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Development of Arabic Learning Media Innovation from Neuroscience Perspective for *Santri*: Implications in the Development of Intellectual Property Rights in Islamic Boarding Schools

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Abstract: This study aims to develop (1) Arabic learning media innovation with a neuroscience approach at the Babul Ulum Islamic Boarding School Pamekasan; and (2) the factors that become obstacles in learning Arabic at the Babul Ulum Islamic Boarding School in Pamekasan. (3) knowing the needs analysis of *ustadz* for neuroscience media, (4) designing neuroscience media prototypes, (5) analyzing the results of expert validation and revision of neuroscientific media prototypes, (6) analyzing the RND of previous learning with neuroscience media to be conveyed to students at Islamic boarding schools Babul Ulum Pamekasan. The population that was taken as the research sample by the researcher was 20 students and 1 teacher teaching Arabic. This research is research and development research. The research has been conducted on-site case studies and adapted the Rnd reference literature. The procedure for this research phase refers to the theory of Rnd Borg and Gall which was developed by Sugiyono, namely 10 steps. However, with limited time, the researcher only took 5 steps. The subjects of this research are *ustadz* and *santri* in Islamic boarding schools. The results of this study are (1) research by the *ustadz* require the development of neuroscience media to be implemented in Arabic learning. (2) neuroscience media prototypes in the form of audio-visual learning videos that are conceptualized with interesting audio and visualizations, containing media delivery, product specifications, Arabic text, mufrodat, and *muhadasah* materials, operating procedures, implementation steps for using learning media, and developer profiles. (3) the results of expert validation include aspects of content/material feasibility, language feasibility aspects, presentation feasibility aspects, and graphic aspects with an overall average value of 88.21 with a very decent category, (4) neuroscience media as a means of audio-visual media emphasizes and directs *santri* to learn Arabic with a brain approach, stimulation from the brain as the central neuron for the growth of intelligence.

Keywords: innovation; learning media; neuroscience; Arabic; *santri*.

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INTRODUCTION

Arabic has an important role in Islam, science, and international relations. Its role is also very important in fostering and developing Islamic culture (Qolbi et al., 2019). The importance of Arabic then paved the way

for formal and informal educational institutions to provide Arabic language teaching for *santri*, one of which was for students at the Babul Ulum Islamic Boarding School in Pamekasan. This, according to Alhirtani's statement (Alhirtani, 2019), that the teaching of foreign languages is in a very

simple form, namely mastery of *mufrodat*. *Mufrodat* plays an important role in foreign languages. However, in practice there are still some obstacles in the introduction of Arabic *mufrodat*, namely; first, differences in objectives, second, differences in basic abilities possessed, third, learning environment, and fourth, facilities used in the learning process (Jailani, Wantini, et al., 2021).

Learning Arabic is a process of providing knowledge and knowledge both related to elements of the Arabic language and Arabic language skills to *santri*. In an Arabic learning process, it will not be carried out without the components involved, such as competent *ustadz*, *santri* who are ready to receive knowledge and the material to be taught. In giving material to *santri*, there are important things to pay attention to so that the material can be conveyed to the maximum, namely the application of learning methods, use of media, and evaluation in learning Arabic.

The problems that have occurred explicitly so far are that many *santri* have not responded well to learning Arabic. Just an example at the Babul Ulum Islamic Boarding School in Pamekasan. Learning Arabic is one of the language subjects required by the Ministry of Religion General for Islamic Education, especially in the language group. The Arabic language subject is one of the requirements for graduation for *santri* by the Babul Ulum Pamekasan Islamic Boarding School. However, applied in the implementation of learning this subject, it is avoided by students and the lack of interest in learning. Based on the preliminary study research, there are several findings obtained by the researcher. *Santri* has difficulty in responding to Arabic learning delivered by *Ustadz*. The absence of mentoring and focus of teachers with good learning methods. On the one hand, the students have not been able to read the Al-Qur'an and there is no relevant learning to the way students think and learn, just an example of learning the conventional way based on modules or ordinary teaching materials.

