Neuroscience Media in Arabic Teaching: Fun and Easy for Students

Media Neuroscience Dalam Pengajaran Bahasa Arab: Menyenangkan dan Mudah Bagi Siswa

Mohammad Jailani
Ahmad Dahlan University, Indonesia
Mohammad2007052014@webmail.uad.ac.id

Djamaludin Perawironegoro
Ahmad Dahlan University, Indonesia
djamaludin@mpai.uad.ac.id

Yoyo
Ahmad Dahlan University, Indonesia
yoyo@bsa.uad.ac.id

Abstract

The development of the Arabic language curriculum is increasingly following the Ministry of Religion curriculum. On the one hand, the teacher has not been innovative in teaching the material to students. This study aims to analyze neuroscience-based Arabic learning media at SMK Muhammadiyah 3 Yogyakarta. This type of research uses qualitative methods, and the nature of this research is to seek accurate and total information at SMK Muhammadiyah 3 Yogyakarta. The subjects of this study consisted of students and teachers of class X. The object of this research was teaching Arabic at SMK Muhammadiyah 3 Yogyakarta. Data collection techniques were carried out by interview, observation, and documentation methods. data validity using triangulation. Data analysis uses the Miles and Huberman model, namely data reduction, data display, and conclusion drawing/verification data. The results of the study prove that Neuroscience-based Arabic learning media responds to students in facilitating learning Arabic, accelerating vocabulary memorization (mufrodat), and practicing reading, writing, listening, and speaking (muhadasah), during the COVID-19 period. The implications of this learning media, as an alternative to understanding mufrodat and muhadasah online learning during the COVID-19 period and in the face-to-face period. Because the media that is taught to students makes it easy, and fun.

Keywords: Arabic, COVID-19, theacing media, neuroscience.

Abstrak

Pengembangan kurikulum bahasa Arab semakin maju mengikuti kurikulum Kemenag. Di satu sisi guru belum berinovatif dalam mengajarkan materi kepada siswa. Penelitian ini bertujuan menganalisis media pembelajaran bahasa Arab berbasis neurosains di SMK Muhammadiyah 3 Yogyakarta. Jenis penelitian ini menggunakan metode kualitatif, serta sifat penelitian ini mencari informasi secara akurat dan totalitas di SMK Muhammadiyah 3 Yogyakarta. Subjek penelitian ini

terdiri dari siswa dan guru kelas X. Objek penelitian ini adalah pengajaran bahasa Arab di SMK Muhammadiyah 3 Yogyakarta. Teknik pengumpulan data dilakukan dengan metode wawancara, observasi, dan dokumentasi. keabsahan data menggunakan triangulasi. analisis data menggunakan model Miles dan Huberman, yaitu dengan data *reduction*, data *display,* dan data *conclusion drawing/verification.* Hasil penelitian membuktikan bahwa media pembelajaran Bahasa Arab berbasis Neurosains merespons peserta didik dalam memudahkan belajar Bahasa Arab, mempercepat penghafalan kosa kata (*mufrodat*) dan praktek membaca, menulis, mendengar, serta berbicara (*muhadasah),* di masa COVID-19. Implikasi media pembelajaran ini, sebagai alternatif pemahaman *mufrodat* dan *muhadasah* pembelajaran online di masa COVID-19 dan di masa tatap muka. Karena media yang adiajarkan kepada siswa memudahkan, dan menyenangkan.

Kata kunci: Bahasa Arab, COVID-19, media pengajaran, neurosains.

A. Introduction

In the current era of technological development, which is very rapidly progressing, especially in the world of children's education, there are many developments in their lives. Good intentions and sincerity will also affect the success or failure of the teaching and learning process in schools.[1] The discussion of Neuroscience covers the meaning, purpose, scope, instrumentation of brain scanning technology and its implications for learning. Besides that, this section also discusses the expansion of Neuroscience studies, especially its expansion into the world of Education.[2] This discussion focuses on a new form of study in Educational Neuroscience which Sousa calls educational Neuroscience. Furthermore, the discussion of Neuroscience in learning cannot be separated from the Neuroanatomy of the brain (brain structure) and Brain Neurophysiology (functions of the parts of the brain).[3] The main problem in this study is that learning Arabic is difficult for students to understand at SMK Muhammadiyah 3 Yogyakarta. Apart from that, learning Arabic has not been responded to well and is not in demand by students. Students feel left behind by the absence of appropriate assistance for the way

[1] Mohammad Mohammadipur, "Relationships Between Language Learning Strategis, Positive Emotions, Language Learning Motivation and English Language Proficiency Among Malysian ESL Undergraguates" (University Putra Malaysia, 2018).

[2] Tosin Akerele, "Embodied Conceptualisation In Yorùbá : Evidence From Spatial," *Journal of West African Language* 1, no. 2 (2021): 40–16.

[3] Supratman Zakir et al., "Development of 3D Animation Based Hydrocarbon Learning Media," *Journal of Physics: Conference Series* 1779, no. 1 (2021), doi:10.1088/1742-6596/1779/1/012008.

students learn. So far, the learning applied by educators is a conventional model with lecture technique, students are only directed to write, read and then explain (lecture). This research was conducted at SMK Muhammadiyah 3 Yogyakarta.

In early February 2021, researchers came directly to the school to interview 20 students and teachers at SMK Muhammadiyah 3 Yogyakarta. To strengthen the preliminary data, the researcher strengthens it with references from reputable journals on *Google Scholar*. This research is in line with Danial Hilmi's 2017 research, in his research linking the brain approach to student learning in the modern era. the right brain and left brain are not only for use in biology alone but also have implications for Arabic language science.[4] The same research was also applied by Fauzi 2020, in his research on the use of neuroscience in the development of the Arabic language curriculum [5]. This means that learning is centered on the brain approach.

