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<https://ejournal.upi.edu/index.php/penjas/article/view/56156>DOI: <https://doi.org/10.17509/jpjo.v8i1.56156>**Effects of Project-Based Learning Model and Cooperative Learning Model in Improving Student Social Skills in Physical Education****Dicky Tri Juniar*, Adang Suherman, Beltasar Tarigan, Agus Mahendra**

Department of Sports Education, Postgraduate Program, Universitas Pendidikan Indonesia, Indonesia

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project-based learning, social skills***Abstract**

Learning models in the 21st century are started to be widely used to develop students' social skills in dealing with various problems. In reality, many students still have not been able to solve social problems. It becomes an ambiguity as the learning models are assumed to be influential in overcoming the problems through meaningful learning. Project-based and Cooperative Learning Models are learning models that are assumed to be effective in developing social skills. However, these two learning models have not received consistent conclusions because previous studies have not specifically compared the two models, especially in Physical Education. This study aimed to determine the effect and prove the effectiveness of project-based and cooperative learning models on student social skills in Physical Education, especially for Senior High School students. The implementation of this research used experimental methods with real experimental designs. Researchers selected two classes at a high school in Tasikmalaya City, West Java, Indonesia, using cluster sampling. The data collection instrument employed a 3-point scale questionnaire ("0-Never," "1-Sometimes," "2-Very Often") constructed in google forms. The data analysis used in this study was a different test using paired t-test and independent t-test. The results showed that project-based and cooperative learning models were equally effective, as both showed significant improvement in the Social Skills of high school students in each group. This study concluded that both learning models effectively develop adolescent social skills. Therefore, if a project-based or cooperative learning model is applied, students can well develop their social skills.

INTRODUCTION

Social skills are essential abilities for everyone in maintaining social relationships. According to Notari et al. (2014), social skills describe behaviours that help achieve one's goals (for example, leadership, assertiveness, and initiative) and maintain good relationships with others (being prosocial, being able to compromise, and resolving interpersonal conflicts). Recognized for fostering collaboration among peers, social skills are vital in a working setting (Lopes et al., 2021). Social skills are acknowledged as abilities and competencies for the 21st century to improve social interaction quality, teamwork, and collective decision-making in the work environment (Deming et al., 2017; Gil Rodrigues et al., 2013; Moreno-Jiménez et al., 2014; Partnership for 21st Century Skills – P21., 2019). These skills will help relationships with others, family, peers, society, and the environment. In the school environment, social skills are essential in learning activities because they can build collaborative relationships between students and teachers. Hovdal et al. (2021) state that group processing and social skills are critical to learning activities. Therefore, strengthening the ability to cooperate, compromise, and develop prosocial behaviour and leadership skills in collaborative group learning is a good step in teaching social skills (Notari et al., 2014).

However, the social skill of teenagers in high school age is concerning in Indonesia. Many social problems arise in the school and community environment, such as bullying of schoolmates, the rise of reckless motorcycle gangs, circulation of narcotics, mobbing of other teenagers, and brawls between students and teenagers arrested for committing immoral acts (Dako, 2012). Solo Juvenile delinquency also increased sharply from 2 cases in 2020 to 210 cases in 2021 (Jatmiko Adi, 2022; Khalik, 2022). At the end of 2021, teenagers who committed immoral acts were arrested in the parking lot of Sunter, North Jakarta (Tobing, 2021a, 2021b). The cause of various juvenile delinquency is an inability to cope with problems within oneself or with others. If people do not have social skills, they cannot claim themselves in their environment. It will hurt their personal and social development if allowed, so they need special attention, primarily through appropriate and representative educational activities.

