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Improving Elementary School Student Learning Outcomes Through Teacher Professional Development

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Abstract. This research aims to explore improving elementary school student learning outcomes through teacher professional development. The research method used is lesson study, where teachers collaborate to design, implement and evaluate lessons on an ongoing basis. The research was conducted by collecting data from elementary school students who implemented lesson study for one semester. The research results showed that there was a significant increase in student learning outcomes after implementing teacher professional development through lesson study. Data analysis shows consistent improvements in student learning outcomes. Apart from that, it was also found that students were more active and involved in the learning process, and were better able to apply the concepts they learned in the context of everyday life. The conclusion of this research is that teacher professional development through lesson study has a significant positive impact on student learning outcomes in elementary schools. Collaboration between teachers in designing and evaluating learning helps increase the effectiveness of teaching and learning. It also emphasizes the importance of continuous professional development for teachers in improving the quality of education.

Keywords: Teacher professionalism, lesson study, pedogogical competence, elementary school

I. INTRODUCTION

In general, the development of education in Indonesia is still experiencing various challenges. This can be seen from the OCED (Organization for Economic Cooperation and Development) report, which reported that even though Indonesia rose in position in the PISA (The Program for International Student Assessment) rankings for literacy, mathematics and science material, Indonesia's score fell by 18 on average. Average points (OECD, 2022).

The data above shows a decrease in the quality of education in Indonesia when compared to the results of PISA in 2015. The results of this study indicate that the decline in quality is caused by the implementation of education that has not been managed optimally, especially in the welfare of teachers and the politicization of the teaching profession. This is in line with what was stated by Chang et al., (2015); (Tobias et al., 2014); that the root of the problem of the quality of education lies in three things, namely (a) teacher quality, (b) teacher welfare, and (c) teacher politicization. If these three things are remedied as soon as possible, it can help Indonesia's mission of increasing the success of basic education programs for all.

The above conditions are further exacerbated by the increasing illiteracy rate in the age range of 5-17 years in Indonesia, which reaches around 56% (Windiarto et al., 2018). Associated with the complexity of the educational issue, this research is focused on improving the quality of teachers. This focus is based on the opinion of Sulisworo, et al (2017), who say that the quality of teachers must be a priority because it affects the quality of education delivery and the development of student learning outcomes. The selection of research locations on the coast in Kolaka Regency is based on the data from the teacher competency test results released by the Center for Policy Analysis and Synchronization, Ministry of Education and Culture (2021), which shows an average teacher competency test score of 47.52.

The description above shows the importance of synergy between industry around schools, local governments, and universities to improve teacher professionalism. As stated by Stigler and Hiebert (Lampley, 2015), teachers can provide solutions and motivators for students. Stigler and Hiebert's view is supported by the results of research conducted (Tambunan, 2018), which reveals that the effort to achieve learning objectives is highly dependent on teacher motivation in classroom learning practices.

The use of lesson study is based on the consideration that lesson study is efficacious in improving teacher professionalism. The lesson study in this study was managed by utilising a triple helix involving the Halu Oleo University, Kolaka Regency Government, and CSR PT Aneka Tambang. Halu Oleo University as a quality development concept; the local government through the Kolaka District Education Office as a motivator for teachers to develop their competencies, and PT Aneka Tambang as a party that contributes to funding through CSR.

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THEORITICAL REVIEW

Lesson study is a learning strategy implemented by the teacher collaboratively through classroom learning practices, observing, collecting data, and analysing (C. C. Lewis et al., 2006); (C. C. Lewis, 2002a); (C. Lewis & Tshucida, 1997); (C. C. Lewis & Tshucida, 1999) (Wang-Inverson & Yoshida, 2005). In Indonesia, lesson study was introduced in 1998 through IMSTEP (Indonesia Mathematics and Science Teacher Education Project). The benefits of this strategy have been felt by teachers, especially in terms of increasing teacher competence. However, the implementation of lesson study is still relatively rare, especially in coastal schools. One of the causes is the teacher's need for more understanding regarding the mechanism for implementing lesson study. It is essential to do this because, in addition to introducing the implementation of lesson study to teachers, it can also directly have an impact on increasing the competence of teachers participating in lesson study.

