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# Cooperative Learning: An Effective Approach for Improving Student Engagement and Achievement

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The purpose of this study is to test the effect of cooperative learning on student engagement and student achievement. The study was conducted on students taking a management course who have difficulty completing long-term planning tasks. The study used a structural equation model (SEM-PLS Smart V.3) and three hypotheses were found to be significant. Cooperative learning allows students to work together in groups and the implementation of this research theory is to develop social interaction with peers through discussion, debate, and group tasks, which can improve student learning performance as they learn by exploring, trying, and analyzing information in a real-world context. The findings of this study implement the constructivism theory, which posits that knowledge is constructed from understanding something. In this view, learning is an active process of students to make meaning, physical experiences, and so on, and emphasizes the importance of social relationships in shaping knowledge. The findings also implement three other theories such as interdependence theory, social learning theory, and cognitive social learning theory.

Abstract

**Keywords:** Cooperative Learning; Student Engagement; Student Achievement; Social Interaction; Strategic Management

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#### Introduction

Education in the 21st century, also known as contemporary or globalization education, is characterized by technology and information, which are tools that facilitate work in the field of education. Contemporary education, by utilizing information technology, is one form of educational innovation that generates new ideas and makes education more sustainable. Educational innovation is a new change that is different from the previous one and is deliberately aimed at improving the abilities of educational resources to achieve specific educational goals. Education is not only viewed as the transfer of knowledge but also aims to shape one's personality. Education is also a conscious effort by educators to develop the physical and spiritual development of students towards the formation of the main personality. Therefore, students can recognize their potential and then develop their talents and morals.

Developing countries often face various problems in education such as a lack of educational facilities, low-quality teachers, and economic problems that affect access to education (UNESCO Institute for Statistics (UIS), Global Education Monitoring (GEM) Report, 2018). Cooperative learning methods can help to overcome some of these problems by increasing social interaction among students, facilitating active learning, and increasing opportunities for participation in learning. By using cooperative learning methods, students can learn by working together in small groups, which can improve social skills and teamwork abilities (Asyali et al., 2005). Furthermore, engaging students in the learning process can increase student motivation and learning outcomes. However, it should be noted that the cooperative method cannot solve all the education problems in developing countries and should be used in conjunction with other approaches to improve the overall education system.

Some teaching models can be categorized as no longer suitable to be used in current learning, such as traditional learning, where the teacher delivers the material and the students only listen and take notes. This is an ineffective model because it does not facilitate student activities and reduces the possibility of students participating in learning (Namaziandost et al., 2020). Similarly, learning that focuses on the mastery of theoretical concepts, where students have to memorize concepts without being able to apply them in real-life situations (Barkley et al., 2014), and learning that relies too heavily on technology, where students are only given access to technological resources without being able to apply them in the learning process (Warschauer & Matuchniak, 2010), and learning that is too focused on evaluations, where students are only challenged to pursue good grades without being able to understand the concepts. In this context, cooperative learning methods become a suitable choice because this method provides an opportunity for students to learn by working together in small groups, engaging students in the learning process, and improving social skills and teamwork abilities (Slavin, 1995). Some research findings conclude that cooperative learning can improve academic achievement, and social skills (Abdulwahhab & Hashim, 2020). Several research findings have concluded that cooperative learning can improve academic achievement (S. Kaymak et al., 2021), and increase student engagement in class. This research was conducted by taking students as the subject in several classes that use cooperative learning methods. The subject matter that is the focus of the research is the strategic management course. Strategic management is a course that discusses the process used by organizations to determine long-term goals and develop plans to achieve those goals. This involves analyzing the external and internal organizational environment, evaluating the current organizational performance, and developing plans to make necessary changes to achieve longterm goals.

The cooperative learning method can increase student involvement in strategic management courses because students can work together in groups and interact with each other to achieve learning goals. Finally, student involvement can improve student achievement. The proposed research question is whether cooperative learning affects student learning outcomes and student involvement in education, and can student involvement improve student learning outcomes?

## **Literature Review**

Literature Review and Grand Theory Cooperative Learning

One of the grand theories in cooperative learning is the theory of interdependence proposed by (Johnson & Johnson, 1999). This theory states that group cooperation can be achieved through positive interdependence, which is mutual dependence among group members in achieving a common goal. This theory states that positive interdependence can be achieved through three components, namely: positive interdependence, individual accountability, and promotion (Nabavi, 2012). The second grand theory is the social learning theory by Albert Bandura, this theory states that students learn through social interaction with others, including behavior models, learning experiences, and cognitive constructions. Bandura states that cooperative learning will improve learning outcomes because students can learn from their peers through the process of giving and receiving social support. The third grand theory is the cognitive social learning theory by Elliot Aronson (Nabavi, 2012), this theory states that students learn through social interaction with others and learning experiences, as well as cognitive processes involved in understanding concepts and their application. Aronson states that cooperative learning will improve learning outcomes because students can learn from their peers through the process of giving and receiving social support and cognitive processes involved in understanding concepts.

