Teaching Collaborations in Elementary Schools: Teacher's Understanding, Strategies, and Obstacles

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Abstract

Collaborative skills are becoming mandatory in the 21st century. There have been many studies that show the effectiveness of the collaborative learning (CL) approach on students' collaboration and interaction abilities. In Indonesia, through the implementation of 2013 curriculum, group learning is encouraged. This study aims to describe the implementation of collaborative learning by describing the teachers' understanding of collaborative skills and collaborative learning models, the strategies teachers use to teach collaborative skills, and the constraints that prevent teachers from using collaborative learning models. This qualitative research involved 13 elementary school teachers in the Special Region of Yogyakarta Province. Data collection was carried out through in-depth interviews. Data were analyzed using the Bogdan and Biklen models. The results show that 1) the teachers' understanding of collaborative skills still needs to be improved, especially in the collaboration aspect, 2) the teachers' knowledge about collaborative learning models is still lacking, 3) the obstacles that cause teachers not to use CL are teachers' lack of knowledge, teachers' lack of motivation to improve their knowledge, teachers' hesitance to try new learning models, and teachers' concerns that it will be difficult for students to use CL. Therefore, the teachers need to increase their understanding and open themselves to new learning models. This can be a concern for principals and teacher education managers to provide intensive education and training related to collaborative learning approach.

Keywords: *collaborative learning, teachers' understanding, elementary schools.*

Abstrak

Keterampilan kolaboratif menjadi keterampilan wajib di abad ke-21. Telah banyak penelitian yang menunjukkan efektivitas pendekatan pembelajaran kolaboratif terhadap kemampuan kolaborasi dan interaksi siswa. Di Indonesia, melalui penerapan kurikulum 2013, pembelajaran kelompok digalakkan. Penelitian ini bertujuan untuk mendeskripsikan pelaksanaan pembelajaran kolaboratif dengan mendeskripsikan pemahaman guru tentang keterampilan kolaboratif dan model pembelajaran kolaboratif, strategi yang digunakan guru untuk mengajarkan keterampilan kolaboratif, dan kendala yang menghalangi guru menggunakan model pembelajaran kolaboratif. Penelitian kualitatif ini melibatkan 13 guru SD di Daerah Istimewa Yogyakarta. Pengumpulan data dilakukan melalui wawancara mendalam. Data dianalisis menggunakan model Bogdan dan Biklen. Hasil penelitian menunjukkan bahwa 1) pemahaman guru tentang keterampilan kolaboratif masih perlu ditingkatkan terutama pada aspek kolaborasi, 2) pengetahuan guru tentang model pembelajaran kolaboratif masih kurang, 3) kendala yang menyebabkan guru tidak menggunakan pembelajaran kolaboratif adalah kurangnya pengetahuan guru, kurangnya motivasi guru untuk meningkatkan pengetahuannya, keengganan guru untuk mencoba model pembelajaran baru, dan kekhawatiran guru akan kesulitan siswa dalam menggunakan pembelajaran kolaboratif. Oleh karena itu, guru perlu meningkatkan pemahaman dan membuka diri terhadap model pembelajaran baru. Hal ini dapat menjadi perhatian bagi kepala sekolah dan pengelola pendidikan guru untuk memberikan pendidikan dan pelatihan secara intensif terkait dengan pendekatan pembelajaran kolaboratif.

Kata kunci: *pembelajaran kolaborasi, pemahaman guru, sekolah dasar.*

INTRODUCTION

Various social, technological, and economic developments in the 21st century require schools to adjust their learning so that they are able to equip students with modern thinking skills, problem-solving, collaboration, and communication to succeed in the world of work and life in the future (Binkley et.al, 2012). In this 21st century, where everything has become completely international, multicultural, and interconnected (Suto & Eccles, 2014), collaboration skills become a mandatory requirement that students need to possess to compete with the global community. Together with problem-solving skills, ICT, critical thinking, innovative, creative, and communication skills, collaborative skills are one of the most important abilities in the 21st century (Huang et al., 2010; Suto, 2013). Collaborative ability is often interpreted as the ability to work together (Care, Scoular, & Awwal, 2016).

