A PODCAST ON RESPIRATORY SYSTEM MATERIAL: A VALID, PRACTICAL, AND EFFECTIVE AUDIO MEDIA FOR STUDENTS

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ABSTRACT

Learning media is essential in teaching and learning because it can influence student learning outcomes. This research aims to develop a valid, practical, and effective podcast-based audio learning media on respiratory system material for class XI MIA 2 MA Madani Alauddin Pao-Pao.This study type is research and development (R&D) based on the ADDIE model, which consists of five steps: analyze, design, develop, implement, and evaluate. This research was conducted at MA Madani Alauddin Pao-Pao with research subjects, namely class XI MIA 2, totaling 30 students. The instruments used were validation sheets, questionnaires, test questions, and validated lesson plans.The findings showed that the very valid category had a media validity score of 3.66. Teachers responded to the media's practicality in the very practical category with 92.85%, while students responded in the practical category with 79%. Of the 30 total students, 25 of them got scores above the minimum completeness criteria (KKM) with a percentage of 83.33%, and 5 of them got scores below the KKM with 16.66%.This research implies that podcast-based audio media on human respiratory system material is suitable for application in the learning process both offline (outside the network) and online (in the network).

Keywords: Audio Media, Podcast, Respiratory System

1). INTRODUCTION

Education includes the process of transferring knowledge and the changes in values that lead to each person's personality. The process of interaction between the giver of knowledge (the educator) and the recipient of knowledge (the students), as well as the process of implementing knowledge, becomes a separate assessment for educators from the perspective of the level of success and for students in implementing it. Education has the aim of advancing intellectual and physical character that is in line with nature and society. In addition to developing potential, other important aspects such as understanding noble morals and understanding religion are also improved.

When dissected, learning components are divided into three categories: educators, media as teaching materials, and students. The role of the educator is very important because his main task is to act as a guide who wants to transfer knowledge and shape the personalities and morals of students in a positive direction. On the other hand, students have a role in accommodating knowledge in the community environment. Finally, media as teaching material is knowledge provided by educators through messages designed to be easily understood and digested by students.

Media certainly has a very beneficial effect on the smoothness of the learning process because it is integral and mandatory in the world of education. Of course, the addition of media will enable students to explore their potential in more depth regarding the material, making them interested in continuing to write, speak, and imagine. The presence of media significantly impacts communication between educators and students, fostering an ideal learning atmosphere. Notably, media plays a crucial role in preventing students from experiencing boredom.

Podcasts can increase students' motivation and interest in learning by listening to various attractive discussions and background sounds. Podcasts that are distributed on social media must pay attention to voice clarity, appropriate background sound, and the duration of the topic of discussion. A drawback of utilizing podcasts in education often lies in the challenge of finding and accessing them. This difficulty arises because podcasts widely distributed on social media predominantly focus on topics related to individuals' personal development and interests, which may not directly align with educational needs.

The background sound used in podcasts can influence the psychology of listeners, especially students. The background sound can create a good impression or mood because, when students listen to the podcast, the thing that brings them into listening is the background sound of the audio recording. Based on studies, music can influence human thoughts and feelings. Music can provide positive energy and bring calm.

Based on the results of observations and interviews at Madrasah Aliyah Madani Alauddin Pao-Pao, in the results of interviews with biology educators and several students at the school, it was said that the current learning process uses face-to-face learning methods. Then, because of the material difficulty of the instrument that was distributed, the material that was difficult to understand was the respiratory system material. Researchers also made observations by giving questionnaires regarding students' learning styles. As for the results of observations made on class samples from the population

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at MA Madani, namely in class XI MIA 2, 80% of the student's learning style was an auditory learning style. Researchers believe that using suitable media is essential to address material challenges that students find difficult to comprehend and align with their learning styles. Educators have used media that suits students' learning styles, namely audio-voice note media in online learning via WhatsApp. However, this media still has several shortcomings, such as plain sound recordings, material in the media that is vulnerable to loss, requires a large space for storage, and is not systematically structured, making it confusing for students to access it. The media needs to be modified to cover deficiencies, so one of the best media solutions is a podcast, which can be accessed on the default Play Store application, such as Spotify. Thus, this research aims to develop a valid, practical, and effective podcast-based audio learning medium on respiratory system material for class XI MIA 2 MA Madani Alauddin Pao-Pao.

