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The Effect of the Community of Inquiry (CoI) Learning Model and Learning Style towards Social Skills

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Abstract: This study aims to examine and describe the effect of the community of inquiry (CoI) learning model and learning styles on students' social skills. The sample used was a student of the faculty of education IAIM Bima Indonesian totaling 114 people, consisting of two experimental groups with 56 students and two control groups were 58 students. The community of inquiry (CoI) learning model was applied in the experimental group whereas the control group applied a cooperative learning model (comparison). This research is a quasi-experiment in which the analysis of prerequisites is applied; normality used the normality QQ plot and homogeneity of variance test used Levene's test. Research data were analyzed by applying the Analysis of Variance (ANOVA). The results of show that there are significant differences in the social skills of students who use the community of inquiry (CoI) learning model with cooperative learning model, there are differences in social skills of students in terms of the dimensions of learning styles of visual, auditory and kinesthetic, there is also an interaction between community of inquiry (CoI) learning model and learning styles on students' social skills.

Keywords: *Community of inquiry (CoI), learning model, learning styles, social skills, cooperative learning.*

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Introduction

Learning in higher education puts students as adult learners who are able to organize themselves (Eggen, 2012). In learning, teachers are needed to always provide motivation, collaborate, and participate actively investigating, integrate new knowledge with the knowledge they have by utilizing a variety of environments and technologies. Eckhaus (2019), Scott (2017), and Yilmaz (2017), also stated that cooperation between learners with technology provide a good impact on learning outcomes. Learners need to make efforts to improve the quality of learning, through various activities, increasing the commitment to improve the quality of learning; learning systematically designing empowering technologies and learning media in the classroom (Gagne & Briggs, 1974; Setyosari & Sihkabuden 2005; Branch & Kopcha, 2014; Brown, 2015), currently all of the components needed to learn to support each other, so that changes as a result of the learning process to the fullest. One alternative learning strategies suited to the current era of technology in enhancing self-reliance, collaboration and active participation of learners is a community of inquiry learning model (Garrison, 2016; Gutierrez-Santiuste & Gallego-Arrufat, 2017; Hilliard & Stewart, 2019).

Community of Inquiry learning model is one of the learning model that provides opportunity for learners to investigate the learning community to achieve the learning objectives by combining face to face and online (Akyol & Garrison, 2011; Asalla et al., 2014; Nave et al., 2017), their relationship to the emergence of social interaction and social conflict cognitive (Akyol & Garrison, 2011; Garrison, 2019; Padilla & Kreider, 2018). increase understanding of individual (Pratiwi et al., 2016), Increase activity and understanding of the concept of learners (Chen et al., 2017a; Feng et al., 2017), To interact socially with other learners with the purpose of conducting an investigation, thereby increasing the understanding of learners (Dumitru, 2012; Chen et al., 2017) improve the achievement of students (Munazah et al., 2015), more focused on the topic of the material being studied and dig deeper on the topic through in-depth discussion

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with students (Arbaugh et al., 2008; Asalla et al., 2014; Feng et al., 2017) learners should be given a lot of space to use their environment as a learning resource, such as providing internet services, adequate library, facilities for discussion with peers, teachers and other learning resources, because the learners should play an active role in learning (Branch & Kopcha, 2014; Felder & Brent, 2017; Reigeluth, 2016).

Community of inquiry learning model is one model of learning that can combine face to face learning and online or blended learning that can enhance the understanding of learners (cognitive presence), their social relationships between learners (Social presence) and their facilitators in the learning (Akyol & Garrison, 2008; Garrison & Vaughan, 2011; Hilliard & Stewart, 2019; Shea et al., 2011; Padilla & Kreider, 2018). Blended learning is a way for teachers to use various technologies to improve effectiveness in learning (Uz & Uzun, 2018).

