

IMPROVING STUDENTS' SCIENTIFIC WRITING ABILITY THROUGH COLLABORATIVE LEARNING

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***Abstract.** Scientific writing is a way for someone to put the concept of thinking in written form so that other people can understand what is being thought. Students are the next generations who have idealism in thinking that needs to be nurtured. The purpose of this study was to improve the scientific writing of students through Collaborative Learning by utilizing blended learning technology. The research method used is action research, using collaborative learning that is applied in learning to write scientific paper. The students are expected to have logical thinking aspects, data objectivity, vocabulary mastery, use of Enhanced Spelling (EYD), use of effective sentences, and paragraph development. It can be concluded that collaborative learning can improve the ability to write scientific articles because in collaborative learning students are very active, motivated and always intrigued by their hearts and minds to solve problems faced in the same group and they can compete competitively, and motivate other students to achieve the maximum learning outcomes.*

Keywords: *ability, collaborative learning, students, writing scientific paper.*

INTRODUCTION

Writing represents a self-expression, what is in the mind is stated in writing. The ability to write is an absolute (Zillmer & Kuhn, 2018) thing that must be mastered by students in all study programs at a University. As a general course, it is very reasonable if Indonesian language courses must be provided in all study programs. They are equipped with materials that have to do with writing activities, for example understanding spelling, terms, using effective sentences, developing paragraphs to making scientific discourse in accordance with their respective study programs. As a lecturer, the existing paradigm of course must be changed, an Indonesian language lecturer, must be able to open a student's perspective to understand how important learning good and right Indonesian language particularly in scientific writing (Šubelj, Fiala, Ciglarič, & Kronegger, 2019) with a standardized rule. The ability to write of Indonesian students is very alarming. They do not have the ability to write, have no creativity and are powerless to accept the concepts

of writing (Lachner, Burkhart, & Nückles, 2017). Students are just writing, so sometimes there is a feeling of insecurity. Blended learning is as a technology that combines all the elements of the media in the learning process (Boulton, Kent, & Williams, 2018) starting from text, sound, still images, moving images, animation and video.(Nazarenko, 2015) In the today's digital era, it can be implemented in collaborative scientific writing. Based on these conditions there are some points; 1. writing is a job that is considered difficult by students, 2 the type of learning method does not fit to the students' need so it does not foster their interest to write, and 3 in the lecture process, the lecturer gives more material related to the lecture unit, does not provide signs in scientific writing, without considering scientific writing practices. Thus, lecturers actually do not know whether students can write scientifically or not. The existing learning is more impressed as fulfilling obligations between lecturers and students. On the one hand, the lecturer gives the final assignment in the form of writing a scientific work. On the other hand, students write scientific paper(Ecarnot, Seronde, Chopard, Schiele, & Meneveau, 2015) as final assignments to pass the course. In collaboration with collaborative learning, the advanced level of students in university have been able to become writers who master several criteria that have been obtained from the received material in class or read the results of research using collaborative learning. From the description of the situation and conditions above, it is very necessary to conduct action research in this regard to improve the situation and practice of teaching processes by utilizing information technology. In the context of learning to write scientific paper in higher education, the technology for learning becomes one of the devices that can support the success of the goals.

LITERATURE REVIEW

The topic in which the author reviewed in this research was on the improvement of scientific writing ability of the students of semester VI A in Indonesian Language and Literature Education Study Program, FKIP UHAMKA. Whereas the subtopic was to review the process and improvement of scientific writing results of the students of semester VI A in Indonesian Language and Literature Education Study Program, FKIP UHAMKA through collaborative learning by using action research method. Therefore, in this review, the author wanted to put forward theories about collaborative learning which

was also supported by several research results on collaborative learning and scientific writing.

One of the appropriate learning to train the students' writing ability was to use collaborative learning. This learning is more socialized because it involved all components involved in it, which were the students in their own groups, students in other groups and lecturer as advisors or supporters in scientific writing. Curtis expressed that collaborative learning can be used in training students to write scientifically. This learning involved several students to work in small groups consisting of two or more people that worked to be involved in writing, learning, researching, making draft and revising that was done inside or outside of class so that it produced better writing quality compared to writing individually. (Curtis, 2006)

White and Mc Govern (2005) as the inspiration for the birth of collaborative learning, have tested through scientific and academic research on the mental process undertaken by researchers in the written composition test. This learning is also commonly called writing as a process. This collaborative learning is based on the following principles: First, writing is precisely seen as a recursive process. This process takes place more effectively by rewriting and improving it (revising) at each stage of the research process by reviewing and rethinking to further move on to the next stage. Second, the process of writing is more fun if done through talks and discussions with other people (friends) at each stage. Third, the ability to write will experience a rapid increase when in the process of writing that we try to examine the writing itself as a reader. In this way, the researcher can act as a good revision of his writing. Constructive and evaluative criticism of the strengths and weaknesses of one's own writing will be easy to do if the researcher himself is positioned as a reader.

Furthermore Nunan (2003) suggests two types of activities that can be done through collaborative learning, namely the first type of interaction occurs on paper and the second type of interaction is carried out through oral discussions. From the description above, we can take the essence that in collaborative learning the first thing to do is the writing activity that is realized in the teaching and learning process, after which discussions begin to be held to provide useful comments in efforts to improve the writing made by each student in his group.

In collaborative learning, the learning team (study group) has a responsibility to solve problems. The students must own enough information to solve problems. If not, they must find and identify other sources, such as journals, books, videos, or internet. The students are urged to use references to support their work in solving the problems. Because they work in teams, all the tasks given must be distributed to all members in the group. This will help to develop research ability, and to get used to the effective use of internet. The members in the group simultaneously learn to solve problems. The instructor grades each group's progress, and give suggestions to each group. Other than that, the instructor must be ready to give consultation, and facilitate the process by asking for progress reports that has been done by the group (Brooke, 2007).

There are many types of collaborative learning, STAD (Student Teams Achievement Divisions) is one of the models that can be used in collaborative learning. Robert (2010) stated that STAD is the learning model that are mostly applied and used in various disciplines of knowledge. The characteristic of this learning model is that small groups in the class is formed consisting of maximum 5 people for each group. Another characteristic is that although they are grouped, the final grade obtained must be individual. This becomes a matter of consideration, why the researcher used STAD model for the research that the author had conducted.

