**Original Research Article**

# The Effect of Integrating Directed Reading Thinking Activity (DRTA) Strategy with VEE Diagram on Students' Reading Skill

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## Abstract

This research deals with the effect of integrating Directed Reading Thinking Activity (DRTA) strategy with vee diagram on students' reading skill. This research was conducted in UMN Alwashiliyah Medan in which the population was all semester II English students. Two classes with 30 students for each were selected as the sample of the research. To achieve the aims of the research, quantitative research method was applied with true experimental design. Vee diagram test was used as the instrument of the research. The study showed that the integration of Directed Reading Thinking Activity strategy with Vee diagram significantly affected students' reading skill. The data obtained also showed that implementing Directed Reading Thinking Activity with Vee diagram significantly affected students' reading skill.It could be inferred that as long as cognitive skill was activated by Directed Reading Thinking Activity with Vee diagram, students' reading skill will be higher since reading is a cognitive process in which the students have to increase their cognitive aspect into ($C_5$) synthesis and ($C_4$) analyze in order to be able not only to understandbut also to interpret the text well.

**Keywords :** Cognitive process, Directed Reading Thinking Acitivity (DR-TA), reading skill, Veediagram, synthesis and analyze.

## INTRODUCTION

Reading is a cognitive process which requires systematic activities undertaken by both lecturers and students in order to achieve reading comprehension satisfactorily [1]. While students are being in reading process, they absolutely are experiencing the cognitive process. According to Gleason and Ratner [2] readinng is cognitive process since general cognitive process are involved in learning to read as well as in all learning, in which if the cognitive process experiences dysfunction, it absolutely causes reading dissability. Gleason and Ratner [2] also stated that prior knowledge, coding and encoding system, associative learning, and serial memory are the essential elements of cognitive process situation during reading comprehension. Hence, the cognitirve process the students actively process all the information during the learning process through the effort of students in storing the informations, and relating those with the previous knowledge they have [3]. Keat and Ismali [4] pointed out that cognitive process becomes relevant to performance in reading activities. The lecturers have three essential tasks for teaching reading, namely; investigating students' need to decide the appropriate strategy [5]; creating the innovative strategies to activate the students' cognitive and giving the students the opportunites to involve in reading process or in short, strategies before, during and after reading activities [6]. On the other hand, the students need to also understandthe command; make use of inferences and ideas given; understand author's motives and activate their cognitive skill in order to scrutinize validity of claims in a critical sense [7]. Constructivism theory stated that all students have skills to discoverthe problems found during reading process [8-10]. In other words, the lectures have to let the students involve actively in all the processes through engaging them during reading activites. EFL students' reading comprehension skill in UMN AlwashliyahUniversity is unfortunately still considered below the average [11]. The study also found that students in Muslim Nusantara University who take reading subject are not interested in reading and seem less enthusiasticand being more passive. This is possibly caused bylack of activities which involve the students in order to explore, to interact, and to go deeper into systematic reading activities. The lecturers in UMN Al – Washliyah are also found to be implementing the conventional teaching method as reflected in their questioning skills in the which mostly inquires on recalling information [12]. It is undeniable that this case as discussed by Ashadi and Lubis [12] and Purba and Prawiyata [11] affects the students' reading

achievements as seen from the final examination scores of academic year 2016-2017 in which the data shows that there are only 10% students who were graded "A" with the score range from 90 to 100, 30% students achieved "B" with thescore range from 79 to 70 and the rest of students only had grade C with the score from 69 to 65.