Table 1 shows the overall-state-of-the-art cooperative learning, student achievement, and engagement. Cooperative learning is a method of learning that emphasizes teamwork in learning, aimed at improving students' understanding and learning outcomes (Cornelius-Ukpepi et al., 2016), while W. Johnson & T. Johnson (2019) stated that cooperative learning emphasizes active student involvement in the teaching-learning process. In this method, students work together in small groups to achieve the specified learning goals, this method results in active student involvement which can increase motivation for learning, participation in class, and learning outcomes (Maamin et al., 2022).

Table 1. State The Art Cooperative Learning, Student Achievement, and Engagement

No	Author	Funding	Impact
1	Abdulwah hab & Hashim, (2020)	The findings of this study indicate a significant positive relationship between the implementation of the cooperative learning method and the level of student involvement in their learning, increasing academic performance, and their social skills, thus making students more motivated and willing to learn, as well as strengthening social relationships. In addition, there is an effect of the time factor where teamwork significantly reduces time. This study concludes 4 characteristics of student engagement, namely:  Behavioral engagement is effective engagement in group work.  Social relationship engagement, and emotional engagement.  Cognitive engagement is seen in the improvement of academic performance. Individual efforts are not visible to some students because of the interdependence of work at the group level.	Behavioral, social, and emotional engagement Increased academic performance Reduced time Improved teamwork
2	Altun & Sabah, (2020)	The research results reveal that cooperative learning strategies based on multiple intelligences significantly impact the improvement of the learners' speaking skills.	Multiple intelligences
3	Gull & Shehzad, (2015)	The research results conclude that there is a significant difference in the values of pre and post-tests generated through the experiment, and tested with the t-test, so it is supposed that the cooperative learning method is important to student achievement.	Student achievement

No	Author	Funding	Impact	
4	S. Kaymak et al., 2021; Tran et al., (2019)	The research results show that the cooperative learning method has a positive and significant effect on the mathematical learning achievement of students.	Student achievement	
5	Saptono et al., (2020)	The findings of this research indicate that there is a significant difference in the mean of learning motivation and learning achievement as determined by the t-test. The results reveal that in the group that received the intervention, the students had a high level of learning motivation and their learning achievement was also high.	Student motivation Student learning achievement	
6	Johnson & Johnson, (1999)	Improving social and emotional abilities: Students who learn with the cooperative learning method tend to have better social and emotional abilities compared to students who learn with the traditional method.	Social and emotional skills	
7	W. Johnson & T. Johnson, (2019)	The concept of cooperative learning emphasizes the active involvement of students in the teaching-learning process. In this method, students work together in small groups to achieve the specified learning goals. Active involvement of students in cooperative learning can enhance learning motivation, class participation, and better learning outcomes.	The participation and engagement of students in educational activities and instruction	
8	Ghorbani & Nezamosh ari'e, (2012)	Based on research results, cooperative learning can improve students' learning outcomes compared to other learning methods.	The findings of the research indicate that utilizing cooperative learning can lead to higher student achievement in comparison to other educational approaches.	
9	Ghorbani & Nezamosh ari'e, (2012)	Some research findings indicate that students who learn with the cooperative learning method obtain better scores compared to students who learn with other methods.	Improve academic performance Increase group cooperation	
10	Appiah- Twumasi, 2021; Skaalvik & Skaalvik, (2011)	The findings show that cooperative learning can enhance students' performance in mathematics and improve group cooperation. Student engagement is a concept that refers to the level of students' interaction with the offered learning activities. It is believed that increased student participation in the learning process leads to better academic results.	Student achievement is believed to be positive. Better results	
11	F.H. Veiga et al., 2012; Lei et al., (2018)	Research suggests that students who play an active role in the learning process tend to achieve better results than those who are less involved, for example, a study published in the Journal of Educational Research in 2020 found that student engagement has a positive effect on students' learning outcomes in mathematics. This study used data from over 1000 students in high schools in China.	Student learning outcomes	

Cooperative learning is a method of teaching where students work together towards shared goals. It is designed to increase participation, give students leadership and group decision-making

opportunities, and allow them to interact and learn from one another, despite their different backgrounds. Through cooperative learning, students can learn from both the teacher and their peers in structured tasks. It is based on the idea that learning is more effective when students teach one another.