The development of technology has changed the way and learning styles of students rapidly, so we need a learning strategy that is able to accommodate all the characteristics and learning styles of students. Each learner has a characteristic and different learning styles (Bire & Bire, 2014; Chen, Jones, & Xu, 2018; DePorter & Hernacki, 2016) requires the ability learner to design learning that is able to accommodate all learning styles of learners, one of them by selecting the appropriate learning strategies to the learning styles of learners today. The essential thing to noted is the development of technologies that change the way and learning styles of learners, although some theories suggest that learning styles are congenital factors, so that learners should be able with the development of existing technologies, so that learners engage in learning something, interact with friends colleagues and utilizing technological developments and a variety of learning resources (Biggs & Tang, 2011; Felder & Brent, 2017).

Nowadays, learners should be given more space and opportunity to explore constructing knowledge, both individually and in groups for learning is very adequate facilities, adapting to the characteristics and learning styles, so it will have an impact on motivation, activity and learning achievement (Bire & Bire, 2014; Saadatmand et al., 2017). Learners will have the achievement and social skills well, if the learning styles of learners adapt to the learning styles of learners (Awla, 2014; Chen et al., 2018), construction of knowledge is not something individual alone, learning is socially, through interaction with peers, learners, etc. (Dumitru, 2012; Muijs & Reynolds, 2008; Syarifuddin, 2016).

The learning experience must accommodate the interests of individuals and groups, through collaboration between individuals, so that the students will work together, responsible for constructing his knowledge into a problematic situation (Garrison, 2015; Millis & Cottell Jr., 1997). Learning that is grouped in completing the learning task will affect social skills (Koycegiz & Ozbey, 2019; Setyosari, 2009). Involving learners in learning based on the characteristics and learning styles affect the interaction and learning outcomes to be the better (Asiry, 2016). Paying attention to the learning styles of learners in learning allows learners to interact develop social and cognitive skills.

The community of inquiry learning model consists of three interrelated components namely teaching presence, cognitive presence, and social presence. Social presence indicator is the presence of social relationships between learners, encourage learners to be actively involved in cooperation, mutual trust collaborate in the investigation to achieve the learning objectives (Arbaugh et al., 2008; Garrison, 2019; Hilliard & Stewart, 2019; Shea et al., 2011; Saadatmand et al., 2017). A community of inquiry learning model encourages developing cognitive and social skills. Social skills is a behavior that needs to be studied, because it allows individuals to interact, obtain a positive or negative response, with an environment that includes skills in showing empathy, participate in group activities, generous, helping each other, communicate with others, negotiating, and solving problem (Cartledge & Milburn, 1986; Lynch & Simpson, 2010).

Social skills are very important learning goals to be achieved by every student. Social skills are one the ability to create harmonious social relationships and satisfying the various parties, in the form of an adjustment to the social environment and solve social problems (Maryani, E, 2011; Yukay-Yuksel & Arslan, 2018) Learner success is not just a charismatic presenter but those that involve learners in tasks that cognitive and social conditions of the charge and teach them how to do the tasks productively (Joyce & Calhoun, 2009). Based on several studies and expert opinion on the above researchers tried to conduct research related to the influence of the learning model community of inquiry and learning styles of the students' social skills, because the knowledge of researchers has not much to research in this regard in higher.

Methodology

Research Design

This study design using the quasi-experimental design. The research was conducted on 4 groups with details of two class experimental groups and two class control groups. The experimental group applying the community of Inquiry learning model, while the control group implements a cooperative learning model as a comparison.

Design in the implementation of this study are non-equivalent posttest group design, which is expressed in Table 1 as follows:

Table 1. Design of Quasi-Experimental Research

Group	Pretest	Treatment	Post-test
Experimental	O ₁	X ₁	O ₃
Control	O ₂	X ₂	O ₄
X ₁ : Treatment community of inquiry		X ₂ : Treatment cooperative learning	
O ₁ : The score of social skills experimental group		O ₂ : The score of social skills control group	
O ₃ : The score of social skills experimental group		O ₄ : The score of social skills control group	

The community of inquiry learning model has four stages in the learning that is triggering event, exploration, integration, and user application/resolution adopted in this study (Garrison, 2015; Garrison & Vaughan, 2011), for more details, will be presented in Table 2 below.

