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ABSTRACT

In order to evaluate an experimental writing program involving word processors as tools, a study examined the use of cloze techniques as a method for indicating reading progress as it relates to writing. Subjects, 87 Canadian primary school children, were involved in a three-year longitudinal study of the effects of this experimental writing program on primary school literacy development. The students were administered cloze tests along with a variety of tests of intelligence, oral language skill, and writing ability. Results from tests given in both first and second grades indicate that cloze tests that allow as correct any word with semantic or syntactic credibility are the best predictors of writing ability. A high degree of relationship between both cloze reading and writing performance suggests the similarity of processing of these tasks. Findings also indicate that word processors ease the administration of cloze tests and are more enjoyable for students. Further findings show that Spache standards (1966), used to measure readability of cloze passages, are only roughly accurate. (A table of data and cloze tests are appended.) (ARH)

Automated cloze procedures as research and teaching tools

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Abstract

Cloze procedures are employed both as reading comprehension assessments and as instructional tools. Text passages appropriate to classroom goals are selected, and every nth word omitted. Advantages of using cloze tests include the fact that content integral with the curriculum can be selected. Teaching clozes promote semantic and syntactic exploration of text, especially when worked collaboratively. Rye (1982) provides a detailed history of cloze procedure usage, and reports that teacher-constructed cloze passages relate significantly to standardized reading measures, and are fairly stable. As instructional devices, when used in conjunction with peer discussion, cloze passages increase linguistic flexibility.

The purpose of the present research is to evaluate an experimental writing programme involving word processors as tools. Three primary classes are monitored longitudinally. We probe reading comprehension as one correlate of writing. Cloze procedures were administered via pencil and paper as well as on a video display screen. Automated cloze procedures ease tasks of presentation and scoring, but more importantly, children respond positively to this format. Other language testing includes the PPVT, the PICAC functions subtest, and Miller and Chapman's SALT applied to oral productions.

The utility of our cloze measures was examined at both the first- and second-grade levels in relation to a number of different writing tasks: Children rewrote a story previously told them, scripts of common events, and scripted dialogues. The most ubiquitous relationships to emerge were significant correlations between cloze measures and SALT indices of writing sophistication. Other measures of verbal capacity employed failed reliably to predict writing performance. Further, automated collaborative instructional cloze passages proved useful in promoting the development of verbal elaborations and expansions.

General goals of the research

This is a three-year longitudinal study of literacy development of primary-school children. Interventions commenced with three classes of children as they began first grade. They are currently completing grade two. One class is a nonintervention group, receiving only baseline and progress assessments. The second class receives five hours a week of 'Writing Workshops' in which emphasis is placed on written expression across the curriculum. The third class participates in similar 'Workshop' activities with word processors available as tools for writing. Beyond monitoring the growth of literacy skills, curriculum modules which are the source of stimulation for written communication are developed and evaluated. Further, the contribution of word processors to writing skill development is examined.

Poster, CPA, June 1987 Vancouver

Eighty-seven children received a battery of baseline measures. General level of intellectual functioning was tapped by Raven's Coloured Progressive Matrices, and a self-portrait which each drew was scored by McCarthy's standards. The Peabody Picture Vocabulary Test is an index of oral reception, and the PICAC functions subtest and an interview represent oral language production. Cognitive style was measured by the Children's Embedded Figures Test and the Matching Familiar Figures Test. Communication evaluation was assessed by an ambiguity detection task. Periodic standard writing tasks are assessed using Miller and Chapman's (1984) Systematic Analysis of Language Transcripts (SALT). Content analyses reflect the nature of the material written.

Specific focus on cloze performance

The importance of the link between reading and writing is self-evident, but in recent years there has been renewed interest in probing the nature of this relationship. Measures of the reading process vary widely in their emphases. For the purpose of the present research, we sought a measure which reflects reading comprehension, which can be administered frequently, and which is amenable to local constraints in terms of content. The cloze technique presents itself as an excellent candidate, because it is quick to administer, it can be used with groups of relatively early readers, and appropriate passages can be readily selected by the researcher or the classroom teacher.

Cloze tests require respondents to read silently a text with words missing. Subjects must speculate on the omitted word, and provide in writing what s/he believes to be the best option. This process has a certain face validity as a predictor of writing skill.

Pilot work with another sample of second graders indicated cloze performance to be a reliable predictor of writing development: Story rewriting (Cameron, Linton, Hunt, & Shred, 1985), script writing (Cameron, Linton, & Hunt, 1985) and scripted dialogues (Cameron, Linton, & Hunt, 1986) correlated with cloze reading.

