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The Effectiveness of Auditory Intellectually Repetition Learning Model Assisted by Kokami Media in Improving the Speaking Skills of Drama Material for Students of Class VIII Bhakti Mulya

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ABSTRACT

This study is motivated by the low speaking ability of students so this study aims to determine the effectiveness of using the Auditory Intellectually Repetition learning model in improving students' speaking ability. This research uses a quantitative quasi-experimental approach with a Nonequivalent control group design. The samples in this study were Bhakti Mulya Junior High School students, class VIII A as the experimental class and class VIII D as the control class. The data collection technique in this study used a test technique in the form of a drama performance which was assessed from 6 aspects of assessment consisting of lafaz, vocabulary, structure, fluency, content, and understanding. The results showed that the Auditory Intellectually Repetition learning model was effective in improving students' speaking ability. This is evidenced by the average post-test score in the experimental class reaching 87.90 and in the control class the average post-test result is 70.67. Independent Sample T Test results with a significance level of 5% of 0.000 < 0.005 were also obtained. This shows that H_a is accepted and H_O is rejected. The N-Gain results show that the average N-Gain value for the experimental class of 74% is included in the moderately effective category. Based on the results of the data analysis that has been done, it can be concluded that the Auditory Intellectually Repetition learning model is quite effective in improving the speaking skills of 8th grade students of Bhakti Mulya Junior High School.

1. Introduction

Indonesian language learning is oriented towards four things that become factors in improving language skills, namely listening, speaking, reading, and writing. Based on the four language skills, speaking skills become one of the important parts in the world of education, especially Indonesian language learning because it has a central role as a communication process in language learning objectives. Speaking is the main basis in expressing one's ideas, thoughts, and feelings to

others. Speaking as one aspect of language skills is not just issuing sounds and words, but skills to express thoughts, skills to convey feelings through spoken language, and through speech (Akhyaruddin et al., 2020). Other research reveals that speaking has an important role in human life, namely as a means of communication (Tarigan, 2015).

Through this speaking skill, students are expected to be able to control the communication process, especially in conveying information or thoughts and feelings to others so that the interlocutor can understand the information provided properly. Not only that, speaking skills also have significance in shaping students' mentality in terms of communicating with others. If students' speaking skills are limited, it can hinder students in communicating and performing in front of others. Students will find it easier to convey ideas, communicate to teachers or other people, and be able to absorb all information critically and effectively if they have good mastery of speaking skills (Nazihah et al., 2020).

Some of the benefits of speaking include facilitating communication between individuals, making it easier to convey information, increasing self-confidence, increasing credibility, gaining support from the public or community, supporting career and work advancement, and improving the quality of professionalism. Considering the extensive benefits of speaking skills, it is imperative for one to develop speaking skills. Therefore, it is important to engage students in structured practice, including in the learning process at school, to improve their speaking skills (Mahardika, 2015).

Speaking skills are often in the spotlight because students lack mastery of these skills. Whereas in today's era speaking has an important role because by speaking, humans can control the communication process. Speaking skills in Indonesian are a language skill that needs to be mastered so that students can communicate their ideas, both at school and outside of school, and maintain good relationships with others (Magdalena et al., 2020). There are many factors that cause why students' speaking skills are low, one of which is due to the low level of student confidence, student learning habits, student motivation in learning, and the relationship or interaction between teachers and students (Rahmah, 2021). In addition, the lack of speaking practice is also one of the factors that result in low student speaking skills (Andari, 2020).

This lack of mastery of speaking skills is often a challenge for some schools. This problem is also a problem that exists in Bhakti Mulya Junior High School, especially problems for class VIII students. Based on the observation that has been done, the researcher found a problem that students speaking skills in class VIII are still relatively low. There are still many students who are not confident and hesitant when asked to speak in front of the class. Not only that, when there is a group assignment, not all students participate in the discussion and instead more silent so that there are only one or two people who dominate the discussion activities. This finding was confirmed by the Indonesian language teacher who said that many students still felt shy and did not want to perform in front of the class because of several factors that made students less optimal in learning

activities. First, there are still many students who feel afraid, nervous, and feel insecure when they have to speak in front of the class or when discussing. This factor is caused by the absence or lack of preparation of students before speaking. The lack of experience of students performing in front of many people is also a factor why students feel afraid, nervous, and not confident.