The enrichment of students' reading comprehension is urgently needed by English students in UMN Alwashliyah through the implementation of appropriate teaching strategy. Thus, the reading class will be more productive if it is taught by the integration of Directed Reading Thinking Activity (DRTA) with Vee Diagram. DRTA strategy is expected to meet students' needs because it will not only give the opportunities for students to involve in reading activities but it will also let the students to get absorbed into the texts and to have a direct learning experience [13-15]. The implementation of Directed Reading Thinking Activity will be applied with Vee Diagram. The use of Vee Diagram developed by Gowin is assumed to help the students to take notes systematically when they accomplish reading or writing activities through providing relatable keywords [16]. According toWirahati [17] the term of Directed Reading Thinking Activity (DRTA) was developed from Directed Reading Thinking (DRA)strategy which only include the reading activity without allowing students to pick up the texts that are really into the students' interest.Directed Reading Thinking Activity (DRTA)pays an attention to students' reading text in which the students are blended with [18-20]. Stauffer [21] who developed this strategy in 1969 also stated that Directed Reading Thinking Activity (DRTA)is teaching strategy conducted by the teacher in the classroom which aim is to motivate both students' effort and focus through engaging them in an intellectual activity. Besides, the teacher also guides the students to formulate the problem, to process the information, and to evaluate provisional answer [5]. Lubis [22] also stated that Directed Reading Thinking Activity (DRTA) focuses on how the students are able to blend with the text they read because the students will be asked to form the prediction and to prove the prediction itself during reading process. Furthermore, Directed Reading Thinking Activity (DRTA) strategy involves students actively in reading activities and relate them to the text which content is on daily routines or fictional stories [23]. Other benefits of implementing Directed Reading Thinking Activity (DRTA) strategy are;

- Directed Reading Thinking Activity (DRTA) involves the students in all reading activites directly in which the students are not only expected to gain the knowledgebut also to discover reading materials which further train them to be independent readers and learners. Moreover, it also improves students' referential and inferential reading comprehension skills [5, 24, 25].

- Directed Reading Thinking Activity (DRTA) motivates the students to apply all the reading activities experienced in the daily life as well as to significantly affect their fluency [26].

The implementation of Vee diagram found by Gowin is the systematic note that helps the students to collect the information taken from some sources, such as; books, magazines, articels, papers, handouts, and forum discussions [27]. Then, all the infomation found will be analyzed and formulated more easily. Thus, the students will have appropriate answer for the problems they have formulated Vee diagrams are created from four essential questions that help the students to find out the correct answers [16], namely:What are the questions?; What are the keywords?; What inquiry method will be implemented?; Are there any other claims?; How are the scores? In order to make the students comprehend Vee diagram, there are five steps carried out [28] namely:

- Starting with the concept, object, and events. Concept and object are the things they understand, and events are introduced by the lecturers
- Creating the question. Question is used to construct the knowledge which is taken from the concepts, objects, and events noticed. Thus, the students are asked to consider the proper notes that are relatable with the questions.
- Transforming the note and knowledge claims. It is used to organize all the answers in order to solve the question formulated.
- Describing principle and theory; the students are expected to understand the text they have read, and to explain the relationship between concept and answer found in details.
- Claiming the score

Moreover, Anderson [29] argued that reading is a recoding and decoding process in which the readers in the decoding process have to create the logical transformation from written words to oral language meaning. Winarsih [29] also stated that reading is the process of comprehending and constructing the meaning of the text. The meaning formed are the result of some reading interaction between reader's schemata and all facts, knowledge, and information found in the reading text. The interactions are feedback interaction, active interaction, and dynamic interaction. All these interactions relates each other to achieve comprehensive understanding of the text. Normally, if the readers have a good schemata, they will easily understand the text since they have had a previous informationwhile the text is only kind of visual information that support their understanding of the text. Since reading is cognitive process, reading skill has a close relationship with cognitive ability. Then, Suprapto and Rahmwati [30] revealed that the use of Vee diagram significantly affected on learning outcomes, logical reasoning and intellectutal development.

According to Roobins [29], there are two kinds of ability, namley; 1. Intellectual ability, it is a kind of ability that is showed through mental activities, 2. Physical intellectual, it is kind of ability that is come out from physical activites. The students with good cognitive ability will be able to construct their own idea based on the information they have read in the text. The enhancement of students' reading skill always come along with the cognitive ability which can be improved through the implementation of Directed Reading Thinking Activity (DRTA) [31-33]. This strategy is expected to affect students' reading cognitive skill as the students will experience three reading processes; looking for the text they are interested in, finding out the problems (or the difficult sentence) of the text, and thinking of the answers of the problems [5]. Directed Reading Thinking Activity (DRTA) strategy is integrated with Vee diagram is hypothesized to help students effectively in improving their cognitive skill during reading process. In short, reading process will be more systematically and the students may apply this integration not only in the reading class but also in the daily life which leads to character building [18, 21, 31-33].