(C. C. Lewis & Tshucida, 1999) Argues that teacher participation in learning development, especially in terms of planning, observing or observing, and revising, can be encouraged through the implementation of lesson study. This has been proven by Owner (1992) in Eutopia and Takeshi in Japan through the Cluster Resource Center (CRC) System, which introduced lesson study strategies in science learning and mathematics-based teacher services. Owner and Takeshi's findings show that the implementation of lesson study can optimize learning outcomes and student motivation. Owner and Takeshi managed to establish many schools within the cluster system to improve teachers' professional skills (Shulman, 1987). The same thing, according to C. C. Lewis & Tshucida (1999), also occurs in the United States, which pays special attention to the increase or development of teacher competence through the implementation of lesson study.

The description above becomes a robust academic argument as the basis for implementing lesson study in coastal schools in Kolaka Regency. It also strengthens the urgency of implementing lesson study through research using the triple helix model.

The lesson study steps in this study include three stages, namely: (a) plan, (b) do, and (c) see. Teachers in coastal schools around the industry carry out these stages.

Plan

The stages are carried out collaboratively with a focus on preparing lesson plans. The preparation of a lesson plan (RP) keeps the needs of the students and the issues faced by the teacher in mind. In addition, RP still refers to the modern learning paradigm, which is the student centre.

Do

In the do stage, there is a teacher who becomes a model, and the others act as observers. The model teacher is tasked with carrying out learning by referring to the RP that has been prepared at the plan stage. Meanwhile, other teachers are tasked with observing the activities of the teacher who becomes the model. The data from the observations were collected as material for reflection at the see stage. The observer refers to the observation guide that has been prepared at the plan stage.

See

The parties involved in the see are model teachers, observers, school principals, and the research team. Any data collected by the observer will be analyzed at the see stage. Analysis activities are carried out in the form of discussions. At the reflection stage, all parties can provide input, corrections, opinions, views, and questions objectively. At this stage, it is realized that subjective views are challenging to avoid because the orientation in the reflection stage is the disclosure of the advantages and disadvantages of learning. The results of this view will be used as the basis for improving learning planning at a later stage. The lesson study cycle at the next stage also consists of plan, do, and see.

II. METHODS

The implementation of the lesson study in this study took place in two stages. Each stage consists of a plan, do, see (C. C. Lewis, 2002b)

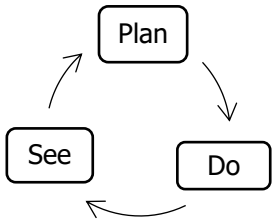

Image: Lesson Study Implementation Flow

Because the subjects of this study were teachers and students, the main focus of observation was on the teacher's ability to organize learning and activities, as well as student learning outcomes.

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Technique Analysis Data

Data analysis in this study was carried out using the following formula.
Percentage of students' learning completeness individually:

$$KI = \frac{SS}{SM} \; x \; 100\%$$

Description:
KI : Individual completeness
SS : Student score
SM : Maximum score

The percentage of students' learning completeness classically:

$$KK = \frac{\sum ST}{\sum S}$$

Description:
KK : Classical completeness
$\sum ST$: Number of students who completed individually
$\sum S$: Total number of students

III. RESULTS AND DISCUSSION

Teachers Pedagogical Competence at Coastal Schools in Kolaka Regency

Pedagogical competence is a technical skill that a teacher must master. The importance of mastering pedagogical competence is explicitly stated by (Wood, 2018) that pedagogical competence is an absolute competence that must be mastered by teachers at all levels of education based on their performance during learning. One important component related to pedagogical competence is the ability to identify student characteristics. Observations show that this component is still challenging for teachers in elementary schools to master. Therefore, this component is one of the concerns in this lesson study. In addition, this study also found difficulties in learning, including:

(a) Teachers have difficulty identifying the characteristics of students' learning styles;
It is important to recognize students' learning styles in order to make it easier for teachers to choose learning activities that suit students' characteristics and make it easier for students to receive information. However, it was found that teachers still cannot identify students' learning styles. In fact, as the concept of learning styles in educational theory, children's learning styles do not come out of three types of learning styles, namely visual learning styles, auditory learning styles, and kinesthetic learning styles.