Second, students' learning habits in learning speaking skills are still relatively poor. Students will only learn speaking skills when there is a presentation assignment the next day, or even worse students do not learn at all. Third, interaction between students is still low. This can be seen from some students who are busy alone and reluctant to discuss with their friends.

The lack of students' speaking skills is not only due to the factors above, but also speaking learning in the classroom cannot be said to be maximized. Based on the observation, the researcher found that the learning methods used by the teacher were mostly lectures and assignments. Instead of involving students to be active in learning, teachers talk more and dominate learning activities which make students tend to be passive and do not have confidence when they have to speak. Teachers also give more assignments to students so that speaking skills which should be a habit cannot be done regularly. Whereas teachers have an important role in student success, the selection of methods, strategies and approaches. The techniques and models used by teachers during the learning process have a significant impact on the success of their students' learning (Hidayati et al., 2024). Another study reported that teaching methods, procedures, and skills of teachers in schools are the main factors in achieving learning goals (Rahani, 2020).

Speaking learning must be learned as well as possible because speaking skills are practical abilities that the more and more intensive students do the habit of speaking, then gradually students' speaking skills will improve and get better. To overcome this challenge, it is necessary to approach learning with a learning model that is relevant to the current situation, namely Auditory Intellectually Repetition, especially when the learning material focuses on drama. The Auditory Intellectually Repetition model itself is similar to the SAVI and VAK learning approaches. The difference lies in Repetition which means deepening, expanding, and stabilizing the material through assignments and quizzes (Huda, 2015).

The main characteristics of the Auditory Intellectually Repetition model are listening, thinking, and repetition. This model was chosen as an effort to improve students' speaking skills. This is in line with Pujiastutik's (2016) which states that the Auditory Intellectually Repetition learning model can make students more active, especially when speaking, giving ideas, or arguments orally (Auditory), able to solve a problem (Intellectually), and able to strengthen the understanding gained during learning through repetition (Repetition).

One of the learning media that is suitable for use in Indonesian language subjects is Kokami (Mysterious Card Box) learning media. Kokami is one type of media combined with language games (Marga, 2018). This Kokami media can make the rest gain knowledge of concepts, provide opportunities for students to think,

imagine, display new ideas, provide opportunities for students to be responsible, tolerant, independent, and respect each other, students can also actively participate because the atmosphere of the game accepts students as they are, provides freedom and away from authoritarian attitudes (Irmawahyuni, 2018).

Based on the explanation above, the Auditory Intellectually Repetition learning model assisted by the use of Kokami learning media is considered by the researcher as a solution to improve students speaking skills, especially in drama material. So this research is titled "The Effectiveness of Auditoy Intellectually Repetition Learning Model Assisted by Kokami in Improving Speaking Skills of Drama Material of Grade VIII Students of Bhakti Mulya Junior High School"

2. Methodology

This research uses a quantitative approach with a quasi-experimental method. Sugiyuno (2019) explains that quantitative research is a research method based on the philosophy of positivism, as a scientific method, or scientific because it has fulfilled scientific rules concretely or empirically, objectively, measurably, rationally, and systematically. This research itself uses a Non-Equivalent Control Group Design. This design involves two selected groups, each of which is given a pre-test to determine the initial condition of whether there is a difference between the experimental group and the control group. Furthermore, at the end of the study, both groups will be given a port-Isst to see the results obtained by students. The Non-Equivalent Control Group Design research design as shown in Table 1.

