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THE EFFECT OF COOPERATIVE INTEGRATED READING AND COMPOSITION (CIRC) MODEL ON STUDENTS' ACHIEVEMENT AND STUDENTS' ACTIVITY IN TOPIC DIGESTIVE SYSTEM FOR GRADE XI SCIENCE SMA NEGERI 1 SIDIKALANG ACADEMIC YEAR 2013/2014

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Abstract

The Effect of Cooperative Integrated Reading and Composition (CIRC) Model on Students' Achievement and Students' Activity in Topic Digestive System for Grade XI Science SMA Negeri 1 Sidikalang Academic Year 2013/2014. Undergraduate Thesis. State University of Medan (UNIMED). 2014. The objectives of this study are to find out whether: (1) Cooperative Integrated Reading and Composition (CIRC) model significantly affect students' learning achievement. (2) Cooperative Integrated Reading and Composition (CIRC) model significantly affect students' learning activity. A quasi experimental research with non-equivalent control group was used in this study. The research used this sampling because the classes are homogeny. The population of this study is all students of grade XI Science of SMA Negeri 1 Sidikalang academic year 2013/2014. There are two classes chosen as sample by applying purposive cluster sampling techniques. Classes consist of 30 and 32 students. The instruments that are used for data collection are multiple choice and essay test. Data is analyzed by Independent t-test with SPSS 16.0 for Windows, with level significance a = 0.05. The result of hypothesis showed that: (1) Cooperative Integrated Reading and Composition (CIRC) model significantly affect students' learning achievement (t=3.403; P = 0.001). (2) Cooperative Integrated Reading and Composition (CIRC) model significantly affect students' learning activity (t = 1.996; P = 0.05).

Keyword: *Cooperative Integrated Reading and Composition (CIRC), learning achievement, learning activity.*

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1.1. Inroduction
Background

Learning is generally defined as relatively permanent changes in behaviour, skills, knowledge, or attitudes resulting from psychological or social experiences. Learning activity in school is a main activity of educational process which aims to lead student to be better in those things. The successful of a learning process can be seen from the students' achievement (Sudjana, 2005).

Student learns from many subjects in school, one of them is Biology. By learning Biology, student will be able to enhance their knowledge, skills, and experiences about their living environment (Budimansyah, 2002). Learning Biology is not easy, because the nature of Biology itself is difficult. Besides, learning Biology is difficult because of the teacher's method in delivering information to student is less creative and do not interest for students. Learning will be effective if there is two way interaction between learners and educators.

A strong conceptual model of school effectiveness based on the existing body of school effectiveness research and the factors that influenced school quality as documented in the *TIMSS 2011* and *PIRLS 2011 International Reports*. According to the conceptual model, an effective school was safe and orderly, supported academic success, had adequate facilities and equipment, was staffed with well-prepared teachers, had well-resourced classrooms, and provided effective instruction.

School effectiveness analyses seek to improve educational practice by studying what makes for a successful school beyond having a student body where most of the students are from advantaged socioeconomic backgrounds. Using this approach, an effective school is one that has an effect on student achievement over and above home influences. An effective school has the capacity to improve students' achievement despite the characteristics of the student body.

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Problem Identification

Based on the background above, researcher identified problem as follows:

1. Students are less involved in the learning process in the class.
2. Students achievement in science generally is still low reviewed from the report of international assessment that followed by Indonesia in 2011.
3. Students have difficulty in memorizing Biology terms.

Research Scope

In this study, research problem is limited to:

1. The effect of Cooperative Integrated Reading and Composition (CIRC) learning model on student's achievement at Grade XI Science SMA Negeri 1 Sidikalang Academic Year 2013/2014.
2. The effect of Cooperative Integrated Reading and Composition (CIRC) learning model on student's activity of Grade XI Science SMA Negeri 1 Sidikalang Academic Year 2013/2014.
3. The topic is Digestive System.

Research Question

Based on the research scope above, formulation of the problem are:

1. Is there any significant effect of Cooperative Integrated Reading and Composition (CIRC) learning model at the topic Digestive System on student's achievement in class XI Science SMA Negeri 1 Sidikalang?
2. Is there any significant effect of Cooperative Integrated Reading and Composition (CIRC) learning model at the topic Digestive System on student's activity in class XI Science SMA Negeri 1 Sidikalang?

