Cooperative Learning and Learning Achievement in Social Science Subjects for Sociable Students

HERPRATIWI[1], DARSONO[2], SASMIATI[3], PUJIYATLI[4]

ARTICLE INFO	ABSTRACT
	Purpose: The research objective was to compare students' learning achievement for sociable learning motivation students in social science (IPS) using cooperative learning. **Research Methods:** This research used a quasi-experimental method with a pre-test/post-test design involving 35 fifth-grade students. The learning process was conducted four times in one semester. The social science (IPS) learning outcome was measured using an essay test comprising eight items. The data concerning sociable learning motivation were obtained from a questionnaire comprising 29 items, with α = 0.956.

Findings: Using a paired-sample t-test, the analysis showed that there was a significant increase in students' motivation after implementing cooperative learning. The results also showed a positive correlation between students' curiosity and their perseverance in doing the task. **Implications for Research and Practice**: The results of this research confirm that cooperative learning can significantly increase students' motivation. Teachers should attempt to implement cooperative learning in their classes to ensure students' motivation to learn.

[1] Corresponding Author: Faculty of Teacher and Training Education, Universitas Lampung, Indonesia. Email: herpratiwi.1964@fkip.unila.ac.id. ORCID: https://orcid.org/0000-0003-4226-2757

[2] Faculty of Teacher and Training Education, Universitas Lampung, Indonesia. ORCID: https://orcid.org/0000-0001-8031-4533

[3] Faculty of Teacher and Training Education, Universitas Lampung, Indonesia. ORCID: https://orcid.org/0000-0003-1097-6704

[4] Faculty of Teacher and Training Education, Universitas Lampung, Indonesia. ORCID: https://orcid.org/0000-0002-9228-5191

Introduction

Learning outcomes and activities for social science (IPS) are low in elementary school (SD) class V (students approximately ten years old) in Bandar Lampung, Indonesia. Further, students lack the confidence to express their opinions and answer teachers' questions. Previous studies concerned with teaching and learning processes for social science in elementary school found similar results (Nurjanah, 1912; Yulyani, 2016; Hendarwati, 2016). Learning outcomes are influenced by three factors: (a) internal factors, including physical and psychological factors, which inherently exist within the individual who is in the process of learning, (b) external factors, which exist outside the individual, including family, school and community factors. One of the most important internal factors is motivation (Ulstad, 2016; Jo & Park, 2016).

Motivation is defined as an attempt to achieve a goal, or an ability to meet individual needs (Robbins, 1996). Motivation is a process consisting of three parts. Firstly, it concerns something that makes someone move (arise) or do something. Secondly, it concerns the process of motivation as a direction to meet a need. Thirdly, it deals with something that maintains (maintenance) the chosen path so the need is met (Barron and Greenberg, 1998). Motivation is a factor that makes someone do something; it activates and energizes (Ulstad, 2016; Atak, 2016; Ball, 2016; Gabrielle, 2016; Nashar, 2004).

Learning motivation is the effort students make to reach the target to find meaningful learning activities that are valuable and educative (Atak, 2016). According to Pangesti (2014), there are four styles of student learning motivation: achiever, sociable, conscientious and curious. Achiever students tend to excel in competition; they are competitive and influenced by friends and family factors. Sociable students have a spirit of togetherness, non-competitiveness and are cooperative by nature. Students with this motivation enjoy mutual success to achieve learning outcomes and high productivity (Gillies, 2016; Johnson, 2002; Zhang, 2015; Reigeluth, 2016).

Cooperative learning focuses on the interaction among students and their cooperation to achieve mutual benefits (Zhang, 2017) and is highly systematic (Zhang. 2015). Cooperative learning fosters positive interdependence, individual and group accountability, and interpersonal skills to improve team effectiveness (Cheruvelil, 2014). Cooperative learning can improve students' achievements (Leasa, 2017; Casey, 2015), knowledge and skills, learning motivation, self-esteem Further, it can reduce anxiety and create a harmonious environment (Xue, 2018; Fernandez, 2017). In cooperative learning, knowledge is built through social interaction, (Jarvela, 2015, Huang, 2014). Students with a conscientious motivation style better perform activities if they have received clear guidance regarding the rules. Students who are motivated by curiosity are always inquisitive. They do not like the establishment, and they like scientific developments.

