Exploratory Study: How Students in Multicultural Environment Display Collaboration Skills through Jigsaw Model Implementation in Primary Years

Yushal Anggia Pitaloka[1], Grace Amialia Anfetonanda Neolaka[2]

[1,2]Primary School Teacher Education, Faculty of Humanity, President University, Indonesia
yushal.pitaloka@student.president.ac.id[1], graceneolaka@president.ac.id[2]

Keywords:	**ABSTRACT**
Multicultural education; Teaching method; Jigsaw model; Collaboration skills.	With the increasing globalization of society, classrooms environments are becoming more diverse, incorporating students from various cultural backgrounds. This diversity holds the potential for inclusive learning environments that embrace the differences among school members. However, such differences can give rise to communication problems, misunderstandings, divergent expectations, and lack of tolerance towards diversity. Prior studies have explored the effectiveness of collaborative learning in fostering collaboration and teamwork among students from diverse cultural backgrounds. Nevertheless, the specific discussion of collaboration skills among students in Indonesian multicultural schools remains unclear. Hence, this study aims to investigate how students in Indonesian multicultural schools exhibit their collaboration skills through the utilization of the jigsaw learning model. Qualitative methods, including classroom observation and semi-structured interviews, were employed to collect data for this study. The findings indicate that students in multicultural schools effectively overcome challenges stemming from cultural differences and demonstrate positive collaborative behaviors when implementing the jigsaw learning method. These behaviors include interactive communication, respect for differing opinions, resource sharing, group identification, and a focus on achieving shared goals. However, a minority of students encountered difficulties in sharing resources due to personal factors. The study concludes with recommendations for future research endeavors in this field.

————————— ◆ —————————

A. INTRODUCTION

As our society becomes increasingly globalized, classrooms are becoming more diverse, with students from various cultural backgrounds coming together. Multicultural education has become an essential component of modern education, with the goal of creating an inclusive learning environment in which students from diverse backgrounds feel valued, respected, and included. According to the official website of the Indonesian SPK School Association, Indonesia currently has 437 educational institutions that have been recognized with SPK status. These schools have a student population that is made up of people from various countries, confirming their position as top destinations for international students. The SPK status, short for *Satuan Pendidikan Kerjasama* (Cooperation Education Unit), is a governmental recognition issued upon Indonesian schools that collaborate with educational institutions abroad (Perkumpulan Sekolah SPK Indonesia, 2023).

The diversity of the student population in multicultural schools brings hope for an inclusive learning environment that can embrace differences among school members. However, these differences can sometimes involve problems with communication and misunderstandings, difference expectations among group members, as well as intolerance and a lack of understanding regarding diversity (Ors & Sogancilar, 2018). These challenges are particularly pertinent in the primary years, when children are at a crucial stage of social and cognitive development, laying the foundation for their future academic and personal success. Through intentional efforts to foster cultural inclusiveness, educational institutions and educators can create meaningful learning experiences that actively engage learners in positive and diverse cultural learning opportunities, promoting intercultural understanding and collaboration (De Leo, 2010).

Developing effective collaboration skills in a multicultural classroom is of utmost importance to support intercultural understanding and learning. Collaboration is a vital skill for students to cultivate as it involves combining knowledge, resources, and skills from various sources to work towards a common goal (Scoular et al., n.d.). In multicultural schools, collaboration between students should be able to creates inclusive spaces where all students' voices are valued and heard. Despite our initial response to difference is usually to avoid it (Bennett, n.d.) when students from diverse backgrounds collaborate, they bring different perspectives, knowledge, and skills, enriching the learning process. Within collaborative endeavours, students are placed to confront differences and face the challenge of acknowledging and engaging effectively with differences. Collaborative learning develops skills to tolerate or resolve differences, fosters consensus that respects the perspectives of all individuals in a group, and shows genuine concern for the well-being of others (Goodsell et al., 1992).

The implementation of the jigsaw model learning represents one of the effective collaborative approaches in the classroom. Jigsaw model learning was first introduced by Elliot Aronson in 1971. The jigsaw model has been widely utilized in educational settings and has demonstrated effectiveness in promoting intercultural understanding. In the jigsaw model, students are divided into small, culturally diverse groups, and each group member is assigned a specific topic to learn and teach to the group. This approach encourages students to collaborate, communicate effectively, and develop empathy towards their peers from different cultural backgrounds. In the jigsaw model, the class is divided into expert and learning groups. Expert groups study the same material, become experts on the topic, and prepare a summary graphic outlining the essential information of their unit. They then share this information with their peers in the learning groups, who may be assessed individually to ensure accountability (Aronson, Jigsaw Basic).

