



## The Comparasion Between Integrated Audio Media of Ya Lal Wathan and Powerpoint Media on The Student'S Cognitive Ability

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*Received: July, 19<sup>th</sup> 2020*

*Revised: April, 19<sup>th</sup> 2021*

*Accepted: May, 11<sup>th</sup> 2021*

### ABSTRACT

The use of instructional media is one of the teacher's efforts to create maximum teaching and learning processes. Research on the use of integrated audio media Ya Lal Wathan in this study was carried out because the media used were new and had never been used by previous studies. This study aims to compare the effect of Ya Lal Wathan's integrated audio media and PowerPoint media on the cognitive abilities of high school students on Kingdom Plantae material. The study design used the Non-equivalent Control Group Design using a purposive sampling technique. We took all of the students in MAN 1 Semarang as population and 2 classes as a sample. The instruments used were 20 pre-test questions and 20 post-test questions given in PowerPoint and integrated audio class. Data were analyzed by Sign Test. The result of the study showed that there was an equally significant effect between the two classes. However, students taught by integrated audio got an average grade in the post-test that is higher than the control class so there is a positive tendency that integrated audio media with Ya Lal Wathan is good for application in learning. It is necessary to innovate our audio media for further research.

**Keywords:** integrated audio; learning media; ya lal wathan

### INTRODUCTION

Audio media is learning media that uses audio concepts in the form of musical instrument recordings. Audio media is a tool used to convey messages in the form of teaching materials or learning material through sound or sound recorded with a recording device, then played back to students with the playback device called learning audio media (Sudjana and Rivai, 1991). According to Cogo-Moreira et al., (2013), music has become a potential method to improve reading skills. Azizinezhad et al., (2013) also argue that music helps release emotions, reduce stress, and improve the ability to remember words.

In this study, we used the rhythm of Ya Lal Wathan, which is a fighting spirit song. The rhythm has a pretty fast beat and

seems uplifting. No research has been done before so we decided to use this rhythm as a template song for our audio. The rhythm of Ya Lal Wathan is integrated with the sound containing the lyrics of Kingdom Plantae material for high school students adjusted to Core Competencies, Basic Competency, and Indicators of Competency Achievement. We compiled six poems in the lyrics which contain the grouping plants into divisions based on general characteristics, and link their role in life.

The first and second verses relate to the general characteristics and classification of Kingdom Plantae. The third poem describes the structure of mosses, ferns, and seed plants. The fourth and fifth verses describe the life cycle and reproduction of each group of plants. The

sixth verse analyzes the role of Kingdom Plantae in life. These verses are arranged to facilitate students' understanding of the material.

Based on the available literature, several articles discuss music education or the influence of music on concept learning. Research conducted by Pereira et al., (2011) found the fact that by conducting a listening test and a passive listening paradigm in functional magnetic resonance imaging (fMRI), the parts of the brain that are limbic and paralimbic related to emotions became significantly active. Kesumawidayani et al., (2013) get results that the ability to remember, assess, and respond to elementary school students increased from cycle I to cycle II in classroom action research, respectively by 11%, 14%, and 13% with the use of audio media. In line with Kesumawidayani's research, Yusantika et al. (2018) also found results that the use of audio media can improve students' listening abilities. Meanwhile, the use of audio-visual media on student learning outcomes also increased marks by as much as 90% of students achieving the value of minimal completeness criteria (Fujiyanto et al., 2016).

We use the audio media Ya Lal Wathan to foster enthusiasm in learning and love for the motherland. Examined from its history, the song was composed by KH Wahab Chasbullah in 1916. He is a historical figure who succeeded in arousing the spirit of Indonesian nationalism through the education of *Pesantren Nusantara* to his students (Fathoni, 2016). There are several values contained in the lyrics of the song Ya Lal Wathan, namely love of the country, enthusiasm in fighting for the nation's strength determination in maintaining the country, and the spirit of learning. In this audio media, we use lyrics that contain concepts in the Plantae material and are sung to the rhythm of Ya Lal Wathan. It is hoped that with our media, students will be

excited, easy to remember, able to achieve learning objectives on Kingdom Plantae material and, obtain good cognitive abilities.

The research objective is to compare the influence of Ya Lal Wathan's integrated audio media on the cognitive abilities of students on Kingdom Plantae material. We provide an alternative audio media integrated Ya Lal Wathan as a novelty that needs to be followed up with further research.