So far, research on learning Arabic has focused on conventional learning (lectures) (Dahou et al., 2019). As for the development of an Arabic learning model based on modules or teaching materials, LKS (*Santri* Activity Sheet) (Antoun et al., 2020b). Educators are more directed to students only to the extent of explaining, reading, and writing without alternative constructive learning strategies. Ahmad (2020), reviews in his research that conventional learning techniques make lessons tend to be boring because the nuances of lessons are less interesting and *santri* tend to have difficulty focusing when learning takes place (Chair et al., 2020). Fauzi mentions in relevant research findings, even the article that the functional use of the brain can affect the performance of reason and thought design in implementing the Arabic curriculum (Fauzi Muhammad Ilfan, 2020). The real implications of the Arabic language problem center on the use of the mind as a whole from the *santri*' brains. It ends with Nurul's research findings that the learning process uses the lecture method, some *santri* are too focused on learning, students feel bored because the *ustadz* only uses a projector, PowerPoint slides and a blackboard (Isnaini & Huda, 2020). Thus, based on previous research references, there has been no research that has raised about audio-visual-neuroscience-based learning media (Winarto et al., 2020). Learning with audio-visual-neuroscience-based learning media is carried out at the Babul Ulum Islamic Boarding School in Pamekasan.

The purpose of this study was to develop neuroscience-based Arabic learning media at the Babul Ulum Islamic Boarding School in Pamekasan. Provide an alternative to the obstacles in learning Arabic at the Babul Ulum Islamic Boarding School in Pamekasan. Language learning media to facilitate students in learning Arabic, reading, writing, listening, and *muhadasah* (Mutia et al., 2020). Helping students in the practice of speaking (*muhadasah*), as well as learning grammar (*quwaidul 'Arabiyah*) (Abadzi, 2012). With the media as a means of communication and props by educators in conveying the material. In particular, the application of Arabic learning is carried out at the Babul Ulum Islamic

Boarding School in Pamekasan (Di Luca et al., 2006).

This research is based on the argument that many students expect fun and easy learning to learn Arabic (Zainuddin et al., 2020). Given that so far, participants at the Babul Ulum Islamic Boarding School in Pamekasan have prioritized module-based learning or student worksheets and *ustadz's* textbooks. As evidenced by the findings obtained in preliminary research studies. This learning media is expected to be able to focus the concentration of students in learning Arabic (Antoun et al., 2020a).

Arabic Learning

Arabic learning innovation is a new qualitative development, of course, there are differences from the previous ones, and deliberately made to improve efforts to achieve Arabic learning goals (Mustofa et al., 2021). In line with that, the notion of innovation has almost the same meaning as renewal, although in essence innovation has a different meaning (Rini & Harahap, 2021). Innovation is a change that involves certain aspects and is slightly more limited, while for renewal it is broader, it can even occur in total or more thoroughly. (Jailani, Widodo, et al., 2021).

In simple terms, innovation is defined as an update or discussion marked by new things. Efforts to create new things. This is influenced by certain efforts, namely efforts to solve problems faced by a person or group (Arifa & Chamidah, 1987). In other cases, innovation is interpreted as an idea, idea, or object that is encountered. Some things are new by a person or group of people to be used, therefore innovation is a thing or a work of brilliant thinking with splashes of new things (Jailani, Suyadi, & Muallimah, 2021). Some examples of innovations in learning, especially Islamic learning, include learning innovations based on Neuroscience, creative imagination, and learning based on innovative learning brains (Al-Khresheh et al., 2020).

Departing from the explanation of Amal (2020), defining the meaning of learning by first defining the meaning of learning (Malkawi, 2020). According to him, learning

is a self-development effort that will produce herbal information, intellectual skills, motor skills, attitudes, and cognitive tactics. The learning is more emphasized on the efforts of educators to provide stimulus engineering to maximize student learning outcomes which have an impact on increasing the creativity and productivity of students and increasing the performance of the civitas as an educational institution (Kurniawan et al., 2021).

Like the teaching and learning process in general, teaching and learning Arabic has factors that affect the learning process (teaching and learning). Among these factors, of course, some have a positive influence on language teaching and learning, and some have a negative influence. These aspects are motivational aspects, age aspects, formal presentation aspects, first language aspects, and environmental aspects (Wargadinata et al., 2020).

Learning Media Selection Criteria

In general, the criteria that must be considered in the selection of learning media are described as follows: 1) Objectives, 2). Target students, 3). The characteristics of the media concerned, 4). time, 5). cost, 6). Availability, 7). Context of use, 8). Technical Quality.