Table 2. Stages Community of Inquiry (CoI) Learning Model

Stages	Indicator	Learning Activities
Triggering event	Generating motivation to conduct an investigation.	The initial stage to explain the things that will be done, providing the trigger, motivated by providing questions and problems to investigate.
Exploration	Explore with the group's friends by utilizing a variety of learning resources and information technology.	This stage provides an opportunity for students to explore questions or concerns with the group to discuss how online and offline to complete a variety of tasks that have been given by utilizing a variety of learning resources and information technology that is around.
Integration	Connecting materials or concepts that have been obtained through reflection with friends group	At this stage, the students prepare and establish the concept of the ideas generated in the previous phase. connecting concepts into new problems.
Application	Applying the concepts that have been built by integrating into something practical	At this stage, the students perform practical action following the concept or knowledge gained at this stage of exploration and integration; solve various questions and issues that have been given.

Table 3. Stages Cooperative Learning Model

Stages	Indicator	Learning Activities
Plan	Present goals and set	The initial stage to explain the things that will be done and explain learning objectives.
Introduce	Present information.	Explain the goals and objectives students are vital. You will need to explain the criteria for the academic task, as well as behavioral expectations for working with peers. Present information verbally to students.
Monitor	Monitor, observe and organize	Once students have begun to work in their groups, it is your job to monitor and observe. You should be available to answer questions and provide clarification as needed but you should also be spending some amount of time in each group listening and monitoring.
Assist and Assess	Assist and assess students individually and in groups	Helping the learning teams as long as students do their work, Assessing students independently and group assessments to determine the final grade
Evaluation	Give reflect or appreciation	Reflect upon their cooperative learning experience and give feedback on the academic assignment and the group structure. Hear what worked well and look for ways to improve upon next time

Sample and Data Collection

The sample of this study is 114 students, 56 students in the experiment group and 58 in the control group.

Table 4. Sample Demographics Research and Treatment

Group	Study Program	N	Total
Experiment	S1 Primary School Teacher Education Class B	25	56
	S1 Early Childhood Teacher Education Class A	31	
Control	S1 Primary School Teacher Education Class A	26	58
	S1 Early Childhood Teacher Education Class B	32	
Total number			114

Data collection techniques used in this study observation sheets and questionnaires. Observation sheet is found to observe the stages of the learning process; a questionnaire was used to measure learning styles and social skills of students. The instrument of social skills has been tested for validity and reliability. Based on the results of the trial conducted an analysis of the validity of 45 instrument items, based on the results of the analysis showed that 42 items were declared valid and 3 items were declared invalid because they obtained a significance level score > 0.05 . Next test the reliability of the instrument to get a Cronbach's Alpha value of $0.947 > 0.07$, so it can be concluded that the social skills instrument is declared reliable. The instrument to collect data learning styles and social skills using a Likert scale questionnaire which has three options which are often, rarely and never. If students choose are often given a score of 5, a rare score of 3 and never score of 1 (Gresham & Elliott, 1990). Total learning style question items were 21 items, consisting of seven items. Each indicator's learning styles are visual, auditory and kinesthetic. While the number of items for the question of social skills as much as 42 items with scores if students choose are often given a score of 2, rarely score of 1 and never score 0.

Analyzing of Data

The data were analyzed by using descriptive statistics and statistics inferential. Normality and homogeneous tests used to determine whether the obtained data were normally distributed and homogeneous. Tests were carried out with SPSS for windows on a significant level $\alpha = 0,05$ Hypothesis testing is used to determine whether there is a significant difference between the social skills of students who are taught using community of inquiry learning model with cooperative learning, whether there is any difference in social skills of students in terms of learning styles of students, whether there is interaction use community of inquiry learning models and learning styles of the social skills college student. Data analysis techniques used in this study is a statistical technique univariate analysis of variance with SPSS with significance level $\alpha = 0,05$.