Currently, the younger generation is considered not well prepared if they have not been trained to work on solving problems collaboratively (Kuhn, 2015). Therefore, the government and educational institutions need to design an education system that can train students to have abilities that can be used in the world of work. Therefore it is important for schools to teach students how to work well together. It is important to introduce collaboration skills to students from an early age. Collaboration can train students to be active in groups, explain their actions

and their reasons for doing them, and be able to consider the views of other people or other members (Hunter, 2006). This is why collaboration is important as a student's individual skill. In addition, collaboration in the learning process can expand opportunities for students to explore the sources of knowledge.

The collaboration was previously seen as a means to improve student learning outcomes; but recently, collaboration has also been identified as a result of education itself (Kuhn, 2015). Therefore collaboration must be taught to every student at every level of education. So far, many teachers think that collaboration is an ability that every child already owns. However, it might be wrong to assume that every student must already have this ability, since even socially skilled children may still need to practice to work effectively with others (Ladd et al., 2013).

At this time, the focus of education is no longer only on the content or learning material but on how the content of the learning is conveyed, so that it actually improves student learning outcomes. Efforts that can be made to improve the quality of learning are to ensure that the contents of the learning program are complete, ensure the quality of the teaching force, and design complex assessments (Rotherham & Willingham, 2009). In several countries, another way that is also done is by updating the curriculum, as happened in Korea (So & Kang, 2014), China (Sargent, 2011), and Indonesia. In Indonesia, the latest curriculum used is the 2013 curriculum. In the 2013 curriculum, group learning activities are carried out at almost every meeting. However this requires continued effort by teachers in schools as the directors of learning.

Pingge (2016) states that the ability of teachers to identify learning problems and create a learning atmosphere in the classroom affects student learning outcomes. Therefore, teachers need to understand the things that need to be prepared for fostering collaboration. Before carrying out learning, the teacher must determine the learning objectives and indicators that students need to achieve. Individuals should be adept in terms of these indicators so that they can carry out effective collaboration. There have been many studies explaining the aspects of collaboration, but not all of them are intended for primary education stage. One of the studies that discuss aspects of collaboration for elementary school students is Child & Shaw (2016). In Child & Shaw (2016), the six basic aspects of collaboration include positive interdependence, sharing ideas or solutions, negotiation or conflict management, sharing of knowledge or abilities, tasks division, and communication.

In addition, there are two important factors that teachers need to notice to encourage student cooperation, namely assignments and group structures (Child & Shaw, 2016; Gillies,

2016). These two factors have been widely discussed in various research. The results of research by Lou et.al (1996) found that elementary school students achieve better learning outcomes when working in groups of 3-4 students compared to 5-7 students. While the characteristics of tasks that can encourage collaboration are complex tasks, where the problem of the task is not predictable, open, does not only have one solution, encourages students to interact, the role of individuals in groups is not determined or limited by the teacher, and utilizes technology (Child & Shaw, 2016). Tasks that are too simple can reduce students' motivation to interact with one another or cause work to be dominated only by certain students. Another role of teachers that should not be forsaken is encouraging quality interactions between students (Gillies, 2016). Students still have difficulty having quality dialogue without being instructed by the teacher. Teachers can give examples to students and train students to engage in the dialogue well, express opinions, ask challenging questions, analyze and solve problems, argue, and affirm ideas. Teachers should understand these as the basis for implementing collaborative learning in schools.

In addition, as a result of the development of technology and education, various ways of teaching emerge. The teachers must be willing to learn them to give a significant impact on student learning. The choice of learning models and approaches is important for student learning success. The strategy that teachers can use to improve student collaboration skills is a collaborative learning model. Collaborative learning is a teaching and learning approach that involves several groups of students working together to solve a problem, complete a task, and produce a product (Laal & Laal, 2012). There have been many studies that prove the effectiveness of modern collaborative learning in improving students' cognitive and social abilities (Johnson, Johnson, & Smith, 2007). Although several studies show that the implementation of collaborative learning in the classroom is not always sufficient to increase collaboration (Le, Janssen, & Wubbels, 2018), studies have shown that collaborative learning provides more benefits than competitive and individualistic approaches, including increasing productivity, achieving higher results, increasing awareness, supportive attitudes, commitment, improving psychological health, increasing social skills and self-esteem (Laal & Ghodsi, 2012).

In its implementation, collaborative learning is often equated with asking students to form groups to complete assignments. The fact, fostering collaboration skills is not that simple; placing students in groups does not guarantee the achievement of good student cooperation (Gillies, 2016; Jolliffe, 2007). Instructions and physical arrangements can only allow students to collaborate, not guarantee collaboration (Lai, 2011). The teacher's

understanding about collaboration greatly determines the implementation of learning. This includes what students need to learn and how they learn it. Therefore, in order for collaboration skills can develop optimally, teachers need to have proper understanding and a good learning plan.