Objectives of the Study

In line with these problems, the aims of this study are:

1. To find out the effect of Cooperative Integrated Reading and Composition (CIRC) on student's achievement at the topic Digestive System in class XI Science SMA Negeri 1 Sidikalang.

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2. To find out the effect of Cooperative Integrated Reading and Composition (CIRC) on student's activity at the topic Digestive System in class XI Science SMA Negeri 1 Sidikalang.

Significances of Study

The expected benefits of this study are:

1. This study will provide a variation of learning model that can be applied in high school, giving new experience for educators and students.
2. Students will be easier to memorize difficult biology terms.
3. Students will experience various model of learning.
4. Improving student's skill especially as team-work studies.
5. Teacher will experience different way of teaching and getting students involved actively, especially on the topic Human Digestive System
6. Future researchers.

B. Reviem Of Literature
   Theoretical Framework
Learning

Learning is a complex process that happens in everybody in their lifetime. The learning process happens when there is an interaction between a personal with the environment (Sadiman,et al., 2005). That's why learning can takes place anywhere and anytime. An indication that someone has learnt is changing of behavior in a personal that may caused by changing of knowledge, skills or attitudes (Arsyad, 2002). Learning is relatively permanent changes in knowledge and thinking skills that got from the experiences (Santrock, 2004).

According to Slameto (2010), learning is a process done by someone to get new change of behavior completely as his own experiences through interaction with the environment. Learning is changing in behavior, where the changing refers to better attitude. Changes occur through exercises and experiences and relatively permanent (Purwanto, 2004).

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Science education plays a vital role in the lives of individuals and the development of a nation scientifically and technologically. It is widely and generally acknowledged that the gateway to the survival of a nation scientifically and technologically is scientific literacy which can only be achieved through science education. Biology is one of Science education in high school. Teacher needs to apply various and creative model of learning so that student will be able to understand biology terms. Säljö *in* van Rossum and Hamer (2010) stated five learning conceptions are listed below:

1) Learning as the increase of knowledge.
2) Learning as memorising.
3) Learning as the acquisition of facts, procedures etcetera, which can beretained and/or utilised in practice.
4) Learning as the abstraction of meaning.
5) Learning as an interpretative process aimed at the understanding of reality.

Learning Achievement

Teaching and learning process is the effort to achieve the aim of learning, learning outcome. The essence of learning outcome is changing of behavior. Behavior as learning outcome in general meaning includes cognitive, affective, and psychomotor domain (Sudjana, 2009). Lindgren *in* Suprijono (2010) stated that learning outcome includes skills, information, comprehension and attitude. So learning outcome is changing of behavior wholly not only one aspect of humanity potential.

Gagne divided five categories of learning outcome, (a) verbal information, (b) intellectual skill, (c) cognitive strategy, (d) affective, and (e) motor skill (Sudjana, 2009). In national education system, the aims of education, both curricular or instructional, used classification of learning outcome from Benyamin Bloom that divided as three domain, cognitive domain, affective domain, and psychomotor domain.Cognitive domain includes intellectual learning outcome or generally stated as learning achievement. Cognitive domain consists of Remembering, Understanding, applying, analyzing, evaluating, creating (Anderson and Krathwohl *in* Thohir, 2008).

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Remembering (C1): can the student recall or remember the information? This indicates by words define, duplicate, list, memorize, recall, repeat, reproduce state.

Understanding (C2): can the student explain ideas or concepts? Indicating by words classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase.

Applying (C3): can the student use the information in a new way? This indicates by words choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write.

Analyzing (C4): can the student distinguish between the different parts? Indicating by words appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.

Evaluating (C5): can the student justify a stand or decision? It indicated by words appraise, argue, defend, judge, select, support, value, evaluate.

Creating (C6): can the student create new product or point of view? assemble, construct, create, design, develop, formulate, write.

Cooperative Integrated Reading and Composition (CIRC) Learning Model

Yaman *in* Durukan (2010) stated Cooperative Integrated Reading and Composition (CIRC) Learning Model as one of cooperating learning model which is designed to develop reading, writing and language skills, which presents a structure that increases not only opportunities for direct teaching in direct and writing but also applicability of writing techniques.