Lester (2015) to begin writing your research essay, you may work systematically through a preliminary, plan or outline. You may also begin by writing what you know at the time. Either way, keeps the pieces of your manuscript under control; your notes will usually keep you focused on the subject, and your thesis statement will control the flow and direction our argument. Yet you must let the writing find its own way, guided, but at controlled by your preliminary plans. Lester (2012) every one of us who writes for any public purpose of expects to do a consider able amount of preparation and organization before careful writing begins. The seeking out, sorting and synthesis of ideas is a key part of the writing process for us, and we often use writing to help us think those ideas through. Moreover, we know that as we write we will likely have to pause and reorganize our thoughts before we continue, often many times over. Murrey (2006) writing involves starting, progressing and finishing a complicated, challenging combination of tasks. It requires you to activate lots of different skills and orientations, sometimes at different stages and phases in the process, sometimes all at the sometime. Some researchers have

claimed that writing can be experienced as one of the most difficult of all skills, requiring, and intricate combination of neurological,, physical, cognitive and affective competencies.

A study shows that students who lack confidence in learning English (Hong, Hwang, Tai, & Chen, 2014) tend to imitate and internalize other people's writing (Özer, 2009). While those who are confident, and always collaborate with their friends online (Zhang, Meng, Ordóñez de Pablos, & Sun, 2019), they are significantly able to develop affective domains in language. Syafi'ie stated that to be able to produce good writing, a writer must have several abilities such as: 1. The ability to find problems to be written;(Sung, 2017) 2. Sensitivity to the condition of the reader;(Ulicheva, Harvey, Aronoff, & Rastle, 2018) 3. Arrange writing planning (Hen-Herbst & Rosenblum, 2019); 4, Ability to use language(Sheppard, Manalo, & Henning, 2018) 5, Ability to start writing (Cuschieri, Grech, & Savona-Ventura, 2019)g and 6, Ability to check writing themselves(Boulton et al., 2018).

To strengthen the researcher's argument about the student's academic writing, the following will explained several research results that have been published in international journals indexed scopus DOAJ and Emerald. Charlotte Dejean (2003) has conducted a research toward two students who have a background of English studying French. The learning that was done used collaborative learning by using computer technology. The two students were asked to speak and write texts in French. This research result described that collaborative learning can increase the ability of two students in learning French at the same time. It also described that collaborative learning can be conducted by only a small group, of minimum two people and the result is very satisfying. Used collaborative learning that was done to two students who have background in English studying French. The media used was computer. After two months, the research result showed that the two students' ability to speak and write improved simultaneously.

The other collaborative learning research was conducted by Margaret Walters (2007). She conducted a research on several students that have graduated from high school and continued their studies to university. The main objective of this research was to investigate the domain of knowledge and habit of students in writing professionally. There were 4 things that was successfully found from this research result, which were : 1) the author was said to be successful, if the result of writing received many feedbacks

from the readers, 2) a successful author is an author that masters six domains of knowledge, which are : genre, writing process, rhetorics, subject, discourse community and metacognitive knowledge., 3) successful writers are those who include their knowledge into action through the same eight habit of thinking, including: surviving, mastering learning, trying challenge, responding to critics positively, involve in collaboration, understanding the way of writing in a complex context, and involve in metacognition. 4) a successful writer is a writer that obtains writing skill from various aspects, such as personal, professional and academic experience. All of the researches above, were done by collaborative learning.

The result of the research above describes that with collaborative learning, the writing ability of advanced level students, who are now in university were already able to become a writer that master the 4 criteria that was obtained from the research result by using collaborative learning.

Furthermore, there was also a research done by Soraya (2016) by using collaborative learning. The researcher used the method of CWS (Creative Writing Strategy) for learning to write by looking at the students' creativity that have low creativity and high creativity. This research used quasi-experimental research. The research population was eighth-grade students in Wonosari at the academic year of 2013/2014. The sampling technique used was cluster random sampling. The sample in this research was 64 students which include 32 E students as experiment class and 32 C students as control class. The data or grade of students' writing was analyzed in terms of frequency distribution, normality, homogeneity, then ANOVA and Tuckey test to test the research hypotheses. Based on the result, the findings of the research were: CWS was more efficient than MWS in writing lesson; high creativity students produced better writing than low creativity students; and the interaction of learning method and students' creativity is in this writing lesson. This research concluded that Collaborative Writing Strategy (CWS) was effective to teach writing for eighth grade junior high school in Wonosari, Gunung kidul.

Next, Didik (2017) conducted a research on effectivity based on collaborative genre in pre-service English teachers (PSET). Data collection was done by distributing questionnaires, to obtain feedback from the result of collaborative learning. Meanwhile, the individual result was obtained by grading the result of writing test. From this research,

the result was obtained as follows : The questionnaire resulting from the feedback of the pre-service English teachers (PSET) described that PSET greatly support collaborative learning in terms of several aspects which are : supporting interaction, accountability, and interdependence. These aspects were caused by collaborative participation in a group, where PSET work with flexibility, highly qualified, contributed and develop positive attitude during team work in doing tasks. The feedback stressed on learning improvement in formative relection through the analysis of general linear model (GLM) measurement, where $F = 6,114$ and $p < 0,01$. The result of research of the feedback of writing based on collaborative genre has a positive response from PSET. The range of determinant increase between 85% to 90% after conducting a series of lectures in writing based on genre.

The research associated with collaborative learning was the research done by Mitsuyo Sakamoto (2018) whom conducted an action research toward 21 second semester students majoring in English which was taken from 21 universities in Japan. This research aims to investigate how the online written output of a student affects each writing. From the result of this written output, 1020 online entries were obtained. Then, that result was analyzed and focused on finding of the use of subject and verb, the use of B1, the use of B1 spelling and variation on the use of B2. The pattern of work is the 21 students involved in this research access certain service network. Then, for two months, each student take turns to offer discussion topics with minimum 150 words, and the other class members commented online with minimum 20 words. Their task for 24 months was to produce 54 strings of topics. Each student was tracked to see whether the use of language reflects others' outcome. The linguistic development pattern was then special interview after the treatment. The research result showed that students who are less confident in learning English tend to follow and internalize the writing of others. Whereas the confident ones, and always collaborate with their friends online, were significantly able to develop affective domain in language.