So far, research on Arabic has broad implications for the disciplines of Arabic language and literature (*adab*) while research only leads to curriculum development and Arabic language material development.[6] Following up on relevant research from Fauzi 2020's research, entitled "*Utilization of Neuroscience for Arabic Curriculum Development*", here Neuroscience approaches the right brain and left brain as a helper in making it easier for students to understand Arabic.[7] Stimulate the material and implementation delivered by the teacher.[8] Subsequent research is in line with the researcher's research to follow up on existing research by Jailani 2021, entitled "*Reinforcing the Neurolinguistic Approach: A Case Study in*

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[4]Todd R. Ferretti et al., "How Discourse Constraints Influence Neurolinguistic Mechanisms during the Comprehension of Proverbs," *Cognitive, Affective and Behavioral Neuroscience* 20, no. 3 (2020): 604–23, doi:10.3758/s13415-020-00790-9.

[5] Ibid. hlm 22.

[6] Mauro Pesenti et al., "Neuroanatomical Substrates of Arabic Number Processing, Numerical Comparison and Simple Addition: A PET Study," *Journal of Cognitive Neuroscience* 12, no. 4 (2021): 461–79, doi:10.1016/s1053-8119(18)31064-4.

[7] Fauzi Muhammad Ilfan, "Pemanfaan Neurosains Dalam Desain Pengembangan Kurikulum Bahasa Arab," *Arabiyatuna : Jurnal Bahasa Arab* 4, no. 1 (2020): 1, doi:10.29240/jba.v4i1.1095.

[8] Olga Iljina et al., "Neurolinguistic and Machine-Learning Perspectives on Direct Speech BCIs for Restoration of Naturalistic Communication," *Brain-Computer Interfaces* 4, no. 3 (2017): 186–99, doi:10.1080/2326263X.2017.1330611.

Arabic Language Learning at Madrasah Aliyah" which means that the neurolinguistic approach makes it easier to learn Arabic at Madrasah Aliyah Itmamunnajah, Madura.[9] This research uses a qualitative approach in the type of case study. Novelty comprehensively in this research is the researcher implicates Neuroscience-Based Arabic learning media at SMK Muhammadiyah 3 Yogyakarta. Researchers focus on the development of learning media that is acted on or guided by the teacher delivering material that is interesting, fun, and improves student outcomes. The use of neuroscience is used in learning media at the vocational high school level, especially SMK Muhammadiyah 3 Yogyakarta. And researchers analyze the problems and opportunities of research focus from previous research.

The purpose of this study was to develop Arabic learning media at SMK Muhammadiyah 3 Yogyakarta, to facilitate students in learning and understanding Arabic learning. Both mufrodat and muhadatsah related to maharah qiro'ah, kitabah, istima', and kalam. Neuroscience-based Arabic learning media is a medium that is delivered to students and is encouraged by brain stimulation (neuroscience) to respond to the brain to match the synchronization between the brain and language. As the keyword is the brain as a potential language.[10] The focus of this research objective is to respond to the problems that occur in SMK Muhammadiyah 3 Yogyakarta.

The main problem factors are students cannot read Arabic yet, and students are weak in practicing *mufrodat* and *muhadasah*. as for the method used in learning that is the method of brain-based learning. Brain-Based Learning is a method used by teachers to stimulate students in developing the material taught by the teacher. As for the method to complete and complete this research, the case

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[9] Mohammad Jailani et al., "Meneguhkan Pendekatan Neurolinguistik Dalam Pembelajaran : Studi Kasus Pada Pembelajaran Bahasa Arab Madrasah Aliyah," *Al-Thariqah Jurnal Pendidikan Islam* 6, no. 1 (2021): 152–67.

[10] Mohammad Jailani, Suyadi, and Dedi Djubaedi, "Menelusuri Jejak Otak Dan 'Aql Dalam Al-Qur'an Perspektif Neurosains Dan Pendidikan Islam Di Era Pandemi COVID-19," *Tadris: Jurnal Pendidikan Islam* 16, no. 1 (2021): 1–19, doi:10.19105/tjpi.v16i1.4347.

study method analyzes the problems and alternatives offered by this research, namely neuroscience media in Arabic language teaching.[11]

This research is based on the argument that students have not responded to the learning delivered by the teacher. Learning is delivered to students using center learning techniques.[12] Followed by learning that is directed to module-based (student worksheets). Students are only directed to write, read and explain. Based on the preliminary study, students expect Arabic learning to be based on audio-visual media compared to book-based or module-based media. However, in this case, the media delivered by the teacher is more emphasized with the Neuroscience approach.[13] This means that the audio-visual media is more developed in material that is developmental in thinking. As an example, images in the media are more directed to brain stimulation.[14] Or the visualization in the media is more focused on the right brain and left brain approaches. Well, that's called Neuroscience-based Arabic learning media.[15]

The focus of the relevant arguments in this study is to respond to learning Arabic at SMK Muhammadiyah 3 Yogyakarta. learning that has not been responded to well by students. students can not read and practice Arabic material. both mufrodat and *muhadasah* material in the "*taaruf*" chapter and the "*As-syakanu*" chapter. The focus of the hypotheses given by the researchers includes the implementation of neuroscience media and the implications of neuroscience media in teaching Arabic.