According to Goleman (2001), motivation in learning has six aspects: (1) pleasure, learning pleasure, attention and interest in learning, (2) orientation to the mastery of material, (3) curiosity, (4) tenacity in doing the tasks, (5) high involvement in tasks, and (6) orientation to challenging, difficult and new tasks. Students with different

levels of motivation require different learning approaches. It follows that achiever students might need different learning approaches than students with sociable, conscientious or curious motivations.

Considering these previous studies, we decided to examine whether cooperative learning had any influence on IPS achievement for elementary school students in Bandar Lampung City, Indonesia. This study focused on students who have a sociable learning motivation for achievement in IPS.

Method

Research Design

This study used quasi-experimental methods aimed at measuring the impacts and deducing the changes induced by treatment. It also aimed to discover any cause-and-effect relationships in non-deterministic ways. Rather, it is merely probabilities or increasing probabilities of occurrence (Cook & Campbell, 1979; Shadish, 1995; Shadis et al., 2002). The study sample was determined by a random sampling technique (Roscoe, 1975). The number of samples was determined using Isaac and Michael's table (Isaac, 1981) with a five percent error rate, resulting in a sample comprised of 35 students (20 female and 15 male) of grade V primary school with an average age of 10 years. The study was conducted four times in one semester.

Research Instruments

The data on student motivation were collected using a questionnaire consisting of six aspects (Goleman, 2001) namely, (1) pleasure, enjoyment in learning, indicated by paying attention to study, having an interest in learning, being happy to do the task (rated by 6 statements, item numbers 1–6), (2) orientation to mastery of the material, indicated by being capable of presenting the material, (rated by 4 statements, item numbers 7– 10), (3) curiosity, indicated by motivation to find out new things (rated by 6 statements, item numbers 11– 14), (4) tenacity in performing tasks, indicated by being fully focused on accomplishing the tasks, being tough (rated by 6 statements, item numbers 15–20), (5) high involvement in tasks, indicated by being diligent in completing the task, concentrating on tasks and taking time to learn (rated by 6 statements, item numbers 21– 26), and (6) orientation towards new and challenging tasks, indicated by being motivated to do the tasks (rated by 3 statements, item numbers 27– 29), see Table 1.

Table 1

Questionnaire on Learning Motivation and Number of Statements

Aspects Measured	Number of Items
Pleasure, the enjoyment of learning	6
Orientation to the mastery of the material	4
Curiosity	6
Tenacity in doing the task	6
High engagement on task	6
Orientation to new and challenging tasks	3
Total	29

Table 2 shows the reliability values for the questionnaire, where the following Cronbach's Alpha values were found: the pleasure indicator, the enjoyment of learning (0.89), the orientation to the mastery of the material (0.85), curiosity (0.81), tenacity in doing the task (0.86), high involvement in assignments (0.91) and orientation to new and challenging tasks (0.93). Based on this reliability test, it can be seen that all aspects have a Cronbach's Alpha value of 0.956. It was inferred that the items in the questionnaire were reliable and all tests were internally consistent because they had strong reliability (Maier, Wolf & Randler, 2016; Bonett & Wright, 2015; Rainsch, 2004).

Table 2

The Reliability Aspects of Learning Motivation

Aspects Measured	Cronbach's Alpha Value
Pleasure, the enjoyment of learning	0.89
Orientation to the mastery of the material	0.85
Curiosity	0.81
Tenacity in doing the task	0.86
High engagement on task	0.91
Orientation to new and challenging tasks	0.93
Total	0.956

The data on learning outcomes were collected using a self-explanatory test (essay) consisting of eight items developed by the authors and taken from the standard competence "The role of Indonesia in Southeast Asian countries" and the basic competencies of describing the background of the formation of Southeast Asian countries. The eight items covered remembering (numbers 1, 2, 5 and 6) and understanding (numbers 3, 4, 7 and 8) and were scored according to reliability, validity and the level of difficulty, scored as low, medium, and difficult. The results are shown in Table 3.