(b) Teachers still have difficulty planning structured learning activities;
Structured learning is an essential aspect of learning because, with structured planning, the teacher can determine the subject matter that students will absorb. In addition, structured planning can also serve as control and feedback for teachers in developing further learning programs.

(c) Teachers still find it difficult to develop materials according to student's abilities;
Observations show that teachers still tend to have difficulty developing materials, especially mapping prerequisite abilities that are adjusted to learning objectives. In addition, teachers are also unable to document the progress of learning outcomes through assessments that are in line with learning objectives. The ability to develop this material is essential for teachers to know the proper assistance to give to students in achieving learning objectives.

(d) Teachers still have difficulty managing an effective classroom;
In the first stage of lesson study implementation, it was found that the teacher needed help managing the class effectively. This can be seen in the learning that takes place, which could be more enjoyable for students. The importance of teacher knowledge related to classroom management in order to make the learning atmosphere conducive. Therefore, the teacher's ability to manage this class becomes one of the things that needs to be improved in the second stage of lesson study.

(e) The ability to build interactions in learning, both between teachers and students and students with students, is essential in learning. The importance of this ability is mastered by a teacher so that learning is more meaningful, effective, and fun. One of the most fatal forms of interaction carried out by teachers during the implementation of lesson study is the inappropriate teacher communication model, which prevents the relationship in the classroom from being alive.

(f) Teachers have not been able to carry out authentic assessments.
Authentic assessment is critical to be done by teachers because it is closely related to the meaningfulness of learning outcomes for affective, psychomotor, and cognitive domains. Therefore, a teacher must know various criteria related to knowledge construction, observing and trying activities, and out-of-school achievement scores. The importance of

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carrying out this authentic assessment is because it has relevance to the scientific approach, including this assessment being able to describe the improvement of student learning outcomes, both in the context of observing, reasoning, trying and building networks.

Teachers' Professional Competence at Coastal in Kolaka Regency

Professional competence is teachers' ability to master the material, structure, concepts, and mindset of science that supports the master subjects. A teacher requires this competence for him to establish himself as a professional teacher. Based on the results of the study, it was found that the professional competence of elementary school teachers in industrial-influenced coastal areas in Kolaka Regency still needs to be improved, especially in the aspects of (a) developing learning materials, (b) the ability of teachers to master methodical didactics.

Teachers Social Competence at Coastal in Kolaka Regency

Social competence is teachers' ability to communicate and interact effectively with students, fellow educators, education staff, parents, and the surrounding community. The results showed that the teacher's ability in several aspects above was categorized as good. Two aspects of teacher social competence that need to be developed through this research are (a) the ability to establish communication with peers and (b) the ability to establish communication with parents and the community.

Teachers' Personality Competency at Coastal in Kolaka Regency

Personal competence is steady, stable, mature, wise, and authoritative, being a role model for students and having a noble character. The results of this study indicate that the personality abilities of teachers in coastal schools in Kolaka Regency are categorized as good. However, aspects that still need to be developed are (a) the ability to complete learning administration documents, such as (i) learning tools and (ii) documentation of student learning outcomes according to the established standards.