B. Method

This study uses a qualitative approach. The data is generated through the field research method (Field Studies). In explicit data at SMK Muhammadiyah 3

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[11] Ismail Akzam, Harif Supriady, and Alfitri, "Improve Arabic Language and Islamic Skills with BISA System to Arab Village," *Linguistics and Culture Review* 5, no. August (2021): 624–32.

[12] Monika H Donker et al., "Observational, Student, and Teacher Perspectives on Interpersonal Teacher Behavior: Shared and Unique Associations with Teacher and Student Emotions," *Learning and Instruction* 73 (2021): 101414, doi:https://doi.org/10.1016/j.learninstruc.2020.101414.

[13] Mohammad Jailani et al., "Pengembangan Materi Pembelajaran Pendidikan Agama Islam: Implikasinya Terhadap Pendidikan Islam," *Al-Idarah: Jurnal Kependidikan Islam* 11, no. 1 (2021): 143–55.

[14] Olena M Markova, "The Phenomenon of Musicality in Expressiveness of V . Kandinskyi Canvases," *Linguistics and Culture Review* 5, no. June (2021): 303–16.

[15] Ahmed Alwishah, "Avicenna on Animal SelfAwareness, Cognition and Identity," *Arabic Sciences and Philosophy* 26, no. 1 (2016): 73–96, doi:10.1017/S0957423915000120.

Yogyakarta, data were also obtained through examining the research literature in the form of articles, books, scientific journals (National and International journals), as well as observing the analysis of scientific papers focused on discussing Neurosians-based Arabic learning media.[16] The formal object in this study is the focus on Arabic learning media, while the material object is the Neuroscience approach to Arabic learning for the students of SMK Muhammadiyah 3 Yogyakarta which is enriched by the results of interviews or observations. With Principal Informants, deputy principals of the curriculum, Arabic teachers, and students.[17]

Data were collected through questionnaires, in-depth interviews, and documentation and sharpened by (searching) the database on scholarly goggles with the following keywords:1. Learning Media, 2. Arabic and 3. Neuroscience. Based on (search) those keywords. There were 50 scientific articles, of which 50 articles were clarified by researchers by this research. With that, it can be set to 20 articles that meet the criteria according to the theme of this research. Take data from National journals, International journals, reference books, and scientific works (thesis and dissertation).[18]

As well as evidence of information from interviews with teachers and students on the experiences and circumstances experienced by students, the focus is on the lack of enthusiasm for learning Arabic which is less significant. Researchers interviewed local teachers both in the waka of curriculum affairs and school leaders who made madrasa policies at SMK Muhammadiyah 3 Yogyakarta. The tools used are interview and observation instruments through communication tools (than pond) with interview guidelines, meaning that this research utilizes holistically and universally from primary and secondary data sources as well as observation and interview information in the form of teaching and learning activities in Arabic at SMK Muhammadiyah 3 Yogyakarta.[19]

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[16] Saihu Saihu, "Konsep Pembaharuan Pendidikan Islam Menurut Fazlurrahman," *Andragogi: Jurnal Pendidikan Islam Dan Manajemen Pendidikan Islam* 2, no. 1 (2020): 82–95.

[17] (Sugiono, 2013)

[18] (Maksudin, 2016)

[19] Susan L Morrow, "Qualitative Research in Counseling Psychology: Conceptual Foundations," *The Counseling Psychologist* 35, no. 2 (2007): 209–35.

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The data analysis technique used in this research is content analysis to test and prove that the Neuroscience-based approach helps facilitate and improve the quality of students' abilities both in terms of the power of reason and in terms of language.[20] Based explicitly on Arabic subjects that so far many educators have not implemented it, and have not been socialized to students both at school and informal and non-formal madrasas. Which will have broad implications for the discourse of Islamic Education and the Arabic language.[21]

C. Result and Discussion

Based on the formulation of the problem and research methods, the research can produce data findings that are relevant to learning Arabic at SMK Muhammadiyah 3 Yogyakarta as follows:

Overview of Muhammadiyah Vocational Schools 3 Yogyakarta

Based on observation data: SMK Muhammadiyah 3 Yogyakarta is one of the Vocational High Schools located in the city of Yogyakarta. Including one of the largest and most favorite SMK in the Special Region of Yogyakarta. The area of SMK Muhammadiyah 3 Yogyakarta is more than 2 hectares. Its very strategic location is in the heart of Yogyakarta, to be precise 1 meter north of the Yogyakarta Giwangan terminal, on Jl. Scout No. 62 Giwangan, Umbulharjo District, Special Region of Yogyakarta. The number of students reached 1,500 from the total number of classes X. XI, and XII. SMK Muhammadiyah 3 Yogyakarta has two learning concentrations but here students are more directed to the world of practice or the world of vocational and skills. 80% of learning modeled practice rather than theoretical given to students.

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[20] Sarah L. Weinberger-Litman, "A Look at the First Quarantined Community in the USA: Response of Religious Communal Organizations and Implications for Public Health During the COVID-19 Pandemic," *Journal of Religion and Health*, 2020, 1–14.

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Figure: 1. Picture of SMK Muhammadiyah 3 Yogyakarta Front.

The picture above is a description of the front of SMK Muhammadiyah 3 Yogyakarta, which is on the side of Jalan Pramuka no. 62 Giwangan Yogyakarta. Has 8 majors in skills, namely Mechanical Engineering, Architectural Engineering, Computer, and Network Engineering, Audio-visual Engineering, Pharmacy, Motorcycle Engineering, Light Vehicle Engineering, and Electrical Engineering. And supported by Islamic Education (Ismuba) training and learning, one of which is that students are directed to learning Arabic.