There have been many previous studies that provide insights into the factors that influence the use of collaborative learning at various levels of education and countries. Kaendler, Wiedmann, Rummel, & Spada (2015) in their research describe the abilities teachers need to have to carry out effective collaborative learning based on 5 important competencies, namely planning, monitoring, supporting, consolidating, and reflecting. It is stated in the research that the planning stage involves the teacher's knowledge and beliefs. In this study, a sketch of teaching can be used by the teacher to arrange collaborative learning in his school. Meanwhile, research by Ruys, Van Keer, & Aelterman (2011) found that student teachers who frequently practiced collaborative learning increased their teaching skills and confidence in teaching. This indicates that the more often students use collaborative learning, the more proficient they will be. Almost similar to those two, Weinberger & Shonfeld (2020) examined the factors that influence students to use collaborative learning models in their future learning. The results of the study found that what influenced students the most was their knowledge of the strengths and weaknesses of collaborative learning and their former experiences. Then, Clinton & Wilson (2019) research examines the comparison of college students' attitudes towards classrooms and collaborative learning between classes with facilities that support active learning and classes with traditional learning facilities. The results showed that the classroom arrangement that supports active learning increases student involvement in collaborative learning. Meanwhile, (Mullins, Rummel, & Spada (2011) examined the difference in the effectiveness of collaborative learning on two different types of knowledge in secondary schools. The results showed that in the practice of learning mathematics, collaborative learning has a positive impact on the acquisition of concept knowledge but not on the acquisition of procedural knowledge. From the above studies, it is found that the success of collaborative learning is strongly influenced by various factors such as teachers, facilities, and learning contents. However, there is still little research that describes teachers' understanding that has been mentioned as an important factor in collaborative learning. This study will focus on factors originating from the teacher, especially their understanding of collaborative learning. This is followed by an overview of collaborative learning at school and the obstacles related to collaborative learning from the

teacher's point of views. The results of this research may be useful to add to the description of the implementation of collaborative learning in elementary schools.

METHODS

This research is qualitative research using a phenomenological approach. This study aims to describe the collaborative learning strategies carried out by teachers in elementary schools and its obstacles. This study involved 13 grade 4 elementary school teachers (8 female teachers and 5 male teachers). The teachers are from each region in the Yogyakarta Special Region Province, which consists of four districts, namely Sleman, Kulonprogo, Gunung Kidul, Bantul, and one Yogyakarta Municipality. The samples were selected through purposive random sampling. The teachers taught at schools that have used the 2013 curriculum. They have at least an undergaduate degree. In collecting the data, the researcher told them that the data obtained would only be used for research. The data would be confidential and would not affect their future career. The main instrument in this study is the researcher himself.

Data were collected through interviews using audio recordings and notes. Individual interviews were conducted through in-depth interviews to obtain information from each teacher. To gain the valid data, researchers first triangulate the data. In this study, the interview guidelines that have been used are (1) teacher's understanding of collaboration ability, (2) teacher's undertanding of collaboration learning approach, (3) learning strategies that have been used, (4) the constraints of collaborative learning.

The data in this study were analyzed using the qualitative data analysis technique proposed by Bogdan & Biklen (2007) by reducing the data, grouping the data into themes and sub-themes, then drawing the conclusions as a result. The data from notes and audio recordings were reduced and then grouped according to similar themes. The next step was to determine the relationship between the sub-themes to gain conclusions and understanding related to collaboration learning which includes teachers' understanding, strategies to teach collaboration, and the obstacles in elementary schools in the Province of Yogyakarta Special Region.

RESULTS AND DISCUSSION

In this study, there are three themes found including 1) teacher understanding of collaboration ability, 2) learning strategies 3) obstacles in collaboration learning. Each theme is presented as follows.

Teacher's Understanding of Collaborative Ability

Before discussing the implementation of learning, it is important to know the extent of the teacher's understanding of the collaborative ability itself. The following is a table of data reduction from teacher answers regarding their understanding of collaboration skills.

