

The Effect of Utilizing Audio Murottal Al-Qur'an and Classical Music on Biology Learning to Increase Students' Learning Concentration

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Abstract: This study aims to improve students' learning concentration by using audio Murottal Al-Qur'an and Classical Music on Fungi material. The hypothesis studied in this study is that there is an effect of utilizing audio Murottal Al-Qur'an and classical music on increasing the concentration of learning of high school students at 1 Kabila. The research method used is quasi experiment. The research design is Pretest Posttest Control Group Design. The population in the study were all students of class X SMAN 1 Kabila, which were taken using purposive sampling technique. The results showed that there was a significant difference between before and after treatment. Because there is a difference, it is said that there is an effect of utilizing audio Murottal Al-Qur'an and classical music on students' learning concentration with a statistically significant p-value that is lower ($p = 0.000$) < than the alpha value $\alpha = 0.05$. This is also reflected in the improvement of students' learning outcomes which shows that both methods are at the level of quite effective, with an N-Gain value of Murottal Al-Qur'an of 64.49% and Classical Music of 60.73%. Thus, it can be concluded that there is an effect of utilizing audio Murottal Al-Qur'an and classical music on increasing the learning concentration of students of SMA Negeri 1 Kabila.

Keywords: Classical music; Fungi; Learner concentration; Learning outcomes; Murottal Al-Qur'an

Introduction

Quality education is the most important requirement in realizing a superior and advanced national life. With a good education system, it is expected to create the next generation of qualified nations and be able to adjust to living in society, nation and state. Education can be interpreted as a learning process which can be interpreted as an activity where there is a delivery of learning material from an educator to students, so that this learning activity is highly dependent on the components in it. The Law on Education System No.20 of 2003, states that Education is

a conscious and planned effort to create a learning atmosphere and learning process for students to actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state (Riinawati, 2021).

The learning process at school cannot be avoided from biology because biology is one of the difficult subjects (Mardin, 2017; Mardin et al., 2023). Some students still think that biology lessons are quite difficult lessons because the material is very large and there are Latin terms that are difficult to understand. In addition, biology lessons are rote lessons, so they are not very

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popular with students (Jayawardana, 2017; Nisak, 2021; Hisdayu et al., 2023). One of the problems that students often experience in the learning process, especially learning biology material on fungi, is difficulty concentrating on learning. Learning concentration is focusing all attention on a learning situation. Theoretically if the concentration of students is low, it will lead to low-quality activities as well and can lead to unseriousness in learning (Romadani, 2017; Rianti & Dibia, 2020; Narsih et al., 2022). That seriousness will affect the understanding of the material. Whereas concentration is the main capital for students in receiving material and is an indicator of successful learning implementation (Aviana & Hidayah, 2015).

The results of interviews with biology teachers in the field, namely at SMA Negeri 1 Kabila, show that students at the school have a stable level of learning concentration at the beginning of learning, then decreases when starting to enter the middle of the lesson, and further decreases until the end of learning. This can be seen by the movements of students who chat, do not listen, are sleepy, play cell phones, and even sleep in class. Students' attitudes, study habits and academic achievement are influenced by the media (Yusuf et al., 2023) and their enthusiasm and concentration in learning (Mutya et al., 2023). Therefore, a fun method is needed that makes students relax in learning and can focus their concentration on ongoing learning (Apriyani, 2015).

Based on this experience, one method that can be used to make students relax and concentrate on learning is music. Music is a combination of sounds arranged in such a way that includes rhythm, rhythm, tone and harmonization of several sound sources that give a good impression to be heard by the listener. Music has several types, one of which is classical music. Classical music is also believed to activate parts of the brain structure so as to provide comfort for the listener and classical music is an effective way that can be used to improve learning concentration (Faradi, 2016; Firdawati, 2021; Hutagalung & Sinagi, 2022).

