JOHME: Journal of Holistic Mathematics Education
Vol 6, No 2 Dec 2022 pages: 122 - 137
DOI: https://dx.doi.org/10.19166/johme.v6i2.5834
E-ISSN: 2598-6759

THE EFFECT OF TEACHER LEADERSHIP AND STUDENT MOTIVATION THROUGH COLLABORATIVE LEARNING ON STUDENTS' COGNITIVE ABILITIES AT XYZ PRIMARY SCHOOL

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ABSTRACT

During the COVID-19 pandemic, students were educated via online learning. Teachers and students around the world faced considerable challenges in coping with the sudden shifts in teaching and learning methods. In facing this challenge, teachers were required to be creative leaders in their teaching approach. Both teachers and students had to adapt quickly to change. One way to make learning more enjoyable and interesting is through collaborative learning. During online learning, teachers may use the Breakout Room feature of the Zoom application for collaborative learning. Teacher leadership and student motivation are two important elements in sustaining collaborative learning. The purpose of this quantitative study was to examine the effect of teacher leadership and student motivation through collaborative learning on the cognitive abilities of students at XYZ Elementary School. Thirty-six grade six students completed the online questionnaire. Research calculations using path analysis through the PLS SEM software were used to test the proposed hypothesis. The results showed that teacher leadership had a positive effect on collaborative learning and students' cognitive abilities. It was also found that student motivation had a positive effect on collaborative learning and students' cognitive abilities. Finally, collaborative learning has a positive impact on students' cognitive abilities.

Keywords: teacher leadership, student motivation, collaborative learning, cognitive ability

ABSTRAK

Dalam masa pandemi COVID-19, siswa harus melalui pendidikan mereka dengan pembelajaran daring dan pembelajaran jarak jauh. Guru dan siswa di seluruh dunia mengalami tantangan yang cukup berat untuk mengatasi perpindahan metode pembelajaran dan pengajaran yang mendadak. Dalam menghadapi tantangan ini, guru dituntut untuk menjadi pemimpin yang kreatif dalam mengajar dan para guru dan siswa harus cepat beradaptasi dengan perubahan. Salah satu cara untuk membuat pembelajaran menjadi lebih menyenangkan adalah melalui pembelajaran kolaboratif. Pembelajaran kolaboratif dalam pembelajaran daring dapat menggunakan fitur Breakout Room dari aplikasi Zoom. Kepemimpinan guru dan motivasi siswa adalah dua elemen penting dalam keberlangsungan dan keberhasilan pembelajaran kolaboratif. Tujuan dari penelitian kuantitatif ini adalah untuk menguji pengaruh kepemimpinan

guru dan motivasi siswa melalui pembelajaran kolaboratif terhadap kemampuan kognitif siswa di Sekolah Dasar XYZ. Tiga puluh enam siswa SD Kelas 6 menyelesaikan kuesioner online. Perhitungan penelitian menggunakan analisis jalur melalui metode PLS SEM digunakan untuk menguji hipotesis yang diajukan. Hasil penelitian menunjukkan bahwa kepemimpinan guru berpengaruh positif terhadap pembelajaran kolaboratif dan kemampuan kognitif siswa. Ditemukan juga bahwa motivasi siswa berpengaruh positif terhadap pembelajaran kolaboratif dan kemampuan kognitif siswa. Hasil terakhir adalah pembelajaran kolaboratif berdampak positif terhadap kemampuan kognitif siswa.

Kata Kunci: kepemimpinan guru, motivasi siswa, pembelajaran kolaboratif, kemampuan kognitif

INTRODUCTION

The Ministry of National Education assesses the occurrence of 'learning loss' during the pandemic (CNN, 2022). Learning Loss means students' loss of academic knowledge or skills. Since the COVID-19 pandemic hit in March 2020 in Indonesia and around the world, students must simultaneously study from home through online learning. One of the worst impacts of online learning is that students do not have direct face-to-face interaction with teachers and friends. Many schools in Indonesia are forced to undergo online learning. Resistance and unpreparedness of various parties; students, parents and teachers arise because of these drastic changes. Internet connection, data quota, additional costs are technical obstacles for most students and teachers.