Several studies have investigated the effectiveness of the collaborative learning in promoting collaboration and teamwork specifically among students from different cultural background. Collaboration in learning fosters student relationships and promotes an engaging and caring environment for students in multicultural classrooms (Ferguson-Patrick, 2020). However, it remains unclear how students in Indonesian multicultural schools demonstrate their collaboration skills, specifically through the using of jigsaw learning model. Therefore, this study aims to explore how students in Indonesian multicultural schools display their collaboration skills through the jigsaw learning model. The research question guiding this study is: "What specific collaboration skills emerge among students in Indonesian multicultural schools when using the jigsaw learning model?" By identifying the specific collaboration skills emerged through implementation of this learning model, educators can gain insights into creating a collaborative learning environment that effectively supports intercultural understanding and learning success.

Ultimately, this research has the potential to enhance the effectiveness of multicultural education and foster more inclusive and harmonious communities.

B. METHODS

This study will use a qualitative research approach to explore how students in multicultural environments display their collaboration skills through the jigsaw learning model. The utilization of qualitative research provides researcher with a valuable means to delve into the thoughts and emotions of research participants. This approach facilitates the development of an in-depth comprehension of the significance individuals attribute to their lived experiences (Austin, 2015). Qualitative research will provide rich and in-depth insights into the specific collaboration skills that students demonstrate through the jigsaw model learning, and the factors from the jigsaw model learning that influence their collaboration.

1. Research Participants

This research involved 11 grade 1 elementary school students at Jakarta Multicultural School in classroom observation. The 11 students consist of 7 boys and 4 girls who have cultural backgrounds from 8 different countries: Indonesia, Malaysia, Singapore, Japan, United Kingdom, Russia, West Africa, and India. This research also involved the homeroom teacher and assistant teacher in grade 1 Jakarta Multicultural School. The details of the participants will be described as shown in Table 1.

Table 1. The data of the participants

Participants' Name (Pseudonyms)	Gender	Cultural Background
Homeroom Teacher (HT)	Female	Indonesia
Assistant Teacher (AT)	Female	Indonesia
Student 1 (S1)	Male	Indonesia
Student 2 (S2)	Male	India/Russia
Student 3 (S3)	Male	West Africa/Indonesia
Student 4 (S4)	Male	Indonesia
Student 5 (S5)	Female	Malaysia
Student 6 (S6)	Female	Indonesia
Student 7 (S7)	Female	Indonesia
Student 8 (S8)	Male	UK/Singapore
Student 9 (S9)	Male	Indonesia
Student 10 (S10)	Male	Russia
Student 11 (S11)	Female	Japan

2. Procedure

The Jigsaw model is used as a teaching strategy in this study to explore students' collaboration skills within multicultural classroom settings. The 11 students were divided into 3 groups of experts with a mix of gender and various cultural backgrounds in each of their groups. In this expert group which consists of 3 - 4 students, they are required to collaborate to complete the task assigned to their group. After that, they will be divided to join learning groups consisting of 3 - 4 students consisting of 1 - 2 students from each of the previous expert groups (Aronson, 2023.). Class observations were made while the jigsaw method was used to record student actions or attitudes related to collaboration skills along with the context when these actions or attitudes appeared. The division of the expert group is as shown in Table 2.

Table 2. Expert Group Division

Group A	Group B	Group C
S11	S2	S9
S1	S4	S3
S8	S5	S7
S4	S10	

The division of the expert group is as shown in the Table 3.

Table 3. Learning Group Division

Group 1	Group 2	Group 3
S11	S1	S6
S2	S3	S7
S9	S4	S8
	S5	S10

3. Data Collection

The data for this study was collected through qualitative methods, specifically classroom observation, and semi-structured interview. The present study implemented class observation of student learning activities using the jigsaw model as a primary research methodology. Observation is a systematic method for gathering data in the field of research. Researchers use their senses of sight, hearing, touch, taste, and smell to meticulously observe people in natural settings or under natural conditions (Muhammad & Kabir, 2016). The objective of this observation was to obtain a comprehensive understanding of student interactions and collaborations within the learning context, specifically focusing on the manifestation of specific collaboration skills facilitated by implementing the jigsaw learning model.