In the present application, Spache standards (1966) were used to determine grade level 'readability' of each passage. Two cloze passages were administered in grade one, and three, in second grade to assess reading. Scripts for 'going to McDonald's' (Nelson & Gruendel, 1981) are elicited annually as standard indicators of writing proficiency of this longitudinal sample.

Results

Grade one

Table 1 is a correlational matrix of baseline measures gathered with the three classes during first-grade. These data were reported at SRCD (Cameron, Hunt, & Linton, 1987) where we focussed on metacommunication skill and its relation to reading and writing. The important aspect of these data for the current report is the high degree of relationship between both cloze measures and writing performance as reflected in the children's accounts of 'going to McDonald's'. Oral measures of language skill do not relate to writing performance. Reading comprehension as

reflected in cloze performance emerges as the most reliable predictor of writing skill.

Grade two

Table 2 gives relationships between new reading measures and other performance, in particular, year-two writing. Cloze scores in Table 2 represent number of attempts made, an exact score (indicating the words offered that are identical to the original text), and a liberal score which allowed as correct any word with semantic or syntactic credibility. This latter index appears to be the best predictor of writing, and is the one used in Table 1 to represent first grade cloze reading. Confirmation, indeed a strengthening of relationships is apparent. Reading continues to predict writing, especially the number of words, and different words produced. There emerged a significant negative correlation between reading and spelling errors, and the relationship between script scores and reading is strong in second grade.

Discussion

The original purpose of using cloze techniques was to determine an economical method for indicating reading progress as it relates to writing development. That goal was met. Of measures employed to predict writing skill, cloze reading reliably predicts writing.

Spache readability is only a rough measure of passage difficulty. The placement of blanks within sentences and the word-type omitted have effects on difficulty: Omissions in the middle of sentences are easier than omissions at the beginning and end, and structure-word omissions are easier than content-word omissions. This, and observations of differences in performance depending on parts of speech omitted suggests the value of instituting manipulations of cloze techniques to identify more specifically language strengths of young writers.

The automation of cloze passages affords an affectively positive context for reading assessment. Although children report preference for performing the computer task, overall performance indicators examined here do not differentiate computer from hand performance.

The cloze technique demonstrated provides an opportunity for children to engage in collaborative linguistic problem solving.

The relationships reported here between writing and cloze reading suggest similarity of processing of these tasks. Silent reading, problem-solving, and word generation are all involved in cloze performance; these processes are also implicated in writing performance.

References

Cameron, C. A. , Linton, M. J. , & Hunt, A. K. (1985). Script writing by hand and by computer. [Abstract}. Canadian Psychology, 26, 66.

Cameron, C. A. , Linton, M. J. , & Hunt, A. K. (1986). Scripted dialogues in seven-year-olds using word processors. [Abstract]. Canadian Psychology, 27, 89.

Cameron, C. A. , Hunt, A. K. , & Linton, M. J. (1987). Some academic correlates of ambiguity detection in primary school children. Abstracts, Society for Research in Child Development, Vol. 6, Biennial meeting, Baltimore, MD, p. 316.

Cameron, C. A. , Linton, M. J. , Hunt. A. K. , & Shred, R. (1985). Story writing by hand and by computer. [Abstract]. Cahiers de psychologie cognitive, 5, 425-426.

Miller, J. F. , & Chapman, R. S. (1984). SALT: Systematic Analysis of Language Transcripts. Madison: University of Wisconsin.

Nelson, K. & Gruendel, J. (1981). Generalized event representations: Basic building blocks of cognitive development. In M. E. Lamb & A. L. Brown (Eds.) Advances in developmental psychology Vol. 1. Hillsdale, N. J. : Erlbaum.

Spache, G. D. (1966). Good reading for poor readers. Champaign: Gerrard.

Rye, J. (1982). Cloze procedure and the teaching of reading. London: Heineman.