Teacher Competency Development in Coastal Areas Through Lesson Study

The low competence of teachers, as in the findings of this study, has an impact on the low quality of the learning process. This condition also has a direct impact on the less than optimal learning outcomes and student learning activities. Therefore, a lesson study was carried out to solve this problem. Therefore, the opinion of Chassels & Melville (2009) is referred to by Sims & Walsh, (2009); Myers, (2012), who said that lesson study was proven to make a positive and significant contribution to the development of teacher competencies, including increasing student activities. The same thing has also been stated byFernandez & Robinson (2006) that lesson study has the effectiveness of developing teacher competence because it leads to "microteaching lesson study" involving teachers and students as well as peers. The piloting lesson study schools in this study are elementary schools. Negeri 1 Dawi-Dawi, which is located above sea level, is located in Pomalaa District, Kolaka Regency.

The results of the research before the implementation of the lesson study are as follows.

Table 1. Student Learning Outcomes Data before Lesson Study

Value Interval	Number of Students	Percentage	Category
86-100	3	15%	Complete
76-85	2	10%	Complete
65-75	3	15%	No
55-64	12	60%	No
Total	**20**	**100%**	**-**

Table 1 above shows student learning outcomes before implementing lesson study. Classical completeness only reaches 25% of 20 students. The teacher's competence factor causes low student learning outcomes. Therefore, the implementation of lesson study is an alternative to improve teacher competence. This is in line with the opinion of (Stigler & Hiebert, 1999), who say that lesson study is a means for teachers to improve their competence. The same thing was stated by (Wenger, 2004) that lesson study overcomes the gap in the relationship between students and teachers in learning. The views of Stigler, Hiebert, and Wenger above are relevant to the statement of (Cajkler & Wood, 2015), which suggests that the implementation of lesson study can stimulate student learning activities.

Lesson Study in the Coastal Area, Pomalaa District, Kolaka Regency

The implementation of the lesson study in this study was carried out in two stages, the implementation of which was on December 2, 2023.

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Implementation of Lesson Study in Coastal Areas Stage I

Plan

In the implementation of the plan stage 1, the learning model used is the jigsaw-type cooperative learning model. Her reasoning was

(a) jigsaw can stimulate students' learning;
(b) jigsaw can enhance the activity and courage of students to engage in learning, primarily in speaking up, and;
(c) jigsaw trains students' social attitudes through group discussion activities.

Another assessment is that the implementation of the jigsaw type of cooperative learning model is technically possible for enjoyment in the school of piloting.

Do

Activities in do stage I are done by referring to the already designed learning plan in stage I. The do activity is divided into three parts, which are: (a) the opening of the learning, (b) the core activity, and (c) the closing activity. The modelling teacher activity at the learning opening activities is to open learning, do conception, explain the purpose, and provide an overview of the learning steps that students will go through. At the core activities, the model teacher activity follows the jigsaw type of teaching model syntax. In the concluding activity, a model teacher's activity is to guide students to conclude learning results, reflect and do evaluations, give follow-ups, and conduct close studies.

During the do activity, teachers (in addition to model teachers) observe non-participants and thus do not interfere with the learning process. Observation processes also endeavour to avoid giving a model teacher the appearance of intimidation and natural learning. The observation process is focused on the following aspects:

Table 2. Student Activity Observation Sheet

Observed activities	Score				
	1	2	3	4	5
Pay attention and listen to the teacher's explanation.					
Show a responsible and confident attitude.					
Active with expert groups.					
Explainsmaterial that is mastered against the group itself.					
Pay attention to the explanation of the material from their own group who acts as part of the expert group.					
Actively ask teachers and/or group friends regarding material that has not been understood.					
Answer the teacher's and/or friends' questions accurately and clearly.					
Expressing ideas, thoughts, and opinions regarding the material discussed in the discussion.					
Be democratic in discussions.					
Shows a cooperative attitude or is willing to work together in groups.					
Provide motivation and encouragement to group members themselves.					
Actively involved in the formulation of conclusions.					
Able to present the results of their own group work.					
Provide comments, rebuttals, and corrections on the work of other groups appropriately and politely.					
Willing to listen to comments, rebuttals, and corrections from other groups.					
Able to evaluate comments, rebuttals, and corrections from other groups.					