In addition to class observations, the research inquiry delved deeper into how the jigsaw model facilitated collaboration among students from diverse cultural backgrounds through semi-structured interview conducted with the homeroom teacher (HT) and assistant teacher (AT). Prior to conducting semi-structured interviews, researchers engage in a sequence of activities that include observation, and informal interactions. This preliminary phase aims to facilitate the researchers' comprehensive grasp of the subject matter under investigation, thereby enabling the formulation of pertinent and significant semi-structured questions. Through these preparatory steps, researchers acquire a deeper understanding of the topic of interest, ensuring the subsequent interviews are contextually grounded and yield valuable insights (Cohen D, 2006).

4. Data Analysis

Recorded interviews conducted via e-mail were transcribed and field notes written immediately after the observation. Based on the data collected through observation and follow up interview, the collaboration skills of students in a multicultural environment were analyzed descriptively through qualitative thematic analysis. Thematic analysis is a method used to identify and interpret themes that emerge from the data(Braun & Clarke, 2012). Thematic analysis is a technique for detecting, interpreting, and reporting themes generated from the data. It can be used to interpret various features of a research issue.

In this study, the researcher followed a three-stage process to analyze the data. Firstly, the researcher gathered the observation and interview results to identify the phenomena and what data wanted to be coded. Secondly, the data were transcribed verbatim and coded using the

NVIVO 14 application. The researcher then conducted a thematic analysis to identify and explore the specific collaboration skills observed in multicultural classrooms. Lastly, the researcher reviewed the coded transcriptions and drew conclusions based on the analysis.

5. Ethical Consideration

As the research involves human subjects, ethical considerations need to be addressed. The American Psychological Association outlines several ethical principles for research involving human subjects, including informed consent, confidentiality, and protection from harm (American Psychological Association, 2017). Similarly, the Helsinki Declaration emphasizes the importance of informed consent, confidentiality, and protection from harm in research involving human subjects (World Medical Association, 2013). Firstly, informed consent was obtained from the school principal and homeroom teacher of the grade 1 elementary school students. The school principal and homeroom teacher were informed about the purpose and nature of the study, and their permission was sought before involving the students in the research. Secondly, the privacy and confidentiality of the participants were maintained. The names of the students were not disclosed, and the data collected were used solely for research purposes. Any identifying information was kept confidential to prevent harm to the participants. Lastly, the research was conducted in a manner that minimizes any harm or discomfort to the participants. The observation and anecdotal record methods used in this research do not pose any physical or psychological harm to the participants.

C. RESULT AND DISCUSSION

Thematic analysis has provided valuable insights into the specific collaboration skills demonstrated by students in multicultural schools when using the jigsaw learning model. Through careful class observations, several collaboration skills have been identified, as depicted in Figure 1.
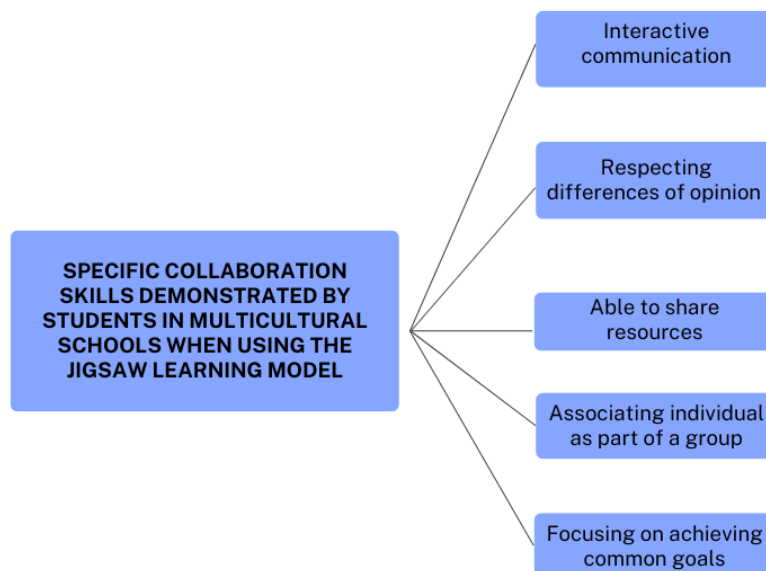
Figure 1. Specific Collaboration Skills Demonstrated by Students in Multicultural Schools When Using the Jigsaw Learning Model

The findings revealed specific collaboration skills that emerged during the implementation of the jigsaw model, including interactive communication, respecting differences of opinion, the ability to share resources, associating oneself as part of a group, and focusing on achieving common goals.