There is another type of music that has an influence on those who hear it, namely audio murottal Al-Qur'an which has a good influence on the listener (Ali et al., 2021). Murottal is a recording of the Qur'an recited using good and correct tajweed and sung by a Qur'an reader (qori). The melodious strains of reading the Qur'an are able to provide a sense of comfort and calm (Nugraha, 2020). By listening to the Qur'an murottal can reduce the anxiety and tension experienced by a person, so that when listening can increase learning concentration (Julianto et al., 2016). Al-Qur'an stimulants can bring up alpha and delta waves which can provide relaxation and concentration effects and improve memory (Umar et al., 2020; Rahma et al., 2022).

Based on the description above, it is important to conduct research on the Effect of Using Audio Murottal Al-Qur'an and Classical Music on Concentration and Improving Student Learning Outcomes.

Method

The method used in this research is a quasi-experiment whose sampling is done using purposive sampling technique. The research design used in this study was Pretest Posttest Group Control Design using 2 groups, namely class A which amounted to 30 students and class B 30 students. The two classes were each given different treatments. Class A is a class that gets treatment in the form of listening to audio Murottal Al-Qur'an, while for class B is listened to classical music.

The instruments used in this study were questionnaires and tests. Questionnaires are used to determine the level of learning concentration, while tests to determine student learning outcomes. Instrument data will be processed using formulas and criteria tables. The test was conducted at the significance level $\alpha = 0.05$. H_0 is rejected if $t_{count} \geq t_{table}$ that is, there is an effect of audio murottal Al-Qur'an and classical music on students' learning concentration. The t-test formula is as follows (Pratama, 2019).

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\left(s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \right)} \tag{1}$$

With the value of s obtained from the formula:

$$s = \sqrt{\frac{s_1^2(n_1 - 1) + s_2^2(n_2 - 1)}{n_1 + n_2 - 2}} \tag{2}$$

Description:

- \bar{x}_1 = Group 1 average
- \bar{x}_2 = Group 2 average
- s = Combined standard deviation
- n_1 = Number of samples in group 1
- n_2 = Number of samples in group 2
- s_1 = Combined standard deviation 1
- s_2 = Standard deviation of group 2

To determine the N-Gain, the following formula was used (Farell et al., 2021).

$$N - Gain = \frac{\text{Posttest score} - \text{Pretest score}}{\text{Maximum score} - \text{Pretest score}} \tag{3}$$

Description:

- N-Gain (g) = Magnitude of gain factor
- Posttest score = Final test score
- Pretest score = Initial test score

Maximum score = Maximum test score

The results of the calculation of the N-Gain of students are interpreted into those listed in the following Table 1 and 2.

Table 1. N-Gain Value Criteria

N-Gain Value	Category
$g > 0.7$	High
$0.3 \geq g \geq 0.7$	Medium
$g < 0.3$	Low

Table 2. N-Gain Effectiveness Categories

Percentage %	Interpretation
> 76	Effective
56 - 75	Effective Enough
40 - 55	Less Effective
< 40	Ineffective

Result and Discussion

In this study, the questionnaire instrument was used as a tool for measuring the concentration of students' learning which consisted of 10 statement items. While the test is used to measure students' learning outcomes on fungi material consisting of 20 multiple choice questions prepared based on learning indicators.

Based on the analysis that has been done, it shows that the learning concentration of students who are listened to Al-Qur'an murottal obtains an average score of 83.42 with the highest score obtained by students of 97.5 and the lowest score of 72.5. While the learning concentration of students who were listened to classical music obtained an average score of 76.5 with the highest score obtained by students of 95 and the lowest score of 62.5. From the scores obtained by students, they were then averaged and percented, where in the murottal Al-Qur'an class obtained a pre-test and post-test of 43.33 and 83.42. And the classical music class obtained a pre-test and post-test of 38.17 and 76.5.

