Cognitive Research Trust Implementation: Influencing Students' Writing Skill in Elementary School

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The study resulted in products of reading-writing learning model to promote Indonesian language literacy competence at primary level. Indonesian literacy competence concerns reading-writing skill containing higher order thinking. This competence has been a centre of attention and even a crucial issue due to its relationship with human resources development (PIRLS, 2007). Literacy competence is the key of success in schools and active participation in the workplace, society and politics (Braunger & Lewis, 2005). There are six parts of CoRT: CoRT 1 is breadth (directed thinking/broadening perspective). CoRT 2 is organisation (thinking management), showing users how they can manage their thinking to be utilized intentionally and productively. CoRT 3 is interaction (interactive thinking), connecting to arguments, interaction and critical thinking. CoRT 4 is creativity (thinking design). Creativity is treated as a process of normal thinking which can be learnt, practiced, and applied with a particular intention. CoRT 5 is information and feeling. Norms and emotion determine our thinking output. CoRT 6 is action (operational thinking). It portrays thinking in acting. Thinking to act directs to active thinking. This study employed a quantitative approach using the experimental method. The result led to a conclusion that CoRT 1 breadth influenced 5th grade students' writing skill in narrative. This was proved by statistical calculation of the data obtained. Mann-Whitney test of n-gain displayed smaller result of the significance level which brought about the hypothesis rejection. The students' skill improved in many ways, covering organization aspect, content, information, mechanic and creativity.

Key words: *CoRT thinking method, learning writing model.*

Introduction

Writing is one of the critical language skills which is taught from early childhood. It has a very close relation to thinking skill as writing is a productive skill. Even thinking skills is inseparable from writing process and product. By writing, what we have in mind is published, and it illuminates people in learning. Additionally, writing is an activity constructing civilization. Such an activity can be optimally built through the implementation of CoRT (Cognitive Research Trust). De Bono (2004) defines CoRT as one of the thinking methods which is supposes to help teachers teach creativity and critical thinking. The method develops strategies and techniques to teach those two things. The first CoRT book was published in 1974. CoRT applies strategies called tools or equipment directing attention to result of ideas, guiding students' concerns on situational aspect which perhaps might be ignored before making a decision. The main objective of a CoRT lesson is to improve planning and make a decision. By utilizing the CoRT attention directing tool, students apply their operational skill, a term introduced by De Bono to illustrate action thinking besides literacy and calculation (Burgh, 2014).

Further, writing is a language skill that plays a significant role in human life. It is regarded as pivotal in language acquisition (Cole & Feng, 2015). When a child writes, the combination between mind and knowledge creates unique meaning (Jones, Reutzel, & Fargo, 2010). Writing generates or illustrates graphical symbols to image understandable language so that people can understand a writers' message behind the symbols. The message conveyed by the writers through letters is called composition or writing. It is defined as the expression of mind, idea, opinion, and experience arranged in a systematic and logic way (Sutari, 1997). Writing is a complicated process involving cognitive and metacognitive activities. It implicitly illustrates skill to utter, retell or change information to a new written form (Negari, 2011). Writing means filling out spaces between skills to express ideas, feelings and opinions. Vastly, it should be admitted that writing is a crucial communication, which cannot be separated from human life. It has significant roles to deliver messages to readers with one particular intention. Through writing, writers can demystify a variety of things and accordingly readers can obtain information by reading the written language (Pincas dalam Asrifan, 2015).

Writing well is a cognitive challenge for tests memory, language, and thinking skills. This demands fast searching for knowledge of specific domains of long-term memory (Kellogg, 2010). A high verbal level is required to produce cohesive text that assuredly expresses ideational content (McCutchen, 1984). Writing skill depends more on clear thinking skills about substantive matters (Nickerson, Perkins, & Smith, in Kellog, 2010). Someone should have capacity on preserving representations and restraining interaction among planning, executing and reviewing to be able to write well.