This research was almost the same as the research done by Charlotte Dejean, which used computer media. However, this research that was done by Mitsuyo Sakamoto was more detailed because it was done for 2 months involving 21 students from 21 universities in Japan. For two months, their activities were observed through one internet network. The students were obliged to enter into the site which had been prepared by the

researcher to ease in observing all of their activities. For 2 months, the students were asked to write in English, and also asked to communicate verbally through the network, both in the form of questions and answers as well as conducting interviews. For 2 months the researcher saw improvements in their grammar writing ability. The topics that must be discussed were 54 topics. The result of this research showed that the students that lacked confidence in learning English tend to copy and internalize other people's writings. Whereas the confident ones, which always collaborate with their friends online, were significantly able to develop affective domain in language.

Next, the researcher will also discuss several researches connected with academic writing. Cate (2006) conducted a research on academic writing. The aim of this research was to analyze the abstract structure that had been recorded in the CABI database for several years, in which at that time the writing of abstract changed from the editorial staff of CABI to become the article writer of the journals themselves. The Abstracts that were checked were 12, and they were researched on the organization semantics and thematic structure from the field of protozoology in the effort to find whether these abstracts followed the abstract guidelines that were generally agreed upon. The data collection technique was by analyzing abstract texts. There were five steps that were done, which were: 1) whether the research was placed in academic community; whether the research was introduced by explaining the main features of research or present its objectives; 3) whether methodology was explained; 4) whether the results were mentioned; and 5) whether there were conclusions or suggestion of practical application. The result of this research was: in general, the 12 abstract researched had been themed the subject of knowledge discipline and the abstract discourse had described the real things in protozoology. However, in terms of techniques or the environment of the intended journal, not all abstracts followed the guidelines. In conclusion: the writing of abstract must obey the principles of following the scientific writing guidelines, similarly CABI as the acceptor of writers that sent the abstract must give training in writing so that there are model similarity of abstract writing which is generally applicable.

Ghaleb (2013) conducted a research on writing which was done by students from two different study programs. The aim of this research was to compare the protection of peculiarity value owned by the students that joined the education program and nursing program. The technique of data collection was done by analyzing 50 articles that were

written of data collection was done by analyzing 50 articles that were written by students from the two different study programs. However, the genres researched were different. The education program students had the non-academic genre, whereas the nursing program students had academic genre. The result of the research was that there were significant differences between the articles made by education students and nursing students in terms of protecting the peculiarity value of their writings. In the non-academic genre articles, the protection of peculiarity value was used to express the writer, entice readers, and convince readers. Literacy was used only for the writer's communicative strategy. The conclusion of this research was that the protection of values for the writer's peculiarity in the two programs which were education and nursing were different. The reader must be aware that the peculiarity value protection in each knowledge discipline were surely different according to the category and subject discussed.

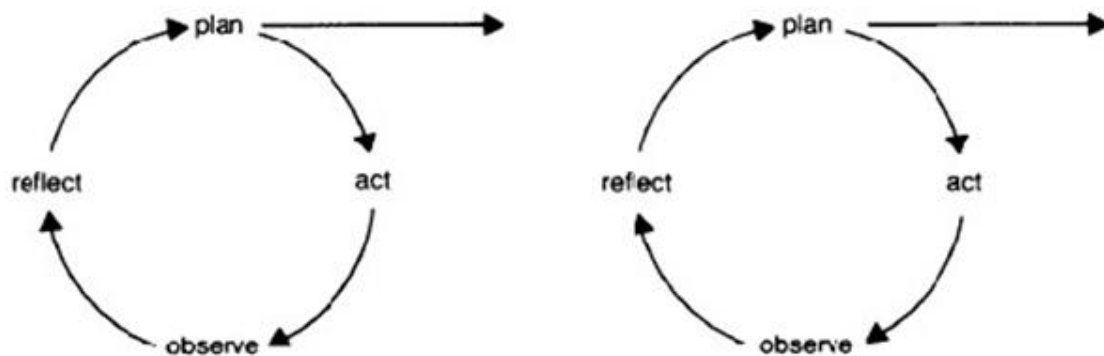
Nina (2014) conducted a research on academic writing. The objective of the research was to test whether the logical structure of abstract in the field of science, material technology, library, and information science fulfilled the format of ISO 214 or IMRAD, the component of abstract according to guidelines. The data collection technique was done by analyzing the components in the abstract whether they were in accordance to the guidelines and ISO 214 (IMRAD).

The result of this research showed that not all structural elements obliged in the abstract existed. There were desires for the researched to study and test the abstract writing guidelines to the public. The conclusion of this research was that there was a need of abstract prototype that was recommended, improved and developed to test the readers' satisfaction with various forms of abstract. So far, the result of satisfaction survey that had been done, about various forms of abstract, and uniformed guidelines for abstract components include: 1) Introduction that must include three background information sentences. 2) Method (M) must include three method sentences. 3) Result (R) must include three result sentences. 4) Discussion (D) must include two sentences of conclusion. The conclusion must display the implication of result on the subjects that were not part of the research, suggestions for possibility of research application, suggestions for further research works and research evaluation.

Methodology

The method used was applied to action research. The action research was conducted for 8 meetings which began with the first and second meeting as pre-treatment, the third to fifth as action research cycle 1 and the sixth to eighth as action research cycle 2. This action research was conducted in 2017 to be exact on the odd semester of the Academic Year 2016-2017 (Starting from 20 June until 8 August 2017). The place of research was in UHAMKA Campus B, precisely in Indonesian Language and Literature Study Program FKIP UHAMKA, Jalan Tanah Merdeka, Pasar Rebo, East Jakarta.

The research design used was action research. The model used in this action research, was Mc. Niff model that was developed from Kurt Lewin basic model. The consideration was that the researcher could not determine how many cycles were needed for this action research. This model was very simple and gave freedom for the researcher to conduct action without considering the number of cycles. Action research will be stopped if the expected target has been achieved.



Picture 1. Mc. Niff Research Model (2012)

Collaborative learning used the model of STAD (Student Team Achievement Divisions). This model was very suitable for this research, which is the students in a class were divided into several small groups. The members in each group learn from one another. The end result that must be achieved was that individually, every student must make an academic article. The research design was designed to be 8 meetings, with the details as followed. Two meetings for pre-treatment, 3 meetings for cycle 1 and 3 meetings for cycle 2.