Similarly, Anggreni, Marhaeni and Dantes [34] pointed out that the success of learning process could be achieved by applying Directed Reading – Activity Thinking as the students would be able to explain the steps of academic discovery. Then, the research conducted by Ulfah [35] concluded that Directed Reading – Activity Thinking is an appropriate strategy to increase students' reading skill in Muhammadiyah 7 Junior High School Surakarta academic year 2015/2016. In this study, the students' were able to identify the main problem of the text, to decide the aim of the text, to find out the information needed either implicitly or explicitly, to change the use of pronoun and to guess the difficult words. Considering the literature presented above, particularly on the significance of the study to the students' reading skill improvement in UMN Al Washliyah, therefore, the objectives of the research is to investigate the effectiveness of students' reading skill by implementing the integration of *Directed Reading – Activity Thinking* (DR – AT) with Vee diagram.

## RESEEARCH METHODS

The aim of this research was to investiagte whether the implementaion of Directed Reading – Activity Thinking(DR – AT) with Vee diagram affected on students' cognitive skill in reading process or not. To achieve this aim, this research was carried out by using quantitaive research method with true experimental design. According to Sugiyono [36] true experimental design allowed the researcher to decide both experiment and control classes randomly so that experimental class ($O_1$) would be given a treatment, while control class ($O_2$) would not be treated as well as experimental class through posttest-only control design as visualized as follows;

**Table-1: True Experimental Research Design**

| Classes | Treatment | Postest |
|---|---|---|
| Experimental Class | X | $O_1$ |
| Control Class | - | $O_2$ |

Clearly, the table above showed that postest was used to investigate the effectiveness in which experimental class ($O_1$)was taught by the implementation ofDirected Reading – Activity Thinkingwith Vee diagram, while control class was treated by Directed Reading – Activity Thinking. Moreover, the English proficiency of semester II English students academic year 2016-2017 was divided into intermediate and advanced levels, yet most students still achieved intermediate level in the second year. This immediate fact led the researcher to select semester II English students as the population of the research, then, two classes of semester II English students which were 30 students for each class were chosen as the sample of the research by applying purposive sampling technique. According to Sugiyono [36] purposive sampling technique was one of non-probability sampling technique in which the reasearcher decided the sample of the research based on particular consideration in which these two classes urgently need a close attention and an appropriate treatment for gaining the English skill. Furthermore, in this research, there were two independent variables, namely; Directed Reading-Active Thinking and Vee diagram (X), while there was one dependent variable, namely; studens' cognitive skill (Y). Independent variables were treated as treatment variableand dependent variable was treated as moderator variable [36], thus, in this research Directed Reading-Active Thinking and Vee diagram (X) were highly expected to significantly affect on students' reading skill. then the data collection was taken from students' final Vee diagram text which had been made by the students.The instruments of the research was the students' Vee diagram note in which the students were asked to create their own Vee diagram as soon as they have read the text. All the students' Vee diagram note would be scored by using valid indicators of cognitive process of reading, namely; Comprehending the text (feedbcak interaction), Readers' schemata and syntatic knowledge (Dynamic interaction), Retelling the information of the text, Relating the idea of the text with the conclusion [37] [see Appendices-1]. Then, All the data found was analyzed with normality test (*one sample Kolmogorov Smirnov*) to obtain whether all the test used had distributed normally or not, then, it was continued with

homgenity test to examine whether all the data was distributed homogenously so that all the data was being valid to have further analysis. Further analysis was conducted by t-test in orderto find out the students' score which were used as the data for comparing the cognitive process of reading skill between students taught by implementing Directed Reading – Activity Thinking with Vee diagram and students taught by Directed Reading – Activity Thinking.