Physical Education (PE) is a vital component of

educational endeavours. PE can develop creative interaction with others and resolve complex motor abilities (Trigueros et al., 2020). Physical Education also contributes and consolidates through a set of adaptive health-related behaviours and the well-being of individuals through learning activities of concepts, behaviours, skills, and competencies of movement (Dudley et al., 2011; Trigueros et al., 2020). Mind-wandering should be promoted in Education, particularly in Physical Education, to encourage creativity to improve well-being and conduciveness to student academic achievement (Trigueros et al., 2020). Teachers combine various physical education activities with enhancing the student thinking, social interaction, motor skills, and competition performance (Jia, 2021). Physical education activities develop emotional competence through motor exercises. It is also a functional design ideal for using educational studies and resources related to the art of motion and cross-field studies because of its relationship with emotional intelligence, skill, communication, and culture in general (Alcaraz-Rodríguez et al., 2022; Herguedas et al., 2015; Navarro-Patón et al., 2022). Moreover, Physical Education has been considered as an appropriate study to develop mental, emotional, and physical healthy lifestyles, and proper behaviours, values, interpersonal and social skills (Gil-Madrona et al., 2019; Hellison et al., 2011; Nur et al., 2021, 2022)

Applying the learning model appropriately, effectively, and efficiently will realize a quality and meaningful learning. According to Ruskandi et al. (2019), in the 21st century, teachers must bear a great responsibility to help their students acquire various knowledge and life skills. A learning model appropriate to the needs of students is necessary for developing social skills, as the current learning model focuses solely on student skills as individuals and does not allow them to face real-world challenges that require cooperation with others. One learning model that suits the current situation and conditions is project-based learning, because project-based learning is an instructional method for developing learning by improving student collaboration abilities (Frank & Barzilai, 2006). This model focuses on learner-centred learning by completing tasks collaboratively in small groups (Moursund, 2016). The given and arranged learning tasks, in such a way, use open-ended questions to create the requirement to answer inquiries while developing fundamental abilities through real-world contexts that encourage students to learn to solve

problems and be more creative (Alberto et al., 2015; Gubacs, 2004; Sahli, 2017).

Another learning model that can accommodate students in developing the ability to cooperate with other individuals is the cooperative learning model. Cooperative learning model is assumed to be able to develop social skills because it tries to enhance social skills through group activities (Dyson & Grineski, 2013; Hasani, 2019; Stiadi et al, 2020; Shen & Shao, 2022). Cooperative learning is built on five elements applied in Physical Education (Casey & Goodyear, 2015; Dyson & Casey, 2016; Hovdal et al., 2021), namely (a) positive interdependence with each other, including student understanding of mutual success and taking responsibility for their role, thus a shared goal is essential; (b) direct interaction encourages and helps students in groups to achieve and complete tasks to achieve goals; (c) individual accountability in the team and peers expects support from each other; (d) social skills include communication among students, clarification, discussion, asking peers to contribute significantly, and giving credit for their contributions; (e) the processing and arrangement of groups include reflecting on their performance and serving as a group that sets and reflects on goals.

However, implementing the project-based learning model has not been optimal and has many obstacles. So, the positive effects of this model have not been appropriately felt. One of the challenges in implementing this model is that the level of teacher understanding is still low. This shared understanding is seen when the teacher gives students a task or project that must be completed for a certain period, not accompanied by an intensive mentoring and supervision process like an excellent facilitator to students. As a result, the impact on learners in producing the project presented was bare as expected.

Furthermore, Efstratia (Efstratia, 2014) conveys some negative implications regarding project-based learning, including teacher's reluctance to apply this method due to their lack of experience, lack of motivation, or their perception on this model as an additional activity. In addition, there are limitations related to the length of project realization, meaning it takes a long time to produce or complete the project. In line with what was conveyed by Railsback (2002), the downside of using a project-based learning model is that it takes

much time and classroom design needs to be more effective and dynamic. In addition, several studies show the influence of project-based learning models. The study carried out by Şenyuva et al. (2014) showed that project-based teaching methods did not affect student social skills. The same result was found in the research conducted by Ruskandi et. (2019), showing that the PBL model did not significantly improve student social skills. Several factors can influence these results, including (1) student preference for older models, (2) teacher abilities in applying the new model require time and experience, and (3) extracurricular activities that made student abilities from the beginning suitable. Likewise, the cooperative learning model has challenges associated with instructor expertise, proper implementation, curriculum alignment and density, assignment completion time, and school policies (Ghaith, 2018). Research conducted by Bodsworth & Goodyear (2017) found that cooperative learning did not inevitably result in a beneficial learning experience for students. Therefore, practitioners must be directly involved in the intuitive learning process so that students can solve various problems that may occur both in the school environment and in the community.