Table 1. Non-Equivalent Control Group Design

Pre-Test	Treatment	Post-Test
R O ₁	X	O_2
RO_2		O_4
		Sugivona (2010)

Sugiyono (2019)

Keterangan:

O₁: Pre-test in the experimental class O₂: Post-test in the experimental class

O₃: Pre-test in control class O₄: Post-test in control class

X: Treatment R: Sample

The research was conducted at Bhakti Mulya Junior High School by taking two samples, namely class VIII A as the experimental class and class D as the control class. The researcher used purposive sampling technique in determining the sample with consideration because the experimental class and the control class had characters that were in accordance with the research. There are three stages in this study, namely pre-test, treatment, and post-test. The pre-test was conducted to find out the students' initial skills in learning to speak before getting treatment. Then the researcher gave treatment by using the Auditory Intellectually Repetition learning model in the experimental class, while the control class did not get

treatment or learned conventionally. Furthermore, researchers gave a port-test to students to see how effective the model used was in improving students' speaking skills

Data collection techniques in this study used observation and tests. The test itself here is a practical test that involves students to speak in front of the class both individually and in groups, according to the roles they get in the drama performance. Previously, each individual or group received a drama script from Kokami media. The instruments in this speaking skill test assessment include lafaz, vocabulary, structure, fluency, content, and understanding (Akhyaruddin, 2020). The data analysis techniques in this study are, instrument test which includes validity test and reliability test, prerequisite test which includes normality test and homogeneity test, hypothesis test, and N-Gain test. This test is conducted to determine whether the Auditory Intellectually Repetirion learning model is effective in improving students' speaking skills.

3. Result and Discussion

Auditory Intellectually Repetition Stages

At the Auditory stage, the researcher explained the material to students. At this stage, students listen to the teacher's explanation well. Students were seen not much chatting and focused with the teacher's explanation. Furthermore, the teacher provides time for students to ask questions and have opinions about the material that has been explained. The teacher helps students not to feel shy if they want to ask what they have not understood or about things they want to know related to the material that has been explained.

At first, students still did not have the courage to ask directly to the teacher, instead they whispered to each other and pointed to each other to ask the teacher. Students also admitted to feeling afraid and embarrassed if their questions could not be understood by the teacher, but after the teacher provided understanding and support, students finally wanted to ask questions even though they still looked shy. Next, after making sure students understood and no longer had questions, the teacher then asked students to form 4 groups. Each group then took one mysterious card containing the title of the drama script in the Kokami media

Then, in the Intellectually stage, students are asked to discuss their drama performance plan after getting the script. They are also asked to determine the role of each student in their group. In addition, students are also given time to practice playing their roles with the guidance of the teacher so that students have an idea of what they will be like playing their role as a character according to the script. In this exercise, students did not seem to be able to live their roles well. There were also some students who stuttered when reading the dialog and most students still ignored punctuation marks such as periods and commas.

The existence of this exercise helps students know their mistakes or shortcomings in playing their roles. Not only that, this Intellectually stage also helps each group member become closer and no longer awkward and embarrassed to discuss. Their demands to perform drama performances in groups make students have to work together and complement each other. Students give each other advice when there are group members who look still not good when practicing playing their roles. This triggered communication among students so that students began to get used to speaking in front of their friends.

Furthermore, the Repetition stage in this study is in the form of drama performances in front of the class. Each group will be given 15-20 minutes to perform a simple drama that they have previously practiced. At this stage, students' speaking skills are much better because during the drama performance, students have more confidence than during the pre-test. Most of the students showed a positive change so that the students' speaking skills looked much better and not stammering like during the pre-test. Students' intonation was also much better than during the pre-test which was not clearly audible.

Students also experience a level of confidence so that students are able to live their characters quite well. In fact, there are some students who have experienced quite significant changes when viewed from the previous pre-test results. Students who during the pre-test looked shy and were heard mumbling when the pre-test took place looked much more confident and were able to play the role well. Almost all female students in the experimental class experienced a significant increase when the post-test took place.

In contrast to male students, some of them were still shy and seemed reluctant to perform in front, but their pronunciation and fluency seemed much better than during the pre-test. Students' understanding was also much better although there were some students who still looked stiff and could not fully understand the emotions of the roles they played when performing in front of the class, but even so, almost all students showed a fairly good change practice factor assisted by the teacher makes students' speaking skills change so that the average value of students' speaking skills has increased.