In the do activity, the model teacher assesses student success, both individually and in groups. The results of the assessment are as follows.

Table 3. Student Learning Outcomes Individually Phase I

Value Interval	Number of Students	Percentage	Category
86-100	11	55%	Complete
76-85	6	30%	Complete
65-75	3	15%	No
55-64	0	0%	No
Total	**20**	**100%**	**-**

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Table 4. Student Learning Outcomes (Group) Phase I

Value Interval	Number of Groups	Category
86-100	0	Complete
76-85	2	Complete
65-75	2	No
55-64	1	No
Total	**5**	**-**

The data presented in Table 3 and Table 4 above describe student learning outcomes, both individually and in groups, showing an increase compared to student learning outcomes before the implementation of the lesson study. Even though it is, it could be more optimal. The percentage of classical completeness of student learning outcomes reached 85% of the total 20 students. The factors causing the non-optimal activities and student learning outcomes will be analyzed and illustrated in the seen activity.

See

In this study, see was conducted to review the level of success, weaknesses, and strengths of learning based on the data collected in the do activities. The see process is carried out in the form of discussions involving the lesson study participants, model teachers, and observers. The observers involved were: principals and researchers. In this see activity, parents are also involved to provide input regarding student learning progress. The involvement of students' parents is a form of teacher social competence development. In general, the results of the see activity in stage I will be used as the basis for planning learning in stage II.

The successes and advantages of stage I lesson study are maintained and improved. The weaknesses at this stage will be corrected in stage II planning. The weaknesses of learning in stage I obtained from the see activity are: (a) the teacher is not careful enough to control the discussion; (b) non-heterogeneous group division; (c) teacher interaction focused on active students; (d) lack of ability of teachers to organize learning; and (e) lack of reinforcement for students.

See

This study was conducted to review the level of success, weaknesses, and strengths of learning based on the data collected in the activities. The see process is carried out in the form of discussions involving the lesson study participants, model teachers, and observers. The observers involved were principals and researchers. In this see activity, parents are also involved in providing input regarding student learning progress. The involvement of students' parents is a form of teacher social competence development. In general, the results of the see activity in stage I will be used as the basis for planning learning in stage II.

The successes and advantages of stage I lesson study are maintained and improved. The weaknesses at this stage will be corrected in stage II planning. The weaknesses of learning in stage I obtained from the seen activity are:

(a) the teacher is not careful enough to control the discussion,
(b) non-heterogeneous group division,
(c) teacher interaction focused on active students,
(d) lack of ability of teachers to organize learning and
(e) lack of reinforcement for students.

The Implementation of Lesson Study in Coastal Areas Stage II

The implementation of stage II will be held on December 15, 2021. Similar to lesson study in phase I, lesson study in stage II follows the Plan, do and see steps.

Plan

The activity of Plan in stage II begins with designing lesson plans, preparing observation sheets, preparing student worksheets, and analyzing every need during do. The planning process in stage II is carried out on the results of the see stage I. Every success, advantage, and disadvantage in stage I is accommodated in lesson study stage II. Activities in the plan stage II are also carried out collaboratively by involving all lesson study participants. The learning model used in stage II still uses the Jigsaw type with some modifications.

b. Do

The do activity in stage II is carried out by referring to the lesson plan that has been designed for the planned activity. Likewise, in stage I, activities are divided into three parts, namely (a) opening activities, (b) core activities, and (c) closing activities. In the opening of learning activities, the activities of model teachers include opening of learning, ensuring student readiness, motivating students, giving apperceptions, explaining topics, objectives, and benefits of learning, as well as providing an overview of learning steps to students. In this core activity, the model teacher activity refers to the Jigsaw type learning syntax as in planning.

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In the closing activity, the model teacher activities include guiding students to conclude the lesson, reflecting and evaluating, providing follow-up, providing an overview of the following learning material, and closing the lesson.