On the contrary, people with high skills can work with others. As stated by Sudrazat dkk. (2020), social skill is a person ability to adapt to the environment and distinguish good and bad when faced with a situation and environmental conditions. In addition, people who have high skills have empathy for others and can find ways (solutions) to the problems they face. However, a study conducted by Fortin (Fortin, 2003) showed that mischievous students could not control themselves. It causes people to respond negatively to criticism and prevents them from accepting the viewpoints of others. Moreover, their failure to regulate their emotions and moods will result in disputes with other children and adults. This cause may affect the quality of the learner social skills.

Several research studies have examined the development of social skills, for instance the study conducted by Şenyuva et al. (2014) regarding the effect of project-based learning methods on social skills in nursing students, the study of Ruskandi et al. (2019) showing that the project-based learning model facilitated students to optimally achieve social skills as one of the social study goals in fifth-grade elementary school students, and

study of Montoya et al. (2020) aiming to review the important components of the Sport Education (SE) model and the Cooperative Learning (CL) model and their positive effects on the development of student motivations, behaviours, attitudes, and social skills. However, research specifically comparing the influence of project-based learning and cooperative learning models in improving high school student social skills in Physical Education is still minimal, so it needs to be studied deeply to obtain additional empirical evidence. The project-based and cooperative learning models are learning models that prioritize the ability to collaborate, which can ultimately have an impact on changing social skills for the better depending on how the learning is managed. Therefore, a deeper study to strengthen the empirical evidence of its implementation is required to know more about the effect of project-based and cooperative learning models on student social skills in Physical Education.

METHODS

This study used the experimental method with true experimental designs (the randomized pretest-posttest control group design).

Participants

Participants of this study involved 1 Physical Education Teacher and four final-year students.

Sampling Procedures

The population in educational research is generally a group of people (students, teachers, or other individuals) with specific characteristics. However, in some cases, a population can be defined as a group of classrooms, schools, or even facilities (Fraenkel et al., 2012). The population of this study included 30 high school classes in Tasikmalaya City, West Java, Indonesia. The samples of this study were two classes at one of the high schools in Tasikmalaya City, West Java, Indonesia, selected through a cluster sampling technique. However, this study did not allow a simple random selection because it clashed with the policies of the schools where the study was conducted. The two classes were divided into Project-Based Learning group (boy = 14, girl = 22; mean age = 16.80 with standard deviation = 0.68; mean height = 160.81 with standard deviation = 7.85; mean weight = 54.41 with standard

deviation = 9.60) and Cooperative Learning Group (boy = 11, girl = 24; mean age = 16.98 with standard deviation = 0.59; average height = 159.00 with standard deviation = 8.10; mean weight = 52.00 with standard deviation = 8.10; mean weight = 52.00 with standard deviation = 11.20).

Materials and Apparatus

The instrument of this study was a social skill questionnaire adopted from the Social Skills Rating System (SSRS) instrument for assessing the following domains: Cooperation, Assertion, Responsibility, Empathy, and Self-control. These domains are captured by the acronym CARES (Diperna & Volpe, 2005; Elliott & Gresham, 2013). However, the questionnaire used for students included only Cooperation, Assertion, Empathy, and Self-Control domains. The internal consistency for the Total Social Skill Scale ranges from 0.83 (Primary/Secondary Students); the reliability of the retests for the Total Social Skill Scale ranges from 0.68 (Student Form), and the stability of the social skill subscale ranges from 0.52 to 0.88.

The instrument was firstly translated by an English linguist into Indonesian, then it was tested in the field to gain worth using items and remove the inappropriate ones. The items included 37 statements, based on the results of linguist validation (in Indonesian) and field validation involving 108 non-sample students (high school students in the Tasikmalaya City, West Java Province) with item reliability of 0.846. Each item on SSRS was graded on a 3-point scale ("0-Never," "1-Sometimes," "2-Very Often") based on the frequency the appraiser perceived on particular behaviours.