The samples of this research were students of semester VI A, Indonesian Language and Literature Education Study Program FKIP UHAMKA which were 31 people. The sample collection technique was done by random sampling. There were 3

classes of Semester VI in Indonesian Language and Literature Education Study Program, which were VI A, VI B, dan VI C. The researcher raffled the three classes, and class VI A was chosen to be the sample in this research.

Data and Data Analysis Technique

1. Quantitative Data

Quantitative data in this research was obtained from the test result during pre-treatment, during treatment in cycle 1 (post-test) and during treatment in cycle 2 (post-test) then the data were compared to see the graph of improvement of the students' ability to write academically of VI A, Indonesian Language and Literature Education Study Program FKIP UHAMKA.

2. Qualitative Data

Qualitative data in this research was described in detail from every aspects graded in the ability to write academic writing of the students in semester VI A, Indonesian Language and Literature Education Study Program FKIP UHAMKA. Other than that, this qualitative data was to give significantly the improvement in the students' academic writing ability starting from pre-treatment, cycle 1 and cycle 2. Therefore, from the two data above, the researcher developed as primary data and secondary data source. Primary data was the data obtained from the original source involved directly in this research which were the grade of the ability to write academic writing of the students in semester VI A Indonesian Language and Literature Education Study Program FKIP UHAMKA which include 31 students after action research cycle 1 and cycle 2 were done. The two data obtained from cycle 1 and cycle 2 were compared to see the improvement of the ability to write scientific articles. Meanwhile the secondary data came from secondary source, such as documents of observation result, rubrics, result records of interview with the students and activity photos.

Data Collection Technique

There were several data collection techniques which were done in this research, which were : 1) making field records, field records were greatly needed to directly observe the action research activity that was in motion. This record must be held by collaborators and lecturers to record what was seen, what was heard as study materials to do reflection,

2) interview, used to obtain input from the students about the activity of scientific article writing with collaborative learning. Whether there were ease and changes that was obtained so that the student can write scientific articles, 3) grid of observation sheet.

Data Analysis Technique

After the process of learning to write scientific article with collaborative learning was done, then the next step was to conduct data analysis from what was obtained from the implementation of action and observation. The process of analysis or data processing include 1) data reduction; 2) data explanation/description; and 3) conclusion. The next step, the writer conducted evaluation to see whether there were changes in group dynamics in the learning process. To see whether the group dynamics succeeded or not, the target indicator of success were: (a) students conducted better cooperation relationship and interaction in the group (b) students seemed more critical toward their own writing and their friends' writing; (c) students were also more creative to spill thoughts/ideas in academic writing so that the content of writing were sharper and weighted ; and (d) students had high confidence toward their scientific writing content both in the aspect of language as well as the substantial of writing. And when the change in group/class dynamics were not quite seen, then reflection must be done (cycle 2) to improve action plan so that there were improvement to the students' ability to write scientifically through collaborative learning. Next, if cycle two had not achieved maximum target, there was a need to do the next cycle.

Results and Discussion

Research Result

1. Process of Ability to write articles of the students in semester VI A Indonesian Language and Literature Education Study Program FKIP UHAMKA

In the process of the students' ability to write scientific articles, the researcher had conducted research activity in the form of action research for 8 meetings with the details as followed. Two meetings were done for pre-treatment research, three meetings for action research cycle 1 and three meetings for action research cycle 2.

a. Pre-treatment

In this part, the researcher explained the result of pre-treatment research that had been done before conducting action research. Pre-treatment was conducted in two meeting,

and at the beginning of the meeting, the researcher conducted pretest to know the initial ability of the students in making scientific articles. In this pre-treatment, students work individually, not grouped and not using collaborative learning model. In detail, the researcher described for every meeting below.

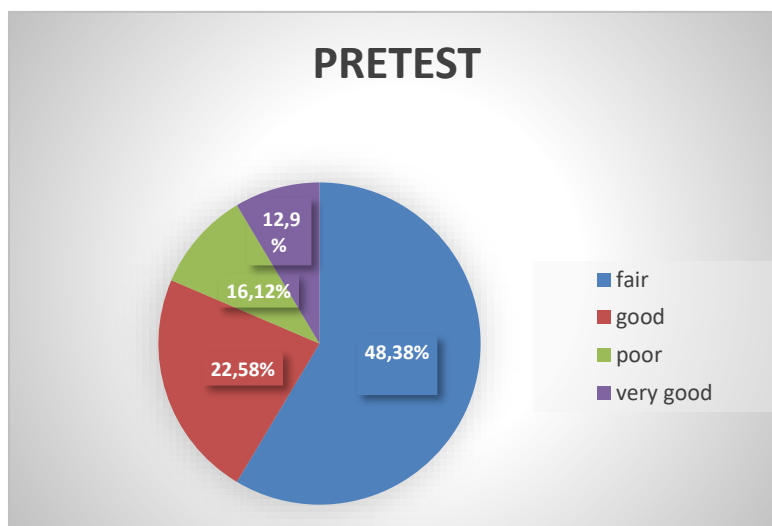
b. First meeting

The students of 31 people were not grouped and they were individually asked to join the pretest to know the initial ability in writing scientific articles. The pretest given was that they must make scientific articles by developing the materials already prepared.

c. Second meeting

The students with the total of 31 people were still not grouped and asked to fix the scientific articles that have been corrected and given a grade by the researcher.

As the researcher already explained above, at the start of pre-treatment meeting (first meeting), the researcher conducted a pretest to know their initial ability in making scientific article. From 31 students which consisted of 8 male students and 23 female students that joined the pretest, a data was obtained as followed : only 4 students or 12,9 % achieved very good grade (80 and above), 7 students or 22,58 % achieved good grade (69-79), 15 students or 48,38 % achieved fair grade (55-68), and 5 students or 16,12 % achieved poor grade (45-54).