Prior to COVID-19 pandemic, from an international assessment namely PISA, Indonesia is ranked the lowest out of 40 countries. This low score and ranking of Indonesian students are nothing new and surprising because similar results have been consistently obtained from PISA results in past years (OECD, 2022). The PISA results raised are from 2018 because they are the most recent data available. In 2021, the OECD will not conduct a PISA assessment due to the pandemic situation.

Mathematical performance, for PISA, measures the mathematical literacy of 15-year-olds to formulate, use and interpret mathematics in a variety of contexts to describe, predict and explain phenomena, recognizing the role mathematics plays in the world. The average score becomes the reference for PISA. A math-literate student recognizes the role that mathematics plays in the world to make the judgments and reasoned decisions that constructive, engaged, and reflective citizens need. These poor PISA results, together with the pandemic online learning condition, raises an important issue that deserves concerns of educators and ministry of education, which involves the level of motivation, quality and student learning outcomes.

Student motivation consists of various combinations of motivation, namely intrinsic motivation and extrinsic motivation which depends on the nature of the activity and environmental factors. These factors can support or reduce student motivation (Hartnett,

2016). If students' learning motivation increases, student discipline also increases (Agustina, 2017), which in turn will improve their cognitive levels. Observations in class showed that students who have learning motivation can be seen from their behavior and the will or the discipline of learning as an effort to achieve the goals that students have (Agustina, 2017).

During online classes in the pandemic season, student motivations are varied, situational and complex. Some of self-motivated students can learn well via online platforms without physical and close supervision of a teacher, whilst others will not learn maximally due to distractions of opening internet browsers, playing games and chatting. This can be based on their intrinsic motivation. However, the external motivation is based on the absence of social interaction with peers, which can lead students to become very introverted and shy during online learning. Most of these students will not turn on their cameras and show their faces and will stay muted and not voice out all throughout the online classes. The absence of direct teacher supervision can also be one of the external factors and hence cause a change in their extrinsic motivation.

Aside from students' motivation, teacher leadership is one of the factors that is raised in this study. Some of the problems in Indonesian education include educational equity, education quality issues, efficiency and relevance issues (Kurniawan 2016). The role of the teacher in developing students' confidence in mathematics is important (Patandung, A., et al., 2020). Teachers with leadership in teaching can develop self-concepts, motivation, encouragement, practice exercises, reviews, and assessments that enable students to be more confident. This presence of teacher leadership in classes is ideal and necessary to remove the monotone atmosphere in class. Otherwise, the class will be one-way information transferring from the teacher to students.

The focus for this research as the problems identified are the way teachers lead learning in the classroom, the level of student motivation, collaborative learning, and students' cognitive abilities. These are the problems related to the low cognitive abilities of students:

1) teacher leadership in teaching

2) low level of student motivation

3) the absence for collaborative learning to mediate teacher leadership and student motivation in improving students' cognitive abilities

4) students' cognitive abilities do not increase according to learning objectives

To overcome the existing problems, this study was conducted to determine the effect of some of the previously mentioned elements and in accordance with the limitations of the problem. The formulation of the problem and research questions are:

1) Does teacher leadership have a positive effect on collaborative learning?

2) Does student motivation have a positive effect on collaborative learning?

3) Does teacher leadership have a positive effect on students' cognitive abilities?

4) Does student motivation have a positive effect on students' cognitive abilities?

5) Does collaborative learning have a positive effect on students' cognitive abilities?

LITERATURE REVIEW

There are four variables raised in this study, which are teacher leadership, students' motivation, collaborative learning and students' cognitive level. Educators cannot deny that the role and leadership of the teacher in learning is one of the keys to the success of the cognitive abilities of students' learning outcomes (Ng, et al., 2022; Öqvist, et al., 2018, Aslan, et al., 2020). However, during the COVID-19 pandemic, face-to-face learning is no longer possible. Thus, teacher leadership in being a facilitator in the classroom for learning is essential to improve students' cognitive abilities (Nguyen, et al, 2020, Santrock, 2018).