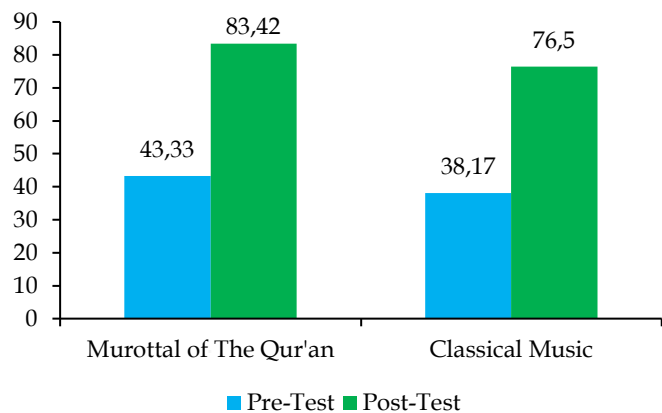


Figure 1. Pre-test and post-test results of learning concentration

Based on Figure 1. it can be seen that the results of the pre-test and post-test of students' learning concentration using Murottal Al-Qur'an and Classical Music show a positive change after the application of the two treatments. First of all, in the class that listened to Murottal Al-Qur'an, there was a significant increase from the average pre-test score of 43.33 to 83.42 in the post-test. This indicates that the use of Murottal Al-Qur'an can have a positive impact on students' learning concentration. Where there was an increase of 40.09 points (83.42 - 43.33). This means that the use of Murottal Al-Qur'an is able to provide a very significant increase in learning concentration in students. In the group that listened to Classical Music there was also a significant increase. The average pre-test score in this group was 38.17, and increased to 76.5 in the post-test. Classical music, with its harmonious and calming characteristics, is able to have a positive influence on students' learning concentration. This means an increase of 38.33 points (76.50 - 38.17). This means that the use of Classical Music is also able to provide a very significant increase in students' learning concentration. It is concluded that both of them make a positive contribution to increasing students' learning concentration. Both Qur'anic murottal and classical music can be considered as effective methods in improving learners' learning concentration.

As for additional data on learning concentration, researchers also conducted research on student learning outcomes and obtained the following results.

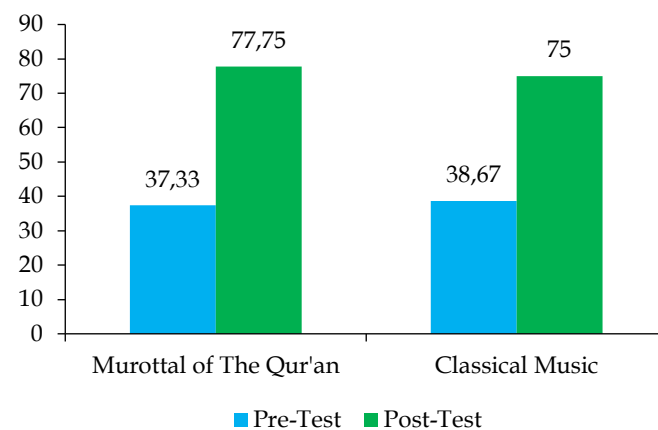


Figure 2. Student learning outcomes of mushroom material

Based on Figure 2, the Murottal Al-Qur'an, group saw an increase in the average score from the pre-test of 37.33 to 77.75 in the post-test. While the group listening to Classical Music showed an increase in the average pre-test score of 38.67 increasing to 75 in the post-test. From these results, it can be seen that Qur'anic murottal and classical music are able to create a learning environment that supports increased concentration and understanding of the material. However, between the

sound of the Qur'anic murottal and classical music does not have a significant difference and improve students' learning outcomes.

Learning concentration is the ability to focus attention on lessons (Setiani et al., 2014; Mayasari, 2017; Margiathi et al., 2023). The learning process is said to be successful if the learning objectives are achieved. The success or failure of achieving the learning objectives depends on the level of concentration of the students. Because concentration is the key so that students can receive all the material taught. One way that can be done to increase students' concentration is by developing critical thinking skills in learning. It is believed that developing critical thinking skills in learning will make students active in constructing their knowledge, so that students become focused or concentrated on what they are learning (Malawi & Tristiar, 2016; Riinawati, 2021; Arifin & Laili, 2022).