Arabic Teaching Media

Based on the informant's data: that in SMK Muhammadiyah 3 Yogyakarta is an education that concentrates on the field of skills automatically learning that is emphasized is a practice rather than theory development. Learning that has been running so far at SMK Muhammadiyah 3 Yogyakarta is book-based learning, the teachers only rely on textbooks in delivering material to students. According to acknowledgments from students: "*Sir, it is difficult to understand Arabic, how to read it, sir, because you cannot read Arabic lafadz, especially memorizing and practicing Arabic mufrodat is very difficult, sir. Usually, the teacher just tells us to write without any models and alternatives given to us.*" *So, sir, we are not enthusiastic about learning Arabic in class, there are some of our friends who can read and write, but cannot practice it.*" This is an acknowledgment of the results of student interviews with researchers, that so far students are still experiencing difficulties in absorbing and understanding the material presented by students[22] Students at SMK Muhammadiyah

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[22] Mohd Hilmi Hamzah et al., "The Production of the English Stop Voicing Contrast by Arab L2 Speakers of English," *Indonesian Journal of Applied Linguistics* 10, no. 2 (2020): 434–44, doi:10.17509/ijal.v10i2.28615.

3 Yogyakarta are not all graduates from religious institutions (Islamic boarding schools) most of them are from state schools. So that they do not have the provision to understand and are ready to accept the material that is transferred by the teacher. Naturally, students have not been able to respond to Arabic learning delivered by the teacher (Interview, 2021).

The learning media applied by teachers at SMK Muhammadiyah 3 Yogyakarta only maximizes reading books. Both in terms of developing the existing curriculum, it still leads to the KTSP curriculum, although at this time the Minister of Education and Culture has changed it to the 2013 curriculum. At SMK Muhammadiyah 3 Yogyakarta, they still follow the curriculum given by DIKDASMEN Regional Leaders of Muhammadiyah Yogyakarta. That is what happened at SMK Muhammadiyah 3 Yogyakarta, if the development of Arabic learning still leads to books or modules, it cannot provide stimulus and assistance to students (Interview, 2021).

Arabic learning media in relevant research have many applications or strategies in conveying to students, many studies have been carried out. Explicitly in learning Arabic. Marshall McLuhan argues that the media is a human extension that allows influencing other people who do not have direct contact with him. By this formulation, it can be said that communication media includes several things, namely letters, letters, films, television, and telephones.[23] According to Oemar Hamalik, learning media is divided into two parts, namely media in a narrow sense and media in a broad sense. Media in a narrow sense is teaching media only includes media that can be used effectively in a planned teaching process, while media in a broad sense does not only include very complex electronic communication media, for example with power pint slides used, LCD, and so on. Photography.[24] In Arabic, the word media or intermediary has termed *wasa'ala* the plural form of *wasilatan*. According to Nurul in his article, he stated entitled "Development of Arabic Vocabulary Learning Media based on My Happy Route Game" media is a learning tool that is used to

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[23] Tri Tami Gunarti, "Pengembangan Media Pembelajaran Bahasa Arab Berbasis Audio Visual Untuk Meningkatkan Maharah Istima' Pada Siswa-Siswi Madrasah Ibtidaiyah," *Awwaliyah Jurnal PGMI* 3, no. 2 (2020): 122–29.

[24] Suci Ramadhanti Febriani et al., "Arabic Learning for Elementary School during COVID-19 Emergency in Indonesia," *OKARA: Jurnal Bahasa Dan Sastra* 14, no. 1 (2020): 67, doi:10.19105/ojbs.v14i1.3194.

convey learning material.[25] Media can be visual, such as cards containing pictures [26]. There are also audio-visual media, such as learning videos, films, and so on. In addition, the media can also be in the form of audio, such as radio, cassette tapes, and so on. Asrori stated that in conditioning a relaxed language class and informants, language learning media were needed.[27]

Arabic Teaching Media in the Time of COVID-19

The presence of Covid-19 in March 2020, made teaching and learning activities far apart between teachers and students. On the one hand, there are appeals from the government including social distancing, wearing masks, and washing hands, prohibiting crowds. Teaching and learning activities in schools become online (distance learning).[28] Learning activities continue despite the widespread Covid-19 pandemic [29]. Teachers and students are very difficult and even burdened in carrying out learning activities[30]. With the spread of the coronavirus outbreak, Arabic learning has been neglected, even though not only one school or two schools have been affected. In general, in 2020, the teaching and learning process is all at home.[31] The most important and most important activity in education is the approach to learning between teachers and students, how teachers communicate and interact with students.[32]

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[25] Nurul Isnaini and Nurul Huda, "Pengembangan Media Pembelajaran Kosakata Bahasa Arab Berbasis Permainan My Happy Route," *Al Mi'yar: Jurnal Ilmiah Pembelajaran Bahasa Arab Dan Kebahasaaraban* 3, no. 1 (2020): 1, doi:10.35931/am.v3i1.156.

[26] Wissam Antoun, Fady Baly, and Hazem Hajj, "Proceedings of the 4th Workshop on Open-Source Arabic Corpora and Processing Tools," in *AraBert: Transformer-Based Model for Arabic Language Understanding*, 2020, 9–15, http://arxiv.org/abs/2003.00104.

[27] Laila Sari Maqfirlana, Sunismi, and Abdul Halim Fathani, "Kemampuan Berpikir Reflektif Dan Komunikasi Matematis Melalui Model Jucama Berbasis Neurosains Berbantuan Software Animiz Materi Segiempat Kelas VII," *Jurnal Penelitian, Pendidikan, Dan Pembelajaran* 14, no. 7 (2019): 57–68.