The researcher then collected data from the pre-test and post-test results of the experimental class and control class after being treated using the Auditory Intellectually Repetition model. However, before conducting the research, the research instruments were analyzed first to find out whether the research instruments were valid or not and reliable or not. The results of the speaking skills instrument testing as in Table 2 and the results of the speaking skills reliability as in Table 3.

Table 2. Reliability Results of Speaking Skills

Reliability Statistics				
Cronbach's Alpha	N of Items			
.860	6			

Indicator	Rcount Value	R _{table} Value	Description
1	0,828	0,423	Valid
2	0,888	0,423	Valid
3	0,708	0,423	Valid
4	0,725	0,423	Valid
5	0,846	0,423	Valid
6	0,657	0,423	Valid

Table 3. Results of the Speaking Skills Instrument Trial

Based on the data from the instrument test results and the reliability of speaking skills, it can be concluded that all indicators in the pre-test and post-test assessment instruments are valid, and the reliability test analysis shows a result of 0.860 which means reliable because > 0.6. The data was then processed so that the minimum, maximum, average, and standard deviation were obtained for the experimental class and control class. The results of the calculation using SPSS 27 are as in Table 4.

Table 4. Results of Student's Speaking Skills in Experimental and Control Classes

	N	Minimum	Maximum	Mean	Std.
					Deviation
Pre-Test	21	43	66	54.14	6.613
Experimental					
Post-Test	21	73	96	87.90	6.212
Experimental					
Pre-Test	21	40	63	51.57	6.801
Control					
Post-Test	21	60	90	70.67	7.213
Control					
Valid N	21				
(listwise)					

Based on the table above, the average pre-test score of students' speaking skills in class VIII A as the experimental class was 54.14 and 51.57 in class VIII D as the control class. However, after being given treatment, namely using the Auditory Intellectually Repetition learning model in class VIII A as the experimental class, the post-test score was 87.90 and in the control class which was not given treatment, the post-test score was 70.67. The average value of students' speaking skills in the experimental class increased by 33.76 compared to the control class which was not given treatment using the Auditory Intellectually Repetition learning model which only increased by 19.1. The results of the average value show that there is a difference in the average value between the class that gets treatment and the class that does not get treatment. The experimental class experienced a significant change in improving speaking skills, while the control class did not experience significant changes in improving students' speaking skills.

The data that has been obtained as shown in Table 4 is then analyzed using the help of the SPSS 27 program to test normality, homogeneity, hypothesis, and N-Gain. The normality test itself was carried out by researchers on the pre-test and post-test data of experimental and control classes using the Shapiro-Wilk formula

in calculations using the SPSS 27 program. This is done to determine whether the research data is normally distributed or not. The results of the normality test are as in Table 5.

Table 5. Normality Test Results

Indicator	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-Test Experimental	.938	1	.197
Post-Test Experimental	.937	1	.188
Pre-Test Control	.919	1	.081
Post-Test Control	.916	1	.072

Based on the table above, it is known that the significance value (Sig.) for experimental and control class data using the Shapiro-Wilk formula in SPSS 27 has a sig value of 0.05. So it can be concluded that the data is normally distributed. Because both data are normally distributed, then the homogeneity test is carried out with the help of SPSS 27 to determine the level of similarity of variance between the two groups, namely the experimental and control groups. The homogeneity test results are as in Table 6 & Table 7.

Table 6. Pre-Test Homogeneity Test Results

	Levence Statistic	df1	df2	Sig.
Based on Mean	.006	1	40	.937
Based on Median	.013	1	40	.910
Based on Median and with adjusted df	0.13	1	39.988	.910
Based on trimmed mean	.006	1	40	.941

Table 7. Post-Test Homogeneity Test Results

	Lavanaa	df1	df2	Cia
	Levence	Q11	Q 12	Sig.
	Statistic			
Based on Mean	.018	1	40	.895
Based on Median	.066	1	40	.798
Based on Median and with adjusted df	0.66	1	39.455	.798
Based on trimmed mean	.015	1	40	.905

Based on the table above, it can be seen that the Significance value (Sig.) based on mean pre-test is 937 0.05 and post-test is 895. > 0.05. So this shows that the data comes from homogeneous data. After conducting the normality test and homogeneity test, the next hypothesis test is carried out which consists of the Independent Sample T Test test. The Independent Sample T Test is used to determine whether the post-test in the experimental class which was previously given the treatment of the Auditory Intellectually Repetition learning model is effective or not on improving students' speaking skills. The results of the Independent Sample T Test test are as in Table 8.