Besides teacher leadership, another important factor is the students' motivation levels, which will determine the outcome of their learning. Student motivation is defined as the process by which students direct their energy and focus towards realizing their academic potential and fulfilling scholastic goals (Schunk, et al., 2014, Tohidi, et al., 2012, Jamaris, 2013). Motivation is one of the roles and keys to the success of learning objectives in the classroom (Nieto-Márquez, et al., 2021, Sukma, 2022). If their motivation levels are high, naturally their learning outcomes and cognitive levels will increase significantly.

One way that teachers can show their leadership qualities in teaching is by implementing collaborative learning. Collaborative learning is a condition in which two (or more) people learn something together (Asterhan, et al., 2016, Gat, et al., 2021, Silalahi, 2019). Unlike individual learning, people who engage in collaborative learning leverage each other's resources and skills. This learning method and learning style became popular and fun because of the interaction between colleagues and classmates (Law, et al., 2011). Collaborative learning can be one way to place the teacher as a leader as well as a facilitator in the classroom. Teachers not only provide knowledge with monologues, but can facilitate activities and promote collaboration between students. This collaborative learning is of interest to teachers and students because it can increase socialization and conversation between students and teachers.

Lastly, student's cognitive ability is the mental ability to remember, relate, assess, and use that information and gain knowledge afterwards. Cognitive ability can be used as a reference for assessing whether learning objectives are achieved in the student learning process. Students' cognitive abilities were measured to determine the relationship between variables and the impact of independent variables and intervention variables. Cognitive

abilities are measured based on Bloom's Taxonomy. There are six cognitive categories in Bloom's Taxonomy which are described by Bloom and his colleagues consist of: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (Anderson and Krathwohl, 2001). In this research, we will only use the first three categories: Knowing, Comprehending and Applying as the indicator to measure student'; cognitive ability.

RESEARCH METHODOLOGY

With learning conditions that have changed drastically, the level of motivation of students to learn is also an important factor in the learning process. In the 2021-2022 school year, there are 36 students in XYZ School who are taking sixth grade elementary school. Home-based learning is carried out online in the midst of this pandemic condition, while they also often face elementary school graduation exams and also Checkpoint exams from Cambridge Checkpoint. Because this academic year is an important and crucial period for grade VI students in their elementary school level, it is necessary to measure motivation to determine student motivation by improving the quality of online-learning and students' cognitive abilities during a pandemic.

This research is quantitative research that uses survey instruments to collect data and produce empirical data. A survey design can be used to obtain a quantitative description of the responses or opinions of a population. In this study, a survey design was used to answer questions about the relationship between variables (Creswell and Creswell, 2018).

In this study, the correlation hypothesis is used to see the relationship between research variables. There are seven research hypotheses that will be proposed in this study:

1) H_0: There is no influence between teacher leadership on collaborative learning.

   H_1: There is a positive influence of teacher leadership on collaborative learning

2) H_0: There is no influence between student motivation on collaborative learning

   H_1: There is a positive effect of student motivation on collaborative learning

3) H_0: There is no influence between teacher leadership on students' cognitive abilities

   H_1: There is a positive influence of teacher leadership on students' cognitive abilities

4) H_0: There is no influence between student motivation on students' cognitive abilities

   H_1: There is a positive effect of student motivation on students' cognitive abilities

5) H_0: There is no effect between collaborative learning on students' cognitive abilities

   H_1: There is a positive effect of collaborative learning on students' cognitive abilities

6) H_0: There is no influence of teacher leadership on students' cognitive abilities through collaborative learning as an intervening variable

H_1: There is an effect of teacher leadership on students' cognitive abilities through collaborative learning as an intervening variable

7) H_0: There is no effect of student motivation on students' cognitive abilities through collaborative learning as an intervening variable

H_1: There is an effect of student motivation on students' cognitive abilities through collaborative learning as an intervening variable

Quantitative research aims to test theories and research hypotheses, from certain populations or samples (Sugiyono, 2017). From the data collected, an analysis will be conducted to test the hypothesis of this research and to find out what is the effect of the application of teacher leadership and the level of student motivation through collaborative learning on the cognitive abilities of grade VI students.