Correspondingly, writing skills basically needs presentation style of well-structured thinking in a well-ordered and well-organized way (Javed, Juan & Nazli, 2013). From Berninger, as cited by Koss and Froydis (2016), writing involves at least three processes: planning, translating and revising. Planning entails evocating ideas, strategies, and organizational goals. Translating is ideas transformation into text generation, and transcription. Revising touches inquiry to the text produced and steps to fix or modify it. Writing is a prominent skill enabling people to participate thoroughly in society (Dunsmuir et.al., 2015). In connection with language learning, Scriverner in Edgardo and Ramírez (2013) completely believed that writing skills ought to be related to true experience so that students exchange language with specific communicative goals in any contexts. It has become a substantial method of communication in recent society. Newspapers, mass media, e-mail, and social media are only some of the media examples for information conveyance and people connection on each day (Martin, 2010). To that end, explicit teaching of any genre is decisive as an act of ensuring students to deliver ideas in any written language effectively and to understand learning material presented. By writing, people can express thinking ideas to attain their goals. It is indispensable for education as it empowers students to think. It is able to urge us to think critically, allow writers to understand relations among ideas in written language, deepen responsiveness or perception, solve problems and open possibilities to enrich writing experience.

Akhadiah, et.al (1999, p.1) declare that writing presents a number of benefit: (1) someone may recognize his/her skills and potential. Writers can determine how far their knowledge expands over one definite topic. In developing a topic, writers should think to obtain knowledge and experience; (2) writers may expand various and sundry ideas. By writing, writers are forced to create reasoning, make relation, and compare facts to elaborate ideas; (3) writers imbibe more, search, and govern information appertaining to the topic written. The activities of writing are able to escalate theoretical writing about related facts; (4) writers can be trained to organize ideas which are systematically and explicitly stated. Wherefore, writers can detail vague problems; (5) writers are able to observe and evaluate ideas more objectively; (6) writers shall easily solve problems by performing explicit analysis in a more concrete context; (7) writers are stimulated to organize active learning. Innovators and writers should become problem solvers; not only wait for information from others; and (8) activities planned will habituate writers to write and speak solicitously.

However, writing skills is not automatically acquired, regular exercise will lead to its mastery. Writing is a language skill used to communicate indirectly with other people without the presence of face-to-face interaction. Writing complexity develops from copying words and phrases which is detected to enhance awareness of text structure, genre, composition process, editing process, publishing for audience (A. Pinter in Herlina, 2015). By writing,

illustrating graphical symbols describes language to be understood by someone so that people can read and understand the symbols (Tarigan, 1988). Writing is notable media for writers to express themselves personally, communicate and establish meaning. Such a need develops by the advancement of communication media. On that ground, practice and training of writing constantly have been become a key and central part in teaching language (Herlina, 2015). The enhancement of writing skills is either a matter of student proficiency or a matter of a teacher's teaching approach.

One of the crucial writing activities is writing narrative. Narrative text is a way to repeat telling our personal experience in the past in which verbal clauses indicate an actual sequence of events (Shokouhi & Shirali, 2011). In narrative, events semantically connect to time and causality, in which situations or events affect other situations or vice versa (De Baugrande & Dressler in Fterniati, 2013). It is one composition telling history based on its development from time to time. Its main concern is on sequence connecting to time (Parera, 1993).

Narrative text is one of the most well-known types and has a variety of styles in accordance to the social function. To Zainurrahman (2011, p. 37), narrative is writing to tell a story. Narrative is mostly found in the form of fiction, a novel, short story, fairy tale, and so forth. However, narrative is not always fictive, factual narratives are also found, such as a history series, interview result, interrogation transcript, and so on. The essence is that 'narrative' comes from the word "to narrate" or "to tell story". Narrative learning aims at (a) informing important events, (b) criticizing events in a story, (c) promoting imaginary through fictive writing, (d) communicating experience or feelings through diary or blog, (e) writing inspirational story of the closest persons, and (f) writing someone's biography or autobiography (Foxworth et.al, 2016).

Narrative learning with CoRT method ideally is implemented early, especially at an elementary level. Elementary school students have indeed started writing for their encounter with language symbols. They are in the precise stage to learn writing as the left and right hemisphere have been developing to assist the process of writing. This time, the reading centre in the left hemisphere has been developing perfectly which enables students to learn phonetics (letter to letter). Based on this explanation, the researcher is interested in analysing or researching the CoRT methods influence on students' writing skill in elementary school.