# FINDINGS AND DISCUSSION

Based on data analysis, the students' Vee diagram was collected and scored based on indicators formulated. After all the scores were calculated then, it was obtained that students taught by implementing of Directed Reading – Thinking Activity (DR AT) with Vee digaram had higher score than the students who were only taught by Directed Reading – Thinking Activity (DR AT) as shown in Graph-1.
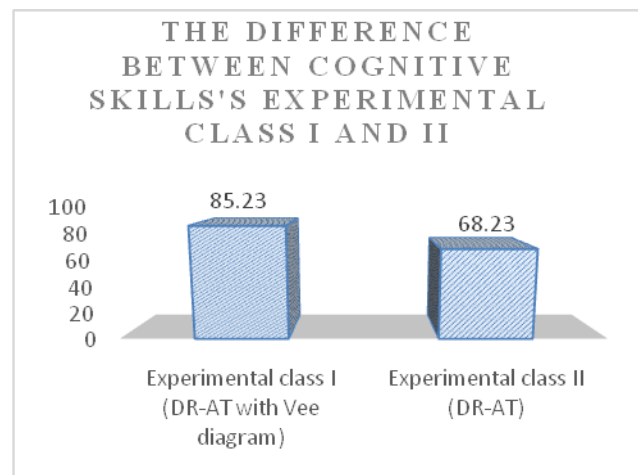


**Graph-1: The Difference among students' cognitive skill**

It showed that the use of Vee diagram had activated students' cognitive skill in solving the problems found during reading process in which the Vee diagram construction significantly affect on students' cognitive skill in order to comprehend the text completely [28]. It was also related with consructivism theory which stated that students needed to construct their own knowledge based on their own learning experiences by themselves [8]. Furthermore, there was a slight difference from each score of reading indicators between students' who were taught by Directed Reading – Thinking Activity strategy with Vee diagramand students who were only taught by using Directed Reading – Thinking Activity in which it was obtained through some indicators scores as shownin Graph-2.

Based on the graph 2 Each indicator represented students' reading ability which were based on five indicators of reading, namely; understanding the message of the text, background knowledge (schemata) with syntatic knowledge, informing the sources, constructing the conclusion, relating the message of the text and the conclusion. Obviously, each indicators had their own score in which the highest score is 86.67% and was achieved by experimental class II. This was taken from the indicator of relating the message of the