Findings / Results

Data Description Learning Styles

Before performing the treatment in both groups of students, to identify learning styles and do pretest beforehand associated with social skills. Description of the student's learning style identification data after being given a questionnaire, more details will be presented in the table 5 below:

Table 5. Data on Student Learning Styles

Learning styles	Experiment Group	Control Group	N
Visual	16	13	29
Auditory	21	21	42
Kinesthetic	19	24	43
Total	56	58	114

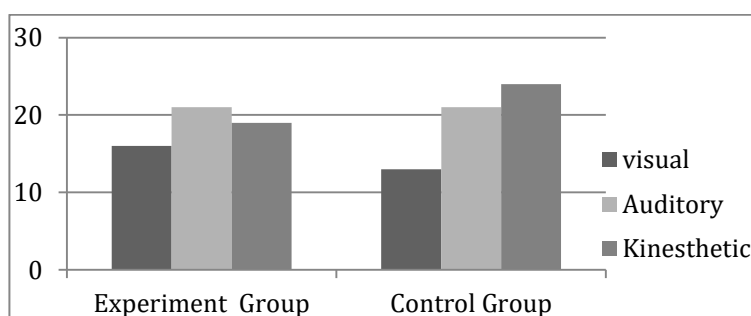


Figure 1. Data on Student Learning Styles

Data Description Pretest Results

Before performing the treatment in both groups of students, the students do the pretest by answering a questionnaire related to students' social skills. More details can be seen in Table 6 below:

Table 6. Results in Scores Pretest Social Skills

Learning Style	Experiment Group			Control Group		
	\bar{X}	S	n	\bar{X}	S	n
Visual	81.38	5.15	16	75.00	6.04	13
Auditory	81.00	7.42	21	80.90	4.09	21
Kinesthetic	83.53	5.32	19	78.00	5.69	24
Total	83.53	6.37	56	79.45	4.89	58

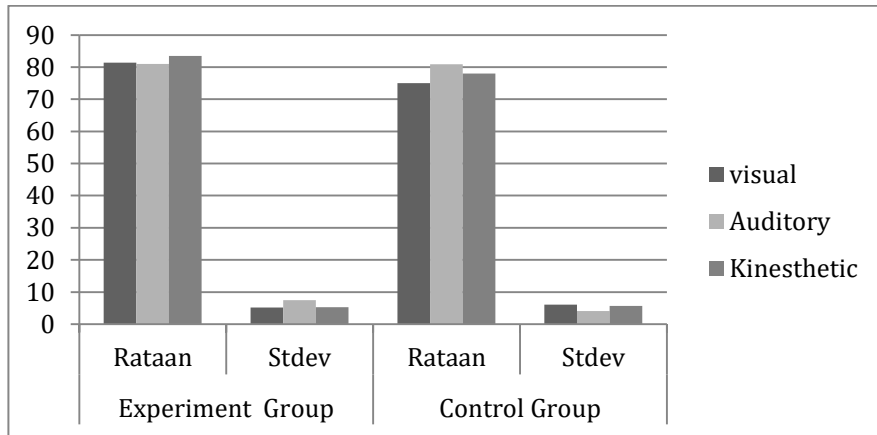


Figure 2. Results Scores Pretest Social Skills

Figure. 2 illustrates that the experimental group variable social skills-based learning style, 16 students have a visual learning style with mean score is 81.38 with a standard deviation of 5.15, 21 students have auditory learning style with average value score 81.00 with a standard deviation of 7.42 and 19 students have kinesthetic learning style get score of 83.53 with a standard deviation of 5.32. It can be concluded that students' social skills scores based learning style is not too different.

In the control group based style of learning social skills, 13 students have a visual learning style with an average value score of 75.00 with a standard deviation of 6.04. Based on the results of the pretest showed no significant difference in scores between students' social skills learning styles, both the experimental group and the control group have similar initial capability.

Data Description Pretest Results

After researching for a semester in the experimental group and the control of the control class, do the observations during the learning process and given a questionnaire related to social skills. The data results can be seen in Table 7 below:

Table 7. Results scores Posttest Social Skills

Learning Style	Experiment group			Control group		
	\bar{X}	S	n	\bar{X}	S	n
Visual	85.44	4.11	16	77.31	6.25	13
Auditory	85.38	8.70	21	83.67	3.54	21
Kinesthetic	89.58	4.12	19	81.21	5.49	24
Total	86.82	6.45	56	81.22	5.52	58