Methodology

The present research employed a quantitative approach with the experimental method. Experimental research applies treatment to test whether or not there is influence from independent variables on dependent variable (Fraenkell, Wallen, & Hyun, 2012). A Quasi experimental with non-equivalent control group design was applied. Thinking method CoRT

1 Breadth functioned acts as an independent variable (x) while narrative writing skill is dependent variable (y). The research was designed in two groups, the experimental and control class. These two groups were given pre-test and treatment. The experimental class received CoRT treatment, while the control class was taught by direct instruction. Afterwards, the two groups' skill was measured by post-test to check the effect of treatment towards the experimental group.

Findings and Discussion

This part describes the data analysis result before and after the treatment. As mentioned previously, the research aimed at finding out the influence of CoRT 1 Breadth thinking method towards 5th grade students' writing skill in narrative text. The quantitative data was collected from a writing test. After scoring the writing data in accordance with scoring rubric validated by the experts, the next step was performing statistical hypothesis to the pre-test, post-test, and n-gain data of the two classes. The data was then analysed to see the normality and homogeneity. Afterwards, hypothesis testing was done by SPSS 16 for Windows.

The subjects involved in this research were divided based on learning model implemented in each class. The students in the first group was the experimental class consisting of 34 students, they were treated using CoRT 1 Breadth. The second group was the control class consisting of 33 students; the method used to treat them was direct instruction. Those two groups are from the same school namely SDN Isola (class VA and VB)

1.   Students' Writing Skill in Pre-test

a.   Result of Pre-test

The researcher administered a pre-test before the implementation of CoRT 1 Breadth. The pre-test aimed at measuring students' skill from the two classes before implementing the treatment. The following table presents the result of the pre-test.

Table 1.1: The Result of Pre-test

	Experimental Class				Control Class			
Pre-test	Number of Students	Maximum Score	Minimum Score	Average	Number of Students	Maximum Score	Minimum Score	Average
	34	80	52	67.38	33	80	52	64.48

Table 1.1 displays that the average of the experimental class pre-test was 67.38 while the control class average was 64.48. The experimental class obtained a maximum score of 80 and the control class got 52. Generally, the table indicates that the average range was not too different. The average achieved by the two classes was categorized as fair.

However, the identification of the significance level has not been visible yet. To that end, to find out the level of significance of the two classes score, a statistical hypothesis was applied.

b.   Data Analysis of Pre-test Score

Having scored the pre-test, the researcher applied statistical hypothesis of pre-test score to measure students' writing skill in narrative before delivering the treatment. The first analysis was normality test with the following hypothesis.

H0   : the data were normally distributed

H1   : the data were not normally distributed

The researcher was assisted by SPSS 16 to test the normality of the score. The test applied *Kolmogorov-Smirnov* with the level of significance 0.05. The test was administered to see normal distribution of the data. If the result was higher than the level of significance, then the data were categorized as normal and vice versa. The normality test result is presented below.

Table 1.2: The Result of Pre-test Normality Test

Class	Kolmogorov-smirnov			Result	Conclusion
	Statistic	Df	Sig		
Experimental	0.196	33	0.002	H0 was rejected	Data were not normally distributed
Control	0.219	33	0.000	H0 was rejected	Data were not normally distributed

Based on the table 1.2, the experimental class obtained 0.002 for significance level, while the control class obtained 0.000, which meant that the data was not normally distributed. Therefore, non-parametric test with Mann-Whitney was performed. The hypothesis is as follows:

H0   : there was no difference of 5th graders' skill in writing narrative before the implementation of CoRT 1 Breadth and direct instruction

H1   : there was a difference of 5th graders skill in writing narrative before the implementation of CoRT 1 Breadth and direct instruction

If Mann-Whitney test revealed bigger score of level of significance, then H0 was accepted. In the contrary, if the test displayed smaller score of the significance level, then H0 was rejected. The following table exhibits the test result.

Table 1.3: The Result of Mann-Whitney Test

Pre-test of Writing Skill in Narrative			
Mann-whitney U	Z	Asymp. Sig (2-tailed)	Conclusion
418.500	-1.634	0.102	H0 was rejected

Table 1.3 showed the result of Mann-Whitney test for pre-test score of two classes. The significance gained was 0.102 that was bigger than 0.05, indicating that H0 was accepted. This led to a conclusion that there was a difference of 5th graders' skill in writing narrative before the implementation of CoRT 1 Breadth and direct instruction.