During the do activity, the lesson study participants made non-participant observations and did not interfere with the learning process. The observations made refer to the observation sheets that have been prepared for planning activities. The student learning outcomes, both individually and in groups in the second phase of activities, are described in Table 5 below.Student Learning Outcomes Data (Individual) Lesson Study Stage II.

Value Interval	Number of Students	Percentage	Category
86-100	17	85%	Complete
76-85	3	15%	Complete
65-75	0	0%	No
55-64	0	0%	No
Total	**20**	**100%**	**-**

Table 6. Student Learning Outcomes Data (Group) Lesson Study Stage II

Value Interval	Number of Groups	Category
86-100	4	Complete
76-85	1	Complete
65-75	0	No
55-64	0	No
Total	**5**	**-**

The data presented in Tables 5 and 6 show a significant increase in student learning outcomes, both individually and in groups. Classical completeness has reached 100% of the total 20 students. These results also indicate that the target or learning objectives have been achieved in the implementation of lesson study phase II.

c. See

See activities are carried out collaboratively in the form of discussions involving all parties involved in lesson study activities, namely model teachers, observers, school principals, research teams, and parents of students. From the seeing process carried out, an overview of progress in learning was obtained, including.

(a) all students were active in discussion activities,
(b) the provision of proportional motivation and reinforcement has been carried out by the teacher equally to all students,
(c) the distribution of students in groups is heterogeneous,
(d) learning interactions are more lively and multidirectional, and
(e) student learning outcomes are more evenly distributed.

DISCUSSION

There are two main problems faced by elementary school teachers around the coast of Kolaka Regency, namely: (a) low learning outcomes and student activities and (b) low active participation of students. The research results show that the causes of low learning outcomes, both daily tests and mid-semester exams, are caused by internal and external factors. Regarding internal factors, there are many identified by this research, namely children's interests, talents, motivation, and concentration. External factors were also found to influence the low learning outcomes and student activities, namely, how to educate parents who tend to restrain children and relations between families that are less than harmonious. Regarding the low level of student participation, the research found three general things, namely

1. Students cannot formulate their ideas,
2. Students lack the courage to convey opinions to other people, and
3. Students are less accustomed to expressing their opinions, both to teachers and classmates.

The research results also show that teachers need more creativity in designing learning. This includes teachers who still seem to adhere to the teacher-centred ideology. This statement is supported by research data, which shows that only 25% of 20 students have completed classical learning. Through lesson study, these problems can be overcome with classical learning results reaching 100% completeness. Likewise, student learning activities have also increased. Students' active learning in research is characterized by students' courage to express opinions and carry out tasks given by the teacher. Apart from that, student activity is also indicated by their enthusiasm in answering the teacher's questions. Active learning in research is vital because it greatly influences the success of learning. Likewise, with learning interactions, teachers also show equality in learning. Quantitatively, the comparison of learning outcomes from lesson study phase I and lesson study phase II can be described in Table 7 and Table 8 below.

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Table 7. Comparison of Individual Learning Outcomes before, Lesson Study Stage I, and Lesson Study Stage II

Value Interval	Before Lesson Study	Lesson Study Stage I	Lesson study Stage II	Description
86-100	15%	55%	85%	There is an increase
76-85	10%	30%	15%	
65-75	15%	15%	0%	
55-64	60%	0%	0%	

Table 8. Comparison of Learning Outcomes of Lesson Study Groups Stage I and Stage II Lesson Study

Value Interval	Lesson Study Stage I	Lesson study Stage II	Description
86-100	0	4	There is an increase
76-85	2	1	
65-75	2	0	
55-64	1	0	

Table 7 and Table 8 show an increase in the quality of learning in a better direction. This shows that lesson study is able to increase the professionalism of teachers in the coastal areas of Kolaka Regency. Through the implementation of Lesson Study, teachers can also collaborate and change their orientation from teacher centre to student centre. Apart from that, teachers have also shown a change in the use of conventional learning models towards cooperative learning.