Based on the hypothesis test, it was decided that there was an influence of the use of audio murottal Al-Qur'an and classical music on increasing the learning concentration of students at SMA Negeri 1 Kabila. This was proven through the paired samples t-test which showed that there was a statistically significant effect of the treatment of the two experimental classes, with a lower p-value ($p = 0.000$) < than the alpha value $\alpha = 0.05$. If a result is statistically significant, it means that the result cannot possibly be explained solely by chance or random factors (Hermawan & Hariyanto, 2022). It can be explained that, statistically significant results have a very small chance of occurring if there is no actual effect in a study. If the p value is lower than the significance level, the result is interpreted as refuting the null hypothesis and is reported as statistically significant.

A deeper analysis of the pre-test and post-test data showed significant changes in both groups. First of all, the group that listened to Murottal Al-Qur'an experienced a very significant increase in learning concentration. The average initial concentration questionnaire score of 43.33 increased significantly to 83.42 in the final concentration questionnaire results. An absolute increase of 40.09 points or around 92.5% from the initial score shows the effectiveness of this method in increasing students' learning focus and concentration.

This is in line with the theory that the Qur'an has several terms, one of which is As-Syifa which shows that the Qur'an functions as a medicine for various diseases, both physical and non-physical. The Qur'an contains matters related to medical science and treatment that can cure physical illnesses and in the Qur'an it can also cure non-physical illnesses, namely diseases of the heart or soul, anxiety and sadness (Anam, 2016; Khairani, 2020; Azzahroh et al., 2020; Datau, 2022). One of the verses in the Qur'an that hints at treatment is Q.S al-Isra verse 82, which means (Hajar & Novanto, 2021).

Listening to the holy verses of the Koran or murottal can provide peace to the listener and can overcome various kinds of mental disorders (Yuniartika et al., 2022; Zakiyah, 2023; Sari et al., 2023). The sound of murottal Al-Qur'an played for 15 minutes can have an effect on calming. Murottal Al-Qur'an has the ability to stimulate alpha waves so as to produce a calm, serene and peaceful state for the listener. This state, which is the best condition for the body system, can help people reduce stress and be more comfortable (Allina, 2021; Amalia et al., 2022; Iryani et al., 2023).

Meanwhile, the group that listened to Classical Music also had an influence on students' learning concentration which experienced a significant increase. The average pre-test score of 38.17 increased to 76.5 on the post-test, showing an increase of 38.33 points or around 100.4% from the initial score. This is in line with the opinion of Khoiriyah et al. (2017) that the vibrations and harmonization produced by classical music will affect a person physically, causing a person to become relaxed or at ease, while the regular rhythm affects a person psychologically, making him comfortable and calm. Based on this, of course music functions to be used and utilized as a relaxation medium that can focus the mind and relax the body. Relaxation is useful for eliminating boredom due to studying, providing enthusiasm, anxiety, lack of need for sleep, practicing concentration in studying and even being able to generate motivation to study (Surya, 2014; Hutagalung & Sinagi, 2022).

Calculation of the N-Gain value shows that both methods are at the level of quite effective, with Murottal Al-Qur'an reaching 64.49% and Classical Music reaching 60.73%. This indicates that both methods make a positive contribution in increasing students' learning concentration. Apart from that, in the context of increasing learning concentration, of course the positive effects also have an impact on increasing students' grades. According to research results, student learning outcomes have also increased. In the Murottal Al-Qur'an group, there was an increase in the average score from the pre-test of 37.33 to 77.75 in the post-test. On the other hand, the group that listened to Classical Music showed an increase in the average pre-test score of 36.33 increasing to 75 in the post-test.

