



The Hare and the Tortoise



The Impact of using Picture-to-Text Software on Writing Productivity of Young Writers




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Background review,


- Writing ...
 - essential throughout a child's schooling and beyond (Beck & Fetherston, 2003; Easterbrooks & Stoner, 2006).
- Young children and children with LD
 - difficulties
 - intense frustration
 - Struggle with handwriting, spelling, and mechanics, ...
 - higher level thinking processes impeded (McCutchen, 1995).



statement of need

- Slater (2002) picture-to-text software
 - positive effect on the reading scores
 - posed the premise that pictures can help children communicate thoughts as in writing
- Studies involving the use of picture-to-text software for writing could not be found
- **Therefore** this research extends the literature

Investigates picture-to-text software To develop writing skills of struggling writers



Purpose


To investigate the effect of the use of a word processor with picture-to-text software on the writing product of young students with writing difficulties.

Research Questions

Will having access to picture-to-text software on a word processor help a child:

1. Write more compared to writing with paper and pencil?
2. Use more writing conventions such as correct spelling and appropriate use of capital letters and punctuation?
3. Begin a writing assignment more quickly than when writing with paper and pencil?


Cultivate a positive attitude about writing?



Method

Design

- ABCD Changing Conditions Single Subject Design.
- Randomization
 - Timing of Phase changes
 - Order of Condition-



HSRB

Application
Consent
Assent



QUESTIONS




Setting

large metropolitan area on the east coast of the United States.


Participant

- 7 years old
- Does well in reading and content
- Struggles with handwriting, spelling
- Avoids writing tasks



Dependent Measures

- Total letter sequences (TLS),
- Percentage of correct letter sequence (CLS) (Hosp, Hosp, & Howell, 2007; the University of Minnesota, 2005; Wright, 1992; McMaster, Du, and Pétursdóttir, 2009),
- Writing rubric score,
- Percentage of words spelled correct, (Jewell & Malecki, 2005) and
- Attitude as revealed in survey responses.




Materials



Materials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Digital Recorder																
Batteries- 2 AAAs																
Clipboard with www. write and draw																
Computer & Card																
Picture to Text Software																
Mouse & mouse pad																
Markers, Pens, Pencils																
Several types of paper																
2 blank, 2 colored																
2 picture prompts																
2 picture prompts																
Picture to Text software																
Stop watch																
Randomization with Condition & Phase timer																
Parent Survey																
Child Survey																
HSRP forms- 2 copies of P word & Child version																

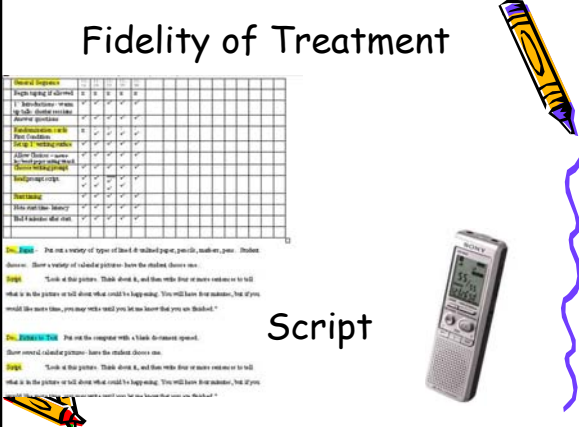
Procedure

- Two conditions
 - Traditional paper and pencil,
 - Picture-to-text software on a laptop.
- In both conditions, a
 - Picture Prompts
 - stopwatch was used to measure
 - Latency
 - Actual writing.



Fidelity of Treatment

Script



Materials	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Software Training



1. To create buttons type a word.
2. Type the words you might want to use.
3. Use the mouse to choose a word.
4. Use the button to erase.
5. Add punctuation.
6. Listen to your words.

