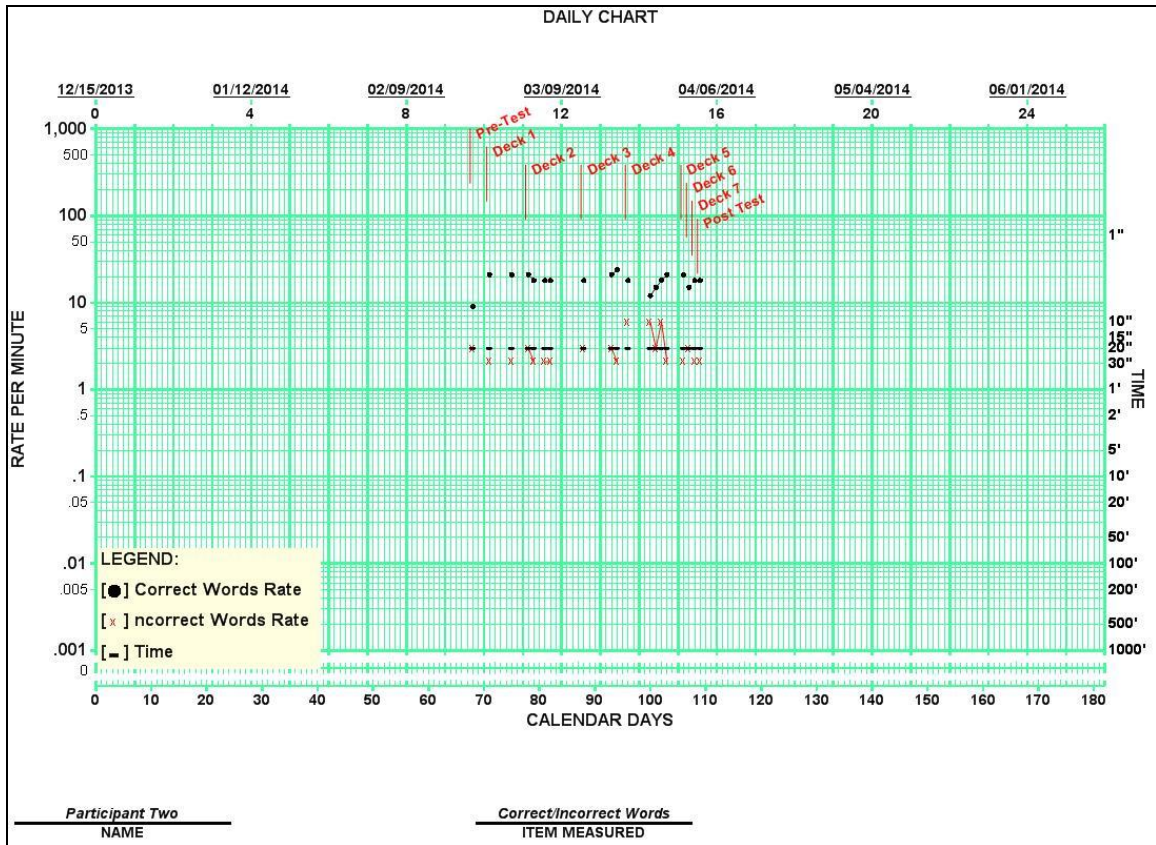
Exhibit 1

Exhibit 2

Discussion

Both participants were successful in mastering the words. There is minimal difference in their celeration and deceleration rates in regards to correct and incorrect responses. Although this is useful information, it doesn't determine whether flashcards or the computer were more effective for teaching the vocabulary words.

Anecdotally, the instructor felt that the computer timings were easier to implement in the classroom, due to the fact that the participant could complete timings independently, and the data charted automatically. Using flashcards required the instructor to work 1-1 with the participant, and enter the data into the computer, to be plotted on the computer chart. Participant one liked using flashcards to complete timings more than she liked using the computer to complete timings. This was due to the 1-1 interaction with the teacher. Participant two did not have an opinion and preferred to focus on the reward he received for mastering the material.

The results we found were inconclusive. Both methods were effective for the two participants in this study. The amount of time needed to develop the materials is balanced by the amount of time it took each participant to master the material. To find a more definitive answer, we would need to repeat the study with a larger sample size. We would also need to look at retention rates and generalization rates.