[28] Nureza Fauziyah, "Dampak Covid-19 Terhadap Efektivitas Pembelajaran Daring Pendidikan Islam," *Al-Mau-Izhoh* 2, no. 2 (2020): 1–11.

[29] Verra Sofica et al., "Penerimaan Peserta Didik Baru Secara Daring Di Masa Pandemi Covid-19 Pada Smpit Tambun Islamic School," *Jurnal Infortech* 2, no. 2 (2020): 177–83, http://ejournal.bsi.ac.id/ejurnal/index.php/infortech.

[30] Adib Rifqi Setiawan, "Lembar Kegiatan Literasi Saintifik Untuk Pembelajaran Jarak Jauh Topik Penyakit Coronavirus 2019 (COVID-19)," *Edukatif : Jurnal Ilmu Pendidikan* 2, no. 1 (2020): 28–37, doi:10.31004/edukatif.v2i1.80.

[31] Rais Abdullah, "Pengajaran Bahasa Arab Di Pondok Pesantren Salafiyah Kalimantan Timur," *Dinamika Ilmu* 14, no. 1 (2014): 97–108.

[32] M. Amin Abdullah, "Mendialogkan Nalar Agama Dan Sains Modern Di Tengah Pandemi Covid-19," *Maarif* 15, no. 1 (2020): 11–39, doi:10.47651/mrf.v15i1.75.

During the COVID-19 period, Arabic learning at SMK Muhammdiyah 3 Yogyakarta was held online (darling) the teacher delivered it remotely from home. Students also learn online by receiving the material presented by the teacher. The COVID-19 pandemic has changed the offline learning system to online and applies to all learning (teaching and learning processes). The Arabic language learning is delivered through Arabic learning video media, adjusting the material in basic competencies.[33] For example in chapter *ta'aruf* or the chapter on family (*usroh*), many difficulties are encountered by students, from material that has not arrived due to inadequate connections or videos that have not been conveyed to students. However, in this case, learning is still delivered to students (Interview, 2021). The following is a description of learning media during the COVID-19 pandemic.
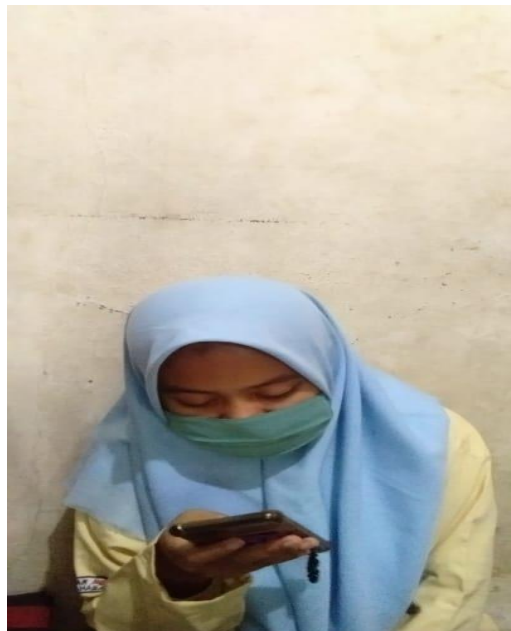
Figure 2. Teaching and Learning Process with Learning Media (Documentation, 2020)

The above is a teaching and learning process at SMK Muhammadiyah 3 Yogyakarta that occurred during the COVID-19 pandemic. This means that students get material or information from the teacher through the learning media. The teacher provides material and exercises for Arabic language questions in the concept of becoming one with Arabic learning. If faced with problems, imagine if learning is still book-based or

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[33] Anas Huneety et al., "Stress Production by Cebuano Learners of Arabic: A Metrical Analysis," *Indonesian Journal of Applied Linguistics* 9, no. 3 (2020): 517–25, doi:10.17509/ijal.v9i3.23201.

module-based, students will find it difficult to respond to the material presented by the teacher (Documentation, 2021).

Content of Arabic Theacing Media Materials

The content of the learning chapter material delivered to students at SMK Muhammadiyah 3 Yogyakarta, adjusts to the basic competencies in the Arabic textbook chapter issued by the DIKDASMEN team of Muhammadiyah Yogyakarta Regional Leadership. The researcher gave materials that were packaged with attractive PowerPoint ppt slides. By this research leads to Arabic learning media based on Neuroscience. The description of the material above is a lesson delivered by the teacher to the students. The chapter on *assyakanu* (abode). Here students 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 the media, the teacher acts as a facilitator and makes it easier for students to learn Arabic.

The steps in the Neuroscience-based Arabic learning media are as follows:

1. Students operate audio-visual videos that have been given (shared) by the teacher.
2. Students see the reading delivered by the teacher in the media
3. Students listen well
4. Students concentrate with the brain and respond with the language to be spoken
5. Students see, listen, and practice what the teacher says in the media.
6. The teacher identifies students who cannot read and students who can read Arabic mufrodat Arabic.
7. Finally, students read and practice together with the teacher.

Thus learning Arabic goes by itself with students learning. Even though at this time the COVID-19 pandemic, learning media can be operated and studied at each student's home. To receive material and practice questions given by the teacher.

The steps above are a series of Arabic language teaching with the media of neuroscience. To start teaching Arabic, the teacher asks students to operate audio-

visual media that is equipped with pictures, good audio-visual instructions. the material in this media is by the KIKD material or curriculum syllabus in Arabic books. researchers follow the syllabus and curriculum of DIKDASMEN PWM DIY. Students are trained to read *mufrodat* or *muhadasa*h texts in Arabic books in chapter 2 about "*places to live*". in neuroscience media the method used is to emphasize *maharah istima'* and *maharah qiro'ah*, the goal is for students to be clearer and easier to capture material information through neuroscience media. but in this case, the teacher still imitates the first time through a summary of material and fun material concepts.