CIRC technique is developed to support traditionally-used "skill-based reading groups" approach. Firstly, reading groups are established in the classroom. Next, students are paired off within the groups. When the teacher works with a reading group, couples try to teach meaningful reading and writing skill. They help each other in performing basic skill-building activities (Slavin *in* Durukan, 2010).

According to Slavin (2008), CIRC model is one of cooperative learning that effectively apply for reading, writing, and language arts.

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Based on Nuning (2008), "CIRC is a type of cooperative learning where students are worked in groups and teacher give material to learn and then students rearrange the material that they have discussed with their own words." The successful of CIRC model is based on student's activeness. They have to cooperate in heterogeneous group.

Component of CIRC according to Slavin (2005):

1. Teams, formation of heterogeneous that consist of 4-5 students.
2. Placement test, e.g. taken from average daily test or based on student's report so teacher can recognize student's weakness and excellence.
3. Students creative, by doing works in group by which individual succeed influenced by group succeed.
4. Team study, teacher and others group give help to group that have difficulty.
5. Team scorer and team recognition, giving scores for group results and appreciating excellent group and group that do not succeed their tasks.
6. Teaching group, giving short theory before group assignments.
7. Facts test, giving test based on facts that known by students.
8. Whole-class units, giving conclusion by teacher at the end of learning process by problem solving method.

C. Research Methods
Location and Time Research

This research was held at SMAN 1 Sidikalang, Jl. Dr. F.L. Tobing No.34, Sidikalang around November 2013 to February 2014.

Population and Sample of Research

Population in this study is all students of grade XI Science SMAN 1 Sidikalang academic year 2013/2014 with total 240 students, distribute in eight classes. The samples are the students of two classes, XI IPA3 and XI IPA4. These samples were taken by purposive sampling, which consist of 30 and 32 students.

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Research Variable

This study consists of two types of variable, the independent variable and dependent variable. The independent variables of this research are Cooperative Integrated Reading and Composition (CIRC) learning model and Direct Instruction model. While the dependent variables are students' achievement and students' activity on the topic Human Digestive System grade XI Science.

Type and Research Design

This study is a Quasi Experimental Study. The study involves two classes of XI Science, XI IPA3 as experimental class that was taught by using Cooperative Integrated Reading and Composition (CIRC) learning model while class XI IPA4 as control class that was taught by direct instruction.

Research design that used is pre-test and post-test control group design. Test given before treatment (T1) is pre-test and test given after treatment (T2) is post-test.

Table 3.1. Design of study: two group Pre-test & Post-test control group design

Class	Pre-test	Treatment	Post-test
XI Science 3	T1	X1	T2
XI Science 4	T1	X2	T2

Description:

X1 = Learning process by using Cooperative Integrated Reading and Composition (CIRC) learning model

X2 = Learning process by using Direct Instruction (Conventional model)

Instrument Testing

Researcher conducted a test to determine validity, reliability, difficulty level of the test and the discrimination index.

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a) Validity Test

To find out the validity of the test, researcher used *product moment* correlation formula. Both multiple choice and essay validity were used the same formula. The item counted as valid if $r_{count} > r_{table}$, obtained from r product moment in which the value of α = 0.05 (the calculation of validity can be seen on Appendix 9 for Validity of multiple choice and Appendix 12 for validity essay).

b) Reliability of the Test

Reliability refers to constancy of the test when the tests were being tested or experimented to equal subject. Researcher used Kuder-Richardson's formula to measure item reliability for multiple choice question (for result of calculation, see Appendix 11) and measure item reliability of essay test by using alpha formula (the calculation of validity can be seen on Appendix 14). Item is said reliable if, $r_{count} > r_{table}$, obtained from r product moment in which the value of α = 0.05.

c) Difficulty-level Test

Difficulty level is used to measure test item from easy to difficult level referred to total students whose correctly answered each item asked. Multiple choice and essay test difficulty level used the same formula (the calculation of item difficulty index can be seen on Appendix 9 for multiple choice and Appendix 13 for essay).