The results of observations on students show that this student centre is very beneficial for students because it can increase the intensity of their interactions, both among students and students with teachers. Apart from being beneficial for students, this student centre is also very beneficial for teachers, especially in terms of utilizing learning resources. Based on the results of interviews and observations, it was found that learning material only came from the teacher at the pilot school before implementing lesson study. However, after this student centre is implemented, learning materials can also be sourced from student experiences.

The student centre implemented by the teacher in implementing study lessons was found to be effective in building knowledge individually and in groups. Moreover, in its application, this student-centred teacher model combines it with cooperative learning so that learning becomes alive and students can learn it from various points of view. The paradigm change in the learning process from teacher-centred lesson study to student-centred learning shows better student participation than before. Students also appear to be more independent in learning, especially in the classroom. Not only that, changes in students' attitudes and behaviour were also found to be better than before implementing lesson study.

In detail, the results of observations in the classroom show that the student-centred learning approach shows that students are able to solve problems independently and in groups, answering questions correctly. In fact, students can formulate questions independently, discuss, or brainstorm during learning. Thus, student-centred learning is an approach that emphasizes optimal student activities to obtain learning outcomes that combine cognitive, affective and psychomotor aspects in a balanced manner.

IV. CONCLUSIONS

The professionalism of elementary school teachers on the coast in Kolaka Regency has been successfully developed through lesson study. Through lesson study activities, the fundamental problems experienced by teachers can be resolved, especially those related to low learning outcomes and student activities in learning. Through this research, a piloting lesson study school has been established in the coastal area, which is located at the State Elementary School 1 Dawi-Dawi, Pomalaa District, Kolaka Regency. Halu Oleo University, PT Aneka Tambang Industry, and the Kolaka Regency Government supported the piloting.

REFERENCES

Cajkler, W., & Wood, P. (2015). Mentors Student-Teachers “Lesson Studyng” Initial Teacher Education. *Internasional Journal for Lesson and Learning Studies*, 84–98. https://doi.org/https://sci-hub.se/10.1108/IJLLS-04-2015-0015.

Chang, M. C., Shaeffer, S., Al-Samarrai, S., B. Ragatz, A., de Ree, J., & Stevenson, R. (2015). *Teacher Reform in Indonesia*. The World Bank. https://openknowledge.worldbank.org/bitstream/handle/10986/16355/9780821398296.pdf?sequence=1&isAllowed=y.

Chassels, C., & Melville, W. (2009). Collaborative, Reflective and Iterative Japanese Lesson Study in an Initial Teacher Education Program: Benefits and Challenges. *Canadian Journal of Education*, *32*(4), 734–763.

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DOI: 10.55299/ijere.v3i1.798

//www.jstor.org/stable/canajeducrevucan.32.4.734.

Fernandez, M. ., & Robinson, M. (2006). Prospective Teachers Perspectives in Microteacing Lesson Study. *Education*, *127*(2), 203–215. https://web.a.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=00131172&AN=23761138&h=i%2BwSYMfhZEsZyK%2BzMENn%2BZ35Vsuj3DmH%2BAqEYPsOGcisD%2B1vf%2ByB32Y2kTpAY%2Bc7raw1qfK84ikDRkJ2CSy7rg%3D%3D&crl=c&resultNs=AdminWebAuth&r.

Lampley, S. (2015). *Exploring Pedagigical Content Knowledge of Biologi Graduate Teaching Assistans Through their Participation in Lesson Study (Disertation Proposal Submitted to the College of Graduate Teachubg Assistans Through their Participation in Lessin Study*. Middle Tenese State University.

Lewis, C. C. (2002a). Does Lesson Study Have a Future in the United States? *Nagoya Journal of Education and Human Development*, *1*(23), 1–23. https://doi.org/https://files.eric.ed.gov/fulltext/ED472163.pdf.

Lewis, C. C. (2002b). *Lesson Study: A Handbook of Teacher-led Instructional Change*. Research for Better Schools.