Table 1. Teachers' Understanding of Collaboration Ability

No.	Sub-theme	The Correlation between sub-themes
1.	Teachers understand collaboration skills as the ability to work together with other individuals to solve problems.	Teachers realize that collaboration skills are important to be taught to students since early. They understand it as the ability that related to work together to solve problem, but teachers' understanding of collaboration skills still needs to be developed.
2.	Teachers understand collaboration skills as abilities related to the ability to argue, ask, and consider ideas.	
3.	The teacher realizes that collaboration skills are very important to be taught to students from an early age and it is the teacher's duty to teach it.	
4.	Some teachers unable to explain in detail the aspects of collaboration.	

Table 1 shows that all teachers agree that collaboration skills are important and needs to be introduced to students from an early age. They realize that it is the teacher's job to help students develop collaboration skills. They know that this skill need to be trained through activities at school.

From the interview, it is known that teachers understand that the essence of collaboration skills is the ability to work together in a team. But most of them cannot explain it well. On the interview, only 5 teachers were able to clearly convey their understanding of collaboration. They can explain that collaboration is ability to work on a team to solve problems together. Meanwhile, 8 other teachers had difficulty explaining it. They tend to immediately mention activities such as discussions or activities related to team projects. Overall, the teachers actualy understand the essence of collaboration and the general goals of collaborative learning, but cannot explain them theoretically. This could be due to their lack of knowledge.

Further interviews showed that 3 teachers were still confused about the collaboration aspects. This is indicated by the difficulty of the teachers in explaining the aspects of collaboration that students need to master after the learning is carried out. They mentioned several unrelated indicators such as punctuality and honesty. Meanwhile, 10 teachers understood some aspects of collaboration, but again they couldn't explain them clearly. The aspect mentioned most often was "active", which is too broad. After further interviews, what they mean is that students contribute to completing assignments, have the courage to argue,

are willing to listen to other people's opinions and respect them, share responsibility, and leadership. They have to specify it, especially for the assessment. It is important for teachers to determine the aspects of collaboration that primary school students need to master in every lesson. This must be determined before collaborative learning takes place because this aspect will influence the teacher in planning and assessing learning (Child & Shaw, 2016).

Learning Strategy

The implementation of collaborative learning is very interesting to always be studied and developed because it has a great influence on student development. Table 2 presents the results of teacher interviews regarding teachers' knowledge of collaborative learning and the strategies they use to teach collaboration so far. Based on the results of the interview, it was found that the strategies they used in several elementary schools were almost the same. The following is a reduction in the results of the interview.

Table 2. Learning Srategy

No.	Sub-theme	The Correlation between sub-themes
1.	The teacher teaches collaboration with traditional group discussion and student project activities.	Teacher rarely and never even use the collaborative learning approach but always use traditional discussion groups and student project due to a lack of understanding and awareness to improve their teaching.
2.	Group composition is determined by the teacher.	
3.	The assignment follows on the student book.	
4.	The teacher are unfamiliar with collaborative learning approach.	
5	Teachers rarely and never even use innovatif collaborative learning models.	
6.	For teachers, the learning model used is enough to train student collaboration.	

From the interview, it was known that most teachers were unfamiliar with innovative collaborative learning models. There were only 3 teachers who knew about collaborative learning. However, they stated that they rarely used innovative collaborative learning models. One of three teachers stated that she only applied the innovative learning model once each semester because of the difficulty. Meanwhile, 10 teachers stated that they had never heard of collaboration learning models. This is surprising given that collaborative learning has become so well known in educational practice. They stated that so far the learning model they were familiar with to teach collaboration was only group discussions and ordinary group projects. Instead, they first heard about various models of collaborative learning from the interviewers.

From the results of the interviews, it was known that 13 teachers almost always used group discussions and projects in accordance with the teacher's book (teacher manual).

Although the teachers also accepted that the emerging innovative learning models may provide higher learning outcomes, they stated that these two models were sufficient to teach students to collaborate. Assignments or projects given were assignments from student books. The teachers stated that they did not compose the assignment themselves because the level of difficulty of assignments in the student books was already suitable. Actually, the traditional learning model is not always wrong to use, but as Ajaja & Eravwoke (2010) found, it cannot provide more results than the collaborative learning model.