Table 3.4. The criteria of Difficulty Level of Test

P	Interpretation
0,00 - 0,30	Difficult
0,31 - 0,70	Medium
0,71 - 1,00	Easy

d) Discrimination index

To determine discrimination index, the differentiation between small group (less than 100) and large group (higher than 100) must be present. In this research, sample used is referred to small group, so the group divided into equal number with equal proportion, upper class 50%

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and lower class 50%. The result of calculation can be seen on Appendix 10 for multiple choice and Appendix 13 for essay.

Research Procedure

The steps in the implementation of this study are as follows:

1. Research Preparation

First, researcher discussed the research proposal with advisor. Then, preparing learning tools included the test instruments, lesson plan based on the curriculum level of the education syllabus, the worksheet or article, and post-test.

2. Implementation of teaching

Teaching implementation was held in two classes. Control class was taught by direct instruction method, and experimental class was taught by CIRC Model. The control class was taught by direct instruction method by these following steps:

1) Delivering objective and prepare students.
2) Demonstrate the knowledge or skills
3) Guiding students
4) Checking understanding and provide feedback
5) Provide opportunities for advanced training and implementation.

While, the CIRC Model in experimental class was implemented by dividing students in Experimental class into seven groups. After divided groups, researcher gives reading or articles about Digestive system topic to each group. Researcher asks students to list difficult terms of Digestive system and then discussing them. Students wrote list of their terms in front of the class for discussing wholly by the class and researcher as the guide.

Each group presented their discussion. Researcher made conclusion and announced the groups that reached good achievement in group discussion result.

3. Implementation of the Post Test

In closing activity of learning process, post test was given for both classes to obtain data of student learning achievement. The test consists of 24 questions and time given to finish is 25 minutes. Both classes got the same test questions.

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Data Analysis Techniques

The data analysis technique used is the analysis of the differences using Independent T-test in software SPSS 16.0. for Windows (SPSS Inc.)

Normality Test

Normality tests were used to determine whether a data set was well-modelled by a normal distribution or not, or to compute how likely an underlying random variable was to be normally distributed. Normality test has been carried out on class experiment, and this test was based on Liliefors test (Sudjana : 2002).

To accept or reject the hypothesis formulated, the comparison between L_0 and L as critical value is performed here. L_{table} can be obtained from Liliefors table which significance level is α = 0.05. The criteria of test are, if

$L_0 < L_{table}$ sample is distributed normally

$L_0 > L_{table}$ sample is distributed abnormally

Homogeneity Test

Homogeneity test used to test the scores variance homogeneity between the experimental class and control class. Homogeneity is done if both data proven distributed normally by testing two variants similarity. The homogeneity test use Levene's test. The criteria of test are, if

$F_{observed} < F_{table}$, the data considered to be a homogeny data

$F_{observed} > F_{table}$, the data considered to be a non-homogeny data

Hypothesis Test

Analysis of research data of students' achievement and also students' activity were done by using Independent T-test data analysis on statistic test using software SPSS 16.0. for Windows (SPSS Inc.).

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D. Result and Discussion
Results
Instrument Test Data Analysis

The content validation of instrument cognitive test was held on SMA Santo Thomas 1 Medan by giving 30 multiple choice questions and 8 essay questions to students in Grade XI Science International Class. This validation was conducted by consideration that these students had learnt the topic Digestive System and the results are described as following:

Validity of Test Instrument

Based on the content validation that had conducted, there are 20 multiple choices and 4 essay questions that classified as valid question (see Appendix 7). Then 20 valid multiple choice questions which are number 1, 3, 4, 5, 6, 10, 11, 14, 15, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, and 30, and 4 valid essay questions which are number 1, 2, 3 and 8 were taken as digestive system achievement test.

Reliability of Instrument Test

Reliability of instrument test was calculated using KR-20 formula. The calculation revealed reliable overall 0.93 for multiple choice questions (see Appendix 9) which belongs to highest reliability and 0.77 for reliability of essay question (see Appendix 12) that include into high category of reliability test.

Difficulty Level

There are 8 items categorized as easy questions, 19 items categorized as moderate questions and 3 item categorized as difficult questions for multiple choice questions (see Appendix 8). While for essay there are 4 items categorized as moderate questions and 4 items categorized as difficult questions (see Appendix 11).