Materials	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Picture to Text Software														
create picture buttons														
select words														
add words														
erase words														
add punctuation														
listen to the text														
10 word P&T paper														
10 word P&T paper														

Practice #5

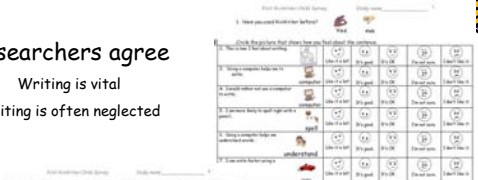
i weNt to skool toDa aND saw a Big boock fillt
 I school today book filled
 wIF picHERs AMiNals of aLL kindS! doGes andkats
 with pictures Animals dogs cats
 ToN was plang with them it waz FuN
 playiNG was

Student began task 9__ seconds after being given the directions and the picture prompt.

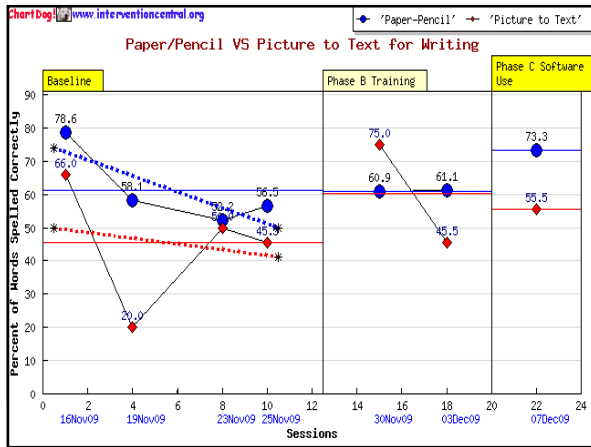
Task	Points	Description
1	N	Phrases- a group of words that do not have a noun and a verb but do not have a subject and verb and end punctuation
2	W	Words- a group of letters - spelling doesn't count
3	XXX	Word on topic
4	XXX	Parts of a paragraph
5		Sentences- groups of words that have a noun and a verb and end punctuation
6		Spelling accuracy Number correct divided by total number of words
7		Correct letter Sequence - two letters that go together in the correct order
8		Correct Word Sequence
9		Each phrase on the topic - (2 or more words that logically go together but do not have a subject and verb and end punctuation)
10		For a sentence that introduces the idea of the paragraph
11		Each sentence- that contains a detail about the topic
12		For a sentence that concludes the idea of the paragraph
13	XXX	XXX For each word on topic

Social Validity

Researchers agree
 Writing is vital
 Writing is often neglected



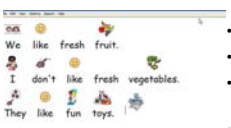
Survey to determine Satisfaction of Parent & Child



Results

- Paper pencil scores generally higher than Picture to text- During baseline
- Paper pencil scores- Negative trend
- Picture to text- Positive trend


Limitations



- Setting- In the home was subject to distractions
- Only one participant
- Only 9 sessions
- Child had far more experience with paper & Pencil
- Noticed the similarity of Total word sequence and Total score- Numbers different but very similar graphs!
- Eager to compare total word sequence with total letter sequence
- Taping would improve accuracy of Fidelity of treatment

Discussion and implications

- Motivation for writing-
 - Student reacted to Immediate feedback for spelling accuracy
- Need longer study
- More participants
- Perhaps add word prediction software



Inter-rater Reliability

Correct Letter Sequence Score Sheet

Category	Criteria	Case #	Before	After	Count	Percent
First letter of a sentence or proper noun-	capital and appropriate	Case #	before	after		
First letter of a sentence or proper noun as followed by an appropriate letter	capital and appropriate followed by an appropriate letter	Case #	before	after		
First letter of a sentence or proper noun-	not appropriate and/or not capital	Case #	before	after		
First letter of a word-	appropriate	Case #	before	after		
First letter of a word-	not appropriate	Case #	before	after		
Two letters	should be side by side	Case #	before	after		
Two letters	should not be side by side	Case #	before	after		
Punctuation mark	correctly used	Case #	before	after		
Punctuation mark	incorrectly used	Case #	before	after		

Words	Count	Percent
I see a baby		
The baby is nice		
I see a Door		
The door is red		
The door shut		
The cake is round		
I went to cake		
Iik cake		
Paragraph ending		
I saw a tree		
it was big		
My friend is here		
The tree has apples		