## METHODS

The research method uses a quasi-experimental (quasi-experimental) design with a Non-equivalent Control Group Design. It is the experimental design by looking at differences in pre-test and post-test between the experimental group and the control group that was not randomly selected (Molani and Cahyana, 2015). This research was conducted in February 2020 in MAN 1 Semarang City.

The population of this research is the students of MAN 1 Semarang City totaling 1,327 students. The affordable population, that is all students of class X MIPA MAN 1 Semarang City, is 250 students. Samples were taken from affordable populations, namely class X. The sampling technique used was Purposive Sampling. We took two classes namely one class as a PowerPoint media class (X MIPA 6) and the other as an integrated audio media class (X MIPA 7) with each class consisting of 35 and 34 students, respectively.

Data collection techniques using pre-test and post-test. We design the research systematically using research instruments that have proven their validity and reliability. The instrument consists of 20 pre-test questions and 20 post-test questions that are tested for validity and reliability then the results are taken for analysis.

Data collection instruments as indicators of cognitive ability measurement are limited to cognitive aspects especially until C3 is based on Bloom Taxonomy. It was an objective test (pre-test and post-test) in the form of multiple-choice tests (multiple choice) totaling 20 validated questions with 5 multiple choices. The score of each question is 0 for wrong answers and 5 for correct answers. The test was conducted to obtain data on students' cognitive abilities on Kingdom Plantae material using the integrated audio media Ya Lal Wathan.

Instrument calibration is carried out with the following tests: validity test, reliability test, difficulty level, and different power.

The data analysis techniques in the statistical tests used in this study are the normality and homogeneity tests. Normality test using Chi-Squared and homogeneity test using the F test with Microsoft Excel 2010. Hypotheses were tested using the Sign Test.

## RESULTS AND DISCUSSION

### Research result

The research conducted aims to compare the effect of Ya Lal Wathan's integrated audio media and PowerPoint media on cognitive abilities carried out at MAN 1 Semarang City. The cognitive capability data for Kingdom Plantae includes pre-test and post-test scores from two different classes. One of the class uses the integrated audio media Ya Lal Wahan in learning and the other class uses PowerPoint media. The research subjects were taken from class X MIPA 6 (control class) and X MIPA 7 (experimental class) MAN 1 Kota Semarang. Pre-test results are presented in Table 1 and post-test results in Table 2.

**Table 1. Pre-test Results**

Group	PowerPoint	Integrated Audio
N	35	34
SD	14.49	11.29
The mean	41.57	41.18
Median	40	42.5
Mode	30	45

The learning process in the PowerPoint media class (X MIPA 6) begins with the delivery of learning activities that must be done by students on that day by working on the Student Worksheet. This is done to encourage students to think critically and find out independently the material to be studied. After the discussion has finished, the teacher confirms what students have discussed with several explanations and conclusions. The teacher also tests their understanding at the end of the lesson by asking some questions related to what students are discussing. It takes three meetings to complete Kingdom Plantae material. The weakness of this learning activity is that the media is less interesting and monotonous. Students are less enthusiastic and less active in working on Student Worksheet because they are bored.

**Table 2. Post-test Results**

Group	PowerPoint	Integrated Audio
N	35	34
SD	13.46	12.87
The mean	52.86	73.68
Median	55	75
Mode	55	80

The learning process of integrated audio media class (X MIPA 7) begins by conveying learning activities and work on the worksheet that assigns students to present a summary of the material that has been discussed in the form of the lyrics in the song Ya Lal Wathan. This is done to encourage students to think critically, creatively, and independently. It also triggers students to learn the material. Then the teacher confirms what students have discussed by presenting song lyrics as a summary of the material. After that, the

teacher facilitates the student's understanding and then concludes. This makes students enthusiastic and actively carry out discussions to compete with other groups. Students are focused and happy when the teacher confirms the material with the rhythm presentation Ya Lal Wathan to facilitate understanding in learning.

### Testing prerequisite analysis

The analysis prerequisite test was carried out before testing the hypothesis in the form of a normality test (Table 3) and a homogeneity test (Table 4).