This research method conducts survey methods or collects data directly from research respondents to test the level of student motivation. This research was conducted at XYZ School in South Jakarta in the academic year 2021-2022, within the timespan of January to May 2022. The research subjects were grade VI students from XYZ School, based on students' self-evaluations after learning the topic 'Circle' in Grade 6 Mathematics Subjects. The language of instruction used in the school is English. Data was collected using Google Form for students to fill out each item in the questionnaire. The Google form's link was sent to students via zoom chat during one of the Math lessons after the topic 'Circle' was taught. This was done during lesson to ensure every student answered during the time given and also guarantee their own and authentic answers. This questionnaire was converted to a Google Form to make it easier for class VI students to answer it and for researchers to collect the data results with Google Sheets. The instrument used to measure the teacher leadership variable is a questionnaire that will be distributed to 36 students of class VI. The data obtained from this research instrument is in the form of an interval scale. This study will use a 5-point Likert scale as follows.

5-point Likert Scale:

1 = Strongly Disagree
2 = Disagree
3 = Neither Disagree nor Agree (Neutral)
4 = Agree
5 = Strongly Agree

The data will be collected using an online survey method and using a measuring instrument in the form of a questionnaire. There are 55 items of statements that were developed based on the literature review.

The instrument in this study uses a questionnaire to measure the four variables with the designated indicators for each variable:

1. Teacher Leadership:
   a. Teacher's character: The qualities of teachers to become role models that are good and positive for students, so that students can respect for teachers.
   b. Teacher's influence: The results of the teacher's behavior and attitudes can have a good impact on students and achieve the desired learning goals and cognitive abilities of students.
   c. Teacher's knowledge: Teachers are considered knowledgeable, expert in their fields and knowledgeable so that students can learn a lot from the teacher. The teacher can also explain and explain well so that students can understand the lesson well.

2. Motivation level:
   Several statements were adapted from the Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ was designed by Paul R. Pintrich (1990) and reviewed by Teresa Duncan (2005). Duncan (2005) states that the MSLQ addresses the nature of motivation and the use of learning strategies across different types of content areas and target populations (Duncan and Mckeachie, 2005). Since this study focuses only on the motivation of grade VI students, only the statements of motivation are used to match the motivation indicators. However, the researcher does not include statements and indicators of learning strategies. The six motivation indicators used are: Intrinsic Value, Extrinsic Value, Task Value, Control of Learning Beliefs, Self-Efficacy and Task Anxiety.

3. Collaborative Learning:
   a. Communications: There is a dialogue / conversation between students, students and teachers and helps the learning process and facilitates communication to achieve learning objectives.
   b. Collaboration: Students show a mutually supportive and positive attitude to improve their ability and understanding of the subject matter and to answer questions and assignments given by the teacher in group work.
   c. Learning: The occurrence of a 'learning' process in students and students' cognitive abilities increase because of this process. learning:

4. Students' Cognitive level:
   After the researchers assessed and analyzed, the cognitive level of the 10 items on the instrument had not yet reached the cognitive level of Analysis, Synthesis, and Evaluation (C4-C6). The assessment instrument used by the teacher during the

assessment, which was validated by the Mathematics Teacher, was still dominant at the cognitive level of remembering (C1), understanding (C2), and applying (C3). Grade VI students are considered as beginners or novices in studying the topic 'Circle' in the mathematics subject, so the three cognitive stages or indicators that are the goals of their learning: Remembering (C1), Understanding (C2), and applying (C3), are very suitable to be assessed as students' self-evaluations. A questionnaire was chosen to assess their cognitive levels in this study due to efficiency and puts less pressure on the respondents which are grade VI students. Placing less pressure were meant to bring out their honesty in answering the questionnaire to assess their own learning outcomes and the awareness of their own cognitive levels. In this study we also use Smart-PLS to analyze the data. Having a questionnaire will create uniformity in the data collected and can be analyzed directly using Smart-PLS.