Types of Learning Media Aspects of Arabic

Mufrodat Learning Media

These include original objects, models, pictures which include: (1) stick figures, which are pictures of hand scratches. (2) Flashcard is a card image made of relatively thick paper or cardboard with a size of 18 X 22 cm or 16 X 20 cm. On one side of the card is pasted a picture and on the other side is written the vocabulary of the picture. Vocabulary writing is used to train *santri* to read the writing, while pictures are to help the teacher explain the vocabulary, (3) stick pictures are colored pictures that are relatively wide between 25 x 35 cm to 35 x 45 cm. This image is easily available in the market. For example pictures of presidents, vice presidents, national heroes, traffic signs, artists, and also pictures (Hanifah, 2013).

Tarkib Learning Media (*qawa'id*)

Tarkib/qawa'id referred to in this discussion are *tarkib nahwi* and *sharfi*. The goal is that students are skilled in using the *tarkib* functions in sentences, not just understanding the rules. One of the learning media that can be used by *ustadz* in learning *tarkib*, namely: cube *tarkib* (Khalil et al., 2019).

Many researchers have researched that Neuroscience-based Islamic religious learning through a right brain and left brain approach in understanding student learning given by the *ustadz* helps and makes it easier to understand the material being taught (Iljina et al., 2017). Of the many educators often ignore the creation of a pleasant learning atmosphere. No matter how great the presentation of material delivered by educators to their *santri*, *santri* can only understand if their right brain and left brain have been stimulated or excited by the material. (Vogel et al., 2015).

Of course, Islamic religious learning with a brain approach has been applied since elementary school or MI to *santri*, giving and directing students to learn with their brain responses (Akkurt, 2021). The concentration of emotional power and a happy heart will produce maximum learning results. This will foster emotional intelligence based on the relationship between feelings, character, and moral instincts. Much evidence suggests that basic ethical attitudes in life stem from the emotional abilities that underlie them (Saibah & Suyadi, 2020). The following is a picture of neuroscience-based learning:



Figure 2. Application of Brain Work Theory (Neuroscience) in Learning (Yulita, 2012).

The picture is one of the lessons related to the approach of reason (right brain and left

brain) (Cota et al., 2018). As a director and determinant of policymakers in thinking and concluding the material or evaluating the problems encountered. Islamic religious learning such as *Al-Qur'an Hadith*, *aqidah*, *akhlak*, *Arabic*, adapted to the relevance of today's learning as well as the neuroscience approach (Jailani, Suyadi, & Djabedi, 2021). To facilitate and direct *santri* and the younger generation in learning. Especially in acting and drawing conclusions to develop brilliant ideas. To get the direction of goals and good principles. So far, what is known as still far from digitalization and good information in aspiration and thinking towards a good future (Jailani, Suyadi, & Bustam, 2021).

Sousa explained that although *ustadz* and lecturers are not experts or experts in neuroscience or studying the brain, from a neuroscience perspective, the daily profession of educators is to "*change the brain*" (Jailani, Suyadi, Wanojaleni, et al., 2021). This is because when the brain begins to learn and act, there is a very significant change in neurophysiology towards the optimization of higher thinking skills (Suyadi et al., 2020). Silvester stated that for centuries educators changed the brain without the slightest knowledge of the brain (Neuroscience) (Suyadi, 2018). This is because no very specific science studies and concentrates on brain performance and education. Therefore, it is necessary to develop Islamic religious education learning with a neuroscience approach (David. A. Sauso, 2012).

METHOD

This study uses a qualitative and quantitative approach with the type of research and development R & D (research and development) using a descriptive analysis method used for initial research to collect library data and data about existing conditions. With a qualitative and quantitative approach. The development research used by the researcher is RnD research which refers to the theory of Borg and Gall which was developed by Sugiyono as an expert on qualitative and quantitative research method methodology. Data with a qualitative approach is expressed in the form of verbal and analysis. While the

quantitative approach data is expressed in numbers and analyzed by statistical techniques. The steps in this study refer to Sugiyono's development model: (1) the potential and problems contained in the Babul Ulum Islamic boarding school, (2) data collection to strengthen the research of researchers, (3) design of learning media products with a neuroscience approach, (4) product design validation carried out by media experts and Arabic learning material expert, and (5) design revisions to improve media design.