In the interview, all teachers explained that before the discussion was carried out they determined the group composition. Each group consists of students with high-ability, medium-ability, and low-ability. The teachers believe that the heterogeneous group arrangement as described will help students with lower abilities to be able to participate in discussion activities and understand the material well. The teacher hopes that in this way students with high-ability will be responsible for helping their group members. As found by Altun (2015) and Gillies & Boyle (2010), students with high abilities will try to give the best possible explanation to students with low abilities, so that low ability students can get in-depth explanations from high ability students. However, it also needs to be remembered by the teacher, sometimes the bond between students provides more support for working together so that if the group becomes too heterogeneous it will reduces collaboration. As found by Chiriac & Granstrom (2012), students stated that they felt more compelled to cooperate if the group composition was not too heterogeneous so that there were still students who had the same interests.

In addition, the number of group members is also considered by the teacher. As found by Donohue & Richards (2009), the size and composition of the groups were also factors that encourage students to be involved in group learning activities. Teachers stated that the usual group size was between 3-5 students. The teachers believed that too many group members would allow students to be a 'free-rider'. This is in line with what was found by Chiriac & Granstrom (2012), according to the students, the ideal number in one group is 3 people and it will be difficult if there are members who hate each other in one group.

Seeing the results of the interview, the actual strategy used by the teacher is not wrong, but putting students in groups cannot guarantee students will collaborate so teachers are expected to be willing to use learning models that can optimize the development of collaboration ability. Teacher ignorance of collaborative learning will certainly affect the implementation of learning which in turn will affect student learning outcomes. As found in Adediwura & Tayo (2007), the teacher's teaching skills are recognized by students and affect

their academic achievement. Therefore, teachers should gradually change their learning approach. Even so, teachers should not immediately change their learning approach but the most important aspect is to focus on using learning innovations wisely (Ahmad & Mahmood, 2010) to produce quality learning.

Obstacles of Collaborative Learning

Until now, the practice of collaborative learning in elementary schools still faces several obstacles. Presented in table 3 below is the teacher's explanation regarding some of the obstacles that caused teachers to be reluctant and even avoid using a collaborative learning model.

Table 3. Obstacles of Collaboration Learning

No.	Sub-theme	The Correlation between sub-themes
1.	CL considered as difficult and requires more time and effort.	
2.	Teachers's knowledge of collaborative learning is very limited.	
3.	Teachers' reluctance to improve their knowledge and experience.	The obstacles that prevent teachers from using collaboration models mostly stem from internal factors related to teacher willingness and knowledge and from student passivity.
4.	The teacher feels more comfortable using the usual group discussion approach.	
6.	The teacher's belief that students will find it difficult to use collaborative learning models	
7.	Student passivity.	

In the interview, the teachers explained the obstacles that caused them not to use collaborative learning models. Some of the obstacles are: the teachers are lack of knowledge about collaborative learning; the teachers are reluctance to update knowledge and experience; the teachers think that the collaborative learning models are difficult to apply; the teachers feel more comfortable using the learning models that are commonly used; the teachers are worried that students will find difficulty in using the collaborative learning models.

The first obstacle is the teacher's lack of knowledge of collaborative learning. As found by Hennessey & Dionigi (2013), the qualified teacher knowledge can affect the implementation of learning more effectively. However from the interview, only 3 teachers had heard of collaborative learning models while 10 teachers have no idea about collaborative learrning models. Even the 3 teachers stated that they had not really mastered the model and felt that it would be difficult to use it because it required more time and preparation. The teachers' minimum knowledge and experience in the collaborative learning approach causes

them not to change the approach that has been used so far. This problem is also found by Ghaith (2018) but in a different learning model, that teachers' knowledge about the procedures also becomes a constraint in implementing cooperative learning.

However, although the teachers realizes that their knowledge of collaborative learning are limited, from the interview, it was found that the teachers expressed less interest to learn it. They stated that it was impossible for the teacher to always study theories, models, and learning approaches before implementing it because of the large amount of teacher workload. This was also discovered by Retnawati, Munadi, Arlinwibowo, Wulandari, & Sulistyaningsih (2017) that the teacher's low enthusiasm for learning became an obstacle to change their understanding of the implementation of the new learning in curriculum 2013.

The next obstacle is that the teachers believe that the learning approach commonly used is sufficient to train student collaboration. 13 teachers stated that the simple discussions carried out had been able to teach collaboration to students. In fact, Asale (2017) found that teachers lack the interest to apply effective active learning model can lead students to be a passive listener. Teachers must be willing to open their minds to learn collaborative learning models and apply them in the classroom, because a learning model will be useful if there is a willingness of the teacher to use it (Jaelani, 2015).