Validity

Validity test is a test conducted to measure the accuracy of the instrument. The instrument underwent first screening which involves expert judgment and it was validated by a doctor and lecturer of University Pelita Harapan[1]. Also, validity test was carried out with the Smart-PLS instrument through convergent and discriminant validity tests. The convergent validity test can be done in two ways, namely by looking at the loading factor value which must be above 0.7 and by looking at the Average Variance Extracted (AVE) value which must be above 0.5. Table 1 shows the result of the convergent validity test using the outer loadings value. From table 2, the results of the convergent validity test with an AVE above 0.50 indicate that all the variables listed meet the prerequisites for the convergent validity test.

Table 1. Convergent Validity Test Results with Outer Loadings.

Item	Outer Loading
TL1	0.836
TL3	0.733
TL5	0.741
TL12	0.708
TL13	0.739
TL14	0.805
SM6	0.917
SM11	0.735
SM15	0.7
SM17	0.84
CL4	0.844
CL5	0.899
CL7	0.81
CL8	0.79
CL9	0.898
CA1	0.807
CA4	0.839
CA5	0.889
CA6	0.741
CA9	0.896

Table 2. Convergent Validity Test Results with AVE above 0.5.

Variable	*Average Variance Extracted (AVE)*
Teacher Leadership	0.58
Student Motivation	0.644
Collaborative Learning	0.722
Student Cognitive Ability	0.699

Discriminant validity was carried out to measure the differentiator of each variable construct. Through Smart-PLS, the discriminant validity test is assessed based on the measurement cross loading with its construct and the cross-loading value of each variable must be above 0.7.

In addition to cross loading, discriminant validity tests can also be carried out by comparing the square root of the AVE for each construct with the correlation value between the variables in the study. If the square root of the AVE value of each variable is greater than the correlation value between variables, it can be said that the discriminant validity in this study is good. Table 3 below shows the Average Variance Extracted (AVE) value and the square root value of AVE. Table 4 shows the results of the discriminant validity test.

Table 3. AVE value and AVE square root value.

Variables	*Average Variance Extracted (AVE)*	Square root of *AVE*
Teacher Leadership (TL)	0.58	0.762
Student Motivation (SM)	0.644	0.802
Collaborative Learning (CL)	0.722	0.85
Cognitive Ability (CA)	0.699	0.836

Table 4. Discriminant Validity Test Results.

	TL	CA	SM	CL
TL	**0.762**			
CA	0.518	**0.836**		
SM	0.619	0.611	**0.802**	
CL	0.336	0.265	0.385	**0.849**

From the results of data processing listed in tables 3 and 4, the cross-loading value is above 0.708 and the AVE square root value of a construct is also higher than the other constructs and is above 0.708. Therefore, it can be concluded that the variables of teacher leadership, student motivation, group learning and cognitive abilities have good discriminant validity values.

Reliability

Reliability test is used to assess the consistency of the instrument in measuring variable indicators. Cronbach's Alpha in Smart-PLS is used for reliability testing and Cronbach's Alpha coefficient classification (α). The reliability test use Cronbach's Alpha and Composite reliability. In this study, the reliability test used Cronbach's alpha and Composite reliability. Table 5 below shows the results of reliability tests with both methods through the Smart-PLS software.

Table 5. Reliability Test Results with Cronbach's Alpha and Composite Reliability.

Variable	*Cronbach's Alpha*	*Composite Reliability*
Teacher Leadership	0.855	0.892
Student Motivation	0.823	0.877
Collaborative Learning	0.905	0.928
Student Cognitive Ability	0.892	0.92

From the results listed in table 5, Cronbach's alpha and Composite reliability values for all research variables is above 0.70. It can be concluded that all variables of teacher leadership, student motivation, group learning and cognitive abilities have a high level of reliability and are concluded well.

RESULT AND DISCUSSION

The outer model test was carried out to measure the relationship between latent variables and their indicators using the PLS Algorithm procedure. Analysis of the outer model is measured using validity and reliability testing.

Results of Hypothesis Testing

Hypothesis testing is a test conducted to analyze the relationship stated in the research hypothesis. This test is a process for analyzing and evaluating the strength of evidence from a sample and testing whether the survey or observations carried out in the study provide meaningful results. From the results of calculating path coefficients, the magnitude of the relationship between latent variables in this research model is described in Figure 2.