Table 3

Instrument Aspect of Learning Result Test of IPS

No	Target Indicator	Thinking Step	Question Number	Validity	Reliability	Different Score	Difficulty Level
1.	Describing the national historical artifacts of Hinduism, Buddhism, and Islam in Indonesia	C1	1, 2	0.82	0.87	high	easy
2.	Giving an example of the national historical artifacts of Hinduism, Buddhism, and Islam in Indonesia	C2	3, 4	0.80	0.92	high	medium
3.	Recounting the historical characters of Hinduism, Buddhism, and Islam in Indonesia	C1	5, 6	0.80	0.91	high	medium
4.	Giving an example of the historical characters of Hinduism, Buddhism, and Islam in Indonesia	C2	7, 8	0.86	0.94	high	difficult

Data Analysis

Table 4 shows that a one-sample Kolmogorov-Smirnov test confirmed the data for learning motivation were normally distributed (Yu Zheng, 2008).

Table 4

Test Results of Normality Data

Measurement Aspect	Kolmogorov-Smirnov	Significance Score
Pleasure, the enjoyment of learning	0.221	0.200
Orientation to the mastery of the material	0.248	0.200
Curiosity	0.318	0.075
Tenacity in doing the task	0.302	0.073
High engagement on task	0.267	0.200
Orientation to new and challenging tasks	0.257	0.200

A homogeneity test using one-way ANOVA (Donald, 2010) found a significance level of 0.100> 0.05, indicating that the sample was homogeneous.

The data were analyzed by a paired-samples t-test because it used a one-sample t-test design (Donald, 2010). The steps in the data analysis are shown in Table 5.

Table 5

Data Analysis Steps

Step	Purpose	Analysis
1	Reliability	Cronbach's Alpha test
2	Correlation between variables	Correlation analysis
3	Different test before and after acknowledgment	Paired-samples t-test

Results

The mean and standard deviation for each of the six aspects of learning motivation were compared. Table 6 shows that the highest average was for high-engagement on the task (26.49 ± 3.38), followed by pleasure and enjoyment of learning (26.06 ± 2.71), tenacity in performing tasks (26.00 ± 3.92), curiosity (25.89 ± 3.37), orientation to the mastery of the material (15.37 ± 3.51) and orientation to new and challenging tasks (12,17 ± 2,63). Of the six aspects, orientation towards new and challenging tasks was the lowest, and engagement on the task enjoyed the highest position.

Table 6

Mean and Deviation Standard of Learning Motivation

Pleasure, the pleasure to learn	Mean	Std. Deviation
Orientation to the mastery of the material	26.06	2.71
Curiosity	15.37	3.51
Tenacity in doing the task	25.89	3.37
High engagement on task	26.00	3.92
Orientation to new and challenging tasks	26.49	3.38
Pleasure, the enjoyment of learning	12.17	2.63

The mean and standard deviation for each of the four indicators of IPS learning outcomes were compared. Table 7 shows that the highest average score was for explaining the meaning of the formation of Southeast Asian countries (2.83 ± 0.00), followed by explaining Indonesian foreign policy (2.77 ± 0.00), giving examples of Indonesia's role in Southeast Asian countries (2.74 ± 0.71) and giving examples of Indonesia's foreign policy role in international regulations (2.71 ± 0.00).

Table 7

Mean and Standard Deviation of Learning Results

Learning Result	Mean	Std. Deviation
Describing national historical relics of Hinduism, Buddhism, and Islam in Indonesia	2.83	0.00
Giving an example of national historical relics of Hinduism, Buddhism, and Islam in Indonesia	2.74	0.71
Recounting the historical characters of Hinduism, Buddhism, and Islam in Indonesia	2.77	0.00
Giving an example of the historical characters of Hinduism, Buddhism, and Islam in Indonesia	2.71	0.00

The six aspects of student learning motivation were analyzed by correlation analysis. The results presented in Table 8 show that curiosity had a significant relationship with tenacity in doing the task (r = 0.852 and p < 0.005) The correlation analysis between these two aspects of learning motivation did not show a closer relationship among the other four aspects. Therefore, further analysis was needed regarding the correlation.