Another problem teachers mentioned is the difficulty of teachers in encouraging passive students to participate. 8 teachers stated that the students were still afraid and embarrassed to express their opinions to others. It took a long time for students to finally want to express their opinion. Thus, the teachers must provide continuous instructions so that they contribute. The passiveness of students in elementary schools can be a problem that will continue to be encountered until the next level if not solved. As proven by Lakew (2016), that students' passiveness still becomes an obstacle for teachers to implement active learning even in college (Asale, 2017).

The last obstacle presented by the teachers was the assumption of the teachers that the new collaborative learning model was too difficult for their students. 7 teachers said that with the students' abilities and attitudes during learning, the collaborative learning model seemed too complex. Teachers were worried that students would find it difficult and learning objectives could not be achieved. Teachers are required to ensure that students get all the material that has been arranged in the curriculum. But implementing collaborative learning takes more time and teachers don't want to take risks. In addition, because students still do not understand the learning model, teachers need to prepare time to provide more instructions during the learning process. This is also found in Masrita, (2017). This obstacle was also

conveyed by (Buchs, Filippou, Pulfrey, & Volpé, 2017) about elementary school teachers' challenge in implementing cooperative learning. The more the difficulty to use cooperative learning in the curriculum and find the right time, the less they implement it on learning.

This study shows that most of the obstacles that prevent teachers from using collaborative learning models stem from factors related to teachers, namely knowledge and willingness. Realizing this, the ability of teachers to use innovative learning models, especially collaborative learning, needs to be of concern to schools, department of education, and teacher education institutions. Teachers educators need to add teaching about collaborative learning strategies and use them more often in the classroom so that prospective teachers can gain experience as a provision for teaching later (Ruys, van Keer, & Aelterman, 2010; Weinberger & Shonfeld, 2020). In addition, another solution that can be done is by holding lesson studies for teachers (Chong & Kong, 2012). Lesson studies can increase teacher self-efficacy, where many studies show that self-efficacy can influence the teachers' conception and adjustment of innovation and learning technology. If teachers have a better understanding of collaborative approaches, more likely they will use the strategies frequently.

CONCLUSION

The conclusion obtained based on the discussion above is that teachers' understanding of collaboration skills still needs to be improved. Actually, the teachers already know the essence of collaborative skills, but they still have difficulty explaining it theoretically, especially regarding the collaboration aspect. In schools, the collaborative learning model is still rarely used because many teachers are still unfamiliar with this learning model, so they choose to use simple discussions and group projects. This is due to several obstacles presented by the teacher, including the teachers' unfamiliarity of the collaborative learning model, the teacher's lack of motivation to learn and practice using the collaborative learning model, and the teacher's concern about the ability of students to adapt to collaborative learning model. The roles of school principals, education offices, and teacher education institutions are urgently needed in overcoming this.

REFERENCES

Adediwura, A. A., & Tayo, B. (2007). Perception of Teachers' Knowledge, Attitude and Teaching Skills as Predictor of Academic Performance in Nigerian Secondary Schools. *Educational Research and Reviews*, *2*(7), 165–171.

Ahmad, Z., & Mahmood, N. (2010). Effects of Cooperative Learning vs. Traditional Instruction on Prospective Teachers' Learning Experience and Achievement. *Journal of Faculty of Educational Sciences*, *43*(1), 151–164.

Ajaja, O., & Eravwoke, O. (2010). Effects of cooperative learning strategy on junior secondary school students achievement in integrated science. *Electronic Journal of Science Education*, *14*(1).

Altun, S. (2015). The effect of cooperative learning on students' achievement and views on the science and technology course. *International Electronic Journal of Elementary Education*.

Asale, T. S. (2017). Factors Affecting Implementation Of Student Centered Method In Mathematics Classes : The Case Of Otona Secondary School Grade 10 , Wolayta Zone , Snnpr Region. *International Educational Scientific Research Journal*, *3*(8), 62–78.

Binkley, M., Erstad, O., Herman, J. Raizen, S., Ripley, M. (2012). Defining 21st Century Skills. In *Assessment and Teaching of 21st Century Skills* (pp. 17–66). Dordrecht: Springer.

