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Exploring Listening Relationship Pattern of Information Approval Process in Science Learning: A Qualitative Investigation Using TBLA (*Transcript Based Lesson Analysis*)

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Abstract: This study deals with revealing listening relationship patterns in the information approval process used as a basis for improving the quality of learning dialogue, especially in science learning. A qualitative method with a case study approach used to analyze listening relationship patterns in science learning during one semester. A total of 3 science teachers, 31 students, 2 academics involved in lesson study for learning communities were selected to capture a mutual listening relationship pattern in receiving information with a natural performance and not tense when observing. Observation, documentation, and clinical interviews used as data collection techniques. Video and audio recorders were involved as documentation tools for this study. Transcript-based lesson analysis (TBLA) was included in conducting data analysis. The results of the listening relationship patterns analysis in classical discussion sessions in cycles 1–3 tend to have semi-equal listening relationship patterns. Meanwhile, the listening relationship pattern in group discussion sessions in cycles 1 to 3 tends to be the isolated listening relationship group pattern. The shift in the pattern of listening relationships in group discussion sessions is caused by several factors, including student collaboration awareness, heterogeneous composition of students, tasks and questions that challenge students, and appropriate interruptions of teacher direction. The research results provide a reference for reflection on developing teacher professionalism to improve more effective and meaningful learning.

Keywords: Listening relationships, receiving information, science learning, TBLA

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INTRODUCTION

Reforming education patterns, especially within the school unit, is needed to prepare a generation that is ready to face the challenges of the 21st century (Saastamoinen et al., 2023). In developed countries, education reform has been carried out to become model 21 schools based on simultaneous achievement of quality and equality principle (Hattie & Timperley, 2007; Sato, 2014). Quality and equality in education are emphasized to encourage every individual to be able to become a good generation who is ready to face the 21st century challenges (Lehesvuori et al., 2011). Success in school reform in developed countries can be seen from the results of the Program for International Student Assessment (PISA) published by the OECD (Organization for Economic Cooperation and Development) which shows that these countries occupy the highest rankings in the world and have achieved a simultaneous balance of quality and equality in learning (Sato, 2012).

Different things happen to Indonesia's PISA achievements from year to year. Based on Indonesia's achievements result in ten consecutive years, Indonesia ranks in the last ten of all participating countries (OECD., 2022). It concluded that there is still a lack of quality and equality of learning in Indonesia. The quality and equality formation of learning starts from reforming the mutual teaching relationships pattern into mutual learning relationships in the learning system (Edwards-Groves & Hoare, 2012; Smart & Marshall, 2013). This relationship depends on the dialogue formed in learning. Learning dialogue is an ideas exchange formed in learning (Davies et al., 2017; Mercer & Littleton, 2007). An effective Learning dialogue that creates bonds between students is dialogue that creates a communication channel between students and students (listening relationships). Mutual learning relationships occur when the dialogue formed in learning takes an exchange form of opinions that occurs in peace, each student listens to what the students say and then thinks about it in depth (Sato, 2012; Sato, 2014). To attain quality and equality, particularly in science education, effective discourse must be implemented (Bansal, 2018; Chin, 2006; Darling-Hammond et al., 2000; Ingram & Elliott, 2016). However, effective learning dialogue forming expectations, especially in science learning, are still not in line with the field reality.

The study confirms that teachers do not understand the function of dialogue in learning which causes the formation of a less effective learning environment. Apart from that, statements and questions given by teachers in learning only give short answers and do not initiate discussions and exploration of students' knowledge (Awinda, 2018; Hajar et al., 2015; Hajar et al., 2016). The dialogue formed between students is in a discussion form where students only express their opinions expressively and there is no relationship between listening to each other. Students only present what they already understand without the construction of new knowledge (Hajar & Hendayana, 2019; Jannah, 2018). Some of these results are evidence that the implementation of science-learning dialogue needs to be improved. However, there have not been many studies regarding the identification of mutual listening relationships in science learning, so the process of improving the quality of effective learning dialogue itself has not yet executed well.