Table 8

Intercorrelation of Student Learning Motivation

	Pleasure in Learning		Orientation to mastery of the material		Curiosity		Tenacity in doing the task		High engagement on task		Orientation to new and challenging tasks	
	R	Sig	R	Sig	R	Sig	R	Sig	R	Sig	R	Sig
Pleasure, the desire to learn	-	-	.809	.000	.659	.000	.680	.000	.533	.001	.399	.018
Orientation to mastery of the material	.809	.000	-	-	.524	.001	.567	.000	.586	.000	.521	.001
Curiosity	.659	.000	.524	.001	-	-	.852	.000	.791	.000	.513	.002
Tenacity in doing task	.680	.000	.567	.000	.852	.000	-	-	.831	.000	.607	.000
High engagement on task	.533	.001	.586	.000	.791	.000	.831	.000	-	-	.540	.001
Orientation to new and challenging tasks	.399	.018	.521	.001	.513	.002	.607	.000	.607	.000	-	-

Regression analysis was carried out to ascertain whether the learning outcome for IPS students who have sociable learning motivation was predicted by the aspects of curiosity and tenacity in doing the task and to identify which of these two aspects was the stronger predictor of learning outcome. Regression analysis was done to determine the extent to which the aspect of desire wants to know and tenacity in doing the task.

Regression analyses were performed with either curiosity or tenacity in doing the task as the independent variable and learning outcomes as the dependent variable. Tables 9 and 10 show that curiosity explained 37.6 percent (significance 0.000 < 0.05), and tenacity explained 30.2 percent (significance 0.001< 0.05) of the learning outcome.

The regression equation with curiosity as the independent variable was determined as Y = 58.060 + 1.317X. With tenacity in doing the task as the independent variable, it was determined as Y = 65.679 + 1.016X; where Y is the learning outcome and X is the independent variable

Table 9

Constant Value of to Know Aspect and Tenacity in Doing the Task

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig
	B	Std. Error	Beta		
(Constant)	58.060	7.744		7.497	0.000
Curiosity	1.317	0.297	0.611	4.437	0.000
(Constant)	65.679	7.082		9.275	0.000
Tenacity in Doing the Task	1.016	0.269	0.550	3.778	0.0001

Table 10

The Amount of Desire to Know Aspects and Tenacity in Doing the Task

Model1	R	R Square	Adjusted R Square	Std. Error of the Estimate
Curiosity	0.611	0.374	0.355	5.841
Tenacity in Doing the Task	0.550	0.302	0.281	6.167

The data in Table 10 show how curiosity and tenacity in doing the task contributed to learning outcomes. The results of the analysis showed that these two aspects were predicted to be significant in determining the learning outcome. The most obvious contribution to the variance was curiosity (β = 611), followed by tenacity in doing the task (β = 551). Curiosity and tenacity in doing the task both had the potential to be a variable to improve learning outcomes.

To find out which of these two independent variables acted as a predictor of learning outcomes, multiple regression analysis with a stepwise approach was performed. As shown in Table 11, when the two independent variables were included in the equation, only the curiosity variable was statistically significant in predicting learning outcome. The analysis showed that curiosity was predicted to contribute to learning outcomes (β = 0.611, p < 0.01). It was found that curiosity contributed 37.4

percent and tenacity to do the task contributed 30.2 percent to learning outcomes. Specifically, curiosity and tenacity played an important role in predicting learning outcomes.

Table 11

Regression Analysis Aspects of Curiosity and Tenacity

Variable	B	SE B	Beta (β)	t	Sig
Curiosity	1.317	0.297	0.611	4.437	0.000
Tenacity in Doing the Task	1.018	0.269	0.550	3.778	0.001

Table 12 shows the results of the descriptive statistical analysis. The average pre-test score was 53.333 ± 11.610 with a standard error of 1.962, and the average post-test score was 76.191 ± 12.806 with a standard error of 2.164.

Table 12

Statistical Results of Paired Sample

	Mean	N	Std Deviation	Std Error Mean
Pair 1 Pre-test	53.333	35	11.610	1.962
Post-test	76.191	35	12.806	2.164

Table 13 shows the results of the correlation analysis between the two pairs of data (pre-test and post-test scores). The correlation coefficient of 0.811 was significant (0.000 < 0.05), indicating indicated that both pairs of data were correlated.