Bogdan, R., Biklen, S. k, 2007. Qualitative Research for Education: An Introduction to Theory and Methods. Pearson/Allyn and Bacon

Buchs, C., Filippou, D., Pulfrey, C., & Volpé, Y. (2017). Challenges for cooperative learning implementation: reports from elementary school teachers. *Journal of Education for Teaching*, *43*(3), 296–306. https://doi.org/10.1080/02607476.2017.1321673

Care, E., Scoular, C., & Awwal, N. (2016). Assessing collaborative skills through games. *Proceedings of the European Conference on Games-Based Learning*, *2016-Oktoo*(1999), 118–122. Academic Conferences International Limited.

Child, S., & Shaw, S. (2016). Collaboration in the 21st century: Implications for assessment. *Research Matters: A Cambridge Assessment Publication*, (22), 17–22. Retrieved from http://www.cambridgeassessment.org.uk/research-matters/

Chiriac, E. H., & Granstrom, K. (2012). Teachers leadership and students experience of group work. *Teachers and Teaching: Theory and Practice*, *18*(3), 345–363. https://doi.org/10.1080/13540602.2012.629842

Chong, W. H., & Kong, C. A. (2012). Teacher collaborative learning and teacher self-efficacy: The case of lesson study. *The Journal of Experimental Education*, *80*(3), 263–283. https://doi.org/10.1080/00220973.2011.596854

Clinton, V., & Wilson, N. (2019). More than chalkboards: classroom spaces and collaborative learning attitudes. *Learning Environments Research*, *22*(3). https://doi.org/10.1007/s10984-019-09287-w

Donohue, S. K., & Richards, L. G. (2009). Factors affecting student attitudes toward active learning activities in a graduate engineering statistics course. *39th IEEE Frontiers in Education Conference*, 1–6. https://doi.org/10.1109/FIE.2009.5350587

Ghaith, G. M. (2018). Teacher perceptions of the challenges of implementing concrete and conceptual cooperative learning. *Issues in Educational Research*, *28*(2), 385–404

Gillies, R. M. (2016). Cooperative learning: Review of research and practice. *Australian Journal of Teacher Education*, *41*(3), 39–54. https://doi.org/10.14221/ajte.2016v41n3.3

Gillies, R. M., & Boyle, M. (2010). Teachers' reflections on cooperative learning: Issues of implementation. *Teaching and Teacher Education*, *26*(4), 933–940. https://doi.org/10.1016/j.tate.2009.10.034

Hennessey, A., & Dionigi, R. A. (2013). Implementing cooperative learning in Australian primary schools: Generalist teachers' perspectives. *Issues in Educational Research*, *23*(1), 52.

Huang, D., Leon, S., Hodson, C., La, D., Obregon, T. N., & Rivera, G. (2010). Cresst Report 777. *National Center for Research on Evaluation, Standards, and Student Testing (CRESST)*.

Hunter, D. (2006). Assessing collaborative learning. *British Journal of Music Education*, *23*(1), 75–89. https://doi.org/10.1017/s0265051705006753

Jaelani, A. (2015). Pembelajaran Kooperatif, Sebagai Salah Satu Model Pembelajaran Di Madrasah Ibtidaiyya (Mi). *Al Ibtida: Jurnal Pendidikan Guru MI*, *2*(1), 1–16. https://doi.org/10.24235/al.ibtida.snj.v2i1.189

Johnson, D. W., Johnson, R. T., & Smith, K. (2007). The state of cooperative learning in postsecondary and professional settings. *Educational Psychology Review*, *19*(1), 15–29. https://doi.org/10.1007/s10648-006-9038-8

Jolliffe, W. (2007). Cooperative Learning in the Classroom: Putting It Into Practice. In *Teacher Librarian*. SAGE.

Kaendler, C., Wiedmann, M., Rummel, N., & Spada, H. (2015). Teacher competencies for the implementation of collaborative learning in the classroom: A framework and research review. *Educational Psychology Review*, *27*(3), 505–536. https://doi.org/10.1007/s10648-014-9288-9

Kuhn, D. (2015). Thinking Together and Alone. *Educational Researcher*, *44*(1), 46–53. https://doi.org/10.3102/0013189X15569530

Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. *Procedia - Social and Behavioral Sciences*, *31*, 486–490. https://doi.org/10.1016/j.sbspro.2011.12.091

Laal, M., & Laal, M. (2012). Collaborative learning: What is it? *Procedia - Social and Behavioral Sciences*, 491–495. https://doi.org/10.1016/j.sbspro.2011.12.092

Ladd, G. W., Kochenderfer-Ladd, B., Visconti, K. J., Ettekal, I., Sechler, C. M., & Cortes, K. I. (2013). Grade-School Children's Social Collaborative Skills: Links With Partner Preference and Achievement. *American Educational Research Journal*, *51*(1), 152–183. https://doi.org/10.3102/0002831213507327

Lai, E. R. (2011). Collaboration : A Literature Review Research Report. In *Research Reports*. https://doi.org/10.2307/3069464

Lakew, S. (2016). Factors that hinders the application of active learning methods in teaching sports science students in the case of Debre Markos University sport science department. *International Journal of Research and Review*, *3*(5), 58–68.