Picture 2. Pre-treatment pretest

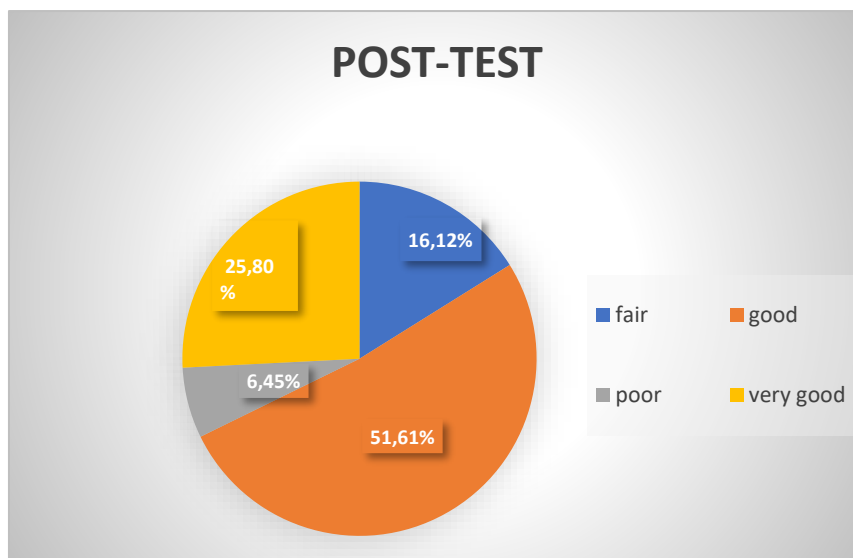
Based on the pretest result above, the researcher with the collaborator agreed to conduct the first cycle of action research.

2. Action Research

Action research was conducted in two cycles and each cycle was performed in three meetings. The implementation of every cycle was described starting from the stage: planning, acting, observing, dan reflecting. From the four stages formed each cycle that was done repeatedly until the problem that became the focus of research can be solved and the research goal was achieved.

a. Cycle 1

The researcher and collaborator conducted an intense discussion to see the data obtained from observation during the action research in the first cycle. As already explained above, that at the end of each cycle, a post-test was conducted (third meeting). The result of post-test was obtained as followed : 8 students or 25,80 % achieved very good grade (80 and above), 16 students or 51,61 % achieved good grade (69-79), 5 students or 16,12 % achieved fair grade (55-68), and 2 students or 6,45 % achieved poor grade (45-54).



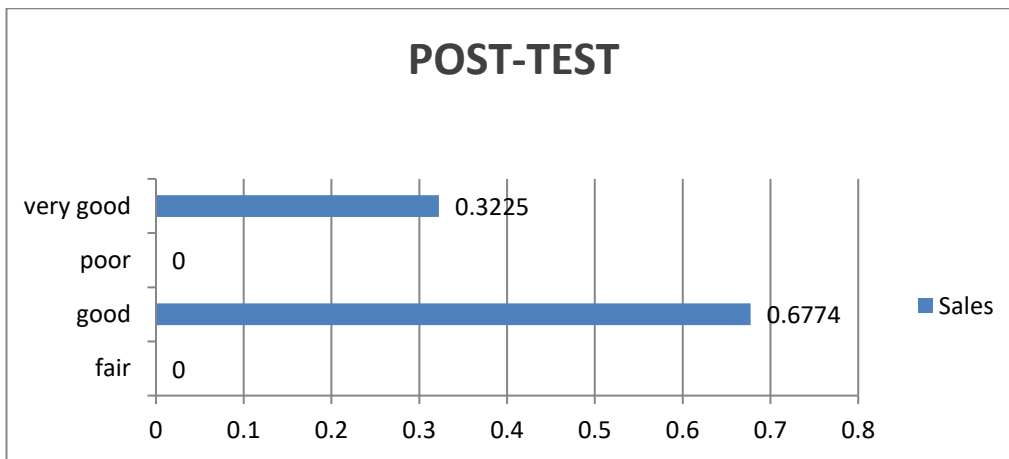
Picture 3. Post-Test cycle 1

Based on the data above, the researcher with the collaborator agreed to continue action research to cycle 2.

b. Cycle 2

Researcher and collaborator conducted intense discussion to look at the data obtained from the result of observation when conducting action research at the second

cycle. As already described above, that at every cycle, a post-test was done (third meeting). The result of the post-test was obtained as followed : 10 students or 32.25 % received very good grades (above 80), 21 students or 67.74 % received good grades (69-79), no student or 0 % received fair grade (55-68), and no student or 0 % received poor grades (45-54). Clearly, it was seen in the graph below which showed the accumulation of completion in the post-test.

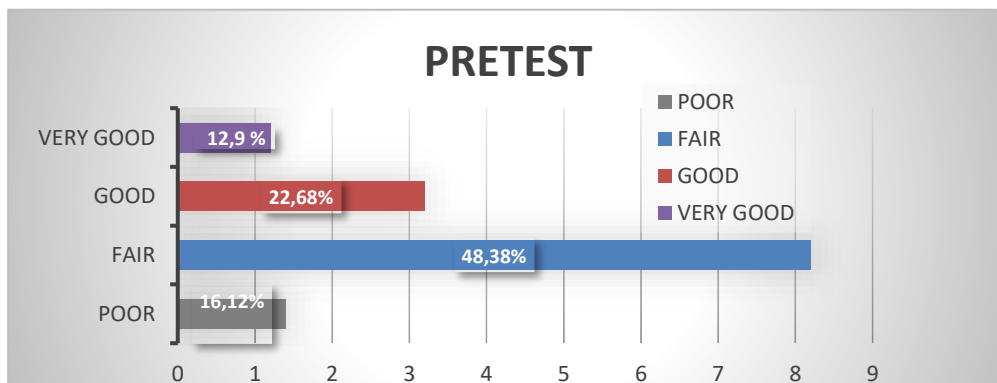


Picture 4. Post-test cycle 2

3. Improvement Result of the Ability to write of the students in semester VI A Indonesian Language and Literature Education Study Program, FKIP UHAMKA

a. Pre-treatment

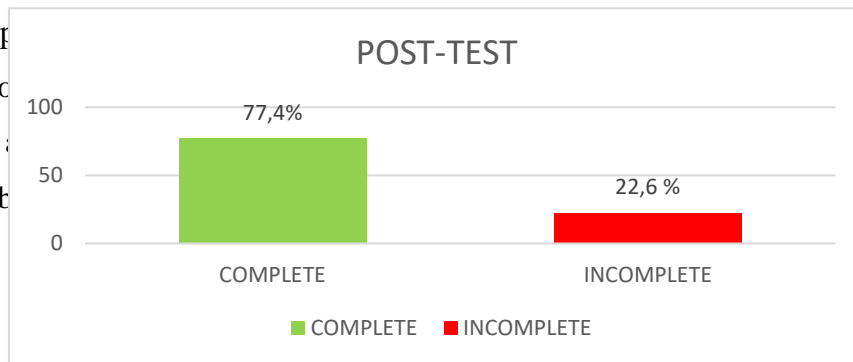
The result of students' activities in pre-treatment can be seen from the result of pretest as followed. From 31 students which consisted of 8 male students and 23 female students that followed the pretest, a data was obtained as followed : only 4 students or 12,9 % achieved very good grade (80 and above), 7 students or 22,58 % achieved good grade (69-79), 15 students or 48,38 % achieved fair grade (55-68), and 5 students or 16,12 % achieved poor grade (45-54).