Discrimination Index

There are 2 items categorized as very bad questions, 3 items as bad questions, 6 items as medium questions, 18 items as good questions and 1 item as very good question for multiple choice questions (see Appendix

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8). While in essay there are 5 items categorized as poor questions, 1 item as good question and 2 items as satisfactory questions (see Appendix 11.

Data Description
Students' Achievement
Pre Test

Pre-test was done before teaching and learning process to know the initial knowledge of students for both classes and to determine whether experimental class and control class is homogeny. The result of data pre-test analysis showed that students in experimental class have initial knowledge with average score 54.71 ± 8.30 and control class with average score 53.80 ± 6.44.

Pre-test was analyzed statistically using Independent t-test with value t = 0.485 and P = 0.63. Normality of pre test from both classes revealed normal distribution. It proved by significant value of normality in experimental class (CIRC) is 0.039 and control class (DI) is 0.006 (if significance value is lower than Ltable then data is normally distributed; Ltable=0.05).

Post-Test

Descriptive analysis applied on results of students' learning achievement for Human Digestive topic, revealed that maximum score achieved by the Experimental class that taught by CIRC learning model is 94 and minimum score is 75, with average score is 85 and standard deviation 4.90.

Descriptive analysis applied on students' learning achievement on control class that assigned by Direct Instruction model revealed that maximum score achieved is 93 and minimum score is 72.50 (average score is 80.45 and standard deviation is 5.62 respectively).

Post test was conducted after the teaching and learning process at the last meeting. The results of students' achievement for both classes are significantly different. The experimental class which taught by CIRC model has average score 85.00 ± 4.90, compared to students in control class which taught by direct instruction model with score 80.45 ± 5.62.

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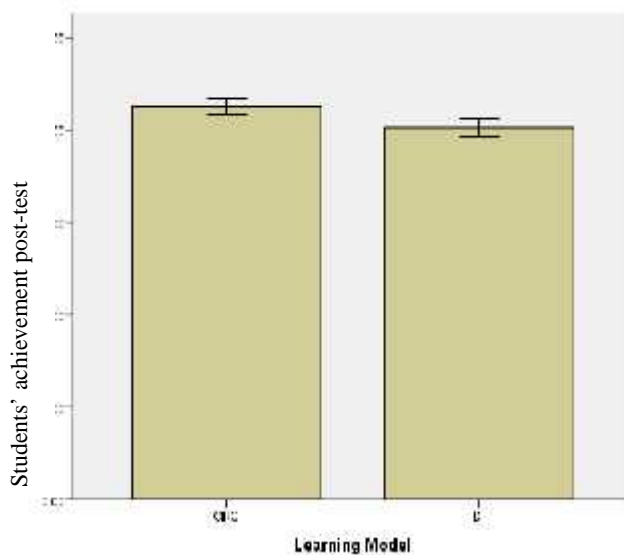***March 23***rd***, 2019***

Figure 4.2. Students' Achievement of Post-test revealed that CIRC class is

higher than DI class.

Analysis on students' achievement post test by using Independent t- test showed result with significant value t=3.403 and P = 0.001.

Result of normality test of learning achievement of Experimental class that thought by CIRC model which analyzed by using Kolmogorov-Smirnov Statistical test is 0.200 (see Appendix 15.a.). It revealed that the data of learning achievement in experimental class is not normally distributed.

Result of normality test using Kolmogorov-Smirnov Statistical test showed that data of learning achievement of control class assigned by Direct Instruction is normally distributed, with value 0.029 (if significance value is lower than 0.05 then data is normally distributed).

The homogeneity variance of sample used Levene's test showed that data of learning achievement are homogenous for both classes, with the level of significance ($α = 0.05$), the significance value 0.354 > 0.05.

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Students' Activity

Based on the analysis of variance, results of students learning activity revealed that students who taught by CIRC model have higher activity than control class which taught by Direct Instruction model.