Lewis, C. C., Perry, R., & Murata, A. (2006). Should Research Contributed to Instructional Improvement? The Case of Lesson Study. *Education Research (ProQues Education Journal)*, *35*(3), 3–14. https://doi.org/https://doi.org/10.3102/0013189X035003003.

Lewis, C. C., & Tshucida, I. (1999). A Lesson is Like Switly Flowing River: How Research Lesson Improve Japanese Education. *SImproving School*, *2*(1), 50–52. https://doi.org/https://doi.org/10.1177/136548029900200117.

Lewis, C., & Tshucida, I. (1997). Planned Educational Change in Japan the Shift co Student-Centered Elementary Science. *Journal of Education Policy*, 313–331.

Myers, J. (2012). Lesson Study as a Means for Facilitation Preservice Teacher Reflectivity. *International Journal for the Scholarship of Teaching and Learning*, 1–21.

OECD. (2022). *PISA 2022 Results*. https://www.oecd.org/.

Owner, J. (1992). Lesson Study at Dhankaka Cluster Resource Center in Ethiopia. *NUE Journal of Internasional Educational Cooperation*, *4*(7), 55–66. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=owner%2C+lesson+study+dhankaka&btnG=.

Shulman, L. (1987). Knowledge and Teaching: Foundations of the New Reform. *Harvard Educational Review*, *57*(1), 1–23. https://doi.org/https://doi.org/10.17763/haer.57.1.j463w79r56455411.

Sims, L., & Walsh, D. (2009). Lesson Study with Preservice Teachers: Lesson from Lessons. *Teaching and Teacher Education*, *25*(5), 724–733. https://doi.org/https://doi.org/10.1016/j.tate.2008.10.005.

Stigler, J. W., & Hiebert, J. (1999). *The Teaching Gap: Best Ideas From the World's Teachers For Improving Education in the Classroom*. The Free Press.

Sulisworo, D., Nasir, R., & Ika, M. (2017). *Identification of teachers ' problems in Indonesia on facing global community*. *6*(2), 81–90. https://www.researchgate.net/profile/Dwi_Sulisworo/publication/305763396_Identification_of_teachers'_problems_in_Indonesia_on_facing_global_community/links/57c78b4d08ae28c01d4f8863.pdf.

Tambunan, H. (2018). The Dominant Factor of Teacher's Role as A Motivator of Students' Interest and Motivation in Mathematics Achievement. *International Education Studies*, *11*(4), 144–151. https://doi.org/10.5539/ies.v11n4p144

Tobias, J., Wales, J., & Syamsulhakim, E. (2014). *TOWARDS BETTER EDUCATION Indonesia ' s promising path* (Issue July). https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9066.pdf.

Wang-Inverson, P., & Yoshida, M. (2005). *Building our Understanding of Lesson Study* (P. Wang-Inverson & M. Yoshida (eds.)). Research for Better Schools. https://www.worldcat.org.

Wenger, E. (2004). Communities of Practice: Learning, Meaning, and Identity. *International Journal for Lesson and Learning Studies*, 200. https://books.google.co.id/books?id=heBZpgYUKdAC&printsec=frontcover&dq=Communities+of+Practice:+Learning,+Meaning,+and+Identity&hl=en&sa=X&ved=0ahUKEwiM2ZOgl6vlAhXF7HMBHfnXCmsQ6AEIKTAA#v=onepage&q=Communities of Practice%3A Learning%2C Meaning%2C and Ide.

Windiarto, T., Yusuf, A. H., Nugroho, S., Latifah, S., Solih, R., Hermawati, F., Purbasari, L. A., & Rahmawatiningsih, A. (2018). *Profile of Indonesian Children*. https://doi.org/https://www.kemenpppa.go.id/lib/uploads/list/74d38-buku-pai-2018.pdf.

Wood, K. (2018). The Many Faces of Lesson Study and Learning Study. *International Journal for Lesson and Learning Studies*, 2–7. https://doi.org/https://doi.org/10.1108/IJLLS-10-2017-0047.