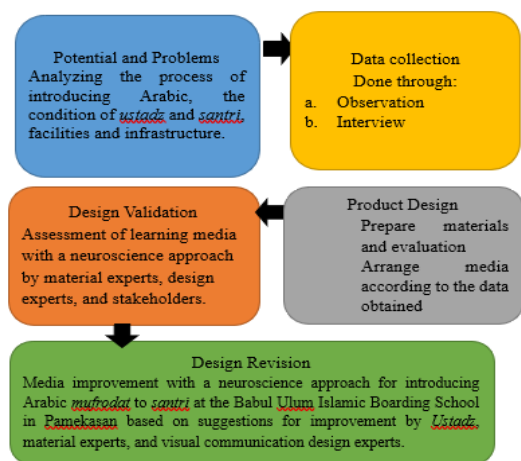


Figure 2. Research steps used by researchers.

From these five steps, researchers will develop Arabic learning media with a neuroscience approach, as a learning medium for the introduction of Arabic mufrodats and muhadasah at the Babul Ulum Islamic Boarding School in Pamekasan with the hope that the results of the development can be a learning medium that suits the needs of ustadz and students.

At this early stage, the researchers identified problems that aim to obtain information about the potential and problems encountered in the process of learning Arabic at the Babul Ulum Islamic Boarding School in Pamekasan, analyzing the *ustadz* and *santri* of learning media and teaching materials that have been used to aim at developing the usefulness and effectiveness of the learning media used, and analysis of the needs of *ustadz* and *santri* for learning media with a neuroscience approach.

The activities carried out in planning are planning an initial draft which is then discussed with practitioners and experts. Next, determine the learning objectives. The initial planning of learning media was made based on specifications obtained through needs analysis, interviews, observations, and questionnaires given to *ustadz* and *santri*.

In this third stage, the initial product design preparation is carried out based on the planning results. The learning media product with a neuroscience approach that will be produced in this research and development is in the form of learning media in the form of learning videos or audiovisuals with specifications based on the results of the needs analysis that has been planned.

The initial trial is expert validation with an assessment of the content and initial product design of learning media that are arranged rationally whether or not it is appropriate. It is said to be rational because validation is still an assessment based on rational thinking, not from the facts on the ground. Expert validation is carried out by material expert lecturers, presentation experts, and linguists to get input on the initial product of learning media. Expert validation results are used to improve the initial product design for the better.

To collect data, using observation to obtain data on the objective conditions of the Arabic learning process at the Babul Ulum Islamic Boarding School in Pamekasan, a questionnaire was used to obtain data on the analysis of the needs of Arabic learning media with a neuroscience approach, objective conditions, RPP analysis and the feasibility of learning media, interviews for collect data by asking questions directly to the Arabic language *ustadz* and *santri* to obtain data on the characteristics of students, learning Arabic at the Babul Ulum Islamic boarding school Pamekasan, and documentation to obtain data related to research objects and activities that support the Arabic learning process, both objectives, materials, methods, media, and evaluation.

The data analysis used by the researcher refers to the theory of Miles and

Huberman, although as a reinforcement and so that the research data is sharp, the researcher still leads to development research. The stages of data analysis developed are data display, data reduction, and data verification. The reason the researchers chose this data analysis as reinforcement and went directly to the research location to analyze the use of Neuroscience-based Arabic media.

The data analysis and management techniques used in this research and development are for the questionnaire data on the need for developing Arabic learning media with a neuroscience approach using qualitative analysis and quantitative analysis. Closed questionnaire using a Likert scale, the questionnaire data from the needs analysis was analyzed using a rating scale measurement. While the data analysis techniques are interviews, observations, and documentation through data *reduction*, data display, and verification.

RESULTS AND DISCUSSION

Some of the data that the researcher collects from the needs analysis process, namely observations, interviews, and needs questionnaires, and the relationship between research results and theory, are formulated as follows.

Needs Analysis

Based on observations, it shows that the existence of learning media used in the introduction of Arabic in the learning process with a percentage of 67.8%, the use of learning media by *ustadz* with a percentage of 59.4%, and the need for the development of Arabic learning media with a neuroscience approach with a percentage of 100%.