1. **Interactive communication**

To foster the development of collaborative students, interactive communication among students is equally vital as effective communication between teachers and students. Interactions between students play a crucial role in helping students grasp the significance of respect within a group, appreciate diverse opinions, engage in collaborative work, develop leadership skills, and cultivate friendships (Spark, 2022). In expert group discussions, Group C is tasked with gathering information about animals that live on land. When S3 listed whales as animals that live on land, S7 quickly asked S3, "why do whales live on land?". S3 replied, "because whales are mammals and I like whales". S7 asked S9, "do you think whales live on land because they are mammals?". S9 replied, "we should read the books. The teacher gives the books for us, don't write anything that you like. Just try look for something like a koala."

During the observation, another notable incident occurred in group A where S4 did not participate in the expert group discussion. He explained that he could not read the assigned book, which made him unsure of what to contribute to the discussion. In a display of collaboration, S1 stepped in to support S4 by reading the books together and visually sharing information about sea-dwelling animals, including jellyfish and white sharks. This act of assistance facilitated S4's engagement in the discussion and exemplified the collaborative spirit within the group. Collaborative learning enhances interactive communication among students by facilitating group discussions and resource sharing for assignment completion. Optimal collaboration requires that learners negotiate, debate and argue their views so that perspective can be transferred (OECD, 2013). Through classroom observation, it becomes evident that students demonstrate the ability to ask questions, respond to inquiries, and actively listen, despite differences in their communication styles. Moreover, students' willingness to seek assistance is evident in their collaborative learning endeavors. Particularly, when faced with challenges in reading proficiency, they actively seek support from their group members and engage in shared reading activities. In contrast, non-collaborative learning methods primarily involve two-way communication between the teacher and students, limiting opportunities for interactive communication between students.

2. **Respecting differences of opinion**

In order to observe this specific aspect of collaboration, the teacher intentionally employed a non-self-selecting group formation approach, allowing researchers to objectively observe how students navigate differences of opinion. For any team to be successful it is critical that the team members respect each other (Jacobson, 2019). The ability to respect differences of opinion within groups is crucial for every student to successfully complete group assignments. To investigate the criteria utilized by the teacher for grouping students, HT and AT were asked with the following question during follow-up interview: "What are the primary factors you take into account when dividing student groups?". In response, HT stated: "Considering your research theme, I would like each group of students to consist of students from different nationalities. However, apart from that I also consider the personality of the students that I already knew before, such as whether the students were active or passive in learning. If each group is filled with at least 1 student who is talk-active, then I assume their group discussions will run smoothly".

Notably, no instances were observed where students imposed their viewpoints on their peers. Within the expert group A, a noteworthy interaction between S11 and S1 unfolded. S1 stated that he really likes fish and is happy to be able to get a group of experts who focus on researching animals that live under the sea. Conversely, S11 express her preference for duck-billed platypuses due to their charming-webbed fingers. Consequently, S11 approached the teacher seeking clarification on if the contents of their notes had to be the same or if they could incorporate information about their preferred animals. Ultimately, they collaboratively decided to include entries for each group member's favored animals, including white sharks and vampire squid from two other of their group members.

Having an understanding of another person's perspective on a problem or task is a fundamental skill that plays a vital role in fostering shared understanding and effective collaboration (Scoular et al., n.d.). Through this finding, the results suggests that the jigsaw model cultivates an environment where students learn to appreciate and consider diverse perspectives, an essential skill for fostering inclusive collaboration. Despite the lack of freedom in group member selection, students are able to find ways to connect with their peers by considering their groupmates' backgrounds and preferences, all while refraining from imposing their own opinions on others. This ability to compromise promotes harmonious group collaboration by demonstrating a willingness to accommodate and respect the diverse perspectives and preferences of their fellow members.