Table 1

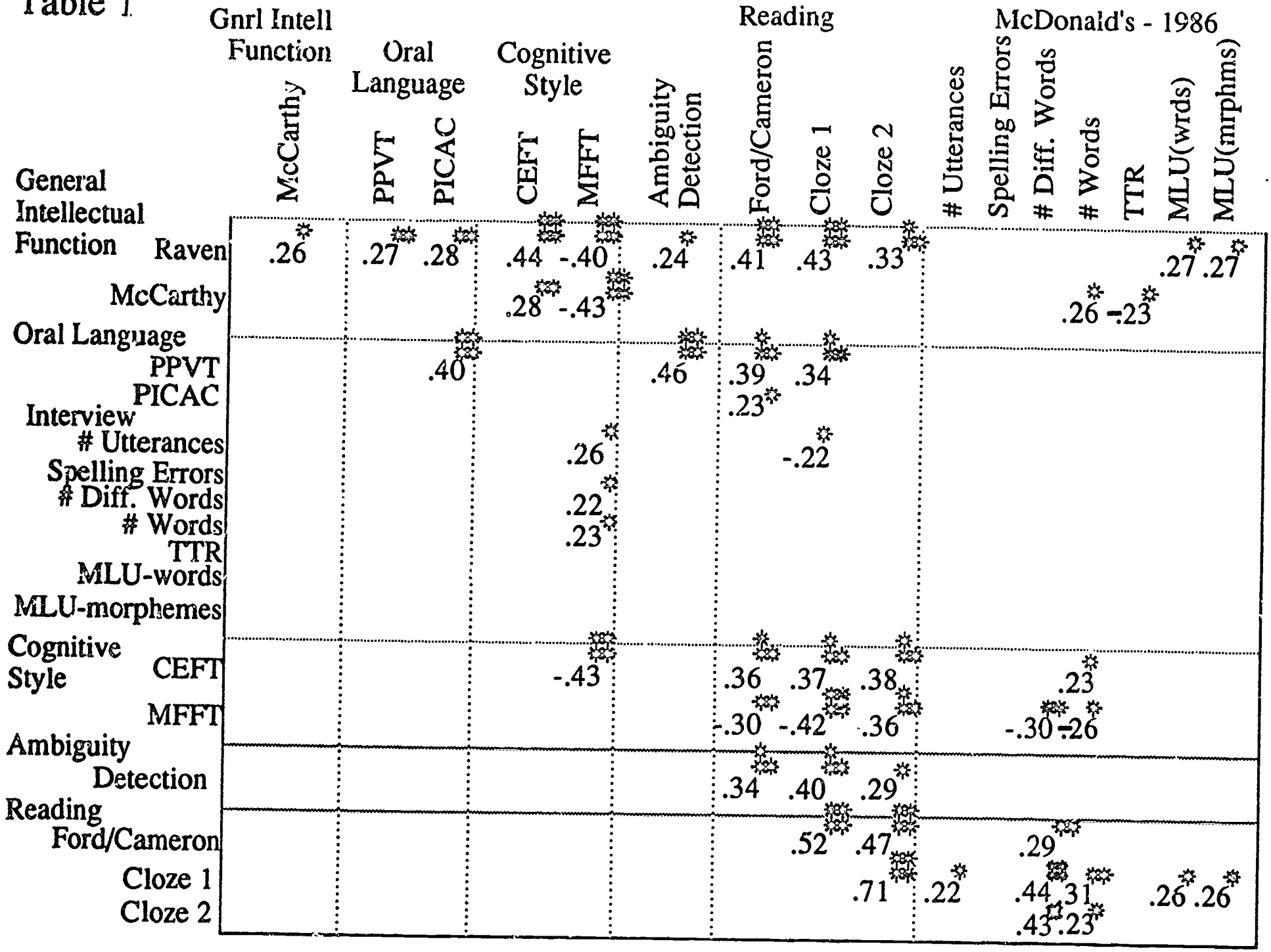
Gnrl Intell Function
Oral Language
Cognitive Style
Reading
McDonald's - 1986
McCarthy
PPVT
PICAC
CEFT
MFFT
Ambiguity Detection
Ford/Cameron
Cloze 1
Cloze 2
Utterances
Spelling Errors
Diff. Words
Words
TTR
MLU(wrds)
MLU(mrphms)
General Intellectual Function
Raven .26 .27 .28 .44 -.40 .24 .41 .43 .33 .27 .27
McCarthy .28 -.43 .26 -.23
Oral Language
PPVT .40 .46 .39 .34
PICAC .23
Interview
Utterances .26 -.22
Spelling Errors
Diff. Words .22
Words .23
TTR
MLU-words
MLU-morphemes
Cognitive Style
CEFT -.43 .36 .37 .38 .23
MFFT -.30 -.42 .36 -.30 -.26
Ambiguity Detection .34 .40 .29
Reading
Ford/Cameron .52 .47 .29
Cloze 1 .71 .22 .44 .31 .26 .26
Cloze 2 .43 .23

Table 2.