Experimental class' activity is 33.31 ± 8.53 compared to control class' activity which average is 29.53 ± 6.08. Based on the study and data analysis so the activity of experimental class which taught by CIRC model is improved. So, the CIRC model has significant effect on students' activity.
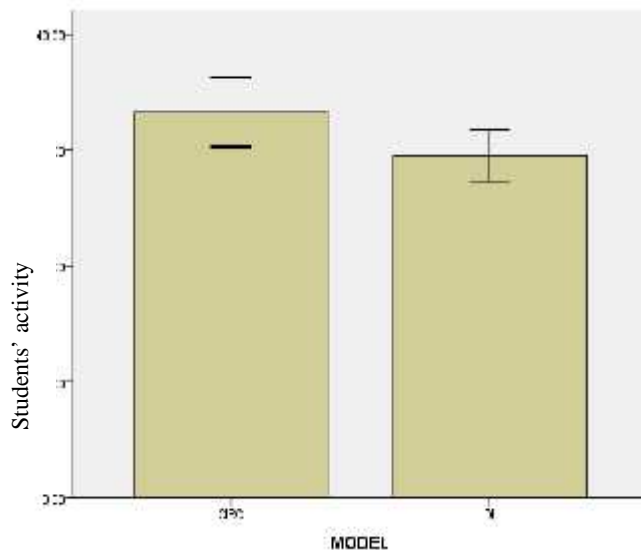

Figure 4.3. Results of students' activity between two classes reveled that

CIRC class has higher activeness compare to DI class.

To analyze data of students' activity, descriptive statistics were used and revealed maximum score achieved by experimental class is 49 and minimum score obtained is 14 with standard deviation is 8.53.

For analysis of data learning activity, descriptive statistics revealed that maximum score obtained by students in control class that taught by Direct Instruction is 44 and minimum score achieved is 15. Average score of learning activity is 29.53 with standard deviation 6.08.

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An analysis by using Independent t test of students' activity revealed the significant value t = 1.996; P = 0.050. The result of learning activity's normality in experimental class is 0.200 (see Appendix 15.b.). So the data of learning activity is not normally distributed. The data of control class' activity is not normally distributed, by which the significance value is 0.123 > 0.05.

Homogeneity test for learning activity has the significance value of learning activity is 0.059 > 0.05. So the data variant for both students' achievement and students' activity are homogeny.

Hypothesis Testing

Hypothesis testing was conducted to know what hypothesis is accepted based on the statistical analysis of research data. Hypothesis testing was analyzed by using Independent t-test two-tail.

Based on the analysis, the result of students' achievement showed significant value with P = 0.001; t = 3.403 (see Appendix 16.a.). It means that the students' achievement which taught by CIRC learning model is different from students' achievement which taught by DI learning model (achievement of CIRC class is higher than DI class). This revealed that there is an effect of CIRC learning model on students' achievement on topic Human Digestive System in class XI Science SMA Negeri 1 Sidikalang. So Ha is accepted and Ho is rejected (Ha1: μ A1 ≠ μ A2).

The analysis of students' activity revealed value of significance with P = 0.05; t = 1.996 (see Appendix 16.b.). The value of significance revealed that there is a difference of students' achievement in class CIRC and class DI, which in class CIRC students' activity is higher. So, hypothesis that accepted is the alternative hypothesis (Ha: μ B1 ≠ μ B2), there is an effect of CIRC learning model on students' activity on topic Human Digestive System in class XI Science SMA Negeri 1 Sidikalang.

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D. Discussions

The Effect of Cooperative Integrated Reading and Composition (CIRC) Model on Student's Achievement

Biology deals with great number of terminology in concepts and theories. Language plays an important role in learning biology, as there found long and complex sentences which contains technical terms to describe concepts, theories of biology. Many technical terms are derived from Greek or Latin words, which difficult to understand, because students are unknown to the words.

Cooperative Integrated Reading and Composition (CIRC) model is one of cooperative model that can be applied to solve this problem of terminology. The result of study has shown that CIRC model affects students' achievement and students' activity. On this study, the average post-test result in experimental class assigned with CIRC model is higher than students from control class. Learning activity used cooperative learning approach model CIRC was helping students to solve problems related to terminology, especially in Human Digestive topic so that increased the students' achievement too in cognitive domain.