text and the conclusion. This indicator showed that students were able to decide, to find out, to relate and to transform each concept found in the reading text by using Vee diagram. In this case, the finding was similar to Bloom taxonomy in which the students were in $C_5$ (syntaxis), while, the students' taught by DR-AT strategy was only achieved the average with 60.8. This data showed thatstudents taught by implementing Directed Reading – Thinking Activity strategy with Vee diagram seemedeasier to compose their conclusion by using their own sentences. Meanwhile, the highest scores achieved by experimental class II was syntatic knowledge with 78. This indicates that syntatic knowledge was the ability to understand the sentence arrangement gramatically. The syntatic knowledge of the class experimental I remained higher with 86.22. In other words, students taught by Directed Reading – Thinking Activity strategy only increased their reading skill through literal meaning. In contrast, students taught by applying Directed Reading – Thinking Activitystrategy with Vee argued that they were able to get the literal meaning and to interpret the meaning out of text. Hence, they had a deeper undertanding of message from they text they have read. Based on indicator score measured above, normality test was carried out by using *Kolmogorov – Smirnov* as shown in the following table 2.
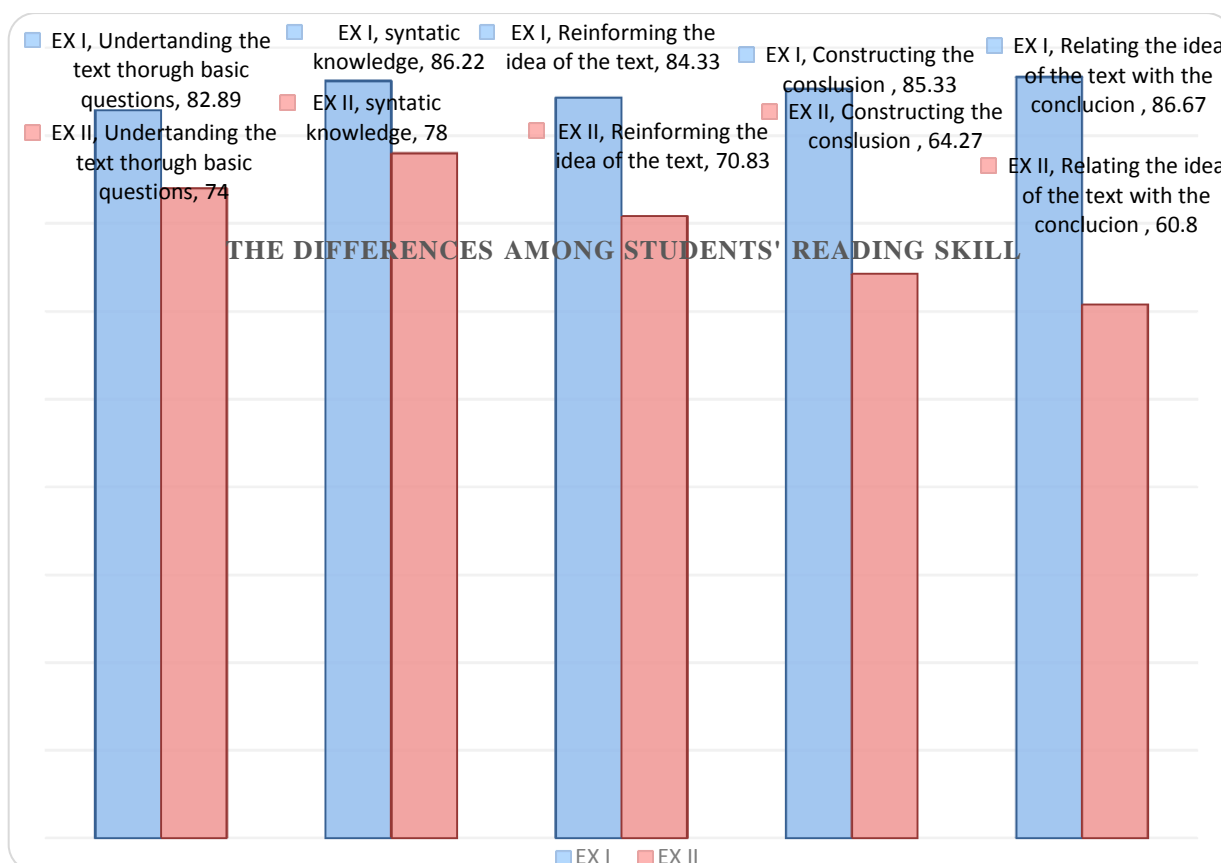
**Graph-2: The differences among reading indicator scores**

**Table-2: Test of Normality**

| | Experimental class | Kolmogorov-Smirnov[a] | | |
|---|---|---|---|---|
| | | Statistic | df | Sig. |
| Reading skill | Experimental class I (DR-AT with Vee Diagram) | .134 | 30 | .179 |
| | Experimental class II (DR-AT) | .118 | 30 | .200[*] |
| * This is a lower bound of the true significance. | | | | |
| A Lilliefors Significance Correction | | | | |

The table above clearly showed that all the data were distributed normally with sig > 0,05 (0,179 > 0,05 dan 0,200 > 0,05). Moreover, the homogenity was tested by applying *Levene's test* as seen as Table-2.

**Table-3: Levene's Test of Equality of Error Variances[a]**

| | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Reading skill | 1.366 | 1 | 58 | .247 |
| Tests the null hypothesis that the error variance of the dependent variable is equal across groups. | | | | |
| a. Design: Intercept + experimental class | | | | |

It can be seen from table 2 that all data were homogenous with sig > 0,05 (0,247 > 0,05) and the second data was homogenous. Since all the data were both normal and homogenous, the further analysis was investigating the mean and standard deviation obtained between experiment and control classes done by t-test with IBM 22 SPSS as shown in Table-4.