2.   Students' Writing Skill in Post-test

a.   Result of Post-test
The next step to conduct after the treatment to both classes was administering post-test. It intended to measure students' writing skill after the treatment of CoRT 1 Breadth and direct instruction. Having administered the post-test, the researcher scored the text produced by the students using the same scoring rubric applied in the pre-test. The following table informs the post-test result.

Table 1.4: The Result of Post-test

	Experimental Class				Control Class			
	Students' number	Max. Score	Min. Score	Average	Students' number	Max. Score	Min. Score	Average
Post-test	34	96	72	83.64	33	88	60	72.45

Table 1.4 reveals the average of students' writing skill in narrative from the experimental group was 83,46, while the average score from control group was 72.45. The maximum score gained by the experimental class students was 96 with minimum score 72. While the maximum score obtained by the control class students was 88 and the minimum score was 60. The result spoke that the experimental class treated by CoRT 1 Breadth was higher than those who learnt by using direct method. The maximum, minimum and average score signalled the difference.

The average data of post-test uncovered the difference score obtained by the two classes. Although the post-test average signified striking difference, the significance level still needed to be checked. On that ground, statistical hypothesis test should be applied.

b.   Data Analysis of Post-test Score

After scoring the students' writing in the post-test, statistical hypothesis test after treatment was performed. The first step was normality test with the following hypothesis.

H0   : the data were normally distributed
H1   : the data were not normally distributed

Kolmogorov-Smirnov test was performed with level of significance 0.05. The result is presented below.

Table 1.5: The Result of Post-test Normality Test

Class	Kolmogorov-smirnov			Result	Conclusion
	Statistic	Df	Sig		
Experimental	0.157	33	0.37	H0 was accepted	Data were normally distributed
Control	0.162	33	0.28	H0 was accepted	Data were normally distributed

Based on the statistical hypothesis processed by SPSS 16 for Windows using Kolmogorof-Smirnov test, the probability number displayed was 0.157 for the experimental class and 0.28 for the control class. For those numbers were bigger than 0.05, it was certain that the data were normally distributed (Santoso, 2001, p.169).

For further parametric analysis, homogeneity was tested. The following table describes the data.

Table 1.6: The Result of Post-test Homogeneity Test of Experimental and Control Class

		Levene Statistic	df1	df2	Sig.
score_ post-test	Based on Mean	.587	1	65	.446
	Based on Median	.641	1	65	.426
	Based on Median and with adjusted df	.641	1	64.568	.426
	Based on trimmed mean	.573	1	65	.452

Homogeneity test was applied with an assumption that if Levene level of significance based on mean was higher than 0.05, the data was interpreted as homogenous. If the Levene level significance based on mean was lower than 0.05, the data were categorized as inhomogeneous.

The data on the table exhibited the experimental class trained by CoRT 1 Breadth got bigger score than the level of significance (0.446 > 0.05). This was further interpreted that the data were homogenous. For the data were normal and homogeneous, the next statistical test to apply was t-test for mean difference.

c.   T-Test of Post-test Score
The next calculation to employ was mean difference test. The data were obtained from the post-test administered to the two classes.

The calculation of t-test used level of significance 0.05. H0 was accepted once the probability score was higher than 0.05. However, if the score was lower than 0.05, H0 was rejected (Santoso, 2012, p. 245). The hypotheses are stated below.

H0   : students' skill in writing narrative treated by CoRT 1 *Breadth* was not different with those who were treated by direct instruction.
H1   : students' skill in writing narrative treated by CoRT 1 *Breadth* was different with those who were treated by direct instruction.

The following table portrays the result of t-test calculation.

Table 1.7: The Result of T-Test of Post-test Score
Independent Samples Test

		Post-test	
		Equal variances not assumed	Equal variances not assumed
Levene's test for equality	F	.587	
	Sig.	.446	
	t	6.287	6.276
	df	65	63.606
	Sig. (2-tailed)	.000	.000
t-test equality of means	Mean Differences	11.1925	11.191.
	Std. Error Difference	1.78029	1.78347
	95% confidence interval of the difference		
	Lower	7.63703	7.63703
	Upper	14.74800	14.75584

Table 1.7 indicates 0.000 (lower than 0.05) based on the level of significance, which further interpreted as the rejection of H0. Students' skill in writing narrative treated by CoRT 1 Breadth was better than those who were taught by direct instruction.