The description provided suggests that there is a gap between the need to develop successful learning dialogue and the lack of recognizing listening relationship patterns. Qualitative analysis was carried out to analyze in more depth the listening relationship to each other in the receiving process of information as a reference for the process of improving the quality of learning dialogue, especially in science learning. One form of in-depth analysis that examines lesson dialogue is through the TBLA technique (Transcript Based Lesson Analysis) (Arani & Reza, 2017). Data analysis using TBLA is carried out by analyzing learning based on dialogue transcripts formed in learning design activities, observation, reflection, and re -design carried out jointly by the teacher community in LSLC (Lesson Study for Learning Community) activities (Arani & Reza, 2017). This collaborative activity enriches the resulting learning dialogue findings data. This study aims to reveal the form of analysis of patterns of mutual listening relationships in the process of receiving information in science learning using TBLA (Transcript Based Lesson Analysis). The results of the study of listening relationship patterns in this study can be used as a reference in improving the quality of science learning dialogue in future study.

METHOD

This study uses qualitative study methods with the study approach that will be used in this study is a case study approach (Lichtman, 2009). The case study approach in this study looks at one case in an entity, namely the relationship pattern of listening to each other in science learning at one of the Bandung City Middle Schools which has been involved in lesson study for learning communities (LSLC) for one semester.

Participants in this study were students in class VIII of a junior high school in Bandung City, totaling 31 students consisting of 15 male students and 16 female students. The junior high school (SMP) in the city of Bandung which was the target of this study had more than one semester of lesson study for learning community experience in the science group. The number of science teachers actively involved in the lesson study for learning community was 3 female teachers with biology, physics, and chemistry backgrounds with one of the teachers being a model teacher during the study . The science teachers involved in the LSLC for the science group routinely spend time every Wednesday to discuss, reflect on previous learning and plan future learning. Apart from the 3 science teachers who were actively involved in implementing the LSLC, in this study , there was also a lecturer and 3 science postgraduate students who were actively involved in planning, observing, and reflecting on the learning that had been carried out based on the LSLC stages. LSLC's experience was the basis for selecting participants in this study . This is because this activity ensures that teachers and students are considered to be able to show natural performance and are not tense when observing. Apart from that, the reasons for this choice will support and facilitate the data analysis process using transcript-based lesson analysis from this study .

The data collection stage is based on the lesson study activity stage. This study was carried out over 3 lesson study cycles with each cycle consisting of design, observation, reflection & re-design stages. The choice of the number of cycles intended to be able to see the profile of the pattern of listening relationships in science learning in each cycle.

This study uses data collection techniques in the form of observation documentation and clinical interviews. Documentation is carried out using video and audio recorders. The placement of video and audio recorders at the lesson study observation stage in this study is illustrated by the classroom plan in Figure 1.

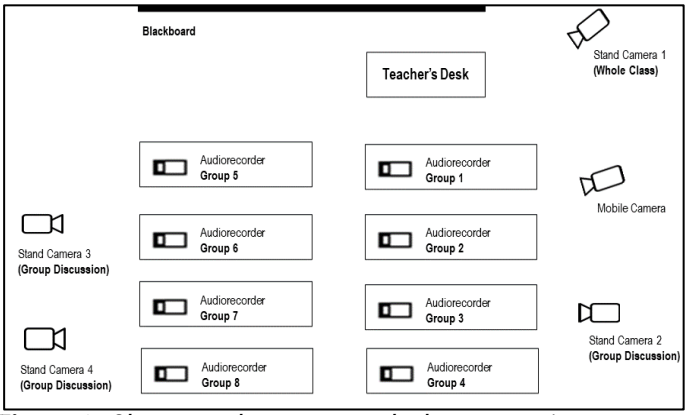

Figure 1. *Classroom layout on study documentation context*

The data analysis technique used in this study is transcript-based lesson analysis (TBLA). Transcripts were obtained from videos of design, observation, reflection, and re-design sessions in the lesson study stage. The main study transcript data is the transcript at the observation stage. The stages of transcript analysis based on transcript-based lesson analysis (TBLA) are as follows: 1) Reading the learning transcript (observation stage transcript as main data and design and reflection and re-design transcripts as supporting data); 2) Divide the transcript of the observation stage into several segments (locus) based on the learning flow created by the teacher in the learning lesson plan that was created in

the previous design stage; 3) Carrying out microanalysis, namely by providing attributes or information on each locus in the form of study er interpretations assisted by supporting data in the form of field notes, lesson artefacts; 4) Carrying out macro analysis in the form of coding the categorization of learning relationship patterns by calculating the waiting time at each locus; and 5) Describe the learning dialogue patterns that have been formed in each observation lesson study cycle.