**Table 3. Normality Test**

Class	Cognitive ability	$\chi^2$ count	$\chi^2$ table, $\alpha$ 5%	Information
Power Point	Pretest	272.43	11.07	Not normally distributed
	Posttest	148.47	11.07	Not normally distributed
Integrated Audio	Pretest	3.49	11.07	Normal distribution
	Posttest	11.03	11.07	Normal distribution

**Table 4. Homogeneity Test**

Cognitive ability	F count	F table	Information
Pretest	1.65	1.82	Homogeneous
Posttest	1.09	1.82	Homogeneous

### Hypothesis test

Hypothesis testing of the influence of media PowerPoint and integrated audio of Ya Lal Wathan on the cognitive abilities of students on Kingdom Plantae material using the Sign Test. This was done because the distribution of pre-test and post-test control class data was not normal so we used non-parametric statistics. The Sign Test's results of the control class and experimental class are presented in Table 5.

**Table 5. Sign Test Results of PowerPoint Class and Integrated Audio Class**

Group	$\chi^2$ count	$\chi^2$ table, $\alpha$ 5%	Information
PowerPoint	26,2813	3,841	Ho refused
Integrated Audio	32,0294	3,841	Ho refused

PowerPoint	26,2813	3,841	Ho refused
Integrated Audio	32,0294	3,841	Ho refused

Ho PowerPoint: none effect of PowerPoint media  
H1 PowerPoint: there is a PowerPoint media effect

Ho integrated audio: none effect of audio media Ya Lal Wathan  
H1 integrated audio there is audio media Ya Lal Wathan effect

Table 5 shows the results of the PowerPoint class Sign pretest-posttest test obtained  $\chi^2$ count = 26.2813, greater than  $\chi^2$ table = 3.841 ( $\chi^2$ count >  $\chi^2$ table). The test results in the pretest-posttest test for the integrated audio class obtained  $\chi^2$ count = 32.0294, greater than  $\chi^2$ table = 3.841 ( $\chi^2$ count >  $\chi^2$ table). It can be concluded that Ho is rejected, meaning that both the PowerPoint media and integrated audio Ya Lal Wathan are equally influential in the classes. Although both of them have the same conclusion but the  $\chi^2$ count of the integrated audio class is greater than the PowerPoint class  $\chi^2$ count of 5.7481, so that it can be interpreted that the cognitive abilities of the integrated audio class are higher than the cognitive abilities of the PowerPoint class.

Based on the results of the study, the average post-test of the PowerPoint class was 52.86 and the integrated audio class was 73.68 so that the difference between the two was 19.82. So, the use of Ya Lal Wathan's integrated audio media tends to improve students' cognitive abilities in Kingdom Plantae material.

### Discussion

Learning is a process to gain knowledge and experience in the form of changes in attitudes and abilities and reactions that are permanent as a result of the interaction of individuals with their environment (Sugihartono et.al., 2012). Learning outcomes are the effects of the process of gaining knowledge, practice, and attitudinal change through cognitive, affective, and psychomotor tests (Sukiyasa

and Sukoco, 2013). This achievement was obtained by mastering some of the materials provided during the learning process.

Factors that influence learning outcomes are internally originating from within students and external from outside students (Sudjana, 2000). One external factor is learning media. Based on this, the teacher needs to work on learning media as an external factor and creativity that can strengthen students' cognitive abilities (Hamid, 2018) and make learning effective (Mellisa & Yanda, 2019). Hakim et al., (2013) also stated that learning media can stimulate students' feelings, thoughts, concerns, and interests in such a way that the teaching and learning process becomes interesting. Yusantika et al., (2018) argue that learning media packaging must be done properly to arouse students' enthusiasm for learning to obtain maximum learning results.

In the initial stage, the researcher gave an initial ability test (pre-test) in the form of multiple-choice questions of 20 questions. We then treated each class by providing PowerPoint media and the integrated audio media of Ya Lal Wathan. At the end of learning Kingdom Plantae material, we provide evaluation tests in the form of a post-test to determine the cognitive abilities of students after being treated. Then the cognitive ability is compared to determine the effect of each learning media.

The implementation of Kingdom Plantae learning material in the integrated audio media of Ya Lal Wathan uses validated song lyrics (6 verses). The poem was arranged based on Indicator of Competency Achievement, namely identifying the general characteristics of Kingdom Plantae; classifying mosses, ferns, and seeds based on morphological characteristics; describing the structure of mosses, ferns, and seed plants; explaining the cycle of life and reproduction; and analyzing the role of various types of plant

in life. The results of media validation by experts are that the song lyrics use Indonesian following enhanced spelling, in accordance with the level of students' thinking, use polite language, and the lyrics are appropriate to the contents of the material.