2) METHODS

This research method takes the form of research and development. This method is used to create products with a certain level of effectiveness (Emy, 2020). Development research aims to develop and revise the media being developed based on data conveyed when testing them in the field. According to Haryawati, Gede, and Made Diah (2019), development research is aimed at producing products from excellent research and development methods, which are then researched, designed, produced, and the results assessed. The development model used is the ADDIE development model. According to Rayanto and Sugianti (2020), "The ADDIE model is a process traditionally used by instructional designers and training developers that is constantly changing, easy, and a tool on display.

1. Data Analysis Method

The ADDIE model is a structured development model with stages consisting of five (five), namely analysis, design, development, implementation, and evaluation.

It is hoped that podcast media can help the learning process to improve student learning outcomes, starting from the analysis stage (Analyze), which includes problem validation, determining learning objectives, analyzing students, identifying things needed, determining an introductory system, and preparing a development implementation plan. The problem found in schools is the lack of use of media in learning, especially the use of media that suits students' learning styles. The lack of use of

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media in learning causes students to be less able to achieve the maximum learning process. This is following what Ariyanto, Derisna, and Ida (2019) stated: the lack of media used in learning can cause learning to be less effective, uninteresting, and slow to understand.

The second stage is design, which includes preparing the components needed to create podcast media, preparing product development goals, and preparing validation instruments. Media is designed on a cellphone using the main application, namely Kinemaster. Apart from that, supporting software such as MP3 Converter, Lexis Audio Editor, and Anchor is used to upload media to Spotify. The raw format of the media is MP4, which can be edited on a cellphone with Kinemaster installed before being used as a podcast media.

In the third stage, media is developed based on the design that has been carried out. This stage was carried out by researchers to realize the design that had been made into a finished product, namely in the form of podcast-based audio media. Apart from that, this process also validates the media that has been developed. At this validation stage, the validator provides input in the form of comments and suggestions and provides an assessment of the podcast media.

The fourth stage is implementation; at this stage, the valid application media is implemented in MA Madani Alauddin Pao-Pao class XI MIA 2 with 30 students. This implementation aims to see the implementation of these media in real learning and also to get responses about how practical it is from students and teachers regarding the media being developed. Apart from that, it is also to determine the effectiveness based on tests of student learning outcomes so that later media can be acquired that are practical and effective for the learning process.

This evaluation stage is carried out at each previous stage so that revisions and improvements can be made gradually so that the final product or learning medium developed can be valid, practical, and effectively used in the learning process.

2. Method of Collecting Data

In this research, researchers used qualitative data. Qualitative data was obtained from the results of revisions made to the media based on validator comments and suggestions via validation sheets. Apart from that, qualitative data was also obtained from the results of a questionnaire distributed to educators and students of class XI MIA 2 MA Madani Alauddin Pao-Pao regarding the media being developed. Quantitative data was obtained from the accumulation of questionnaire recapitulation results.

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3) RESULTS AND DISCUSSION

1. Results

Podcasts are a method of broadcasting content that is currently in a period of very rapid development. Podcasts can be created based on the theme that the podcast creator wants to create. But usually, this podcast discusses things that are trending to be discussed. Podcasts, of course, undergo an editing process first and free up time. Anyone can create a podcast with unlimited time, meaning it can be listened to (Christin, Ariel, and Dini, 2021). Podcasts have many types and genres, often developing over time; in fact, anything can be included in a podcast. Podcasts should be recorded in a recording studio to produce intelligible sound (Asmi, Aulia, and Supriyanto). Podcasts are currently very popular with various groups, both as listeners and as content creators. The reason is that this medium presents a sound recording that adapts to the times and is very simple.

The steps taken by content creators in creating a podcast are: 1) determining the right topic to discuss. The right topic will certainly influence the number of people who are interested in continuing to listen. The right topic can be termed a topic that is hot to discuss (viral cases), a topic that suits the listener's genre, and a topic that can attract loyal listeners. The podcast that the researcher created is "The Respiratory System and Its Phenomena." 2) systematically compiling the text of the sentences that will be discussed later. This is to avoid mistakes in speaking and as a reference in conveying the narrative. 3) Start making audio recordings according to the predetermined topic.

Anchor and Spotify are the two main applications that play an important role in the media being developed. First, to record sound, the Anchor application is used. Second, Spotify is an application for uploading media that has been developed so that it can be accessed easily.