Post-Test Levene's Test for Equality of t-test for Equality of Means Student Variances Learning Sig. df Sig. (2-Outcomes tailed) Equal variances 0.18 .895 8.298 40 .000 assumed 8.298 .000 Equal 39.139 variances not assumed

Table 8. Independent Sample T Test Results

Based on the results of the independent sample t test on the post-test data of the experimental class and control class with the help of SPSS 27, the significance (2-tailed) of 0.000 0.05 was obtained. So it can be concluded that His rejected, in other words, the Auditory Intellectually Repetition learning model is effective in improving students' speaking skills. After conducting the Independent Sample T Test which showed significant difference between the average post-test scores of the experimental group and the post-test scores of the control class, the next step was the N-gain test. The N-gain test was conducted by researchers to determine the effectiveness in the form of a percentage of the use of the Auditory Intellectually Repetition model in the experimental class and the conventional model in the control class assisted by Kokami media in improving students' speaking skills. The results of the N-Gain test on the experimental and control class data are as in Table 9.

Table 9. N-Gain Test Results

Class	Mean	Minimum	Maximum
Experiment	74.3537	52.63	90.91
Control	39.2934	9.09	72.97

The results of the N-Gain test calculation in the table above show that the average N-Gain value for the experimental class that received treatment using the Auditory Intellectually Repetition learning model was 74.3537 or 74% including in the moderately effective category, while for the average N-Gain of the control class that did not receive treatment was 39.2934 or 39% including in the ineffective category. In the experimental class that was given treatment using the Auditory Intellectually Repetition learning model, there were changes in students who were much more active and no longer shy to interact with fellow students and teachers. Students communicate with each other while in the group and check each other's roles so that each student who has a role will know what their mistakes and shortcomings are when practicing which will be used as an improvement. Students are also not shy to ask the teacher when there are things they do not understand, so that all students have the opportunity to participate, especially when speaking in front of the class.

Unlike the experimental class, the control class, namely class VIII D, which was not treated using the Auditory Intellectually Repetition learning model or

conventional learningmade students less active in the classroom. Most students from the control class could not show a significant improvement. There were still many students who stuttered because students tended to focus on memorizing the dialogue of the drama script. This caused a lack of fluency and understanding when the drama performance took place. This made a difference in the average students' speaking skills between the experimental and control classes.

4. Conclusion

Based on the results of the research and discussion, it can be concluded that:

- a. Students' speaking skills are still relatively low as seen from the average pretest score of 54.14 while in class VIII D it was 51.57. At this pre-test stage, students' confidence was still low when they had to speak in front of other students. Many of them whose voices were also inaudible and only mumbled because they felt embarrassed if they had to speak in front of other students, especially in front of the class. However, after being given treatment, namely using the Auditory Intellectually Repetition learning model in class VIII A as the experimental class, the average post-test score was 87.90. In the control class that was not given the treatment, the average post-test score was 70.67.
- b. The steps of implementing the Auditory Intellectually Repetition learning model experimental classes proved can in improve students' speaking skills, especially in expressing ideas (Auditory), being able to solve a problem in groups (Intellectually), and being able to strengthen understanding through practical tasks (Repetition).
- c. The result of independent sample t test is 0.000 < 0.005, thus showing that $H_{\rm O}$ is rejected and $H_{\rm a}$ is accepted. That is, the Auditory Intellectually Repetition learning model is effective in improving speaking skills on drama material of class VIII students at Bhakti Mulya Junior High School. As for the N-Gain test, it is known that the Auditory Intellectually Repetition learning model is included in the moderately effective category with a value of 74%. The acquisition of N-Gain values that do not reach the effective category is due to the habituation of speaking learning that was previously not maximized making the improvement of students' speaking skills cannot easily be significantly improved because it takes habituation to speak so that students' speaking skills can improve over time.