This study measures student learning outcomes on the cognitive aspects. According to Lin et al., (2017), learning outcomes are a parameter to measure student ability while evaluating the quality of learning. The aspects are measured using an evaluation test (post-test). After students have done the learning, then the results are compared with the Minimum Completeness Criteria that has been set is 70. If the results of the post-test are greater or equal to the Minimum Completeness Criteria, it means they have mastered the material taught at least the same as the minimum number.

The analysis of the PowerPoint class's post-test data showed that the minimum value obtained by students was 15 while the maximum value was 70 with an average grade of 52.86. This means that they have not yet reached the Minimum Completeness Criteria. The unachievement factor of Minimum Completeness Criteria in the average post-test scores from the PowerPoint is less conducive to the class when learning. We see some students misusing cell phones during the discussion process and students sitting in the back are sleeping when learning activities take place. We suspect that learning using PowerPoint is so common that students get easily bored and think that they will get the material from PowerPoint given by the teacher. Therefore, they look relaxed and do not pay attention when the teacher teaches. In line with this, Ding & Liu, (2012) also stated that the use of PowerPoint can reduce interaction with students because learning is a monologue.

Meanwhile, the analysis of the post-test data of the integrated audio class got the minimum value obtained by the

students by 35 and the maximum value was 100. The average value of the class was 73.68. In general, the experimental class had reached the Minimum Completeness Criteria. We consider the integrated audio class is more enthusiastic when learning from the integrated audio media Yaa Lal Wathan compared to the one that uses PowerPoint media. Students are more expressive and cheerful because singing on the sidelines of learning will reduce boredom. Integrated audio media Yal Lal Wathan also gives students space to actively pay attention to the lyrics and rhythm. In addition, the media that we develop makes students must be able to memorize concepts in Kingdom Plantae material with the help of song rhythms. The use of music, according to Dumont et al., (2017), can provide a multi-sensory experience that will enhance learning abilities and cognitive development.

The Sign test shows that both PowerPoint media and integrated audio, Yaa Lal Wathan, have a significant effect on improving cognitive abilities. Hamid, (2018) states that PowerPoint media has the advantage of being able to display objects that cannot be physically presented as well as accommodating students with visual learning styles. Research result belonging to Vegetama (2018) also proves that the cognitive abilities of students learning to use PowerPoint media increased. He emphasized that pictures make students feel clearer so the material presented looks more real.

Meanwhile, the influence of integrated audio media Ya Lal Wathan was also significant to improve cognitive abilities. Audio media, according to Wicaksono's research result (2017), makes students more active in teaching and learning activities. We agree with this because we observe that students become more active by singing. Mellisa & Yanda (2019), state that two-way learning makes learning effective. Compared to the use of PowerPoints that make students passively

listen to teacher lectures, the use of our audio media makes students actively sing while learning concepts. Seeing the results obtained, we know that the development of our audio media has the potential to be used by teachers as alternative learning media. We compose poems in a sentence that is easy to understand. Broudy (1990) said that the alphabet arrangement that has the soul of art can encourage students to recognize and analyze objects which in this study are learning concepts. Research, conducted by Hakim et al., (2013), gets the results of increased cognitive, affective, and psychomotor abilities of students when learning to use audio media accompanied by Problem Based Instruction learning models. Meanwhile, Rosyida et al., (2017) found that audio media can be combined with Problem Posing learning models to improve cognitive abilities. The same results were obtained by Fathi Falaha Zauma et al., (2021) who use the Discovery Learning model with audiovisual media can make effective learning. This gives a recommendation that the integrated audio media Ya Lal Wathan can be used together with appropriate learning strategies so that students' cognitive abilities can be improved again.

However, based on the average value of the post-test of the control class and the experimental class, we obtained the result that the average value of the experimental class was higher than the control class. We assume that there is a tendency for the use of the integrated audio media Yaa Lal Wathan that we have developed can improve students' cognitive abilities.

## CONCLUSION

In conclusion, there is a positive influence of learning with integrated audio media Ya Lal Wathan compared to using conventional learning with PowerPoint media. The audio media that we have developed can be used as a reference as an alternative learning media to improve the quality of learning. We hope this research can initiate other researchers to

reexamine the influence of our media not only in the cognitive realm but also in affective and psychomotor. We also recommend the use of Ya Lal Wathan's integrated audio media combined with learning models or other media to create effective learning.

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