RESULT AND DISCUSSION

Listening Relationship in the Process of Receiving Information

Listening relationships occur between teachers and students, or between students themselves. They listen to each other and think deeply about the concepts conveyed by their teacher or friend. Listening relationships analysis can be measured from the wait-time formed in classical discussions and group discussions (Walsh, 2011). The average wait-time for each discourse movement from the classical discussion is shown in the following table.

Table 1 Average wait-time in classical dialogue discussions in learning cycles

Discourse transfer	Rerata wait-time (hh.mm.ss)		
	First Cycle	Second Cycle	Third Cycle
Teacher Initiation-Student Response	00.00.02	00.00.10	00.00.11
Student response - Teacher feedback	00.00.10	00.00.06	00.00.03
First feedback - Teacher's follow-up feedback	00.00.09	00.00.07	00.00.13
Teacher feedback- Student's continued response	00.00.04	00.00.06	00.00.06
Student response - Teacher Initiation	00.00.17	00.00.05	00.00.04

The shortest wait-time occured when students listen to the initiation with a two seconds duration as shown on first cycle. The longest wait-time is 17 seconds in cycle 1 which is formed at the distance of the response and initiation given by the next teacher. This shows that the wait-time used by teachers to listen to students is more than the wait-time used by students to listen to teachers. This can be shown from the snippet of learning dialogue from cycle 1 of the classical discussion session accompanied by the waiting time and responses produced below.

00.15.20	*T83*	*What is vibration?*	***I-T***	-
00.15.22	*Nik*	*Moving objects vibrate*	***R-S***	*00.00.02*
00.15.29	*T84*	*Objects that vibrate, what is an example of vibration? come on, raise your hands*	***F-T***	*00.00.07*
00.15.31	*May*	*touched object*	***R-S***	*00.00.02*
00.15.33	*Nik*	*this one*	***R-S***	*00.00.02*
00.15.39	*T85*	*Yes, Arya, pay attention, Arya wants to answer*	***F-T***	*00.00.06*
00.15.48	*Ary*	*A movement of an object back and forth or forward*	***R-S***	*00.00.09*

The dialogue excerpt above shows that the response given by the majority of students on average is less than 2 seconds to produce short answers to the response given by the previous teacher. The second wait-time for a response shows that students are listening but not thinking about the answer to the teacher's question using their knowledge construct. Students choose to look for answers from literature and read them back to the teacher. This response is evidence that some students tend to spend a shorter time listening to the teacher's questions and do not understand them in depth first.

Analysis of three learning cycles found that listening relationship pattern tends to be a semi-equal listening relationship pattern where the teacher tries more to listen to the responses given by students in classical discussions with an average wait-time of more than 5 seconds and students are

more likely to choose responses automatically. quickly without thinking deeply about the answer with an average wait-time of less than 5 seconds. The meaning of the word semi-equal in this semi-equal listening relationship pattern shows that the pattern formed is an unbalanced pattern with the teacher listening more to the responses given by students than the students listening and responding to questions given by the teacher. The imbalance in listening relationships in this pattern is caused by students who are accustomed to responding quickly to their new knowledge. The classic discussion pattern in cycle 1 learning dialogue can be depicted with the scheme in Figure 2 below.