**Table-4: Mean and Standard Deviation of Experiment and Control Classes**

| | Class Research | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Cognitive | DR _AT With Vee Diagram | 30 | 85.2333 | 4.52337 | .82585 |
| Reading | DR_AT | 30 | 68.2333 | 5.75765 | 1.05120 |

Clearly, the mean of students taught by Directed Reading – Activity Thinking (DR – AT) with Vee diagram was extremely higher with 85.2 than mean of control class with 68.2. After found out the means score, the data analysis was continued to further

analysis with T-test with Ha : sig < 0,05 Ho : sig > 0.0 as seen in Table-5.

The Table-5 above clearly showed that there was a signifcant difference between experiment class and control class in which integrating Directed Reading – Thinking Activity (DR AT) with Vee significantly affected on students' reading skill with Sig 0.000< 0.05 which meant Ha was accepted. It was indicated by the students' success in activating the cogntive skill which led to their increased ability in the reading skill. Therefore, Vee diagram is a relatable approach for Directed Reading – Thinking Activity strategy in reading acitivities. Thirdly, As hypothesis I and II were accepted, it was also argued that students' reading enhancement taught by using Directed Reading –

Activity Thinking (DR – AT) with Vee diagrambecame better since students did not only understand the text by answering the question "what" which was only $C_1$ (knowledge) but they were also guided through Vee diagram in order to find out the key words, to create the question, to discover the answer over the text so at the end of reading activities, they would be able to interpret the idea of the text implicitly and to compose the conclusion which eventually achieved $C_5$ (synthesis). This result echoes some previous studies [18-20] on the implementation of Directed Reading – Thinking Activity. Purba and Prawiyata [11] study also has a similar finding as the implementation of Directed Reading – Thinking Activit with Vee diagram has resulted in a better students' reading skill in English quite substantially.

**Table-5: Independent Samples Test**

| | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | Lower | Upper |
| Cognitive Reading | Equal variances assumed | 12.717 | 58 | .000 | 17.00000 | 1.33681 | 14.32409 | 19.67591 |
| | Equal variances not assumed | 12.717 | 54.923 | .000 | 17.00000 | 1.33681 | 14.32090 | 19.67910 |

Erliana [18] did her study in Islamic State College of Palangka Raya and took the data from observation, field notes, questionnaire, and achievement test. The result reveals that the Directed Reading – Thinking Activity improves students' comprehension and increases their learning motivation. Agustiani [19] also did a similar study which is aimed at investigating the effects of Directed Reading – Thinking Activity on reading comprehension achievement of narrative texts. There were forty eight tenth graders of MAN Baturaja chosen randomly on the basis of their English score levels. The results showed that Directed Reading – Thinking Activity strategies made difference on students reading comprehension significantly. This is also aligning to the study conducted by Anggreni, Marhaeni and Dantes [34] where they found that there was a significant difference in learning achievement between the students who learned through Directed Reading – Thinking Activity strategy and those who learned through the conventional strategy with F= 28,956, p <0, 05. Andriani [31] also analyzed her data by using t-test and applied quasi-experimental method in her study. There were 90 samples out of 120 students who were chosen by means of purposive sampling technique. The finding also showed that there was a significant difference in reading comprehension achievement between before and after using Directed Reading – Thinking Activity strategy. The implementation of Directed Reading – Thinking Activity strategies with Vee diagram signifcantly influence students' cognitive process during reading comprehension process in which it could be seen from the indicators achieved by the students. The highest