The topic raised in the researcher's podcast aims to serve as teaching material for MA Madani Alauddin Pao-Pao students, especially class bio-processes and functional disorders that can occur in the human respiratory system. So the discussion in this podcast includes the location and function of the respiratory system organs, respiratory mechanisms, and diseases related to the respiratory system.
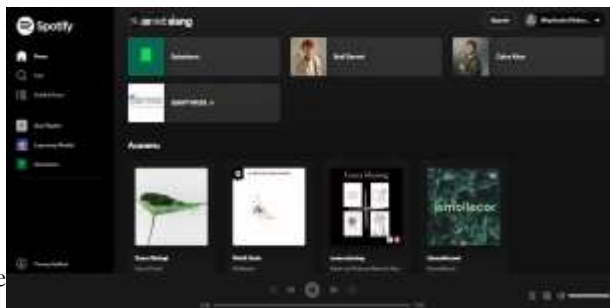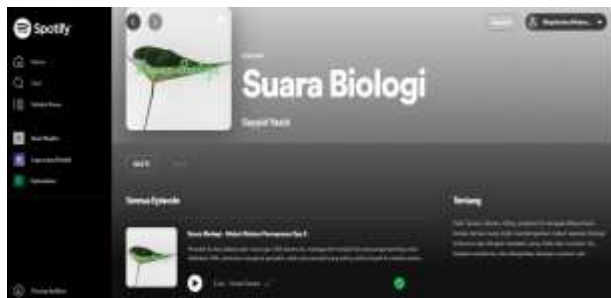
Figure 1. Spotify Home Display

Figure 2. Biologi Sound Content Display

Results of Media Validation, Media Practicality Test and Media Effectiveness Test

Media feasibility test validation data is known by providing a validation sheet to the validator to assess the level of validity. Media validation is needed as an evaluation of podcast products developed by researchers. The way to find out the results of the media practicality test is to distribute a questionnaire to educators as students. Finally, media can be said to be effective if it meets the school's minimum KKM after distributing test questions.

The results of validation by the validator can be seen in table 1.

Table 1. Podcast-Based Audio Media Validity Test Results

Assessment Aspects	Rating	Category
Podcast Quality	**3,66**	Very Valid
Podcast-Based Audio Media Content	**3,75**	Very Valid
Technical Quality	**3,83**	Very Valid
Podcast Length	**3**	Valid
Appropriate Use of Terms in Podcasts	4	Very Valid
Average	**3,64**	Very Valid

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The results of the media practicality questionnaire distributed to educators and students can be seen in table 2.

Table 2. Podcast-Based Audio Media Practicality Test Results

Typeof Assessment	Average	Assessment criteria
Educator Response	**73%**	Practical
Student Response	**94,04%**	Very Practical

The results of the test questions given to students to measure the level of media effectiveness can be seen in table 3.

Table 3. Results of Effectiveness Test of Podcast-Based Audio Media

Score	Student Completeness	Number of Students	Percentage
75-100	Completed Students	25	**83,33%**
0-74	Students who do not complete	5	**16,55%**
Average		30	**100%**

2. Discussion

Podcast media is expected to help the learning process improve student learning outcomes, starting from the analysis stage (Analyze), which includes validating problems, determining learning objectives, analyzing students, identifying things needed, determining an introductory system, and preparing development implementation plans. The problem found in schools is the lack of use of media in learning, especially the use of media that suits students' learning styles. The lack of use of media in learning causes students to be less able to achieve the maximum learning process. This is under what was stated by Ariyanto, Aditya, and Dwijayanti (2019), that the lack of media used in learning can cause learning to be less effective, uninteresting, and slow to understand.

The second stage is design, which includes preparing the components needed to create podcast media, preparing product development goals, and preparing validation instruments. Media is designed on a cellphone using the main application, namely Kinemaster. Apart from that, supporting software

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such as MP3 Converter, Lexis Audio Editor, and Anchor is used to upload media to Spotify. The raw format of the media is mp4, which can be edited on a cellphone with Kinemaster installed before being used as podcast media. Media can be accessed online and offline, but to insert media into Spotify you need an anchor application installed on your cellphone. To enter the anchor application, the media format is first changed by the mp3 converter application. Media that has been included in the Spotify application can be used on various devices such as laptops, Android, and tablets without an internet network when the podcast episode has been downloaded unless initially installing the application.

The third stage is development. At this stage, the researcher realizes the design that has been made into a finished product, namely in the form of podcast-based audio media. Apart from that, this process also validates the media that has been developed, where at this validation stage, the researcher involves media experts and material experts to provide assessments and input on the media being developed.

Researchers also make revisions and improvements according to suggestions given by the validator. Based on suggestions from validators, the sound of the conversation in the podcast was made clearer by removing noise using the Lexis audio editor application and adjusting the podcast discussion topic in episode 2, which was too monotonous, so that the discussion topic was changed from full material to unique facts. Then the duration is also increasingly adjusted so that students will not get bored with continuing to listen, even though the average learning style of students is auditory.