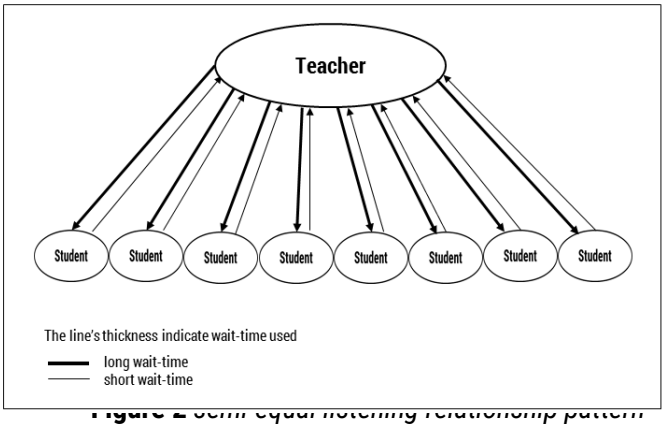

Figure 2 *Semi-equal listening relationship pattern*

Listening relationships pattern was also analysed from the conversation and wait-time in the 8 groups formed in the lesson. The results of the transcript analysis showed that the listening relationships patterns was in the form of an isolated listening relationship group pattern or a listening relationships patterns formed in one group which was formed in group 2 and group 7 discussions.

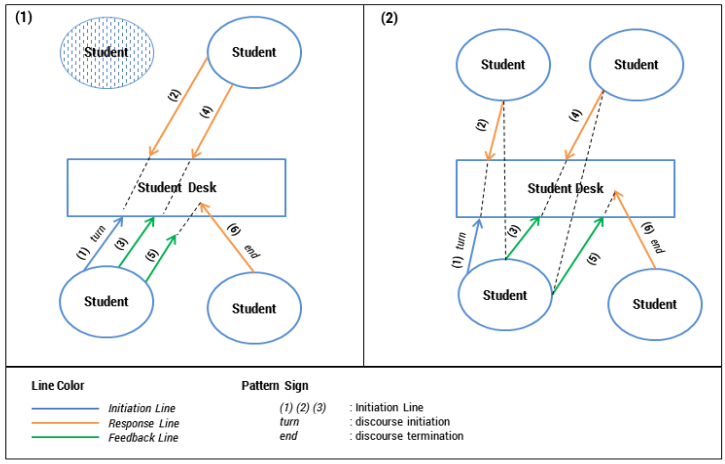

Figure 3.
Passive student's isolated listening relationship group pattern (1) and active student's isolated listening relationship group pattern (2)

The dialogue in group 7 is in a listening relationship in the group develops from the question "how to do this part?" by students who don't understand. The student responds to the question and explains it until the student who asks the question understands. In the end, students who don't understand can understand the concept of the material independently. Sato, (2012) also explains that a mutual listening relationship means forming a mutual learning relationship, not a mutual teaching relationship. Mutual learning relationships are formed from the exchange of opinions in peace and each student listens to what his friend says or says and then thinks about it deeply. The isolated listening relationship group pattern was formed in groups 2 and 7 in group discussion sessions in each cycle.

In groups 1, 3, 5, 6 and 8, the relationship pattern that was formed was not a relationship of mutual listening but a relationship of mutual discussion. The following is a snippet of mutual discussion dialogue that was formed in group 5 discussion session which illustrates the mutual discussion relationship.

00.43.42 syakira Does the longer it get affected by vibration? I-S -

00.43.48	*putri*	*Doesn't it? how is this?*	*R-S*	*00.00.06*
00.43.51	*syakira*	*the 15 cm one is bigger than*	*F-S*	*00.00.03*
00.43.55	*putri*	*the 25 cm one*	*R-S*	*00.00.04*
00.44.01	*syakira*	*Yes, length affects to the pressure (not vibration)*	*F-S*	*00.00.06*
00.44.03	*arya*	*that's just vibration*	*R-S*	*00.00.02*

In the dialogue excerpt above, it can be seen that there was an active exchange of opinions starting with one student giving his argument in the group, then a response was given by another member in the group. This dialogue ends with a conclusion drawn by one member in one group based on the discussion that has been held. In this dialogue there is a mutual teaching relationship, namely students who feel they have an idea or concept convey the idea and teach students who do not feel the need for teaching the concept. This creates an active exchange of ideas without any mutual learning relationship (Kawalkar & Vijapurkar, 2013; Pehmer et al., 2015). Students only represent what they already understand. This relationship is referred to by Sato (2012) as a relationship of mutual discussion or not a relationship of listening to each other. The pattern of mutual discussion relationships in an isolated group dialogue pattern can be called an isolated non-listening relationship pattern.