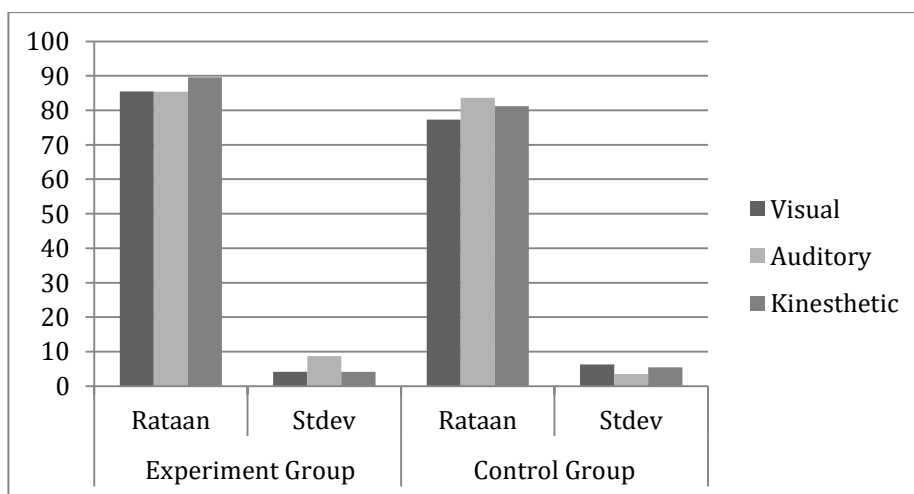


Figure 3. Result scores Posttest Social Skills

Referring to the table 7 and figure 3 above it can be seen that the data of social skills in classroom learning experiments using community of inquiry learning model is one that 16 students have a visual learning style with an average value of 85.44 with a standard deviation of 4.11, 21 students have auditory style with an average value of 85.38 and a standard deviation of 8.70, 19 students have a kinesthetic learning style with an average value of 89.58 and a standard deviation of 4.12. Furthermore, 13 students have a visual learning style with mean values of 77.31 and a standard deviation of 6.25.

Normality and Homogeneity test

The normality test is done on the data score students' social skills. Testing normality of the data using SPSS to test the normality QQ plot, more details can be seen in figure 4 below:

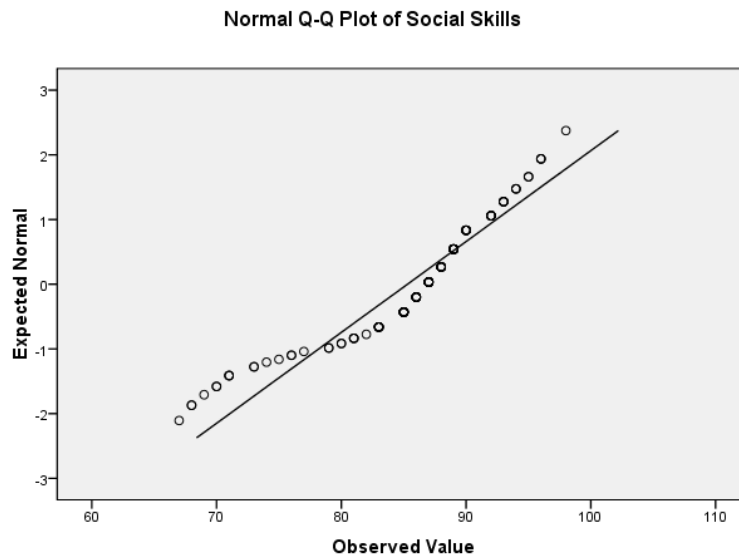


Figure 4. Result Normality QQ Plot Test

Referring to figure 4 indicates that data or points spread around the line and follow the direction of the diagonal line. So it can be concluded that the social skills data of students are normally distributed.

A homogeneity test was conducted to determine the variance in the groups is homogeneous samples. The homogeneity test was conducted to determine whether the value of the variant mastery of concepts and social skills individually homogeneous among the treatment groups.

Table 8. Result Homogeneity of Variances Test

	Levene's Statistic	df1	df2	Sig.
Social skills	.794	1	112	.375

Table 8 above shows the significance level of variants is $0.375 > 0.05$, these mean scores of social skills have to be homogeneous sample variation. So it can be concluded that data has met the requirements for testing the hypothesis.