The results of interviews with *ustadz* and students of the Babul Ulum Islamic boarding school Pamekasan obtained information that the level of the introduction of Islamic boarding schools *mufrodat* is not included in the local content, so it is still at the stage of introducing foreign languages. The vocabulary introduced is still at a simple stage. The enthusiasm of the students is quite good

for the introduction of Arabic *mufrodat*. Some *ustadz* use neuroscience-based Arabic learning media with an interesting audio-visual concept of presenting material and delivering Arabic *mufrodat* and *muhadasah* material. Neuroscience media in learning Arabic at the Babul Ulum Islamic Boarding School maximizes the *santri*' brain abilities. Responding to the *santri*' right and left brain approaches in responding to the *muhadasah* and *mufrodat* material taught by the *ustadz*. In audio-visual neuroscience, it has been conceptualized with audio and visualization of interesting sounds and images. So that students adjust the way of learning to the will of their brains. Between thought and language are related. However, there are some inputs and suggestions from both *ustadz* and *santri* regarding improving the quality of learning media products with a neuroscience approach.

The results of the questionnaire on 3 clerics showed a percentage of 2 *ustadz* (67.7%) chose to agree with the development of Arabic learning media with a neuroscience approach, and 1 *ustadz* (34.4%) chose to strongly agree with the development of Arabic learning media with a neuroscience approach.

The results of the needs analysis of *ustadz* which were carried out through the process of observation, interviews, and questionnaires showed that *ustadz* rarely used the media to deliver the material. *Mufrodat* and Arabic *muhadasa*. *Ustadz* more often conveys Arabic material through explanations and lectures that are only guided by Arabic books. Islamic boarding schools are also provided with Arabic books and books that adapt the materials and guidelines from the Ministry of Religion. However, the *Ustadz* has not innovated or modified from conventional learning to develop into learning that is a learning media based on audiovisual neuroscience. Audiovisuals that emphasize the focus of *santri* with their brain approach. The part of the brain is found in the prefrontal cortex as a brain stimulant in receiving material delivered by the *ustadz* or learning media.

The need for learning media is very important to support major learning activities

in Islamic boarding schools. Learning media with a neuroscience approach is one of the innovations in developing audio-visual media in the form of unique learning videos and attracts the sympathy of students in learning Arabic. Motivating *santri* in learning Arabic. Help and facilitate *ustadz* in teaching. Arabic learning media with a neuroscience approach can also foster the creativity and activeness of students in processing learning *mufrodat* and the practice of *muhadasah*. In improving the skills of *kitabah*, *qiro'ah*, *istima'*, *kalam*, *imla'* and *muhadasah*. For example, *santri* can memorize 5 *mufrodat*, read Arabic *lafadz* correctly, write Arabic with good *imla'*, and can practice with the right *kalam* and *muhadasah* with their classmates. This is in Pasenti's opinion that neuroscience-based Arabic learning media displays several images as guidelines or work examples, which can stimulate *santri* to be more active in learning (Pesenti et al., 2021).

Prototype of Learning Media with Neuroscience Approach

Making Arabic learning media with a neuroscience approach was made based on the results of the *ustadz*'s needs questionnaire analysis and several considerations. Neuroscience media design is made using audiovisual ppt PowerPoint with an easy-to-affordable editing process. Making this design through several stages, namely first, the initial product, second, the results of the initial product revision based on input from experts and stakeholders.

The theme of neuroscience media is taken from some of the material contained in the first semester which consists of *ta'aruf*, *usroh*, and *as-syakanu*.

Delivery Media

In operating Arabic learning products using DVI-D-Rom media with the following specifications: Audio-video products are stored in the form of DVDs and used only by using a computer device in the form of a DVD-ROM (Digital Versatile Disk-Read Only Memory). and loudspeakers. DVD-Rom has a larger storage capacity which is around 4.7Gb

single layer and can play movies or videos with a resolution of 830x590 pixels.

Product Specification

This Arabic learning media has the following specifications:

Material and size

The materials used in Arabic learning media consist of images, text, and sound. The details used are as follows: 1) Assets. The assets used in this learning media are images that have an AI format that can be opened using Adobe Illustrator or after-effects. The images obtained are several percentages.. a typical flat design; 2) Fonts. The fonts used in this learning media are Helvetica and Arial. The font was chosen because it looks attractive and simple; 3) Voice. The sound in this learning media is the most important device, in this video, the sound has an mp3 format, the following is a list of files that are activated in the learning media.