Influence Factors on Shifting Listening Relationships

Based on the analysis that has been carried out previously, there are several things that influence the shift in the pattern from a mutual discussion relationship to a mutual listening relationship in the learning dialogue of classical discussion sessions. Based on the results of the qualitative analysis, it is known that one of the factors that influences the mutual listening relationship is the composition and awareness of members in the group. Mutual listening relationships or mutual learning relationships tend to be initiated by one of the students who has a low level of cognitive ability which is responded to by students with a higher level of cognitive ability. There is a mutual learning relationship between students with different cognitive levels. Mutual learning relationships are formed from the exchange of opinions in silence and each student listens to what his friend says or says and then thinks about it in depth (Reinsvold & Cochran, 2012; Martin & Clerc-Georgy, 2015). This is different from groups consisting of members with the same level of cognitive ability (homogeneous). Groups consisting of homogeneous students prefer to form mutual discussion relationships. The exchange of opinions occurs actively between students in groups and ends with making an agreement between students in groups. Therefore, the placement of students based on their level of cognitive ability tends to influence the formation of patterns of listening relationships in group discussion sessions.

Another factor that influences the formation of mutual listening relationships in group discussion sessions is the tasks and questions given by the teacher. Tasks that influence mutual listening relationships in learning dialogue are sharing and jumping tasks that challenge students. Sharing tasks are shared material that must be understood by all students, while jumping tasks are jumping material that makes students think more critically (Sato, 2012). The teacher's use of higher level questions in initiating and providing feedback will influence the formation of learning dialogue in the aspect of mutual listening relationships. Challenging questions will make students more inclined to learn from each other in groups.

Based on these results, it can be seen that improving the quality of listening relationship patterns can be done by making changes to the composition of group members, the tasks and questions used and appropriate interruptions and teacher direction.

CONCLUSION

The mutual listening relationship pattern that dominates the classical discussion sessions in cycles 1-3 tends towards a semi-equal listening relationship pattern. Meanwhile, the mutual listening

relationship pattern that dominates group discussion sessions in cycles 1 to 3 tends towards the isolated listening relationship group pattern. The shift in the pattern of listening relationships in group discussion sessions is caused by several factors, namely the awareness of group members and the heterogeneous composition of group members, tasks and questions that challenge students and appropriate interruptions and teacher direction.

References

Arani, & Reza, M. (2017). Raising the quality of teaching through *Kyouzai Kenkyuu* – the study of teaching materials. *International Journal for Lesson and Learning Studies*, *6*(1), 10–26. https://doi.org/10.1108/IJLLS-07-2016-0018

Awinda. (2018). *Analisis Pola Dukungan Belajar (Learning Support) pada Kegiatan Lesson Study Mata Pelajaran IPA SMP .Thesis*. Universitas Pendidikan Indonesia.

Bansal, G. (2018). Teacher discursive moves: Conceptualising a schema of dialogic discourse in science classrooms. *International Journal of Science Education*, *40*(15), 1891–1912. https://doi.org/10.1080/09500693.2018.1514543

Chin, C. (2006). Classroom Interaction in Science: Teacher questioning and feedback to students' responses. *International Journal of Science Education*, *28*(11), 1315–1346. https://doi.org/10.1080/09500690600621100

Darling-Hammond, L., Martin, D., Orcut, S., & Austin, K. (2000). *Learning from Other: Learning in a Social Context*. Stanford University School of Education. https://www.learner.org/wp-content/uploads/2019/02/The-Learning-Classroom_Learning-From-Others.pdf

Davies, M., Kiemer, K., & Meissel, K. (2017). Quality Talk and dialogic teaching—An examination of a professional development programme on secondary teachers' facilitation of student talk. *British Educational Research Journal*, *43*(5), 968–987. https://doi.org/10.1002/berj.3293

Edwards-Groves, C. J., & Hoare, R. (2012). "Talking to Learn": Focussing teacher education on dialogue as a core practice for teaching and learning. *Australian Journal of Teacher Education*, *37*(8). https://doi.org/10.14221/ajte.2012v37n8.8