Performance Measures	Cloze 3 - 1987 Att	Exact	Lib	Cloze 4 - 1987 Att	Exact	Lib	Cloze 5 - 1987 Att	Exact	Lib
Raven			.25*		.35**	.29*	.32*	.38**	.40***
McCarthy									
PPVT									
Raw									
Standardized	.26*	.44****	.39***	.32*	.45***	.44***		.43***	.34*
PICAC									
Interview									
# Utterances									
Spelling Errors									
# Diff. Words									
# Words									
TTR									
MLU-words									
MLU-morphemes									
Cognitive CEFT		.27*	.27*		.35*	.34*			.30*
Style MFFT	-.25*	-.33**	-.34**	-.28*	-.36**	-.36**	-.30*		-.28*
Ambiguity detection		.28*							
Early reading	.44***	.42***	.47****	.39**	.58****	.48***	.35**	.39**	.47***
Cloze Total-1986	.41***	.57****	.59****	.57****	.67****	.66****	.50****	.58****	.65****
McDonald's - 1987									
# Utterances									
Spelling Errors		-.32*	-.32*	-.28*	-.41***	-.38**		-.28*	-.38**
# Diff. Words		.41**	.38**	.44***	.43**	.47***	.36**	.32*	.40**
# Words		.37**	.34**	.45***	.37**	.43**	.33*		.32*
TTR		-.27*		-.34*					
MLU-words						.29*			
MLU-morphemes									
Script score		.41**	.40**	.36**	.33*	.38**			

Name: _____

What Can We Make?

Ted said, "Jack has _____ big box.
I have a _____ box, too.
We _____ make something."
"What can _____ make?" asked Jack.
"We can _____ a house!" said Jill.
"_____, we can," said Jack.
Ted said, "My dad _____ some paint in here.
We can _____ the house."
"What colours?" _____ Jill.
"Here's some yellow _____," said Ted.
"Here's some green paint," _____ Jack.
"Here's some orange paint _____ some black paint, too," _____ Ted.
Yellow paint!
Green paint!
Orange _____!
Black paint!
Jack, Jill, and _____ painted the house.

Cloze 1

Spache grade: 1.5

Structure / Content = 0.25

Name: _____

Snow White in the Woods

Snow White was walking _____ the woods.

She was _____ for a place to _____.

Snow White was all _____.

She was lost in _____ woods.

She sat down _____ the ground by a _____ tree.

"What shall I _____? What shall I do?"

_____ Snow White.

She was _____.

Chipmunk heard Snow White _____. Chipmunk lived in the _____.

He came out of _____ hole.

He saw Snow _____ by a big tree.

"_____ are you crying, Snow _____?" he said. "Don't cry. _____ cry."

Snow White did _____ hear him.

Chipmunk looked _____. He saw the bright _____ of little birds in ___10___ trees.

Name: _____

The Bradleys Move In

William and Lucy Brown _____
on their steps, watching _____ big van.
The van _____ coming along the street.
_____ stopped at the house _____ door.
A woman was _____ there in the doorway.
_____ people were going to _____ in. Someone
was coming _____ live in the house _____ door.
The movers began _____ take a big basket
_____ of the moving van.
"Put that big basket over _____, please,"
the woman said. "_____ fine."
William was thinking _____ the new people.
He _____ there would be a _____ in the family.
"I _____ a girl moves in _____," Lucy said.
Lucy's big _____ was sitting on her lap.
"I'm going over there _____ ask if there is a
_____
in the family," William _____. "You stay here, Lucy."
_____ Lucy followed him.

Spache grade: 2.2 Cloze 3 Structure / Content = 0.36

Name: _____

It was winter in _____ forest. "Soon Christmas will _____ _____ here," said Milton the moose. "We're on our way _____ help Santa Claus," _____ eight little reindeer. "That sounds _____ fun," said Milton. He ran _____ the reindeer. "May I please _____ pull your sleigh?" asked Milton. "I _____ never used a moose _____, but I'm willing if _____ are." said Santa. And across the _____ they flew. The eight little _____ liked Milton. It _____ easy to pull the heavy _____ with the big moose _____ help. But Milton did not _____ how to land on a roof. KERFLUNK! went Milton's _____ feet. "Hush, you will _____ everyone." said Santa. Milton did not know Santa _____ down chimneys alone. He _____ to go down too. "_____ will get stuck." said _____. Milton waited with _____ reindeer. But he wanted to _____ Santa fill stockings _____ put presents around the _____ tree. He leaned over _____ roof to peek and _____ he fell. "I guess _____ should go home. I guess I _____ never be good at this." Milton said. "Yes you will," said the _____ __. "None of us were _____ in the beginning." "All _____ takes is practice," said Santa. "Please stay." So Milton _____ all over the world with Santa and the eight _____ reindeer. He learned to _____ on a roof. He _____ to stand still and _____ for Santa, even when _____ took him a long _____. At one house, Santa _____ Milton and the reindeer _____ on the ground. Milton _____ Santa put presents under _____ Christmas tree and candy _____ the stockings. "Christmas is the _____ time of the year!"

Cloze 4

Spache grade: 3.1 Structure / Content = 0.45