Procedures

The study selected two physical education teachers by firstly compiling a letter of willingness and providing technical guidance on the application of PBL and CL for three days. The teacher taught PBL and CL classes previously determined as research samples. Before the treatment was carried out, each class (PBL and CL) was given a pre-test by filling out the social skill questionnaire. The treatment was carried out for eight meetings with 2 x 45 minute duration for each session. After the meeting ends, a post-test was conducted by completing the same questionnaire.

Data Analysis

This study used IBM SPSS version 26 data analysis tool. The data obtained is analyzed by means of inferential statistics. For inferential analysis, it looks for mean values, standard deviation, and variance. After that, testing the requirements of the analysis (classical assumption test) is by testing the normality of the data using Kolmogorov-Smirnov and Shapiro-Wilk, testing the homogeneity of the data using the Levene Test. Then proceed with hypothesis testing using Paired T-Test and Independent T-Test.

RESULT

Table 1 shows the decryption of data from Social Skill measurements in the PBL and CL groups and the gain score between the two. The data shown the probability value of normality of the PBL and CL groups > 0.05, so the data were normally distributed. Regarding the homogeneity value of the data, shows the Levene Test sig. Value > 0.05, hence the data were proven to

Table 1. Statistical Descriptions

Group		Mean	N	Std.	Std. Error
				Deviation	Mean
Project-Based Learning (PBL)	PreTest	47.97	36	6.64825	1.10804
	PostTest	52.97	36	4.50071	.75012
Cooperative Learning (CL)	PreTest	50.05	35	6.84682	1.15732
	PostTest	52.88	35	8.04682	1.36016
Gain Social Skill	PBL	5.0	36	5.529144	.92152
	CL	2.82	35	4.362175	.73734

Table 2. Paired t-test

	Mean	t	df	Sig. (2-tailed)
Project-Based Learning	-5.00000	-5.426	35	.000
Cooperative Learning	-2.82857	-3.836	34	.001

Table 2. Independent t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig.(2-tailed)
		Gain Score Social Skill	Equal variances	1.506	.224	-1.583
	Equal variances not			-1.578	64.80	.119

have homogeneous variants.

In Table 4, the results of the Paired t-test of the PBL and CL groups are presented. The analysis showed that there was a significant improvement in the student social skill results in both groups. The results showed a sig value of $0.000 < 0.05$ in the Project-Based Learning group and a sig value of $0.001 < 0.05$ in the Cooperative Learning group. Furthermore, in Table 5, you can see the results of the independent t-test on the difference of gain score between the two groups. Based on the data in Table 5, the sig value of $0.118 < 0.05$ was obtained, meaning that there was no statistically significant difference between the two group gain scores.

DISCUSSION

Based on the findings of this study, this study has answered the hypotheses proposed, including that PBL could significantly improve the social skills of high school students. The increase was due to the implementation of project-based learning model positively influenced student social skills. This study refutes findings of previous research by Şenyuva et al. (2014) that project-based learning methods did not significantly affect student social skills. In contrast, the result of this study significantly favoured student social skills, especially for high school students in Physical Education, Sports, and Health subject. This study carried out the treatment process for eight meetings for developing social skills using project-based and cooperative learning models. It turned out that there were significant differences between the two. This study has proven that optimizing project-based learning (PBL) may assist pupils in enhancing their social skills. It demonstrates the ability of collaborating, interacting, discussing, and even thinking critically in investigating information on problems or tasks given by utilizing various media and resources. It follows what was conveyed by Alberto et al. and Žerovnik & Nančovska Šerbec (Alberto et al., 2015; Žerovnik & Nančovska Šerbec, 2021) that when students have a limited amount of time to produce a product or service in teams, project-based learning is an appropriate instructional method. Furthermore, students were given a project theme (a description of the end product or service to be developed) and geared at adhering to well-defined project stages. This research also corroborates a previous study conducted by Bell etc. (2010; 2022) that students can develop crucial abilities, such as collaborative work, problem-solving ca-

capacity, and the capacity to operate in teams.