The fourth stage is implementation. At this stage, the valid application medium is implemented in MA Madani Alauddin Pao-Pao, class XI, MIA 2, 30 students. This implementation aims to see the implementation of this media in real learning and also to get responses about how practical it is from students and teachers regarding the media being developed. Apart from that, it is also to determine the effectiveness based on tests of student learning outcomes so that later media can be obtained that are practical and effective for the learning process.

This evaluation stage is carried out at each previous stage so that revisions and improvements can be made gradually so that the final product or learning medium developed can be valid, practical, and effectively used in the learning process.

The validity of the learning medium can be seen from the validator's assessment. The assessment is adjusted to the media validity level category table. The average validity result of this podcast medium is classified as very valid because the average assessment result from the two validators is 3.64. Aspects

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of podcast quality, material content, technical quality, podcast duration, and appropriateness of use of terms get very valid results.

The assessment of the quality aspect of the podcast obtained an average score of 3.66 with a very valid category; this shows that there is no longer a single part of the plot that cannot be understood by students due to the unclear sound because the media developed has been adjusted using the Lexis audio editor application.

The assessment of the podcast media content aspect received an average score of 3.75 in the very valid category. The suitability of the content in the media refers to the 2013 curriculum, so it will be in line with K.D. and K.I. The learning topic is also very clear so that it does not hinder students' understanding when listening.

The technical quality assessment obtained an average score of 3.83 in the very valid category. This is also supported by Spotify's convenience in everything. Its simple appearance makes it very easy for students to access the entire episode (Netti and Irwansyah 2018, 1-6). Then, even if the user's podcast account is deleted, the podcast content that was previously downloaded will not be deleted in the sense that it is stored permanently.

The appropriateness aspect of using terms in podcasts received an average score of 4 in the very valid category. This means that the language used is easy for users to understand and is appropriate for the use of PUEBI, but it is necessary to choose a more communicative vocabulary when conveying media content. According to Rusliana (2022), good and correct Indonesian grammar is by applicable regulations, namely by using PUEBI.

Learning media can be said to be valid and appropriate if the assessment results are at least in the good category (Pradana, Budiana, and Hadinata 2021, 92). The media developed is said to be valid if the resulting level of validity is valid. If the level of validity of the learning being developed is lower than valid, then revisions need to be made to obtain a valid level of validation (Simanjuntak 2019, 14).

The practicality of the media can be seen from the responses of students using podcast-based audio media. Based on the results of the responses given by students and educators, overall, this medium is very practical to use. This practicality is assessed in several aspects, namely interest, convenience, and achievement of learning objectives. Based on the responses of educators and students, it can be seen that the podcast-based audio media developed has great benefits in the learning

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process, where the positive response of students is 75.70% (practical) and that of educators is 94.04% (very practical).

Responses to the interest aspect show that the media developed attracts the attention of students, especially those with appropriate learning styles. Apart from that, the presence of supporting background sounds indirectly makes students more comfortable continuing to listen. Finally, the discussion and language style in the podcast must also be as harmonious as possible so that students are guaranteed to enjoy the flow of the podcast.

The ease aspect of the media from students received a response of 79% and from educators 92.85%. This shows that overall this media is easy to use, whether it is accessing directly, downloading, ease of understanding the material, making students more focused, or the material is structured and clear. Through podcast-based audio media, it is certainly easy to access and use by students and educators. With various advantages, this application can be an alternative and additional learning medium to train students' independence in learning.

Practically, the podcast media that is developed is supported by the ease with which users use the media. Media practicality refers to users who suit the media learning style so that they like the media and can also use it easily (Maulida and Syadeli 2021, 232). Apart from that, media is said to be practical in terms of its usefulness, namely the extent to which students can master the material using media. Through media, students can be helped to learn both in groups and independently, which makes them interested in the material and makes them learn faster than usual according to needs (Indriastuti 2014, 311).

This podcast medium is practical because there is a download menu and a search menu, which makes it easy to find the content and episodes you want. Episodes arranged systematically can make it easier for students to choose the desired episode according to their respective stages. Even when there is no network, students can still access the media as long as it has been downloaded first (Indriastuti 2014, 309–310).

The practicality of media can be seen in two aspects, namely interest and convenience. The media's interest can be seen in the adaptation of podcasts, which, although not focused on visualization, can make students comfortable enough to continue listening (Toyib, Syafiq, and Harir 2012, 52). The convenience of media can be seen in the ease of accessing it, storing it, and saving quotas (Farhan

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2022, 69). The podcast media developed can be said to be practical if the responses from students and educators are in the minimally practical category. (Nasution 2016, 906).