3. Able to share resources

Each expert group was provided with three reference books relevant to their assigned research topics. Groups A and B demonstrated smooth rotation of the reference books among their members. Group A exhibited a collaborative approach in their reading strategy, choosing to read the reference books collectively rather than taking turns individually for each book. However, Group C encountered a slight issue, as S3 expressed a desire to read the book chosen by S9, who had not yet completed their reading. With the intervention of AT, S3 and S9 eventually agreed to take turns, and S3 need to wait and explore other reference books in the meantime. To better interpret this event, the researcher posed a follow up question regarding resource sharing to HT and AT in semi-structured interview conducted by e-mail, inquiring about their perspective on the factors contributing to the challenges encountered by Group C in distributing resources among its members. The questions posed and the answer from AT and HT were as follows: "All students have joined the groups determined by the teacher and received a fair share of resources. In your opinion, what are the factors that make group C experience problems in sharing resources among their group members?". "From my point of view, the internal factor that made group C had problems in sharing resources. S3, S7, and S9 are students with intermediate cognitive levels and they're active when it comes to discussion. These 'sharing' problems happen lots of times especially when S3 is in a group with S9. it happens because S3 has different ways to communicate and tell his needs which can make the other members experience miss interpretation. It takes more time to make S3 understand the instruction given by the teacher, when there is more than one instruction given by the teacher, usually S3 only does the first instruction. Also, S9 has a strong dominant character which makes S9 difficult to understand S3's personality". Based on additional insights from HT and AT in Year 1, it is likely that a small number of students may face communication difficulties, resulting in misunderstandings within their groups. However, with appropriate intervention from AT, such as providing options for shared reading or taking turns,

S3 and S9 can resolve their debate about resource sharing. Taking turns in reading proves to be a viable solution in this case.

4. Associating individual as part of a group

Researcher found that students were able to associate themselves and other group members as part of a group. This is shown by some of the simple dialogs they uttered while the jigsaw model learning was implemented, as spoken by S8 to S7: "Come over here, we are members of group 3". Apart from that, the dialogue that S7 uttered when the discussion time was almost over, "Ms, our group is still not finished". This shows that through the jigsaw model, even though student groups are determined by the teacher, and they have to study in one group all of a sudden, they are able to quickly show a sense of collaboration among their group members.

5. Focusing on achieving common goals

Based on observations, researcher noted that the clarity of instructions given by the teacher affected the visibility of one aspect of collaboration, namely the focus on achieving common goals. It was observed that when students became aware of the goals of their group assignments, they were able to see them as collective goals and actively collaborated to achieve them. When they were required to take notes in the expert group, some students from Group B asked the teacher about one member of their group who could not write well. They asked if the student could also take notes with pictures. It was one of the solutions they found in solving the problem, and they did not hesitate to confirm it to the teacher to ask if their solution was acceptable so that their common goals would still be achieved. This observation allowed the researcher to witness various collaborative behaviours among students, including asking questions, providing responses, actively listening, compromises, taking turns, sharing resources, and helping one another. These behaviours were observed as students worked together towards achieving their common goals as a group, not as individuals.

The results of this study using the jigsaw learning model in multicultural classroom settings further reinforce the results of previous studies which state that collaborative learning provides a flexible and adaptable pedagogy that can cater to the diverse needs of multicultural classrooms. By integrating students' unique perspectives, fostering collaboration, and acknowledging individual differences, cooperative learning creates a dynamic and enriching educational experience for all students involved (Sharan, 2010). Collaborative learning also serves to achieve the objectives of multicultural education. As Banks and McGee (2010) state, multicultural education emerged from addressing the needs of minority students, transforming the educational system's primary aim to provide equal education to all, regardless of their race, culture, or language. This approach emphasizes the importance of integrating the experiences, interests, and perspectives of minorities into the classroom and educational practices. In this context, collaborative learning becomes a valuable strategy to create an inclusive and equitable learning environment that respects and embraces diverse backgrounds and viewpoints.

In summary, the descriptive analysis of the findings highlights the specific collaboration skills that emerged during the implementation of the jigsaw model in Indonesian multicultural schools. The jigsaw model in a multicultural classroom setting nurtures collaboration skills, empowering students to communicate interactively, respect diverse opinions, share resources, identify as part of a group, and focus on common goals. This approach creates an inclusive learning environment that celebrates diversity and equal opportunities for all students, regardless of their background.