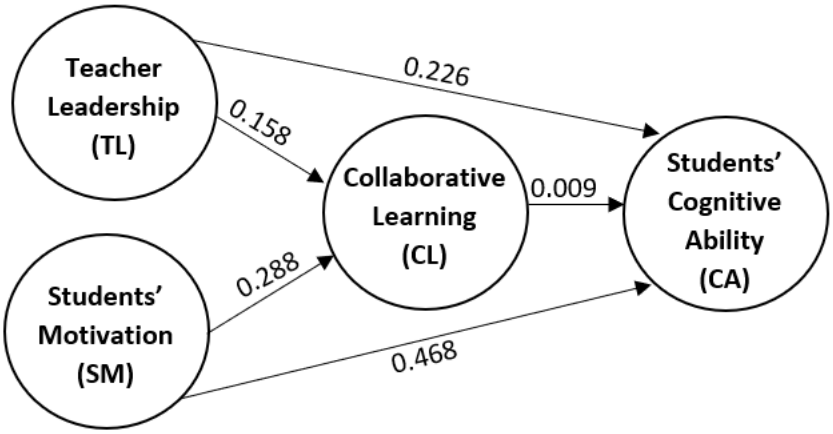

Figure 2. Research model with Path Coefficients results.

The results found in this study are:

1. Teacher leadership has a positive effect on collaborative learning at XYZ School with a value of 0.158. With high teacher leadership in the classroom, collaborative learning will run more smoothly.

2. The motivation of class VI students has a positive effect on collaborative learning at XYZ School with a value of 0.288. With a high level of student motivation, students will have the same goals in group work assignments and collaborative learning will be successful in its goals for students to collaborate as well as learn.

3. Teacher leadership has a positive effect on the cognitive abilities of grade VI students at XYZ School with a value of 0.226. With high teacher leadership in the classroom, students will achieve learning goals and improve students' cognitive abilities.

4. Student motivation has a positive effect on the cognitive abilities of grade VI students at XYZ School with a value of 0.468. With a high level of student motivation, students have an inner drive to achieve learning goals and improve their own cognitive abilities.

5. Collaborative learning has a positive effect on the cognitive abilities of grade VI students at XYZ School with a value of 0.09. This result is in accordance with several previous studies (Gat, et al., 2021, Silalahi, 2019, Manan and Narimo, 2018, Fauziah, 2021) , although the level of the value of is very small. It can be concluded that collaborative learning is a way to encourage students' cognitive abilities.

All of the results are greater than 0, which indicates positive impact or influence of the former variables to the latter variables. Thus, all of the null hypothesis (H_0) is rejected. This finding is in line with the results of a review that collaborative learning is a teaching and learning method in which students work together to explore important questions or create meaningful projects together with teachers and students as peer learners and teacher leadership is important for the continuity of collaborative learning (Aslan, et al., 2020).

However, in Summers' findings, if a teacher's original intention is to increase student participation by assigning them to group work, it is possible that students who are weak in Mathematics may refuse participation to avoid looking bad in front of their peers. This is a very important consideration for teachers because students will feel comparison and peer pressure (Summers, 2006). So, with the teacher's leadership, teachers must be more sensitive and manage group work better with effective and equitable group learning efforts for all students. Also, the results of this research are consistent with research which states that students who appreciate the importance of group work as a learning activity tend to have a task value orientation, namely high motivation and higher learning outcomes in collaborative learning (Summers, 2006).

Positive correlation between teacher leadership and students' cognitive level is in accordance with past research in Indonesia (Gulo, et al., 2020) and Malaysia (Bakar, et al., 2015), where the teacher leadership variable has a positive and significant effect on the learning outcome variable. In addition, there was a positive relationship on the effect between motivation to focus on learning and cognitive performance (Nieto-Márquez, et al., 2021) and also a very strong relationship between learning motivation and high cognitive level (Sukma, 2022). Therefore, the current study's results are consistent with previous researches.