3.   The Influence of CoRT 1 Breadth on Students' Writing Skill in Narrative

After the measurement of students' writing skill, the next step to follow was calculating n-gain. This computation was applied to answer the hypothesis. It is a difference between post-test score divided by detraction of maximum and post-test score. N-gain for the experimental class was 0,51 grouped to fair normalization criterion. Meanwhile, n-gain for the control class was 0,22 categorized as low normalization criterion. The average of the experimental group n-gain denoted higher achievement compared to the control group.

Although n-gain from both classes was totally different, the investigation of significance was urged to be made. Consequently, statistical testing to prove the hypothesis should be conducted.

a.   N-Gain Normality Test

As mentioned in advance, normality test of n-gain was crucial to perform before the computation of t-test to check whether or not the data gained from the experimental and control group were normally distributed. The hypotheses are stated below.

H0   : the data were normally distributed
H1   : the data were not normally distributed

Normality test was conducted by using Kolmogorov-Smirnov test of SPSS 16, the level of significance used was 0.05. If the calculated number was higher than 0,05, H0 acceptance took place, which further meant that n-gain was in normal distribution. Meanwhile, if normality test provided lower score than 0,05, H0 was rejected, inferring that n-gain was not normally distributed. The table below demonstrates the normality test of the two classes.

Table 1.8: The Result of N-Gain Normality Test

Class	Kolmogorov-smirnov			Result	Conclusion
	Statistic	Df	Sig		
Experimental	0.207	33	0.001	H0 was rejected	Data were not normally distributed
Control	0.205	33	0.001	H0 was rejected	Data were not normally distributed

Table 1.8 clarifies that either the experimental class or control class got the similar significance score (0,001). This meant H0 was rejected so that n-gain of the two classes were not in normal distribution. For that reason, non-parametric with Mann-Whitney test was applied.

b.   Mann-Whitney Test of N-Gain
N-gain was computed by Mann-Whitney test with level of significance 0,05. The hypothesis is stated below.
H0   : there was no influence of CoRT 1 Breadth thinking method on 5th graders' writing skill in narrative
H1   : there is an influence of CoRT 1 Breadth thinking method on 5th graders' writing skill in narrative

The table below exposes the output of non-parametric test using Mann-Whitney for n-gain score of the two classes.

Table 1.9: Result of Mann-Whitney Test on N-Gain

Mann-whitney U	Z	Asymp. Sig (2-tailed)	Conclusion
4.000	-7.007	.000	H0 was rejected

The testing criteria are as follows:

1)   If the level of significance (2-tailed) > 0,05 then H0 was accepted

2)   If the level of significance (2-tailed) < 0,05 then H0 was rejected

Based on Mann-Whitney computation result of n-gain, it was obtained 0,000 as its significance score. It was lower than 0,05 so that H0 was rejected and H1 was accepted. This inferred the influence of CoRT 1 Breadth thinking method on the students' writing skill in narrative.

Conclusion

Findings and analysis conducted earlier lead to a conclusion that CoRT 1 Breadth influences 5th graders' skill in writing narrative works. The statistical hypothesis has been tested to prove the hypothesis. Mann-Whitney test of n-gain score indicates a lower result than the level of significance directing to H0 rejection. The students' skill has been enhanced in almost all aspects: organization, content, information, mechanic and creativity.

analysed from an organization aspect, the students' writing has been arranged coherently, and finalized narrative elements comprising of characters, setting, plot, moral value and point of view. The students start writing by providing well-said opening and coherent sentences until the end of the story. From content, the students write based on their personal stories, the stories go in agreement with the title, patronized by main events and supporting event details. In addition, they transmit information accompanied by data showing narrative characteristics. This is illustrated in every main sentence, which is then detailed in the coming lines. Creativity aspect speaks towards students' skill to put forward ideas and specify feelings solicitously. Sentences are constructed distinctively, and words are elected diversely. Seen from a mechanic matter, the sentences are effectively built, and intertwisted. Over all, the students compose their stories in the Indonesian language and notice the structure used. Some errors in punctuation and capitalization are pinpointed, however, the errors have been radically changed compared to the time when the students had not been introduced to the CoRT 1 Breadth method.

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