Tools

In making this learning media using tools as: first, Adobe Premiere Pro cs6. In making this learning media using a tool called Adobe Premiere Pro CS6. Adobe Premiere Pro CS6 is a video editing application available for IOS, Windows, and Linux users. The picture below is a display of an Arabic learning strategy: Second, Adobe After Effects. Adobe After Effects is a software product developed by Adobe, used for film and video production. This application is used in learning media for making examples of Arabic vocabulary and conversations. Third, Corel Draw. Corel draw is a computer program that performs editing on vector lines. In this case, Corel draw is used to process some images.

Operating Procedure

Arabic learning media with a neuroscience approach or known as Mencerdaskan is a learning media that explains Arabic learning strategies and learning Arabic which is not only in the form

of sound but followed by pictures. The procedure for using this media is as follows: 1) Insert the DVD-ROM into a computer or laptop that has been filled with learning media; 2) Click the Arabic learning video; 3) Click the start/play button on the laptop or computer layer; 4) Follow some of the strategies and pay attention to mufrodat, examples of conversations both in language text and in translation; 5) If you want to repeat or stop it for a moment then click the pause button; 6) Click the stop or close button if you want to end this learning video.

Benefits of Learning Media

This Arabic learning media has various benefits, namely: 1) For *Ustadz*. Provide new strategies or new methods in delivering material in Arabic learning both directly and using media; 2) For *Santri*, Make it easy for *santri* to learn Arabic, related to *mufrodat* and *muhadasah* Arabic. So that *santri* can practice it in daily life, for example, conversations, introductions, and about family; 3) For the Babul Ulum Islamic Boarding School in Pamekasan.

The benefits of this learning media are expected for educators and *santri* at the Babul Ulum Pamekasan Islamic boarding school to be able to practice it well. Educators can convey Arabic learning material well, as well as *santri* easily understand the material presented by educators. For academics to Increase knowledge and motivation to learn in Arabic. For Arabic Language Study Programs, and Arabic Language Education. As a concept in facilitating the effectiveness of learning Arabic, BSA AND PBA study programs can develop it in an applicative manner.

Arabic Text

السَّكَنُ
اِسْمِي مُحَمَّدٌ. اَنَا مُسْلِمٌ. لِي أُسْرَةٌ كَبِيرَةٌ. فِيهَا أَبٌ, وَأُمٌّ,
وَأَخٌ, وَأُخْتُ, وَجَدٌّ, وَجَدَّةٌ. هَذَا أَبِي, اِسْمُهُ أَحْمَدٌ. هُوَ
مُدْرِسٌ فِي الْمَدْرَسَةِ. وَهَذِهِ أُمِّي, اِسْمُهَا حَامِدَةٌ. هِيَ رَبَّةُ

الْبَيْتِ. هِيَ جَمِيلَةٌ. هِيَ فِي الْمَطْبَخِ مَعَ جَدَّتِي. فِي
الْمَطْبَخِ صَحْنٌ وَكُؤُبٌ.
وَذَلِكَ أَخِي, اِسْمُهُ خَالِدٌ. هُوَ فِي الْمَسْجِدِ. الْمَسْجِدُ
أَمَامَ الْبَيْتِ. وَتِلْكَ أُخْتِي اِسْمُهَا لَيْلَةٌ. هِيَ تَلْمِذَةٌ. هِيَ
فِي الْحَجَرَةِ. هِيَ مَاهِرَةٌ فِي اللُّغَةِ الْعَرَبِيَّةِ.
وَذَلِكَ جَدِّي اِسْمُهُ عُمَرُ. هُوَ فَلَّاحٌ فِي الْمَرْعَةِ. الْمَرْعَةُ
وَرَاءَ الْبَيْتِ. بَيْتِي نَظِيفٌ وَجَمِيلٌ. بَيْتِي جَنِّي.

Mufrodat and Muhadasa material

TERJEMAHAN/ARTI	TEKS ARAB
Nama saya Mahmud	اِسْمِي مُحَمَّدٌ
Saya seorang muslim	اَنَا مُسْلِمٌ
Saya punya keluarga yang besar	لِي أُسْرَةٌ كَبِيرَةٌ
Yaitu, ayah, ibu, saudara (lk), saudara (pr), kakek, dan nenek	فِيهَا أَبٌ, وَأُمٌّ, وَأَخٌ, وَأُخْتُ, وَجَدٌّ, وَجَدَّةٌ
Ini ayahku	هَذَا أَبِي
Namanya Ahmad	اِسْمُهُ أَحْمَدٌ
Dia guru di sekolah	هُوَ مُدْرِسٌ فِي الْمَدْرَسَةِ
Dan ini ibuku	وَهَذِهِ أُمِّي
Namanya Hamidah	اِسْمُهَا حَامِدَةٌ
Dia sorang ibu rumah tangga	هِيَ رَبَّةُ الْبَيْتِ

Figure 3. Arabic Materials on "Residence"



Figure 4, Arabic material "mufrodat"

The picture above is the material taught to students, consisting of Arabic text and its translation, about where to live in everyday life. The material above is packaged with very interesting audio-visuals, which will be delivered to students through audio-visual videos.