## Hypothesis

Based on the above framework, the hypothesis proposed in this study is:

- (1) Cooperative learning has a positive and significant impact on student achievement
- (2) Cooperative learning has a positive and significant impact on student engagement
- (3) Student engagement has a positive and significant impact on student achievement

## Methodology

Population and Sample

The subjects of this study were students taking strategic management courses in the odd semester of the 2022/2023 academic year in the Management Study Program, Faculty of Economics and Business at Three Central Java Private Universities. Samples were taken non-randomly using the purposive sampling technique. Questionnaires were sent via WhatsApp to 220 students, and 184 students responded.

Concept and Operational Definitions or Indicators

Cooperative learning is a teaching method focusing on student collaboration in small groups of supportive and interdependent members. There are four indicators used to measure cooperative learning:

Social interaction: This indicator measures the level of interaction that occurs among students in the group, including the number of questions asked, the number of comments given, and the amount of support given (Slavin, 1995).

Concept understanding: This indicator measures the level of conceptual knowledge that students have gained after participating in cooperative learning (Maamin et al., 2022).

Learning motivation: This indicator measures the level of student motivation in learning, including the level of desire to learn, the level of confidence in learning, and the level of satisfaction with learning (W. Johnson & T. Johnson, 2019).

Method acceptance: This indicator measures the level of acceptance of the cooperative learning method by students and teachers (Stevens & Slavin, 1995).

Student achievement is defined as the learning outcome achieved by the students, there are three dimensions of student achievement stated by Stevens & Slavin (1995), namely:

Cognitive dimension: This dimension measures the knowledge and intellectual skills achieved by the students, such as competence in mathematics, science, or language. Indicators of the cognitive dimension are knowledge, comprehension, application, analysis, synthesis, and evaluation.

Affective dimension: This dimension measures the feelings, attitudes, and values developed by the students, such as learning motivation, confidence, or tolerance .

Psychomotor dimension: This dimension measures the physical and motor skills developed by the students, such as fundamental movement, generic movement, ordinative movement, and creative movement.

Student engagement is defined as the level of student involvement in the learning process, both physically, emotionally, and cognitively. This engagement can be measured through the level of student participation in learning activities, students' feelings about the learning process, and the level of achievement of learning goals (Fredricks et al., 2004).

Behavioral engagement: This dimension measures the physical level of student participation in learning activities, such as attending class, completing assignments, and participating in group

discussions. Indicators used can include attendance, level of student activity in class, and the number of assignments completed by students (Fredricks et al., 2004).

Pekrun et al. (2009) explained the emotional engagement and cognitive engagement, namely:

Emotional engagement: This dimension measures the emotional level of student involvement in the learning process, such as feelings of joy, interest, and feeling valued. Indicators used can include a scale of students' perceptions of happiness in learning, level of motivation, and level of student satisfaction.

Cognitive engagement: This dimension measures the cognitive level of student involvement in the learning process, such as understanding concepts, analyzing information, and relating new concepts to what is already known. Indicators used can include the level of achievement of learning goals, level of competence, and level of creativity.

Statistic Analysis

Data is collected through a survey and analyzed using SMARTPLS 5. The first step is to test the outer model and the second step is to test the structural inner model. The evaluation of the outer model to assess validity consists of the average variance extracted (AVE) test, factor loading, Fornell lesser criteria, cross-loading, and reliability assessment. After the measurement model is evaluated, the relationship between one construct and another is then determined to assess the model fit. Evaluation for the measurement model is R2, predictive relevance Q2, and significance of path coefficients, f2, and evaluation q2.

#### Results

## Demographic Respondent

The number of samples in this study was 184 students participating in the strategic management course from the University of 17 August 1945 Semarang with 77 students (42%), Semarang University with 45 students (24%), and STIKUBANK University with 62 students (34%). They all consisted of 78 male students (42%), and 106 female students (58%). In terms of age, the majority are aged 18 to 22 years (61%), and the oldest are aged more than 25 years, 2 students (1%), the rest between 20-25 years, 69 students (42%).

Hasil Pre Test

Before implementing cooperative learning, participants were asked to answer questions as a pretest. The results of the Pres Test concluded that students had difficulty completing the task of doing long-term planning in strategic management courses, including:

Lack of strategic management: Many students do not understand the basic concepts and principles of strategic management, making it difficult to make effective and efficient long-term planning.

Limited data and information: In making long-term planning, available data, and information must be complete and accurate. However, there are many cases where the available data and information are inadequate, thus making it difficult for students to make proper plans.