Hypothesis test

Hypothesis testing is done to prove whether the formulation of the hypothesis proposed in the study is accepted or rejected. Statistical analysis used was Analysis of Variance analysis with a significance level of 0.05. The results of calculations using the SPSS program are presented in Table 9 as follows:

Table 9. Results Test of Between-Subjects Effects

Dependent Variable: Social Skills					
Source	Type III Sum of Squares	Df	mean Square	F	Sig.
Corrected Model	1436.005a	5	287.201	8,890	.000
Intercept	767835.591	1	767835.591	2.377E4	.000
SB	1008.561	1	1008.561	31.220	.000
GB	291.672	2	145.836	4,514	.013
SB * GB	284.245	2	142.122	4,399	.015
Error	3488.916	108	32.305		
Total	808805.000	114			
Corrected Total	4924.921	113			

R Squared = .292 (Adjusted R Squared = .259)

Regarding to the table 9 above as a basis for hypothesis testing, decision-making, if the value of the significant level of > 0.05 , then the null hypothesis (H_0) is received and the alternative hypothesis (H_a) is rejected, and if the value of the significance level of < 0.05 , null hypothesis (H_0) is rejected and H_a accepted.

Based on the results of the calculations in Table 9, Tests of Between-Subjects Effects note that the value $F = 31.220$ with a significance level of 0.00 . This suggests that the significance level of $0.000 < 0.05$ significance level, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, it means there are differences in students' social skills are taught using Community of inquiry learning model and cooperative learning model. This is reinforced by a score of social skills of students with a mean score of 86.82 in the experimental group is greater than the average score of 81.22 in the control group. It can be concluded that students learn social skills by using the community of inquiry learning model is better than the cooperative learning model.

Based on the results of the calculations in table 9, tests of Between-Subjects Effects note that the value $F = 4.514$ with 0.013 significance level. This suggests that the significance level of $0.013 < 0.05$ significance level, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) accepted, meaning there are differences in students' social skills are taught using Community of inquiry learning model and cooperative learning model in terms of the dimensions of the student's learning style. This is reinforced by the average score in terms of social skills of the students have different learning styles, the average social skills of students based on the learning style that learned in the experimental group are higher than the average score in the control group.

Table 9 shows Tests of Between -Subjects Effects note that the value $F = 4.399$ with a significance level of 0.015 . This suggests that the significance level of $0.015 < 0.05$, meaning there an interaction between learning community of inquiry learning model and learning styles of the students' social skills. The results of this study that simultaneously portray the community of inquiry learning model and learning styles significantly affect students' social skills

Discussion and Conclusion

The learning model of community of inquiry by considering and paying attention to student learning styles, it is to be collaborated, cooperated and helped each other in conducting various investigations in solving various problems they face, so that it is effective in improving social skills, motivation and mastery of students' concepts towards material learned. This Community of Inquiry learning model provides many opportunities for students to explore with their communities by utilizing various facilities and technologies that are around it, in contrast to the cooperative and conventional learning models which are more focused on instruction from teachers in the classroom.

The results of the identification of learning styles of students showed that students' learning styles in the experimental group and the control group was not much different. The mean score of pretest scores of social skills in the experimental group is 83.53 with standard deviations 6.37 and the control class score is averaging 79.45 with a standard deviation of 4.89 . The normality and homogeneity of data results meant that the research data were normally distributed, and subsequently on the test results showed that the homogeneity of the data variance social skills of students in the experimental group and the control with significant value $0.375 > 0.05$, meaning that the second data the group is homogeneous.

The first hypothesis testing shows that there are differences in students' social skills taught using community of inquiry learning model and cooperative learning model with a significance level of $0.00 < 0.05$ (Table, 6), meaning that there was is a significant effect of community of inquiry learning model on social skills of students. This is in line with the opinion of some of the results of previous studies which stated that the community of inquiry learning model may have an impact on social activities, understanding the concepts and increase learning achievement of learners (Asalla et al., 2014; Garrison, 2015; Pratiwi et al., 2016). Community of Inquiry learning model is one that is learning groups or communities to provide space for learners to interact and cooperative (Garrison, 2015), provide opportunities for learners to engage actively in social interaction with other learners with the purpose of the investigation will be able to

improve the understanding of learners (Chen et al., 2017; Halim, 2012). According to Rohaeti, (2020) collaborative Inquiry learning can develop students' scientific attitudes, this reflects that the collaborative inquiry learning model is available constructivist learning model in improving students' attitudes in the context of design and develop more effective instructions. This is supported by the results of research that concludes that Inquiry-based learning is better in constructing the concept of knowledge, the elaboration process comprised the relationship between the new concept and students' experience (Laksana et al., 2019).