From the results of this study, there are several managerial implications that must be considered by XYZ School teachers, especially during this pandemic and online learning continues. There are many challenges and problems experienced by students and teachers at this time and the results of this research are expected to provide quality and good input and recommendations for teachers' consideration in designing interesting and interactive learning. This is needed in order to improve the quality and quality of education and cognitive abilities of students at XYZ School.

Hence, below are some ways to increase students' cognitive levels through teacher leadership, student's motivation in learning and collaborative learning based on the observation of this study's results.

1. **Improving students' cognitive abilities through teacher leadership.**
   a. It is very important for teachers to practice teacher leadership in the classroom, even though online learning. The teacher must be able to master and give positive energy and show it through his attitude, behavior and speech so that the teacher looks good and strong. In addition to character, teachers can impact and influence students and also have broad knowledge and insight. It is better if teachers continue to develop themselves, continue to learn to be better and role models for students.
   b. Teachers must be able to establish relationships with students because it will be the basis of communication between teachers and students. It is better for the teacher to actively establish a relationship by finding out what is currently relevant to the students so that there is no miscommunication or disconnection with students. In addition to the subject matter, it's a good idea for the teacher to also talk about things that can attract students' attention.
   c. The influence of teacher leadership by 22.6% can be increased again and it can be considered whether there are other indicators or descriptors that can have a greater impact on students' cognitive abilities.

2. **Increasing students' cognitive abilities through student motivation.**
   a. Student motivation is an encouragement within students that can direct students to put more effort in learning and following the learning process in class. To increase the level of student motivation, teachers can try to design learning that is diverse, relevant to the understanding and life of students.
   b. There are six indicators of motivational variables and among them are extrinsic value, task value and control of learning beliefs that are valid in this study, while intrinsic value and test anxiety are not valid. Teachers can focus more on increasing students' sense of motivation by giving good understanding and explanations to students about each descriptor of motivation and being student motivators. With increasing student motivation, students' cognitive abilities will also increase and lessons become more fun if students are motivated.

3. **Increasing students' cognitive abilities through collaborative learning.**
   a. The positive effect of collaborative learning on students' cognitive abilities in the study was 0.9%. This positive effect is small. In theory, if collaborative learning is carried out properly and successfully, students' cognitive abilities will increase.

b. Instruction, monitoring, guidance and facilitation of teachers are very important in the collaborative learning process. Teachers are expected to be involved to support and motivate during the process of collaborative learning. It is highly recommended when the teacher monitors by entering each of the Zoom Breakout Room alternately in each group.
c. With the teacher's leadership and management of the collaborative group work, teachers will need to be aware and considerate of weaker students and formulate better combinations of students. This is to eliminate the inferiority feelings and produce an effective and equitable group learning efforts for all students with different learning abilities.

CONCLUSION

In conclusion, all of the variables have positive correlations to other variables. Firstly, the variable teacher leadership has a positive correlative effect to the variable collaborative learning with the value of 0.158. Secondly, the variable student's motivation has a positive correlative effect to the variable collaborative learning with the value of 0.288. Thirdly, the variable teacher leadership has a positive correlative effect to the students' cognitive abilities with the value of 0.226. Fourthly, the variable student's motivation has a positive correlative effect to the students' cognitive abilities with the value of 0.468. Lastly, the variable collaborative learning has a positive correlative effect to the students' cognitive abilities with the value of 0.009.

The following are suggestions that can be considered by further researchers based on the process and results of this study:

1. For further research, it can consider other factors that have not been included in the research model such as discipline in the classroom, student behavior, student leadership, and also student character. In addition, it can also consider external factors such as learning conditions such as online/online learning or face-to-face learning, the rewards that can be achieved by students.

2. Respondents to fill out the questionnaire survey in this study were a sample of 36 students of class VI. This is considered as a relatively small sized sample and this explains the current study's correlation results which are not very strong, even though it is still showing positive correlation result. When the sample size is increased, more data and therefore more information are involved and the estimate is more precise. As the sample size increases, the confidence in the hypothesis increases, and the result will have greater precision. Future research may consider increasing the number of research samples.

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