Lack of understanding of the business environment: Long-term planning is heavily influenced by the business environment, such as economic conditions, competition, technology, etc. Many students do not understand the business environment, which makes it difficult for them to make appropriate plans according to environmental conditions.

Multivariate Test

**Outer Model Evaluation** 

Evaluation of the outer model is conducted to test the validity and reliability of each construct in the measurement model. The parameters used are AVE, composite reliability, and Fornell-Larcker for each construct in this research.

Table 2. Validity and Reliability Criteria for Each Construct

	Comp osite Relia bility*	AVE **	Fornell-Larcker Criterion***					
Construct			Behavior Engagem ent	Cognitive Engagemen t	Coope rative Learn ing	Student Achieve ment	Student Engage ment	
Behavior Engagement	.882	.713	.845					
Cognitive Engagement	.880	.710	.577	.842				
Cooperative Learning	.883	.655	.146	.176	.809			
Emotional Engagement	.876	.703	.517	.538	.290	.838		
Student Achievement	.857	.667	.139	.161	.276	.208	.817	
Student Engagement	.897	.693	.837	.847	.244	.819	.203	

<sup>\*</sup>Composite reliability should be more than 0.7

Based on Table 2, all constructs meet the AVE (concurrent validity), composite reliability, and Fornell-Larcker criteria (discriminant validity and reliability). Additionally, outer loading for each indicator is greater than 0.7, based on cross-loading values, all indicators have the highest loading value on their respective constructs, indicating that all constructs have acceptable discriminant validity.

Inner Model Assessment

After evaluating the outer model, Table 3 evaluates the inner model such as r-square, f-square, Q-square, and q-square.

Table 3. r-square, f-square, Q and q-square

Construct	r-square	f-square	Q-square	q-square
Cooperative Learning	.296*	.336**	.160***	***
Student Achievement	.260*	.316**	.115***	****

<sup>\*</sup> path with r-square less than .5 considered as weak predictive accuracy

Table 3 shows that four inner model criteria have weak R-square values. All paths in the model have weak R-square values. Additionally, F-square, a measure of the size of the effect of the exogenous construct, shows that all paths have large effect sizes. Lastly, Q and Q-square indicate that all exogenous variables have a large predictive relevance to endogenous variables. Figure 1 shows the structural equation model.

<sup>\*\*</sup>AVE should be more than 0.5

<sup>\*\*\*</sup>Fornell-Larcker Criterion should be more than the correlation value of that construct to another construct.

<sup>\*\*</sup> path with an f-square above .35 is considered large

<sup>\*\*\*</sup>path with a Q-square of more than o has predictive relevance

<sup>\*\*\*\*</sup>path q-square more than .25 is considered medium predictive relevance

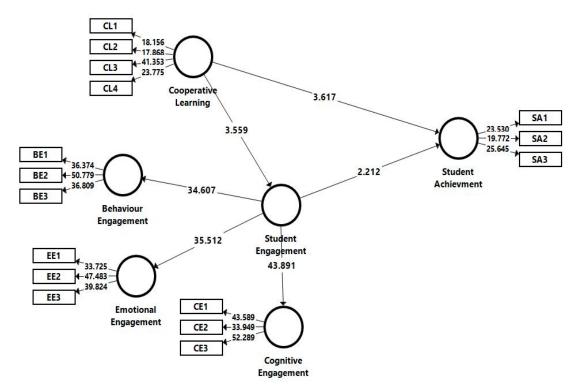


Figure 1. Structural Equation Model

Table 4 shows the beta paths and p-values of two paths in the model. The beta path and p-value are extracted from 500 bootstraps using SMARTPLS 5.

Table 4. Path beta, t-value, and P-value

Path	Path beta	t-value	P-value
Cooperative Learning Student Achievement	.241	3.440	.001
Cooperative Learning Student Engagement	.244	3.549	.000
Student Engagement Student Achievement	.241	3.440	.001

As shown in Table 4, the three beta paths are significant at 5%. The betas are in positive values. This result supports hypotheses 1 to 3 and is stated as accepted. Furthermore, to test the mediation hypothesis, refer to Table 5.

Table 5. Direct, indirect effect and VAF

Path	Value	P value
Direct effect Cooperative Learning Student Achievement [1]	.241	.000
Indirect effect Cooperative Learning Student Engagement Student Achievement [2]	.049	.017
Total effect (direct +indirect) [3]	.290	
VAF ([2]/[3]	.169	

Table 5 shows that the indirect effect value of Cooperative Learning on Student Achievement through Student Engagement is .049, and the value is significant at a level of 1%. Therefore, the variable of Student Engagement is stated to be suitable for mediation. Additionally, the VAF value of (.169) or (16.9%) is below 80%, indicating that the mediation is partial. Therefore, it can be concluded that student engagement can mediate the relationship between cooperative learning

and student achievement.