The description of the material above is a lesson delivered by the *ustadz* to the students. The chapter on *assyakanu* (residence). Here, *santri* are taught about maharah qiro'ah good reading, maharah istima' good listening, maharah kitabah writing correctly and imla', and finally they are expected to be able to practice by speaking maharah kalam. Of course, in this media, the *ustadz* acts as a

facilitator and makes it easier for *santri* to learn Arabic.

The steps in neuroscience-based Arabic learning media are as follows: 1) *Santri* operates the audio-visual video that has been given (shared) by the *ustadz*; 2) *Santri* see the readings delivered by the *ustadz* in the media; 3) *Santri* listen well; 4) *Santri* concentrate on the brain and respond with the language to be spoken; 5) *Santri* sees, listen, and practice what the cleric says in the media; 6) *Ustadz* identified *santri* who could not read and *santri* who could read Arabic *mufrodat* Arabic; 7) Finally, the *santri* read and practice together with the *ustadz*.

Thus learning Arabic goes by itself with *santri* learning. Even though at this time the COVID-19 pandemic, learning media can be operated and studied at the homes of their

respective students. To receive material and practice questions given by the *ustadz*.

Design and Material Expert Validation Results

The results of expert validation and revision of neuroscience media by design experts and material experts as well as 3 *ustadz* as stakeholders with several categories of assessment, namely, the content feasibility aspect gets an average value of 88.63 (very feasible), the language feasibility aspect with an average of 88, 9 (very feasible), the presentation feasibility aspect with an average score of 88.68 (very feasible), and the graphic feasibility aspect with an average score of 86.8 (very decent). The following table of the validation.

Table 1. Neuroscience Media Assessment Recapitulation Results

Number	Assessment Aspect	Score
1.	Aspects of the feasibility of Material/Content	88.63
2.	Language Eligibility Aspect	88.9
3.	Aspects of Feasibility of Presentation	88.68
4.	Graphical Feasibility Aspect	86.8
	Average	88.21

From these four aspects, the average value of the validation results of neuroscience media is 88.21 with a very feasible category. So from these conclusions, it can be stated that neuroscience media is very effective/very feasible to use for the introduction and delivery of Arabic *mufrodat* and *muhadasah* material at the Babul Ulum Islamic Boarding School in Pamekasan.

Results of Analysis of Module-Based Learning with Neuroscience Learning Media

According to Sugiyono, RND analysis (RND analysis) is an effort to identify the strengths, weaknesses, opportunities, and threats that determine the company's performance. RND analysis (Strength, Weakness, Opportunity, and Threat) is one of the data validity tests to compare the previous

learning with the latest learning (Beatty-Martínez & Dussias, 2019). The results of the RND analysis between book-based learning media and learning media with a neuroscience approach state that neuroscience media is superior to module-based learning. Some of the advantages are (1) understanding the material on *mufrodat* and *muhadasah* is easy to understand and very simple, (2) media is conceptualized with interesting audiovisuals between images, sounds, text instructions, Arabic text, and attracts the sympathy of *santri*, (3) *Ustadz* can identify *santri* directly with neuroscientific media, classify students who are less fluent in reading and who can practice Arabic, (4) neuroscience media can motivate students to learn, help *santri* learn Arabic, adjust *santri* learning methods that rely on language and their brains. The following is a comparison of module-based learning and neuroscience media.

Table 2. Comparison of Book Learning with Learning Media with Neuroscience Approach

Module Based Learning	Neuroscience Media
<i>Ustadz</i> focus on <i>santri</i> directed at reading, writing, and explained by conventional models	Submission of <i>mufrodat</i> and <i>muhadasah</i> material is easy to understand and very simple. The media is conceptualized with interesting audio-visuals between images, sounds, Arabic text instructions, and attracts the sympathy of <i>santri</i> . <i>Ustadz</i> can identify <i>santri</i> directly with neuroscience media. Classify <i>santri</i> who do not understand Arabic material with <i>santri</i> who can understand Arabic material. Neuroscience media can motivate <i>santri</i> to learn, help <i>santri</i> learn Arabic, adjust the way <i>santri</i> learn which relies on language and their brains.