Likewise, the cooperative learning model shows a positive influence on social skills. These results answer the second hypothesis that cooperative learning model could improve the social skills of high school students in Physical Education. This research assumes that cooperative learning should be carried out more flexibly according to the situation and conditions of learners and the school environment. As stated by Bodsworth & Goodyear (2017), students will not necessarily have a beneficial learning experience via cooperative learning. Therefore, practitioners must be directly involved in the automatic learning process so that students can solve various possible problems. During the treatment of this group, there was very little student participated in learning activities. Students could guess learning activities, so the learning activities seemed less attractive. This research also aligns with research by Huang et al. (Huang et al., 2017) that cooperative learning enables each student to assimilate external information and critical thinking abilities and transform them into instruments for problem-solving. According to Goudas & Magotsiou (Goudas & Magotsiou, 2009), programs centred on specific social skills as learning objectives exhibit better group work skills and attitudes.

The result of the third hypothesis showed that project-based learning models and cooperative learning had no significant difference in improving the social skills of high school students. However, based on the mean score, project-based learning was better than cooperative learning. Proper time and classroom management can optimize the positive impact of project-based learning implementation. This research assumes that the success in implementing project-based learning model depends on the competence of teachers in managing more exciting and enjoyable learning. During the treatment process, the learning program was divided into three themes (three meetings of football materials, three meetings of basketball materials, and two meetings of volleyball materials) to complete the given project. In line with Moursund (Moursund, 2016), PBL is supposed to carry out a project over a significant period, a few weeks to a school year, so that PBL can be viewed as a unit of study. The research run a technical guidance program for Physical Education, Sports, and

Health teachers on implementing project-based and cooperative learning models to strengthen understanding in theory and practice. In addition, the project-based learning program collaborated with sports practitioners and nationally licensed Basketball coaches. The coach was present during a meeting delivering basketball game materials so that students were more interested in learning and discussing to get information about pre-determined basketball projects.

A teacher is only a guide or facilitator during the lesson. As stated by Moursund (Moursund, 2016), in project-based learning, teachers act more as facilitators for their students. Project-based learning places most of the responsibility for the learning process on students, providing a context of student-centred engagement while there remains intense guidance from the teacher (Gubacs, 2004). There are also negative implications of project-based learning, such as teachers are reluctant to apply this method because they are sometimes inexperienced, lack of activation, and considering this model as an additional activity. Also, its implementation takes a long time (Efstratia, 2014; Railsback, 2002).

Project-based learning and cooperative learning have similarities in focusing on active and interaction-based learning among students. The similarities include encouraging students to collaborate or work together in groups or teams to solve problems and achieve common goals (Dyson & Casey, 2016; Ramírez et al., 2017), placing the student as the main focus of learning to be actively involved in the learning process and the teacher as a facilitator or guide (Dyson & Casey, 2016; Lozano et al., 2022; Simonton et al., 2021; Wan Yusof et al., 2022); providing opportunities to interact, communicate, negotiate, and cooperate among students or with others (Cañabate et al., 2021; Tan & Chapman, 2016), providing contextual learning where students learn to apply the knowledge and skills learned into situations relevant to real life (Lozano et al., 2022), and focusing on measurable results, where students are expected to produce products or appearances that demonstrate an understanding of the topic being studied and the ability to complete a given task (Luo et al., 2020; Simonton et al., 2021).

CONCLUSION

According to the result of the study, the researchers conclude that PBL and CL models positively affected the social skills of high school students. The two groups had no significant difference, indicating that they were equally effective in improving and developing the social skills of adolescent students. However, project-based learning showed a greater increase in mean scores compared to cooperative learning.

Project-based learning enables students to become more inventive, critical, and collaborative while solving complex challenges in school and community settings. It contributes positively to student thinking skills, such as critical thinking and questioning, scientific research skills, the use of technology, and social skills, such as empathy, leadership, and assertiveness. The implementation of this research certainly has limitations. It is suggested that future research needs to expand the instrument used, not only for students but also for teachers and parents so that the information obtained will be more objective and robust. Future research can also select elementary and junior high school student populations so that empirical data on the effect of project-based learning model will be more substantial.

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CONFLICT OF INTEREST

The authors declared no conflict of interest.

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