b. Cycle 1

From 31 students which consisted of 8 male students and 23 female students that followed the post-test, a data was obtained as followed. There were 8 students or 25,80 % achieved very good grade (above 80), 16 students or 51,61 % achieved good grade (69-79), 5 students or 16,12 % achieved fair grade (55-68), and 2 students or 6,45 % achieved poor grade (below 55).

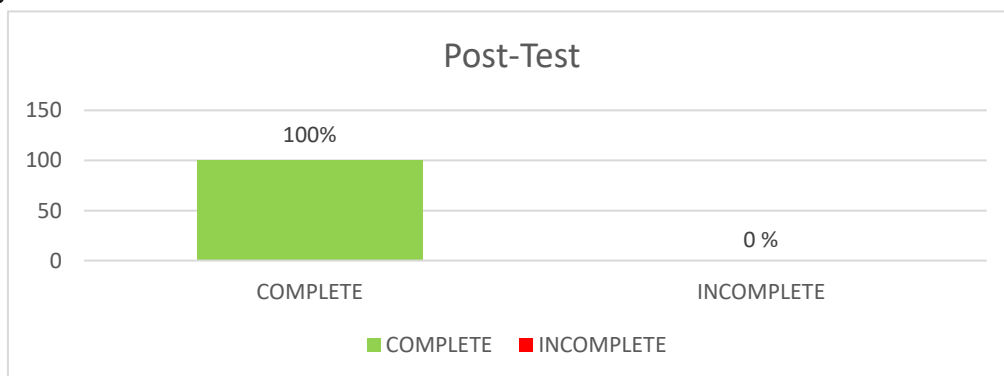
Based on the data above, the researcher and collaborator agreed to continue the action research cycle 2. The data obtained from the post-test is included with the graph above. The graph shows that 24 students (77,42 %) completed the post-test, and 7 students (22,58 %) did not complete it.



Picture 6. Completion of post-test cycle 1

Based on the graph above, the researcher with the collaborator agreed to continue action research cycle 2.

c. Cycle 2



Picture 7. Completion of post-test cycle 2

Result in Cycle 1

From 31 students which consisted of 8 male students and 23 female students who took the posttest, that had achieved completion, the data was obtained as follows: 5 students or 16.12 % received very good grades (above 80), 8 students or 25.80 %

received good grades (69-79), 16 students or 51.81% received fair grades (55-68), and 2 students or 6.45% received poor grades (45-54). From the data above, the researcher concluded with collaboration that the students in cycle 1 during post test that have achieved KKM grade were 13 students (41.93%) and 18 students (58.06%) have not achieved KKM grade.

Result in Cycle 2

From 31 students who took the posttest, a data was obtained as follows: 10 students or 32.25% received very good grades (above 80), 21 students or 67.74% received good grades (69-79), no student or 0% received fair grade (55-68), and no student or 0% received poor grades (45-54). From the data above, it can be said that 31 students (100%) have achieved Minimum Completion Criteria (KKM). Based on the students' learning results data that underwent changes from pretest to cycle 1 until cycle 2, it can be concluded that collaborative learning can improve the ability to write scientific article of the students in Indonesian Language and Literature Education Study Program, FKIP UHAMKA. This was quite reasonable because in collaborative learning, students were very active, motivated and always moved their heart and mind to solve various problems faced in the group together in order to write scientific article. This improvement as described in the following that from the result of pretest, 31 students only have the grade of average 55,77% increased in cycle 1 the average grade reached 61,02% and increased again in cycle 2, average grade increased to be 73,52%. The improvement from pretest during pretreatment to cycle 1 was 5,25% and improvement from pretest during pretreatment to cycle 2 was 17,75%.

Discussion

In this part, the researcher will discuss in detail about the research that had been done both in process as well as the end results obtained after the research ended. As reinforcement in this discussion, the researcher will elaborate various results of previous researches as materials of comparison with the research done by the researcher.

The result of this action research by using collaborative learning succeeded in improving the students' ability in writing articles significantly starting from pretreatment, action cycle 1 and action cycle 2 as elaborated below. From the pretest result, 31 students only achieved average grade of 55,77% increased in cycle 1 with the average grade of

61,02 % and increased again in cycle 2, the average grade increased to become 73,52 %. For the increase from pretest to cycle 1 was as much as 5,25 % and the increase from cycle 1 to cycle 2 was as much as 12,5 %.

This research concluded that collaborative learning can improve the ability to write scientific article through action research on the students of Indonesian Language and Literature Study Program, FKIP UHAMKA.

Furthermore, this discussion will be more interesting if the researcher compares it with various previous research results that discussed about action research with collaborative learning, and scientific writing. These researches have been published in various international journals indexed scopus, through DOAJ search and Emeraldinsight.com.

Putriaji (2016) conducted a research with collaborative learning. This research aimed to improve understanding and develop students' character through project-based collaborative learning. This research was a class action research which was conducted in 2 cycles on the students of Mathematics Study Program of the lecture participants of Time Series Analysis in Mathematics Major, FMIPA Universitas Negeri Semarang of the academic year 2014/2015 as much as 43 students. The procedure of action research include 4 stages, which were (1) planning, (2) acting, (3) observing, and (4) evaluating-reflecting. The instrument of grading were tests, observation sheets and questionnaires. The research result showed that there were improvements in students' understanding which was shown by the increase in average grade of learning outcome both on the group project result which was 72,2 in cycle I and increased to become 86,09 in cycle II, as well as the average result of individual test, which was 78,77 in cycle I to become 83,56 in cycle II. Also, the increase in percentage of total students who achieved learning outcome of more than 80 which was 20 students (46,5%) in cycle I to become 37 students (86%) in cycle II. Other than that, this research cultivated the character of discipline, curiosity, cooperation (tolerance and democratic), responsibility, honesty, care, and love for the homeland to the students.