Le, H., Janssen, J., & Wubbels, T. (2018). Collaborative learning practices: teacher and student perceived obstacles to effective student collaboration. *Cambridge Journal of Education*, *48*(1), 103–122. https://doi.org/10.1080/0305764X.2016.1259389

Lou, Y., Abrami, P. C., Spence, J. C., Poulsen, C., Chambers, B., & d'Apollonia, S. (1996). Within-class grouping: A meta-analysis. *Review of educational research*, *66*(4), 423-458.

Masrita, M. (2017). Meningkatkan Hasil Belajar PKn Siswa Kelas IV Melalui Pembelajaran Kooperatif Model Make A Match di SDN 15 Batipuh, Kabupaten Tanah Datar, Sumatera Barat. *Al Ibtida: Jurnal Pendidikan Guru MI*, *4*(2), 179–188.

https://doi.org/10.24235/al.ibtida.snj.v4i2.1526

Mullins, D., Rummel, N., & Spada, H. (2011). Are two heads always better than one? Differential effects of collaboration on students' computer-supported learning in mathematics. *International Journal of Computer-Supported Collaborative Learning*, *6*(3). https://doi.org/10.1007/s11412-011-9122-z

Pingge, H. D. (2016). Faktor yang Mempengaruhi Hasil Belajar Siswa Sekolah Menengah Atas di Kecamatan Kota Tambolaka. *Jurnal Faktor Hasil Belajar*, *6*(2), 166–176. Retrieved from https://journal.uny.ac.id/index.php/jpe/article/view/14288/pdf

Retnawati, H., Munadi, S., Arlinwibowo, J., Wulandari, N. F., & Sulistyaningsih, E. (2017). Teachers' difficulties in implementing thematic teaching and learning in elementary schools. *New Educational Review*, *48*(2), 201–212. https://doi.org/10.15804/tner.2017.48.2.16

Rotherham, A. J., & Willingham, D. (2009). 21st century skills: The challenges ahead. *Educational Leadership*, *67*(1), 16–21.

Ruys, I., van Keer, H., & Aelterman, A. (2010). Collaborative learning in pre-service teacher education: An exploratory study on related conceptions, self-efficacy and implementation. *Educational Studies*, *36*(5), 537–553. https://doi.org/10.1080/03055691003729021

Ruys, I., Van Keer, H., & Aelterman, A. (2011). Student teachers' skills in the implementation of collaborative learning: A multilevel approach. *Teaching and Teacher Education*, *27*(7). https://doi.org/10.1016/j.tate.2011.05.005

Sargent, T. (2011). New curriculum reform implementation and the transformation of educational beliefs, practices, and structures in Gansu Province. *Chinese Education and Society*, *44*(6), 47–72. https://doi.org/10.2753/CED1061-1932440604

So, K., & Kang, J. (2014). Curriculum Reform in Korea: Issues and Challenges for Twenty-first Century Learning. *Asia-Pacific Education Researcher*, *23*(4), 795–803. https://doi.org/10.1007/s40299-013-0161-2

Suto, I. (2013). 21st Century skills : Ancient , ubiquitous , enigmatic ? *Research Matters: A Cambridge Assessment Publication*, (15), 2–8.

Suto, I., & Eccles, H. (2014). The Cambridge approach to 21 st Century skills: definitions, development, and dilemmas for assessment. *IAEA Conference*, 1–10. Retrieved from http://www.cambridgeassessment.org.uk/Images/461811-the-cambridge-approach-to-21st-century-skills-definitions-development-and-dilemmas-for-assessment-.pdf

Weinberger, Y., & Shonfeld, M. (2020). Students' willingness to practice collaborative learning. *Teaching Education*, *31*(2). https://doi.org/10.1080/10476210.2018.1508280