indicators achieved was relating to the idea by Gleason and Ratner [2] that the essential elements of cognitive process were prior knowledge, coding and encoding system, associative learning, and serial memory which were the essential elements in cognitive process. It was constantly similar with the reseach conducted by Suprapto and Rahmawati [30] who conluded that learning outcome, logical reasoning, and intellectual development were influnced by the implementation of Vee diagram. A reseach of the relationship of cognitive process to reading also revealed by Keat and Ismail [4] who showed the imperative of cognitive skill in understanding better in reading and how cognitive process becomes essentially releveant to performance on reading activities. The use of Vee diagram has clearly helped the students to gather information from different sources [27]. However, the previous studies relied much on researching the effect of this diagram to other lessons such as the study carried by Suprapto and Rahmawati [30] which aims to increase students' knowledge and logical thinking of animal ecology by using the diagram Vee. The study employed quasi experiment method and was conducted by using a diagram Vee during practicum. The finding showed that Vee diagram has affected to students' learning outcomes and logical reasoning and intellectual development. Afamasaga-Fuata'i [38] study also demonstrated how Gowin's vee-diagrams can be used in mathematics classrooms as learning, teaching and assessment tools. The use of vee diagram is argued by the study as an effective tool in many international classrooms. Another study conducted by Evren, Bati and Yilmaz [39] also dealt with the effect of using v-

diagrams in the domain of science and technology laboratory particularly in teaching the critical thinking of preservice teachers dispositions. This finding argued that using V-diagrams have different effects on critical thinking dispositions in science and technology laboratory. Interestingly, they also talked about how limited the literature on the correlation of V-diagram to the individual critical thinking. Therefore, the present study has quite significance in highlighting the use of V-diagram in English lesson particularly reading skill.

Apart from that, this research has also tried to fill the gap by presenting a case of Indonesian students and showed the effect of the use of the diagram in order to increase students; cognitive aspect into ($C_5$) synthesis and ($C_4$) analyze. This is a crucial skill as students are not only expected to understand but also to interpret the text.

**Appendices-1**

**The indicators of cognitive process of reading [37].**

| No | Indicators | Scores | Descriptions |
|---|---|---|---|
| 1 | Comprehending the text (feedbcak interaction ) | 15 – 11 | The students were able to comprehend the text through the pictures provided very well so there were an feedback interaction. |
| | | 10 – 6 | The students were able to comprehend the text through the pictures provided so there were an feedback interaction. |
| | | 5 – 0 | The students were not able to comprehend the text through the pictures provided so there were an feedback interaction. |
| 2 | Readers' schemata and syntatic knowledge (Dynamic interaction) | 15 – 11 | The students were able to present text comprehension through the picture and sentence very well. |
| | | 10 – 6 | The students were able to present text comprehension through the picture and sentence. |
| | | 5 – 0 | The students were not able to present text comprehension through the picture and sentence. |
| 3 | Retelling the information of the text | 20 – 16 | The students were able to retell the information found in the text clearly |
| | | 15 – 11 | The students were able to retell the information found in the text clearly, eventough the information presented still made sense |
| | | 10 – 6 | The students were able to retell the information found in the text clearly, eventough the information presented still made sense |
| | | 5 – 0 | The students were not able to retell the information found in the text clearly, eventough the information presented still made sense |
| 4 | Constructing the conclusion | 25 – 21 | The students were able to construct the final conclusion appropriately |
| | | 20 – 16 | The students were able to construct the final conclusion unappropriately, yet it was still in accordance with the theme |
| | | 15 – 11 | The students were able to construct the final conclusion unappropriately, then it was not in accordance with the theme |
| | | 10 – 6 | The students were not able to construct the final conclusion unappropriately, then it was not in accordance with the theme |
| | | 5 – 0 | The students were not able to construct the final conclusion based on theme at all. |
| 5 | Relating the idea of the text with the conclusion | 25 – 21 | There was a relationship among the idea of the text, note and conclusion composed by the students while it was presented in front of the class. |
| | | 20 – 16 | There was a relationship among the idea of the text, and note, but it did not suit to conclusion composed by the students while it was presented in front of the class. |
| | | 15 – 11 | There was a relationship among the idea of the text, but it did not suit to Vee diagram note and conclusion composed by the students while it was presented in front of the class. |
| | | 10 – 6 | There was a unappropriate relationship among idea, note and conclusion. |
| | | 5 – 0 | There was not a clear relationship among idea, note and conclusion |
| **Maximum Score** | | **= 100** | |

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