Table 13

Correlation Test Result of Paired Sample

	N	Correlation	Sig
Pair 1 Pre-test & Post-test	35	0.811	0.000

Table 14 shows the average difference between the pre-test and post-test scores. The calculated value of t was less than the t-table value (significance 0.000< 0.05); consequently, there was a significant difference between the pre-test and post-test scores. Thus, it was concluded that learning outcomes improved for grade V elementary school students, with higher scores obtained after IPS was taught with cooperative learning.

Table 14

Test of Paired Sample

	Paired Differences					T	df	Sig (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std Deviation	Std Error Mean	Lower	Upper			
Pair 1 Pre-test-Post-test	-1.785	7.600	1.2846	-20.469	-15.247	-13.901	34	0.000

Based on the analysis, it appears that the learning outcome in social studies subjects for students who have sociable learning motivation was higher after being instructed using cooperative learning. However, the subject matter of social studies was tested only in the dimensions of the cognitive process of remembering and understanding and in the dimension of factual and conceptual knowledge (Anderson, 2001).

Group learning can improve learning outcomes for students with sociable learning motivation. With cooperative learning, students experience the process of diffusion and socialization and have an unlimited view of science. Students with sociable learning motivation have a spirit of togetherness and non-competitive cooperation (Pangesti, 2014). These students need a learning atmosphere that demands cooperation, not competition, and learning should enable students to socially interact (Costa, 2014). Cooperative learning is imbued with constructivist theory, where learning involves students building personal and social knowledge. This is in accordance with Vygotsky's social reconstruction theory, which places students in the closest zone of child development or Zone of Proximal Development (ZPD) (Salomon, 1989; Clapper, 2015; Lantolf, 2015; Gommans, 2015). This theory attempts to persuade students to learn in their proper position according to the level of child development and to guide learners at the beginning of the learning phase, and then reduces their guidance when learners have started to take responsibility for learning. This stage is often called scaffolding (Rojas-Drummond, 2015; Gibbons, 2002; Smit, 2013; Wilson, 2014). Based on the theory of social reconstruction, learners are instructed with an applicable situation in their daily lives where values, knowledge, and skills in social life are central to education (Taghibaygi, 2015). In this process, the students are in their respective development zones and are guided at the beginning of the lesson. They are gradually given responsibility for completing tasks themselves in their study groups. This allows students to construct and reconstruct their understanding of the material (Maulidi, 2016).

Teachers can use cooperative learning daily to support students' learning in every subject, from basic skills to complex problem-solving. Characteristics of cooperative learning are positive interdependence among students, face-to-face interaction (educational interaction), personal responsibility to groups and skills in communicating in groups. Cooperative learning emphasizes group achievement. The

purpose of cooperative learning is to give students the knowledge, concepts, abilities, and understanding they need. In cooperative learning, students are placed in small heterogeneous groups (4 to 5 students) to complete group tasks prepared by teachers and followed with individual assistance for students who need it.

Group heterogeneity includes gender, race, religion (if possible), skill levels (high, medium, low), and so on (Slavin, 2014). Cooperative learning enables students to work in teams and assume responsibility for managing, checking, helping each other in the face of problems, encouraging each other forward and getting scaffolding from teachers and friends (Sumaryati, 2013). The results prove that cooperative learning effectively increases students' motivation and performance, as stated by researchers such as Slavin (2014), Slavin (2015), and Hertz-Lazarowitz (2013).

According to Albers (2008), when students have an opportunity to interact with others, they succeed in interpreting solutions in learning. Experience in communicating can provide a potential source of knowledge about learning. Constructive interactions that include knowledge of the purpose and implementation guidance can build up an individual's thinking and generate new knowledge. New knowledge will be stored in long-term memory if the students are directly involved in the process of understanding and constructing their own concepts or knowledge. Students with sociable motivation will be able to apply the knowledge that has been obtained in new situations (Carin, 1993).