Susilawati (2016) also conducted action research with collaborative learning. This research aimed to increase teachers' competence in making Thematic RPP, which was expected to implicate on the increase in thematic learning quality in grade I, II, and III in SDN 1 Jumo. The method used was school action research. The result of this

research was that the Supervision of School Supervisor can increase the teachers' competence of lower grade classes in SDN 1 Jumo in making Thematic RPP. Furthermore, the researcher recommended : (1) Supervision to be done by school Supervisor to lower grade teachers in making RPP Thematic. (2) In learning, teachers need to be directed to prepare learning media well. (3) The difficulty of teachers in preparing learning media need to be supported by the school in terms of funding and financing.

The things that were done by previous researchers used collaborative learning with the method of action research. However, the samples were different. The first researcher used the sample of students, similar with the one done by the researcher, while the second researcher used the sample of teachers. There is an interesting thing from the two researches above, which was by using collaborative learning and through the action research the final result obtained was that there was an improvement of learning process from the students and teachers. The things that were done by the previous researchers were different from the one done by the researcher. The difference was seen in the focus of the research. If the previous researches focused on learning based on project and RPP, then the focus that the researcher had done was on the ability to write scientific writing of the students which was graded individually, so that the final result obtained was 31 scientific articles of the students of semester VIA Indonesian Language and Literature Study Program, FKIP UHAMKA.

Next, there was a research about scientific writing done by David (2016) whom conducted a research on scientific writing. This research aimed to test the contribution and writing skill of graduate students in the field of science, technology, engineering and math (STEM). The technique of data collection was done by assessing the quantitative increase in active participation of the students in writing and conducting consultations with the mentors for one year compared to the students that never report their writing result, and proof of their guidance with the mentor. The result of this research showed that the students that participated in writing with their faculty mentors tend to develop much higher level of research skill than the students that never participated in guidance. This research concluded that the quantitative of writing, consultation with the faculty mentors can increase the learning outcome of graduate students.

The advantages of this research was that the students researched were graduate students that produced scientific writing for one year. Other than that, comparing scientific writing result that was produced was consulted or not with the mentors in the faculty. The weakness of this research was that the benchmark of success in writing after consulted was not explained, the positive effect after consultation towards which learning outcome was also not explained. The measurement was only the quantity of consultation and papers.

The one done by the research above was different from the one done by the researcher. The difference lies in the sample researched, the aspect tested, not distinguishing the students, and the final result obtained. The sample that the researcher took was only 31 undergraduate students, not distinguishing treatment, and the aspects tested was clear, and a final result was obtained which was 31 scientific articles. The similarity with the previous research was researching the students' scientific writing.

CONCLUSION

Based on the data of students' learning outcome that experienced changes from pretest to cycle 1 until cycle 2, it can be concluded that collaborative learning can improve the ability to write scientific article. This was quite reasonable because in collaborative learning, the students were very active, motivated and their heart and mind were always intrigued to jointly solve various problems that was faced in their group in order to write scientific article. The students also competed in a healthy manner, and give motivation to other students to achieve maximum learning outcome together. The improvement as seen on the table in chapter iv (table of percentage of the results among cycles) that from the result of pretest, 31 students only have an average grade of 55.77 %, increased in cycle 1 in which the average grade reached 61.02 % and increased further in cycle 2, in which the average grade increased to become 73.52 %. The increase from pretest during pretreatment to cycle 1 was 5.25 % and the increase from the pretest during pretreatment to cycle 2 was 17.75 %.

Therefore, collaborative learning has been proven to improve the ability to write scientific article of students in semester VI A of study program Indonesian language education, FKIP Uhamka. Collaborative learning helped students to be more active,

innovative, and dilligent, both in asking as well as in argument among friends in the group to solve various problems that are faced.

REFERENCES

- Bahls, Patrick. (2012). *Student Writing in the Quantitative Disciplines A Guide for Collage Faculty*. USA: Jossey- Bass
- Boulton, C. A., Kent, C., & Williams, H. T. P. (2018). Virtual learning environment engagement and learning outcomes at a 'bricks-and-mortar' university. *Computers & Education*, 126, 129-142. doi:10.1016/j.compedu.2018.06.031
- Brooke, Stephanie, L. (2007). "The Case Method and Collaborative Learning, Computer-Supported Collaboarative Learning: Best practice and Principles for Instrucction. New York: Information Science Publishing.
- Curtis, L. (2006). *Colloborative Learning: Theory and Practice*. San Fransisco: Science Publishing.
- Cuschieri, S., Grech, V., & Savona-Ventura, C. (2019). WASP (Write a Scientific Paper): Structuring a scientific paper. *Early Hum Dev*, 128, 114-117. doi:10.1016/j.earlhumdev.2018.09.011
- Davidsen, Jacob. (2010) ICT as a Tool for Colloboration in the Classroom- Chaleenges and Lesson Learned. *Design for Learning*. 3 (1-2) 54-69. Retrieved July 12, 2018 from https://doi.org/10.16993/dfi_29
- Dejean, Charlotte. (2003). Redactions Conversationnelles sur appier et sur ordinateur: une etude de cas Collaboraitve Writing on paper and on computer: a case study. vol.6. retrieved June 21, 2018. romhttps://doaj.org/article/01142359b1934d2b9302bGec62_4f038e.ALSIC Aprentissage des Langues et systems d'information et de Communication. DOI 10.4000/alsic.2179
- Ecarnot, F., Seronde, M. F., Chopard, R., Schiele, F., & Meneveau, N. (2015). Writing a scientific article: A step-by-step guide for beginners. *European Geriatric Medicine*, 6(6), 573-579. doi:10.1016/j.eurger.2015.08.005
- Hen-Herbst, L., & Rosenblum, S. (2019). Which characteristics predict writing capabilities among adolescents with dysgraphia? *Pattern Recognition Letters*, 121, 6-12. doi:10.1016/j.patrec.2018.04.021
- Hendikawati, Putriaji. (2016). Meningkatkan Pemahaman dan Mengembangkan Karakter Mahasiswa Melalui Pembelajaran Kolaboratif Berbasis Proyek Kreano: *Jurnal Matematika Kreatif-Inovatif*. 2016;7(2):123-130 DOI 10.15294/kreano.v7i2.4730
- Hong, J.-C., Hwang, M.-Y., Tai, K.-H., & Chen, Y.-L. (2014). Using calibration to enhance students' self-confidence in English vocabulary learning relevant to their judgment of over-confidence and predicted by smartphone self-efficacy and English learning anxiety. *Computers & Education*, 72, 313-322. doi:10.1016/j.compedu.2013.11.011
- Jamar, Nina. (2014) The components of abstracts. *New Library World*, vol. 115 no. 1/2 DOI: <https://doi.org/10.1108/NLW-09-2013-0069>