The second hypothesis concludes that there are differences in the social skills of students in terms of student learning styles dimensional visual, auditory and kinesthetic. This is evidenced significant level value $0.015 < 0.05$, but it is seen from the scores of social skills in terms of the dimensions of learning styles in the experimental group; visual learning style dimension score average of 85.44 with a standard deviation of 4.11; Auditory learning style mean score of 85.38 with a standard deviation of 8.70, and kinesthetic learning style mean score of 89.58 with a standard deviation of 4.12. Whereas in the control group who have auditory learning style dimension score average of 77.31 with a standard deviation of 6.25, auditory learning styles scores averaging 83.67 with a standard deviation of 3.54, and which has a kinesthetic learning style mean score of 81.21 with a standard deviation of 5.49, which states that learning styles have a significant impact on learning outcomes. This is the same as the results of research like by Laksana et al., (2019) states that there are differences in the mastery of student concepts in terms of student learning styles, after applying inquiry-based learning. Adapts to the learning style of learning will have an impact on academic achievement. Each learner has the characteristics and learning styles are different, so it took a learning strategy that can accommodate all learning styles dimension.

The third hypothesis test shown that there was an interaction between the community of inquiry learning model and learning styles of the students' social skills with a significance level of $0.015 < 0.05$ means the use of the community of inquiry learning model and learning styles simultaneously significant effect on students' social skills, in line with some of the opinions of experts who say that the application of learning models to adjust the characteristics and dimensions of learning styles are visual, auditory and kinesthetic will have an impact on motivation, activity and improve learning achievement (Bire & Bire, 2014; Saadatmand et al., 2017), Different learning strategies and learning styles show an influence of interaction on students' conceptual understanding. The interaction pattern indicates that learning strategy and style strengthen the conceptual understanding of visual learners, yet they slow down the conceptual understanding of verbal learners (Laksana et al., 2019). That the learning strategy and learning styles are interconnected and mutually support each other, so the effect on learning outcomes in terms of both cognitive and social skills of students. The results showed that the community of inquiry learning models to adjust to the dimensions of learning style affected the students' social skills such as cooperation, assertion, responsibility, empathy, and self-control (Awla, 2014).

Based on the results of research and discussion above it can be concluded that there are significant differences of social skills of students using the community of inquiry learning model with cooperative learning model, because the community of inquiry learning model provides more opportunities for students to interact and work together to construct knowledge in various learning sources by utilizing technology as a means of communication, thus giving effect to the development of students' social skills, compared to cooperative learning which only emphasizes group learning that is limited in time and not many take advantage of learning resources in the vicinity. There are significant differences of social skills of students in terms of the dimensions of learning styles of students, Learning styles with a higher kinesthetic dimension compared to auditory and visual dimension learning styles. Then there is an interaction between community of inquiry learning model and learning styles to the students' social skills. The results of this study indicate that the use of the community of inquiry learning model and learning styles significantly affect students' social skills.

Based on the results of the discussion and conclusions above, there are many recommendations that researchers formulated as follows; Lecturers need to choose a learning model that provides space and opportunities for students to construct and explore knowledge with their learning community, utilize various learning resources around them, utilize technology (social media) as a means of communication and discussion in completing assignments. Giving group assignments to students to be actively involved in learning to interact, work together, discuss in completing various tasks that have been given, so that it will have a positive influence on students' social skills. the results of this study illustrate that applying the community of inquiry learning models can improve students' social skills such as the ability of cooperation, assertion, responsibility, empathy, and self-control. Lecturers also need to consider student learning styles before determining learning strategies, because each student has a different learning style, therefore between learning strategies and learning styles must support each other to provide a positive influence on the development of student social skills.

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