Media categorization so that it can be said to be practical can also be assessed based on the level of time used by users in running Spotify media, the level of flexibility, and appropriate language management (Hasibuan et al., 2022, 122). The practicality of the learning media developed is determined by data from student respondents. Practicality can show the suitability of the media used in the learning process (Safitri 2022, 5).

The effectiveness of the media is obtained through student learning outcomes tests given at the end of the lesson. The media developed is declared effective if class completion reaches 80% based on the KKM that applies at the school, namely 72. The percentage of class XI MIA 2 MA Madani Alauddin Pao-Pao completeness scores obtained a class percentage of 83.33%.

This podcast medium can be an effective medium for students. In addition to controlling activities by users, podcast media also discusses various interesting facts about the respiratory system, thereby increasing students' insight. This can also measure students' understanding of each sub-material studied. Students can find out their ability to answer questions before being given a final evaluation on the learning outcomes test.

Based on the results of the analysis of the validity, practicality, and effectiveness of the learning media developed, we can see that this media meets the criteria for being suitable for use in the learning process, either in groups or independently.

Dewi Mayangsari and Dinda Rizki Tiara (2019) emphasized that effective media development should impact students' learning abilities, captivate their attention, and provide an enjoyable learning experience. This principle is evident in the creation of podcast-based audio media, designed to enhance independent learning skills. The technology-based approach aligns with current advancements, allowing for continuous repetition of the material, thereby improving student learning outcomes.

Farida Rachmawati, Kurnia Muhajarah, and Naily Kamaliah (2019) stated that media development can be said to be effective if it can make students feel an increase in learning outcomes. Podcasts as a medium can be more effective than the learning modules usually used. This because listening to podcasts make students feel involved in learning. This is following the media being developed, where

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media is effective because podcasts can make students directly involved with the lesson material. This will affect student learning outcomes.

Learning styles have a big influence on student learning outcomes. So, if educators use learning media that suits learning styles, it can influence student learning outcomes. This is in line with research conducted by Mifa Maulida, Syadel Hanafi, and Lukman Nulhakim (2021), which states that podcast-based audio media supports students' learning processes and can make students more creative compared to previous learning.

Based on the results of the analysis of the level of validity of the media, the average value obtained from all aspects, including aspects of podcast quality, audio media content, technical quality, podcast duration, and appropriateness of the use of terms in the media, is 3.66, or is in the very valid category. It means that podcast-based audio media is suitable for use in the learning process.

This is under the theory, which states that the average media validity test is (V > 3.4), so the media is classified as very valid. In Table 1, the validity of podcast-based audio media can be supported by the attractive appearance of the media, material content, audio quality, appropriate background sound, language, and ease of use of the media. So podcast-based audio media is declared to meet the validity criteria following all aspects of the assessment.

The level of practicality of the media is known by providing a questionnaire or response questionnaire to educators and students after it is applied to the learning process in the classroom. The results of the questionnaire analysis of student and educator responses can be seen in Table 2.

Based on Table 2, the percentage of response results obtained from the teacher response questionnaire was 94.04% in the very practical category, and the response results from the student response questionnaire were 73% in the practical category. Based on the analysis, the podcast-based audio media is practically used in learning.

The level of media effectiveness is known at the implementation stage by providing tests. Assessment of student learning outcomes to determine the level of effectiveness of the media is measured based on the level of students' understanding of the material taught using the media.

Based on Table 3, of the 30 total students, 25 got scores above the KKM with a percentage of 83.33%, and 5 got scores below the KKM with a percentage of 16.66%. Students are declared complete if they get a score greater than the Minimum Completion Criteria (KKM) score (score > KKM), and the KKM score set is 72. This is in line with Jerold E. Kemp (1994, 289) in Hobri (2021),

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who states that program learning is declared effective if 80% of students who take part in the learning can achieve a minimum level of mastery of the material, or at least 80% of students who take part in the learning can achieve the minimum score according to the KKM (the maximum score is 100). Based on this data, podcast-based audio media is effective and suitable for use in the learning process.

4) CONCLUSION

Based on the results of the research and discussion, it can be concluded that podcast-based audio media on class XI human respiratory system material at MA Madani Alauddin Pao-Pao was developed using the ADDIE development model, which consists of 5 stages: analysis, design, development, implementation, and evaluation. The level of validity is in the very valid category (3,64), the level of practicality is in the very practical category (83,52%), and the level of effectiveness is in the very effective category (83,33%).

Acknowledgment

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