Hajar, M. U., & Hendayana, S. (2019). Lesson study as a means of transforming classroom discourse and student cognitive engagement in science classroom. *Journal of Physics: Conference Series*, *1157*, 022050. https://doi.org/10.1088/1742-6596/1157/2/022050

Hajar, M. U., Prihatin, J., & Iqbal, M. (2015). *Pengaruh Pembelajaran Kolaboratif Tipe Analytic Team Melalui Lesson Study Terhadap Kemampuan Beripkir Kreatif Siswa.* https://repository.unej.ac.id/handle/123456789/76036

Hajar, M. U., Prihatin, J., & Iqbal, M. (2016). Pengaruh Pembelajaran Kolaboratif Tipe Analytic Team Melalui Lesson Study Terhadap Hasil Belajar Siswa. *Prosiding Seminar Nasional II Tahun 2016*. https://repository.unej.ac.id/handle/123456789/76036

Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, *77*(1), 81–112. https://doi.org/10.3102/003465430298487

Ingram, J., & Elliott, V. (2016). A critical analysis of the role of wait time in classroom interactions and the effects on student and teacher interactional behaviours. *Cambridge Journal of Education*, *46*(1), 37–53. https://doi.org/10.1080/0305764X.2015.1009365

Jannah, N. (2018). *Kajian Deskriptif Analisis Praktik Asesmen Formatif Guru IPA SMP dalam Aktivitas Learning Community Menggunakan Trancript-Based Lesson Analysis.* Universitas Pendidikan Indonesia.

Kawalkar, A., & Vijapurkar, J. (2013). Scaffolding Science Talk: The role of teachers' questions in the inquiry classroom. *International Journal of Science Education*, *35*(12), 2004–2027. https://doi.org/10.1080/09500693.2011.604684

Lehesvuori, S., Viiri, J., & Rasku-Puttonen, H. (2011). Introducing Dialogic Teaching to Science Student Teachers. *Journal of Science Teacher Education*, *22*(8), 705–727. https://doi.org/10.1007/s10972-011-9253-0

Lichtman, M. (2009). *Qualitative research in education: A user's guide* (2nd ed). New York: Sage Publications.

Martin, D., & Clerc-Georgy, A. (2015). Use of theoretical concepts in lesson study: An example from teacher training. *International Journal for Lesson and Learning Studies*, *4*(3), 261–273. https://doi.org/10.1108/IJLLS-10-2014-0039

Mercer, N., & Littleton, K. (2007). *Dialogue and the development of children's thinking: A sociocultural approach*. New York: Routledge.

OECD., E. T. (2022). *Innovation PISA 2022*. https://www.oecd.org/pisa/innovation/

Pehmer, A.-K., Gröschner, A., & Seidel, T. (2015). Fostering and scaffolding student engagement in productive classroom discourse: Teachers' practice changes and reflections in light of teacher professional development. *Learning, Culture and Social Interaction*, *7*, 12–27. https://doi.org/10.1016/j.lcsi.2015.05.001

Reinsvold, L. A., & Cochran, K. F. (2012). Power Dynamics and Questioning in Elementary Science Classrooms. *Journal of Science Teacher Education*, *23*(7), 745–768. https://doi.org/10.1007/s10972-011-9235-2

Saastamoinen, U., Eronen, L., Juvonen, A., & Vahimaa, P. (2023). Wellbeing at the 21st century innovative learning environment called learning ground. *Journal of Research in Innovative Teaching & Learning*, *16*(2), 239–252. https://doi.org/10.1108/JRIT-03-2022-0012

Sato, M. (2012). *Mereformasi Sekolah: Konsep dan Praktek Komunitas Belajar.* International Development Center of Japan. Inc.

Sato, M. (2014). *Dialog Kolaboratif di Sekolah Menengah Pertama Praktek "Learning Community".* JICA (Japan International Cooperation Agency).

Smart, J. B., & Marshall, J. C. (2013). Interactions Between Classroom Discourse, Teacher Questioning, and Student Cognitive Engagement in Middle School Science. *Journal of Science Teacher Education*, *24*(2), 249–267. https://doi.org/10.1007/s10972-012-9297-9

Walsh, S. (2011). *Exploring classroom discourse: Language in action*. New York: Routledge.