### Discussion

The study proposed three hypotheses: (1) cooperative learning has a positive and significant impact on student achievement, (2) cooperative learning has a positive and significant impact on student engagement, and (3) student engagement has a positive and significant impact on student achievement. The results of the study found all three hypotheses to be significant. This implies that in a cooperative learning setting, students can learn from each other through peer teaching, which is more effective than learning solely from the teacher. This finding is supported by research by Johnson & Johnson (2019) that cooperative learning promotes active participation in the learning process and is also consistent with the studies conducted by Appiah-Twumasi (2021) and Yacub (2020) that have found cooperative learning strategies to be effective in improving student performance and retention of knowledge.

In the context of strategic management learning, the cooperative learning method can be used to help students formulate long-term plans by working with their peers. By working in groups, students can share thoughts and ideas, assist one another in achieving an understanding of the material, and enhance teamwork skills. Additionally, this method can also increase student motivation and participation in learning. However, it should be kept in mind that this method needs to be done in the right way for it to be effective (Nichols & Miller, 1994).

The application of cooperative learning in strategic management courses requires effective and collaborative teamwork between students. Some ways that can be used to increase collaboration between students in this course include:

Division of tasks: Students can be divided into small groups and given the joint task of presenting a solution or strategy for a particular business problem.

Group Discussion: Students can discuss in groups to evaluate and discuss the solutions put forward by their colleagues.

Role Play: Students can assume the role of a business leader or team member and carry out business simulations to understand and apply strategic management concepts. Case Studies: Students can work together on a business case study analysis and provide solutions or suggestions for problems faced by the company.

Effective teamwork can help students understand the material better and improve their learning outcomes in strategic management courses.

Cooperative learning is a teaching strategy that allows students to work together towards a common goal. It involves students collaborating and contributing to the success of the group. The cooperation of all members is essential to create an active learning environment, as stated by Johnson & Johnson (2019) that cooperative learning enhances students' social skills by teaching them to work together, share information, and function as a team. Group interaction is more effective and stronger than adult-child interaction in promoting cognitive development. According to the motivation theory by Stevens & Slavin (1995), cooperative learning primarily focuses on the recognition of the goal structure where the students are actively involved. This means that by recognizing the group's performance, an inter-individual recognition structure within the group is created, leading to social reinforcement in response to group-task-oriented efforts.

The implementation of this research theory is to develop social interaction with others. This theory states that cooperative learning is effective because students learn from social interaction with their peers. In cooperative learning, students learn from their peers through the processes of discussion, debate, and group tasks, thus increasing students' learning performance because they learn by exploring, trying, and analyzing information in real-life contexts (Barkley et al., 2014).

This discovery supports the constructivism theory, which argues that knowledge is not something that exists independently but is rather constructed by the individual who is learning. According to this theory, knowledge is not a fixed fact, but rather a formulation or creation made by the person studying it. The constructivism theory does not focus on understanding reality as it is, but rather on understanding the process of how a person goes from not knowing something to

understanding it. In this perspective, learning is seen as an active process in which the learner constructs meaning from their physical experience, and the importance of social relationships in shaping knowledge is also emphasized.

This finding also has implications for social learning theory (Albert Bandura in Manik et al., 2022), stating that students learn through social interaction with others, and also supports cognitive social learning theory by Elliot Aronson (Nabavi, 2012). The statement suggests that students learn through engaging with others in social interactions and through experiences, in addition to the cognitive processes involved in comprehending ideas and their practical applications.

#### Conclusion

Cooperative learning is a method of learning where students work in small groups to achieve the designated learning goals. Based on the research conducted, it can be concluded that cooperative learning can enhance students' learning outcomes and increase their engagement in the learning process. Cooperative learning can also improve students' social skills and teamwork skills. However, it should be noted that cooperative learning may not be suitable for all types of students or learning situations.

This research only uses data from three classes from three tertiary institutions in strategic management courses and further studies can compare the effects of cooperative learning in other disciplines, as well as preparing lecturers through a lecturer professional development workshop program. One problem must be considered carefully, because of the possibility of conflict within and between groups, so the lecturer must make good observations and become a guide in preventing and resolving intra-group conflicts. In this regard, in the future, conduct more in-depth research on the factors that influence the effectiveness of cooperative learning, such as group size, group composition, or social skills of students, as well as evaluate the implementation of cooperative learning in the context of cooperative learning in the long term, including career development and social skills. students after graduating from school.

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