As for face-to-face teaching, the neuroscience media is assisted by the teacher identifying it by classifying students in class. at SMK Muhammadiyah 3 Yogyakarta, the meetings and teaching of students are divided into two classes the first week via offline (face to face), the second week the students are conducted online (online) at home. discussing student identification, the teacher divides students into two parts, students who can read and practice *mufrodat* or *muhadasah*, with students who are still at the basic level of learning. Namely, students who have just started learning from scratch. namely learning from that about reading *hijaiyah* letters.

Finally, students are directed to read and practice together, both students who can read and practice *muhadasah* or students who cannot read. The purpose of this method is to adjust so that students who cannot understand can also understand. while the students do not feel down (not confident), assisted by friends who can practice *muhadasah*. then students take turns reading, memorizing, and practicing *muhadasah*. to distinguish this media from other media. This media-focused researcher was given practice questions according to the material and the teacher gave motivation, right-brain, and left-brain focus approaches. Simply put, neuroscience media, media that emphasize students' brains, and teaching media.

 Use of Neuroscience in the Implications of Arabic Theacing Media

Based on one of the findings of Jailani's 2021 research, in a preliminary study "*output of a thesis proposal*" with the findings of a questionnaire at SMK Muhammadiyah 3 Yogyakarta, many of the students still cannot understand Arabic learning which is concerned with the realm of English. In detail with the search, students have not been able to understand what was conveyed by the teacher. Because

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learning is monotonous and boring. Thus, in quality learning in terms of success in student learning outcomes. The presence of innovations in Arabic learning is just an example of Arabic learning media. Lately, this video-based learning media, just an example of audiovisual media, cool Neuroscience-based media is more in demand by students. Compared to boring learning, that's why Arabic learning is directed to media-based learning innovations.[34] See the following image:
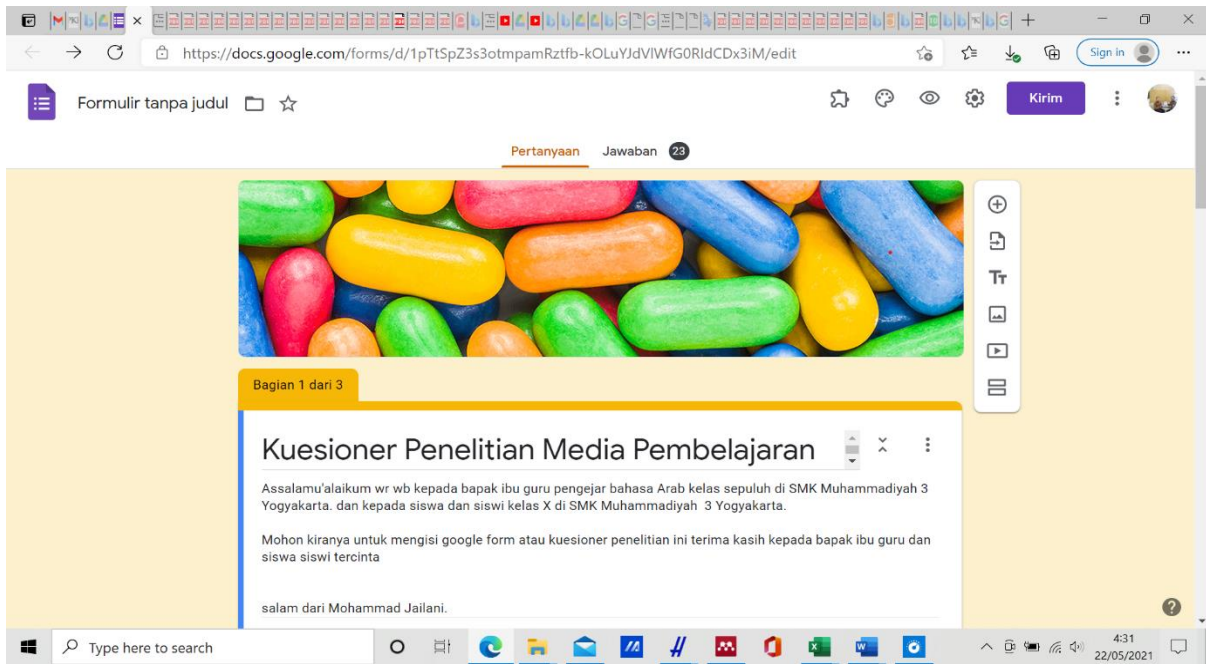
Figure 3. Findings of the Preliminary Study of Learning Media.

Considering that learning media is also growing rapidly, there is an Arabic learning media based on Neuroscience.[35] Neuroscience as a facilitator to link students' interest in language learning. The power of thinking that is focused and happy, affects the brain. Related to that, the part of the brain that responds to the task of developing information and optimizing the brain is the prefrontal cortex.[36] This part serves to send brain nerve cells to the right brain and left brain.[37]

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[34]Research Questionnaire for Preliminary Study of Ar Language Learning, 2021

[35] Yusmaliana Desfa et al., "Creative Imagination Base on Neuroscience : A Development and Validation of Teacher's Module in Covid-19 Affected Schools," *Universal Journal of Educational Research* 8, no. 1 (2020): 5849–58, doi:10.13189/ujer.2020.082218.

[36] Nuril Mufidah Ummu Saidah, Saidna Zulfiqar Bin-Tahir, "Arabic Teachers' Competence: A Case of Madrasah Schools in Maluku," *Ijaz Arabi* 1, no. 21 (2018): 1–9.