D.   CONCLUSION AND SUGGESTIONS

This research has explored the collaboration skills displayed by students in Indonesian multicultural schools through the application of the jigsaw learning model. The analysis provides detailed insights into how students displayed specific collaboration skills during the implementation of the jigsaw model in the multicultural school setting. These skills include interactive communication, respecting differences of opinion, the ability to share resources, associating oneself as part of a group, and focusing on achieving common goals. These skills are critical to creating an inclusive and harmonious learning environment where students from diverse cultural backgrounds feel valued, respected, and included. Additionally, it not only enhanced their collaboration skills but also fostered independence as students took responsibility for their learning, sought information, and engaged in discussions.   Finally, the researcher concluded that the differences present in a multicultural environment should not be avoided. On the contrary, the role of the teacher is crucial in supporting students to respond positively to these differences and develop habits of collaboration from an early stage. Embracing and valuing diversity within the classroom is essential for creating an inclusive and harmonious learning environment. By actively promoting understanding, respect, and collaboration among students of different cultural backgrounds, teachers can help students develop the skills necessary to navigate diverse settings and work collaboratively with people from various backgrounds throughout their lives. This small-scale study has limitations in this regard, as it solely focuses on a single country and a limited number of students within a classroom. However, the positive outcomes of this study demonstrate the need for further observational research on teachers who employ culturally responsive teaching methods, such as Problem-Based Learning and other collaborative learning approaches, to ensure that our diverse population is accommodated and nurtured within classroom settings worldwide.

REFERENCES

American Psychological Association. (2017, January 1). *Ethical Principles of Psychologists and Code of Conduct*. Retrieved from American Psychological Association: https://www.apa.org/ethics/code

Aronson, E. (n.d.). *Jigsaw Basic.* Retrieved from The Jigsaw Classroom: https://www.jigsaw.org/pdf/JigsawBasics.pdf.

Aronson, E. (2023). *Overview*. Retrieved from Jigsaw Classroom: https://www.jigsaw.org/overview

Banks, J., & McGee, C., (2010). Multicultural education: Issues and perspectives (9th ed.). Washington, D.C.: Wiley.

Bennett, M. J. (n.d.). *Intercultural Communication: A Current Perspective*. https://www.researchgate.net/publication/246501677

Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological.* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Cohen D, Crabtree B. (2006, July). *Qualitative Research Guidelines Project*. Retrieved from Robert Wood Johnson Foundation: http://www.qualres.org/HomeSemi-3629.html

De Leo, Joy. (2010). *Reorienting teacher education to address sustainable development : Guidelines and tools : Education for intercultural understanding*. UNESCO Asia and Pacific Regional Bureau for Education.

Ferguson-Patrick, K. (2020). Cooperative learning in swedish classrooms: Engagement and relationships as a focus for culturally diverse students. *Education Sciences*, *10*(11), 1–21. https://doi.org/10.3390/educsci10110312

Goodsell, A. S., Maher, M. R., Tinto, V., Smith, B. L., & Macgregor, J. (1992). *In Collaborative Learning: A Bourceboox For Higher EducatioN National Center on Postsecondary Teaching, Learning, and Assessment The Washington Center for Improving the Quality of Undergraduate Education Published by the National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA) (c) 1992. jLOGO SOMEWHERE ON COVER).*

Muhammad, S., & Kabir, S. (2016). *Methods Of Data Collection.* https://www.researchgate.net/publication/325846997

Ors, H., & Sogancilar, N. (2018). Understanding the challenges of multicultural team management. *Pressacademia*, *7*(3), 259–268. https://doi.org/10.17261/pressacademia.2018.954

Organisation for Economic Co-operation and Development. (OECD). (2013). *PISA 2015: Draft collaborative problem-solving framework.*

Perkumpulan Sekolah SPK Indonesia. (2023, May 26). *History of the organization.* Retrieved from Perkumpulan Sekolah SPK Indonesia: https://www.spkindonesia.org/history

Scoular, Claire., Duckworth, Daniel., Heard, Jonathan., Ramalingam, Dara., & Australian Council for Educational Research (ACER). (n.d.). *Collaboration : Skill Development Framework.*

Sharan, Y. (2010). Cooperative learning: A diversified pedagogy for diverse classrooms. *Intercultural Education*, *21*(3), 195–203. https://doi.org/10.1080/14675981003760390

Spark. (2022, June 22). *Student to Student Interaction Strategies and Activities.* Retrieved from Spark: https://spark.school/student-interaction

Sutton, J., & Austin, Z. (2015). Qualitative Research: Data Collection, Analysis, and Management. *The Canadian Journal of Hospital Pharmacy*, *68*(3), 226-231. https://doi.org/10.4212/cjhp.v68i3.1456

World Medical Association. (2013, November 27). *World Medical Association Declaration of Helsinki.* Retrieved from JAMA Network: https://jamanetwork.com/journals/jama/fullarticle/1760318