When learning concentration increases, students tend to be more focused and involved in the learning process, which in turn can increase their understanding of the subject matter (Rahma et al., 2022). With increased understanding, students have a greater possibility of doing assignments better and achieving higher grades in tests and evaluations. Consistency in increasing learning concentration can also have a significant long-term impact on students' academic achievement. In addition, when learning concentration increases, students also

tend to gain greater self-confidence in dealing with lesson material. They become more confident in answering questions, participating in class discussions, and even in working on more complex projects or assignments (Supriatna & Quthbi, 2021; Yaqin et al., 2023).

Increasing learning concentration in students is of course directly related to improving learning outcomes. This is supported by Setiani et al. (2014), explaining that learning concentration is the ability to focus one's mind on a lesson. When students are able to concentrate, they are better able to understand the material, analyze information, and apply the knowledge gained. This opinion is supported by Setyani et al. (2018), who state that increased learning concentration has a direct impact on improving student learning outcomes. With a higher focus on the subject matter, students have a better ability to understand the concepts taught, improve analytical skills which ultimately contribute to improving their grades and academic achievements. This is in line with the statement by Yulia et al. (2017) that the higher the student's learning concentration, the higher the student learning outcomes obtained. Students who concentrate, have readiness, pay attention in the learning process well will make it easy for students to absorb and understand the lesson material presented by the teacher so that it has an impact on the learning outcomes obtained (Agustina & Sitompul, 2015; Astuti et al., 2018; Yenni et al., 2018).

The influence of audio on the human ear, because the ear functions as a hearing organ which is the reception of auditory stimuli or sounds. The hearing process begins with auditory stimulation in the form of sound. The signal will be captured by the ear, causing it to vibrate and transmitted through the air or bones to the cochlea. These vibrations will be transmitted to the auditory ossicles which are connected to each other. The physical stimulation is converted by the difference in potassium ions and sodium ions into an electrical current that passes through the VIIIth nerve (cochlear vestibule) to the brain, specifically in the hearing area. After experiencing changes in the action potential generated by the auditory nerve, the propagation of the action potential to the auditory cortex (which is responsible for analyzing complex sounds, short-term memory, pitch comparison, inhibiting unwanted motor responses, serious hearing, and so on) is received by temporal lobe of the brain to perceive sound. The thalamus as an impulse transmitter will transmit stimuli to the amygdala (where emotional memories are stored) which is an important part of the limbic system (which influences emotions and behavior) (Komariyah et al., 2020).

In line with Apriyani (2015) that audio therapy works on the brain when driven by external stimulation

(listening to audio murottals of the Koran and classical music), then the brain will produce chemicals called neuropeptides. These molecules will connect to receptors in the body which will provide feedback in the form of pleasure and comfort.

Conclusion

Based on the results of research that includes the utilization of the audio method Murottal Al-Qur'an and Classical Music in improving students' learning concentration, it can be concluded that the Alternative Hypothesis (H1) is proven and accepted. The P value = $0.000 < \alpha = 0.05$, thus stating that both methods have a significant effect on students' learning concentration. The results showed that both methods, namely Murottal Al-Qur'an and Classical Music, were effective in improving students' learning concentration. The Murottal Al-Qur'an class experienced an average increase from 43.33 to 83.42 in the post-test. While the Classical Music class increased from 38.17 to 76.5. This is also reflected in the increase in student learning outcomes, with an N-Gain value of Murottal Al-Qur'an of 64.49% and Classical Music of 60.73%. Thus, it can be concluded that there is an effect of utilizing audio murottal Al-Qur'an and classical music on increasing the learning concentration of students of SMA Negeri 1 Kabila.

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Author Contributions

Novi Safitri Lamangida as conceptualization of the research, Conceptualization A.S.K., H.M., J.A., A.M.H., and M.L.; methodology, A.S.K., H.M., J.A., A.M.H., and M.L.; validation, A.M.H.

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Conflicts of Interest

The authors declare no conflict of interest.

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