[37] Endang Switri, Zaimuddin, and Apriyanti, "Metode Manhaji Pada Pembelajaran Bahasa Arab Di Ilmu Keperawatan Fakultas Kedokteran," *Lughoti* 2, no. 01 (2020): 1–25.

In the questionnaire above, the researcher took 20 research samples to students of SMK Muhammadiyah 3 Yogyakarta who were assisted by homeroom teachers and Arabic teachers. From two 20 students hope and support in Neuroscience-based Arabic learning. For the reason that students convey the results of the questionnaire by the concepts and ways of learning expected by students. Students are assisted and of course facilitate the learning process, related to *material muhadasah, mufrodat,* and practice working on questions and exercises in learning media (Quessioner, 2021).

Figure 4. description media neuroscience option

Interpretation and reasons of researchers following up on learning media rather than learning modules. adapting choices and input from students in class. students prefer learning media compared to textbook-based modules. The research questionnaire consisted of 20 participants in class X TKJ XI. Students provide input to the researcher by stating the reasons. if the class continues with the learning of teaching materials books. Of 20 students 15 people chose learning media and 5 students chose, hoping for a learning module. To strengthen the student selection questionnaire, the researcher also asked for advice from Arabic language teachers at SMK Muhammadiyah 3 Yogyakarta. the teacher gave input to the researcher in line with the time interview at school.

The contents of the interview with the teacher at the school are as follows:

"Look, sir, 50% of students in class still cannot read Arabic and cannot write Arabic. Indeed, the teaching that has been used so far is still being monitored and especially in module learning".

The learning method used so far is conventional in teaching Arabic. The contents of the interview are implied in the contents of the interview below.

"Arabic teaching carried out by teachers, in general, is that students are told to read, to mentor students, the teacher asks students to follow the explanation or reading that he conveys. By following the material chapters, students are finally directed to work on the practice questions in the guidebook".

Above are some of the contents of interviews with teachers, to recommend learning media to researchers. therefore alternative and appropriate research with this research is learning media. To distinguish research from previous research, the focus of research on learning media is neuroscience.[38] learning media is packaged with interesting audio-visuals and the main factor that supports it is neuroscience media, or the scope of brain science (Neuroscience).[39]

Scope and Expansion of the Study Area of Neuroscience in Teaching

Good learning is learning that gives positive output and good input to students. following up on Nadiem Makarim's speech about good education in a transformative era. and supported by adequate information technology, teachers are expected to collaborate with learning media. The right learning media is media that focuses on the concentration and learning objectives of students.

The development of learning methods and learning models in the modern era. New concepts or models of new concepts about brain-based learning emerge. or brain-based learning, many educators and researchers discuss in detail this learning model. The research is based on research that focuses on education. The researcher obtained library data related to supporting this research in the Fauzi 2020 study, which explained that neuroscience is a sub-system in Arabic learning.[40] Between brins-based learning can not be separated from neuroscience. Because

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[38] Evi Yana et al., "Critical-Thinking Instrument Based on Google Form: Development on Work and Energy Materials," *Journal of Physics: Conference Series* 1467, no. 1 (2020), doi:10.1088/1742-6596/1467/1/012053.

[39] Yoyo, "Neo-Patriarchy and the Problem of the Arab Crisis: A CritiCal Study on Hisham Sharabi's Works," *Qudus International Journal of Islamic Studies* 6, no. 2 (2018): 251–67, doi:10.21043/qijis.v6i2.3808.

[40] Fauzi Muhammad Ilfan, "Pemanfaan Neurosains Dalam Desain Pengembangan Kurikulum Bahasa Arab."

brains based learning is the main concept of neuroscience. The brain is the leading part, called the "*topper*", becomes the transfer center. Where students respond to material or information through this part of the brain. This brain is called the prefrontal context.[41]

However, because this study is very broad and requires a certain level of detail, this related discussion requires an approach from several interdisciplinary angles, especially in the review of Islamic Education. Neuroscience is neuroscience that studies the nervous system, especially studying neurons or nerve cells, with a multidisciplinary approach.[42] Neuroscience is a field of science that specializes in the scientific study of the nervous system. On this basis, Neuroscience is also called the science that studies the brain and all functions of the spinal cord.[43] The following is descriptive of Neuroscience in Learning:
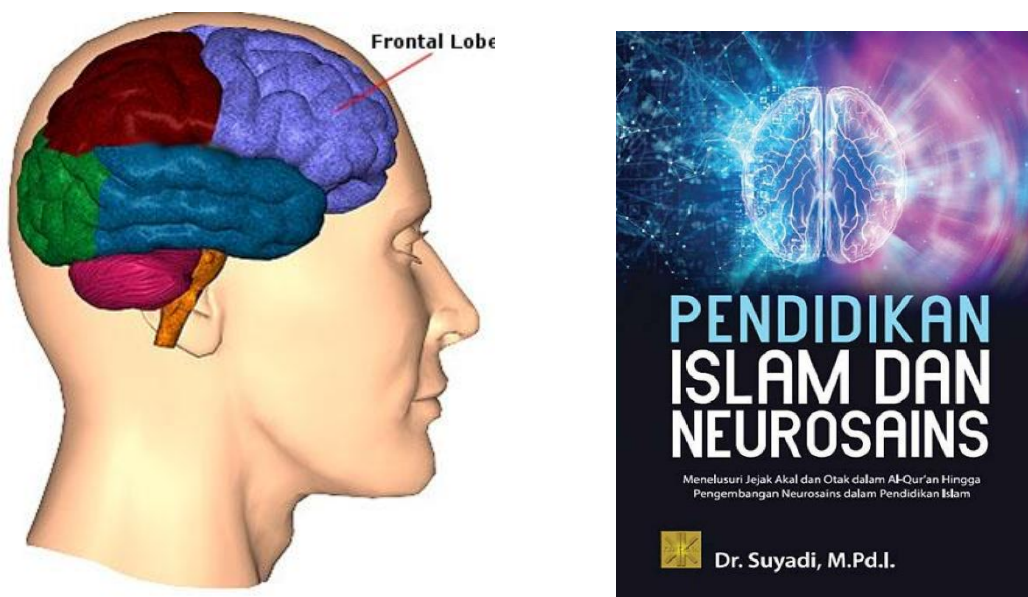