- Jose, Juan. (2014). Implemenation of Collaborative Learning during the Applied Pharmaceutical Calculations Laboratory at the Scholl of Pharmacy from the Universidad de Costa Rica *Revista Electronic@Educare*. ;18(2):159-175 DOI 10.15359/ree.18-2.8 retrieved October 15, 2018 from <https://doaj.org/article/10bf8aad80ec43029f20154df2e84f4c>.
- Lachner, A., Burkhart, C., & Nückles, M. (2017). Formative computer-based feedback in the university classroom: Specific concept maps scaffold students' writing. *Computers in Human Behavior*, 72, 459-469. doi:10.1016/j.chb.2017.03.008
- Lester, James. D. (2015). *Writing Research Papers A Complete Guide*. England: Edinburgh Gate.
- Luptakova, Gabriella.(2017). Collaborative Learning with Application of Screen-based Technology in Phsyical Education. *Montenegrin Journal of Sports Science and Medicine*, 6(2)49-56. Retrieved Mey 13, 2018 from <https://doaj.org/article/072e56316e7942c5997b3f7cee345955>
- Mugahed, Waleed. (2017). A Model of using Sosial Media for Collaborative Learning to Enhance Learners Perpormance On Learning, 29(4) 526-535. *Journal of King Suad University. Computer and Information Sciences*. Retrieved November 12, 2018. From <https://doi/org./10.1016/j.jksuci2016.09.002>.
- Murray, Rowena (2006). *The Hand Book of Academic Writing*. A Press Approach. London: Open University Press.
- Nazarenko, A. L. (2015). Blended Learning vs Traditional Learning: What Works? (A Case Study Research). *Procedia - Social and Behavioral Sciences*, 200, 77-82. doi:10.1016/j.sbspro.2015.08.018
- Nunan, David. (2003). *Colaborative Language Learning and Teaching*. Cambridge: Language Teaching Library.
- Özer, N. Ö. (2009). Consciousness of writing, spelling errors and their causes in Turkish alphabet. *Procedia - Social and Behavioral Sciences*, 1(1), 1353-1356. doi:10.1016/j.sbspro.2009.01.239
- Sakamoto, Mitsuyo. (2018). How Effective is Interactive Learn ? investigating Japanese University Student Language Pattens in a Collaborative Writing Task, *Journal of Language Learning* p.115. Retrieved December 7, 2018 from <https://doaj.article/076a2218167184d5bb85210f71467faaa.IAFOR>
- Samekto, Didik Rinan. (2017). The Effectiveness of Pre-Service English Teacher's Collaborative One-Based Learning. *Jurnal Lingua Cultura*. DOI 102152fc.v11i11595, 2017.p.2..retrieved July 25, 2018 from <https://doaj.org./article/06b743145b0>
- Sheppard, C., Manalo, E., & Henning, M. (2018). Is ability grouping beneficial or detrimental to Japanese ESP students' English language proficiency development? *English for Specific Purposes*, 49, 39-48. doi:10.1016/j.esp.2017.10.002
- Slavin, Robert E. (2010). *Colloborative Learning, Teori, Riset dan Praktik*. Bandung: Nusa Media.
- Soraya, Kiky. (2016). The Effevtiveness of Collaborative Writing Strategy (CWS) in Writing Lesson Regerded to The Students'Creativity. *Journal Lingua Cultura*. DOI.

- 10.21512/lc.v10i2.898.p 63-67, retrieved August 19, 2018.from
<https://doaj.org/article/0ad21ca8c9b048b09f041c4d0f5a9dfb>.
- Šubelj, L., Fiala, D., Ciglarič, T., & Kronegger, L. (2019). Convexity in scientific collaboration networks. *Journal of Informetrics*, 13(1), 10-31. doi:10.1016/j.joi.2018.11.005
- Susilawati (2016). Meningkatkan kompetensi menyusun RPP tematik melalui supervisi kelompok pendekatan kolaboratif bagi guru kelas rendah. *Jurnal Handayani: Jurnal Kajian Pendidikan Pra Sekolah dan Pendidikan Dasar*. 2016;6(1) DOI 10.24114/jh.v6i1.4879
- Sung, E. (2017). The influence of visualization tendency on problem-solving ability and learning achievement of primary school students in South Korea. *Thinking Skills and Creativity*, 26, 168-175. doi:10.1016/j.tsc.2017.10.007
- Ulicheva, A., Harvey, H., Aronoff, M., & Rastle, K. (2018). Skilled readers' sensitivity to meaningful regularities in English writing. *Cognition*. doi:10.1016/j.cognition.2018.09.013
- Walters, Margaret. (2007) "Qualitative Research on What Leads to Success in Profesional Writing,p.31.retrieved, August, 25, 2018 from <https://doaj.org/article.05563188451a40b09393d732dc> 420295 International Journal for The Scholarahip of Teaching and Learning, DOI 10.20429/Ijsctl, 2007.
- White, R., and Mc. Govern. (2005). *Writing*. London: Prentice Hall International English Language Teaching.
- Xiong, A., & Proctor, R. W. (2018). The role of task space in action control: Evidence from research on instructions. 69, 325-364. doi:10.1016/bs.plm.2018.09.007
- Zhang, X., Meng, Y., Ordóñez de Pablos, P., & Sun, Y. (2019). Learning analytics in collaborative learning supported by Slack: From the perspective of engagement. *Computers in Human Behavior*, 92, 625-633. doi:10.1016/j.chb.2017.08.012
- Zillmer, N., & Kuhn, D. (2018). Do similar-ability peers regulate one another in a collaborative discourse activity? *Cognitive Development*, 45, 68-76. doi:10.1016/j.cogdev.2017.12.002