There is a need for a learning strategy that aims to assist students in linking theory to its implementation in everyday life so they have a mindset for understanding logic. Students should not just spend their time listening and completing tedious exercises. Exams should not only test understanding and measure students' ability to memorize facts without them knowing what they are being asked. Discussing, finding out, thinking critically, engaging in real work projects and problem-solving are important for the learning process (Johnson, 2002).

Six aspects shape student learning outcomes for sociable motivation: (1) pleasure and enjoyment of learning, (2) orientation to mastery the of material, (3) curiosity, (4) tenacity in doing the task, (5) high involvement in the task, and (6) orientation towards challenging, difficult and new tasks (Goleman, 2001). Table 8 shows that curiosity and tenacity in doing tasks are more dominant in influencing learning outcomes than the other four aspects.

The data also showed that the relationship between curiosity and tenacity in doing the task was higher than the relationships with or between the other aspects. This relationship between curiosity and tenacity to do the task affects students' learning outcomes in social studies. The learning outcomes of students in social studies who have sociable motivation are influenced by curiosity and tenacity to do the task and can be conditioned by teachers through cooperative learning (Muldayanti, 2013; Dadds, 2002; McKeachie, 1990; Ginsberg, 2012; de Oliveira, 2016). Curiosity is an attribute one can develop, in this case with cooperative learning. By learning with friends, one can increase one's curiosity and make it a daily habit to become more

intelligent and knowledgeable. A sense of curiosity can be used to find solutions to difficult tasks or situations.

The findings of this study support the results of Gillies (2004) and Gillies (2016), that cooperative learning will accelerate learning outcomes. Students who participate actively in class and learn with friends will more quickly understand what is learned. Students dialogue with each other and take a role-play it because learning is not individual (Chen, 2013). Students with sociable learning motivation require efficient learning, and cooperative learning can help students solve problems and examine study themes. Sociable children cannot compete with other children, because they need scaffolding from their peers. Learning assistance from peers can eliminate awkwardness; peer language is more easily understood. With peers, there is less reluctance and embarrassment in learning to obtain better results and ask for help. Interactions in peer groups do not exclude the possibility of students helping each other. Peers provide cognitive, affective and psychomotor thinking solutions in an atmosphere of cohesive learning activities, which result in innovative and productive learning changes in the form of improved problem-solving skills and learning achievement (Purnomo, 2013; Fauzi, 2013; Rahmawati, 2016).

Teachers' commitment to using cooperative learning contributes greatly to the achievement of student learning outcomes. Cooperative learning will encourage sociable students to work together to acquire ideas in solving problems or themes and collectively conveying solutions obtained. The learning outcomes for sociable students in non-cooperative learning environments (competitive learning) are less likely to be successful because the learning is on an individual basis (Johnson, 2002; Uhamista, 2016; Soebiyanto, 2016; Dudija, 2016; Pratiwi, 2015; Huda, 2016). A class with heterogeneous students must be taught by cooperative learning (Cohen, 2015).

Discussion and Conclusion

Cooperative learning is an intervention for improving learning outcomes in the field of social studies for primary school students who have sociable learning motivation. Students who have sociable motivation are more suited to learning that prioritizes cooperation instead of competition.

Student learning outcomes are built on curiosity and tenacity in doing the task. Therefore, it is necessary to design and re-formulate the syntax of cooperative learning to recognize it as an important variable in improving learning outcomes. It is also necessary to develop further research, especially questionnaires used to measure students' standardized motivation, which contains a more comprehensive aspect of learning motivation.

This analysis was not able to determine whether student learning outcomes from cooperative learning change over time for students with sociable learning motivation. Also, this study was not able to determine how the six aspects of motivation are related to learning outcomes. The relationship between the six aspects described in this study

is identified to recognize how aspects of learning motivation can produce significant learning outcomes.

The research results will provide a meaningful contribution for elementary school teachers providing social science learning to students who have sociable motivation. Until now, teachers have given equal treatment to all students regardless of the student's type of motivation. Thus, teachers should identify each student's type of motivation before engaging in the learning process. Doing so will help ensure effective learning because it is suited to the students' needs. It would be better if the school cooperates with certain parties, such as education researchers or government bodies who have instruments to measure students' motivation so teachers will have easy access when they require data about their students' motivation.

Acknowledgment

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