Based on tabulation 2, it can be concluded that book-based learning and learning media with a neuroscience approach have different advantages. The advantages and privileges of *ustadz* book-based learning focus on *santri* by being directed to reading, writing, listening, and explained by referring to the manual. This includes adjusting the basic competencies, learning indicators, and Arabic learning objectives. As for the advantages of neuroscience media, it is explicitly utilized on the side of brain function. Functions of the right brain and left brain as a response to stimulate the parts of the brain related to language. Between language and thought are interrelated, to produce effective results in learning Arabic. Neuroscience media is a learning media that is easily understood by *santri*.

In processing the material presented by the *ustadz* related to chapters and indicators of *mufrodat*, *muhadasah*, and *quwaidul arabiyah*. *Ustadz* can identify students directly with neuroscience media. *Ustadz* can classify *santri* who do not understand Arabic material with *santri* who can already understand Arabic material. Neuroscience media can motivate *santri* to learn, help *santri* learn Arabic, adjust the way *santri* learn which relies on language and their brains.

CONCLUSION

AND

RECOMMENDATION

Based on the results of research that has been carried out by researchers, the following conclusions are obtained: (1) the process of designing Arabic learning media with a

neuroscience approach includes: Developing a structural framework for the layout of media components, conducting a study of references and library sources and preparing all the needs for preparing media, determine the illustrations used, compose pictures, *mufrodat*, *muhadasah*, and *quwaidul 'arobiyah*, types and evaluation tools, compile media prototypes using audio-visual, ppt PowerPoint learning videos packaged with interesting audio and visualizations. (2) neuroscience media prototypes include (a) delivery media delivered with audio-video products stored in the form of DVD chips and made using only computer devices in the form of DVD-ROM (Digital Versatile Disk-Read Only Memory) (b) product specifications include: assets, fonts, sounds, and tools (c) operating procedures including the play button, pop, close (d) the benefits of neuroscience media including for *ustadz*, *santri*, formal and non-formal institutions, academics, and the community. (e) Arabic text includes *mufrodat*, *muhadasah*, and *quwaidul arobiyah* material (f) *mufrodat* and *muhadasa* material includes *mufrodat* and *muhadasah* Arabic is packaged with very interesting pictures and audio (g) The steps in neuroscientific media are from *santri* operating audio videos visually, *santri* read well, practice kalam, *Ustadz* identification of *santri*, practice with classmates, maximized by using the right brain and left brain. (3) the results of expert validation include aspects of content/material feasibility, language feasibility aspects, presentation feasibility aspects, and graphic

feasibility aspects. The overall average score is 88.21 with a very decent category. (4) the advantages of neuroscience media are as a learning tool for delivering *mufrodat, muhadasah, quwaidul araobyah* in the form of interesting audio-visual learning videos. Increase *santri*' enthusiasm for learning, increase *santri*' creativity through evaluation of *murodat, muhadasah, quwaidul arobiyah* that maximizes the brain. As the keywords "brain and language are interrelated" in increasing brain excitability in the prefrontal cortex.

This research also has limitations because it is a work and research by researchers that cannot be separated from weaknesses and shortcomings. Therefore, this study has limitations, as an example, researchers have not comprehensively discussed this research in the field of aspects that focus on Arabic linguistics (*nahwu-shorof*) on the grammatical (*quwaidul arobiyah*) only in the order of *mufrodat* and *muhadasah*. Both of these studies have limitations, researchers have not specifically described learning Arabic with Neuroscience theory. Finally, the research has not contributed to the focus aspects of Covid-19, for example learning Arabic during the Covid-19 PPKM.

Researchers recommend input and contribute, the importance of this research is followed up to obtain relevant research results in the future in the scientific aspect of Arabic language education. The researcher recommends just an example of Arabic learning media with Ibn Sina's multilevel reasoning approach, science-based Arabic learning media, and the Qur'an, and finally Neuroscience-based Arabic learning media during the Covid-19 PPKM period. Of course, it will have broad implications for the development of learning Arabic in the future.

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