Figure 5. Neuroscience and Learning.[44]

The main goal of Neuroscience is to study the biological underpinnings of every behavior. That is, the main task of Neuroscience is to explain human

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[41] Branton Shearer, "Multiple Intelligences in Teaching and Education: Lessons Learned from Neuroscience," *Journal of Intelligence* 6, no. 3 (2018): 1–8, doi:10.3390/jintelligence6030038.

[42] Suyadi, "Model Pendidikan Karakter Dalam Konteks Neurosains," in *Proseding Seminar Nasional* (Yogyakarta: Fakultas Tarbiyah UIN Sunan Kalijaga, 2012), 8.

[43] Suyadi, "Pendidikan Islam Inklusi Humanis Dan Religius," *Tajdidukasi* VII, no. 2 (2017): 15–27.

[44] Riska Yuli Nurvhianti, "Neurosain Dalam Pengembangan Ilmu Pengetahuan," *Bagaimana Cara Neurosains Mengubah Minset Manusia*, 2018, https://warstek.com/neurosainsmindset/.

behavior from the point of view of the activities that occur in the brain. Recent research in the field of Neuroscience has found some evidence of an inseparable relationship between the brain and human behavior (character).[45] Through the Positron Emission Tomography (PET) instrument, it is known that six brain systems integrated regulate all human behavior. The six brain systems are the prefrontal cortex, limbic system, cingulate gyrus, basal ganglia, temporal lobes, and cerebrum.[46] As mentioned earlier, that neuroscience study humans as a whole or science that studies humans in an interdisciplinary manner. On this basis, the mapping of the scope of Neuroscience is none other than humans themselves. However, Neuroscience can explore the human dimension in more detail, not only the brain-mind, soul-body, and mind-heart relationships (which have been separate so far), but also probe into very microscopic realms at the cellular-molecular level to behavioral regulation and social science.[47]

Successful learning is the application of the material presented by educators, namely learning that is easily understood by students. Learning that makes it easier for students to learn according to what is remembered by students in pouring the material that is processed in their brains. The material that has been managed in the right and left brain is processed through the prefrontal cortex.[48] Lessons that are often remembered by students make an impression on their minds. So that learning is very impressive in the minds of students in applying it in everyday life and the surrounding environment.[49]

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[45] Suyadi, *Pendidikan Islam Dan Neurosains: Menelusuri Jejak Akal Dan Otak Dalam Alquran Hingga Pengembangan Neurosains Dalam Pendidikan Islam*, ed. Lintang Novita, Pertama (Jakarta: Kencana, 2020), www.Prenamedia.com.

[46] Wikanti Iffah Juliani, Addinia Rizki Sabili, and Suyadi, "Tafsir Ayat-Ayat Neurosains Dan Implikasinya Bagi Pengembangan Higher Order Thingking (HOT) Dalam Pendidikan Islam," *Muaddib* 10, no. 01 (2020): 84–96.

[47] Suyadi, *Pendidikan Islam Dan Neurosains: Menelusuri Jejak Akal Dan Otak Dalam Alquran Hingga Pengembangan Neurosains Dalam Pendidikan Islam*.

[48] Muhammad Miftakhurrohman and Suyadi Suyadi, "Persepsi Mahasiswa Terhadap Pembelajaran Daring Perspektif Neurosains Pendidikan Islam," *At-Ta'dib: Jurnal Ilmiah Prodi Pendidikan Agama Islam*, 2020, 127, doi:10.47498/tadib.v12i02.375.

[49] Fauzi Muhammad Ilfan, "Pemanfaan Neurosains Dalam Desain Pengembangan Kurikulum Bahasa Arab."

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D. Conclusion

Based on the findings and discussion, The neuroscience and Brain-Based learning approaches used in answering research problems are very relevant. Alternatives provided by researchers, 1). Neuroscience media is the application of teaching used by teachers in the classroom and at home during the Covid-19 period. 2) the implications of neuroscience improve student learning outcomes, which can be proven by learning outcomes each year of study. And the support of student learning outcomes above the KKM. The most important factor in using neuroscience media in Arabic material is to Facilitate the improvement of student learning outcomes, including language skills *qiro'ah*, *kitabah*, *istima'*, and kalam. Students are facilitated by right-brain and left-brain approaches, the brain as potential in optimizing the language understood by students. By the results of the study based on a questionnaire, 20 students as the research sample proved to be able to read and write Arabic, which previously had not been able to read and write (*imla'*) Arabic. However, some students need assistance and guidance from the teacher in teaching and implementing it to students. Neuroscience as a learning approach can illuminate the brains of students at SMK Muhammadiyah 3 Yogyakarta who previously had not been able to accept the Arabic material delivered by the teacher. The researcher recommends just an example of Arabic learning media with Ibn Sina's multilevel reasoning approach, 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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