References

Andari, R. N. (2020). Peningkatan Kemampuan Berbicara dengan Model Quantum Learning Berbantuan Media Podcast (Penelitian Tindakan Kelas Terhadap Siswa Kelas XI RPL A SMK Negeri 1 Cimahi Tahun Ajaran 2019/2020). (Doctoral Dissertation). Universitas Pendidikan Indonesia.

Akhyaruddin, S. A., & Yusra, H. (2020) *Bahan Ajar Keterampilan Berbicara*. Jambi: Komunitas Gemulun Indonesia.

- Burhan, A. V., Suherman., & Mirna. (2014) Penerapan Model Pembelajaran AIR pada Pembelajaran Matematika Siswa Kelas VIII SMPN 18 Padang. *Jurnal Pendidikan Matematika*, 3(1).
- Hidayati, A., Sholeh, M., Fitriani, D., Isratulhasanah, P., Marwiyah, S., Rizkia, N. P., Fitria, D., & Sembiring, A. (2024). Analisis Faktor Penyebab Rendahnya Kemampuan Literasi Siswa Sekolah Dasar. *Jurnal Inovasi, Evaluasi, dan Pengembangan Pembelajaran (JIEPP)*, 4(1), 78-79. https://doi.org/10.54371/jiepp.v4i1.381
- Huda, M. (2015). *Model-model Pengajaran dan Pembelajaran*. Yogyakarta: Pustaka Pelajar.
- Irmawahyuni, S. (2018). Pengaruh Penggunaan Media Pembelajaran Kotak dan Kartu Misterius (Kokami) terhadap Hasil Belajar Membaca Cerita Pengalaman Bahasa Indonesia Kelas III SD Inpres Andi Tonro Makassar. (Skripsi). Universitas Muhammadiyah Makassar
- Magdalena, I., Ulfi, N., & Awaliah, S. (2021). Analisis pentingnya keterampilan berbahasa pada siswa kelas IV di SDN Gondrong 2. *Jurnal Edukasi Dan Sains*, 3(2), 245. https://doi.org/10.36088/edisi.v3i2.1336
- Mahardika, D. (2015). *Cerdas Berbicara di Depan Publik.* Yogyakarta: FlashBooks.
- Isnaini, M., Utami, L. S., & Marga, K. M. (2018). Pengaruh Media KOKAMI (Kotak Kartu Misterius) terhadap Keterampilan Berpikir Kritis dan Motivasi Belajar Siswa Kelas VIII SMP Negeri 19 Mataram Tahun Pelajaran 2017/2018. *Jurnal Hasil Kajian, Inovasi, dan Aplikasi Pendidikan Fisika*, 4(2), 18-22. https://doi.org/10.31764/orbita.v4i2.573
- Nazihah, W., & Mujianto, G. (2020). Relevansi Faktor Psikolinguistik dengan Keterampilan berbicara pada Pembelajaran Berbahasa Produktif. *Logat: Jurnal Bahasa Indonesia*, 7(1).
- Pujiastutik, H. (2016). Penerapan Model Pembelajaran AIR (Auditory, Intellectually, Repetition) untuk Meningkatkan Hasil Belajar Mahasiswa Mata Kuliah Belajar Pembelajaran Application of Learning Model AIR (Auditory, Intellectually, Repetition) to Improve Student Learning. Proceding Biology Education Conference, 13(1), 517.
- Rahmah, A., & Sodiq, S. (2021). Identifikasi Faktor Penyebab Kesulitan Belajar Keterampilan Berbicara Kelas VII-C SMP Negeri 15 Gresik Dan Solusinya. *BAPALA*, 8 (6), 19-22.
- Rohani, S. (2020). Faktor-Faktor Rendahnya Kemampuan Siswa dalam Membaca dan Menulis Kelas IV di SDN 85 Kota Lubuk Linggau. (Skripsi). Institut Agama Islam Negeri Bengkulu.
- Sugiyono. (2019). *Metode Penelitian Pendidikan*. Bandung: Alfabeta CV. Tarigan, H. G. (2015). *Berbicara Sebagai Satuan Keterampilan*. Bandung: Angkasa.

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