Statistically, the result of Independent T-test analysis for total score of post test data showed that post test score of students which taught by CIRC model is higher than control class and it is significantly different compare to control class which taught by Direct Instruction model.

A classroom action research was conducted by Jatmiko, *et.al.*, (2012) using cooperative learning type CIRC with comic media biology to improve students' interest in biology for grade VII SMP Negeri 14 Surakarta revealed results based on average score of observation sheet, first cycle is 57.53%, second cycle is 65.12% (increasing 7.59%), and 83.28% in the third cycle (increasing at 18.16%). So CIRC model can use to improve students' achievement and students' activity.

A study conducted by Sarah (2012) using Cooperative Integrated Reading and Composition (CIRC) Model and Number Head Together (NHT) to see the improvement of students' achievement in topic Sensory Organ in class XI Science SMA N 1 Sei Rampah showed that CIRC model improved students' achievement.

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It seen from the result of students' achievement of average pre-test 32.07 and post-test is 69.22. These indicated great changes of achievement by applying CIRC learning model.

An experimental study was held by Lusiwati (2011) to see the application of Cooperative Integrated Reading and Composition (CIRC) model in topic Immune System for students grade XI Science SMAN 14 Medan and the result showed that there is an improvement of students' achievement that taught by CIRC model from value of pre-test 41.94 and post-test 74.84.

Based on these former studies, Cooperative Integrated Reading and Composition (CIRC) model had used in Biology to improve students' achievement.

The Effect of Cooperative Integrated Reading and Composition (CIRC) Model on Student's Activity

Students in experimental class which taught by CIRC model, had experienced new model of learning. They worked and studied cooperatively so they need to be active. While students in control class were taught by direct instruction model which belong to conventional method, so students in control class were less active.

Statistically, the result of analysis variant for total score of students' activity for experimental class which taught by CIRC model is significantly different than control class which taught by Direct Instruction model.

Students in experimental class were actively involved in the teaching and learning process, because they have many things to do during the lesson. They did not just sit down and make notes or do things ordinarily just like students that were taught by direct instruction. Because teacher involved students during the learning process, so it results in gaining the students' activity. By applying the CIRC model, the problem of students' terminology was solved and students had learnt many more biology vocabulary.

Students' activity was assessed by rubric students' indicator which has seven indicators. From these seven indicators, activity which have

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level of activeness the most is being considerate or work in group. Students' activity in performing in front of class also improved significantly. By applying Cooperative Integrated Reading and Composition (CIRC), students' activity had improved significantly.

During teaching and learning process with CIRC model, students experienced different learning weather. Students discussed, shared information and actively performed their works in class. When the research, researcher used articles from medical magazine and asked students to read and discuss the article to find the terminology as to solve the problem of the study.

A classroom action research was conducted by Hasan (2012) to know the improvement of students' activity of students that taught by Integrated Reading and Composition (CIRC) which resulted in students' activity in first cycle is 64,16% and increased in cycle two become 80,62% with increase of activity's average is 50,63%.

Based on the results of former researches about the effect and application of Cooperative Integrated Reading and Composition (CIRC) model to improve students' achievement, it concluded that CIRC model has an effect to improve students' achievement. This model impoved students' achievement because students experienced different way of learning, students also learnt from various media and especially learnt about terminology in depth meaning.

E. Conclusion and Recommendation
Conclusion
Based on the result and discussion of research, so the conclusion is drawn as follows:
1. There is an effect of Cooperative Integrated Reading and Composition (CIRC) learning model on students' learning achievement in topic human digestive system in students grade XI Science SMA Negeri 1 Sidikalang academic year 2013/2014.
2. There is an effect of Cooperative Integrated Reading and Composition (CIRC) learning model on students' learning activity in topic human digestive system in students grade XI Science SMA Negeri 1 Sidikalang academic year 2013/2014.

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Recommendation

According to the results, discussion and conclusion, these following presents the recommendation and suggestion as:

1. The result of this research can be considered as an option of learning model that can be applied in teaching and learning biology to improve student's vocabulary and learning achievement.
2. Teacher needs to improve variation of learning model to get students involved actively in teaching and learning activity.
3. Cooperative learning needs to apply more to improve students' skill to solve higher cognitive level problems.

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