

# The Design of Quartet Card Game Integrated with Augmented Reality for *Sharf* (Morphology) Learning Media

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#### **Abstract**

This study aimed to describe the stages of making and feasibility of quartet cards integrated with augmented reality as Sarf learning media. Sarf is an element of grammar in Arabic learning and a study that discusses the rules in Arabic. The creation of this media was undertaken due to several challenges in learning Sarf, including a) the rapidly changing discussion topics, b) the difficulty of memorizing the material, c) numerous alterations in word patterns, and d) the infrequent use of changing vocabulary in daily life. These challenges necessitated that teachers become more creative and innovative to simplify the mastery of Sarf material for students, one method being the implementation of learning strategies through play. This strategy certainly required a medium to make the learning of Arabic more interactive and meaningful. Therefore, through this research, which was research and development, the researchers developed a quartet card game media that could facilitate students in learning Sarf material using the ADDIE collection methods used Data observation, questionnaires, and literature studies. The data analysis techniques in this study were adjusted to the type of research data. The result of this research was the development of quartet card game media and applications as augmented reality markers. Based on the validation results, the percentage of material and media validation showed an average of 82.75% and 89.88%, respectively, so that the media was declared feasible to be tested with some minor revisions. Meanwhile, the results of student and teacher response tests

showed 87.65% and 84.70%, respectively, so that the media was declared practical after being tested in classroom learning.

**Keywords:** Quartet card game; *sharf*; morphology; augmented reality

### Introduction

Language is an important component in human life. Through language, humans as social beings can express their ideas, information, and feelings both orally and in writing to others. Without language, humans cannot live a good and organized life. Especially in the modern era like now, language skills are needed to face globalization in the era of society 5.0¹. Based on the 2021 World Atlas of Languages (WAL) data on the official UNESCO website², currently, there exist approximately 7,000 distinct spoken languages, with approximately half of them facing the threat of extinction owing to a multitude of factors. Among the endeavors aimed at safeguarding linguistic diversity, education emerges as a paramount strategy.

Arabic is one of the languages studied at various levels of education. According to students, learning Arabic is boring and difficult, one of which is caused by the complexity of Arabic word changes. In the meantime, this subject serves to instigate, cultivate, enhance, and acquaint proficiency, fostering a favorable disposition towards Arabic in both receptive and productive domains.<sup>3</sup> A receptive ability is the ability to understand other people's words and understand reading, while a productive ability is a person's ability to use language as a means of oral and written communication. Therefore, teachers need to use learning strategies to achieve learning goals. One of them is the strategy of learning while playing.

Learning through play has a positive impact on students' mastery of the material. Among the effects of games in learning is that it can make students feel happy and not bored while they are learning and increase student involvement through fun Arabic demonstration activities<sup>4,5</sup>. If this strategy can be applied

<sup>&</sup>lt;sup>1</sup> Saragih, Desi Karolina. Dampak Perkembangan Bahasa Asing terhadap Bahasa Indonesia di Era Globalisasi. *Jurnal Pendidikan Tambusai*, 2022, 6.1: 2569-2577

<sup>&</sup>lt;sup>2</sup> "The languages in cyberspace". en-unesco.org. accessed October 10, 2023. https://en-unesco-org.translate.goog/courier/2021-2/languages-cyberspace?\_x\_tr\_sl=en&\_x\_tr\_tl=id&\_x\_tr\_hl=id&\_x\_tr\_pto=tc

<sup>&</sup>lt;sup>3</sup> Hijriyah, Umi. Analisis Pembelajaran Mufrodat dan Struktur Bahasa Arab di Madrasah Ibtidaiyah. 2018.

<sup>&</sup>lt;sup>4</sup> Nihayati, C. W., & Agustriasih, N. Penggunaan permainan untuk meningkatkan semangat dan minat dalam pembelajaran Bahasa Arab di sekolah. In International Conference of Students on Arabic Language, 2021, 5(1), 423-438.

properly, then learning activities become more effective and interactive. Thus, students will more easily master receptive and productive skills.

There are several important elements that students need to learn in Arabic in order to master receptive and productive skills, namely ashwat, mufradat, and tarakib<sup>6</sup>. Among the three elements mentioned, the element of tarakib is an element related to the science of qawa'id. If someone can master gawa'id, he can be said to have mastered Arabic<sup>7</sup>. Therefore, someone who learns Arabic must learn the element of tarakib, not just mufradat...

In learning *gawa'id*, there is an aspect of *Sarf* study. In terms of language, sarf means تغيير or change, while according to the term means changing the origin of a word into several different words to achieve a desired meaning only through changing the word8. The science of Sarf focuses on discussing the change of a basic word into several different new forms due to a certain change in meaning.

Some argue that sarf science has the most important position in Arabic grammar which is the basis for knowing shighot or sentence patterns, tashgir, nisbat, plurals (sama'iy, qiyasy, and shadz), i'lal, idgham, ibdal, and others.<sup>9</sup> Furthermore, sarf science has several language studies such as wazan, mauzun, tashrif, fi'il mutasharrif as the basis of knowledge and memorization of various forms of wazan fi'il from tsulatsi and ruba'i patterns, both mujarrad and mazid. sarf is a tool to discuss rules in Arabic, so its presence cannot be separated from nahwu science. This is as some scholars say: الصرف أم العلوم والنحو أبوها. This means that sarf is the mother of sciences while nahwu is its father. However, the results of the literature show that the delivery of sarf science material in Arabic language learning encounters problems in its implementation in the classroom, such as a) the discussion that quickly changes, b) rote learning, c) many word patterns

<sup>&</sup>lt;sup>5</sup> Fatimah, M. Al 'Am, and N. Rohmah. "Pemanfaatan Aplikasi Solite Kids Terhadap Kemampuan Berbahasa Arab Siswa Kelas V MI Al Qur'an Al Hikmah". Al-Fakkaar, 2024,5(1), 143-52, doi:https://doi.org/10.52166/alf.v5i1.6161.

<sup>&</sup>lt;sup>6</sup> Nejad, S. M. (2021). Istiraatijiyyaat al-Lughowiyyah wa Ghayru al-Lughowiyyah fii Tadrisi 'Unshuri al-Mufradaat fii Manaahiji Ta'lim al-Lughah al-'Arabiyyah lin-Naatiqin bi Ghayriiha (Silsilatu Miftahul Arabiyah Namuwdzajan). Diraasat fii Ta'liimi al-Lughah al-Arabiyyah wa Ta'allumiha, 5(2), 61-

<sup>&</sup>lt;sup>7</sup> Aflisia, Noza; Karolina, Asri; Yanuarti, Eka. Pemanfaatan aplikasi Kahoot untuk meningkatkan penguasaan unsur Bahasa Arab. Al-Muktamar As-Sanawi li Al-Lughah Al-'Arabiyyah (MUSLA), 2020, 1.1: 1-17.

<sup>&</sup>lt;sup>8</sup> Rois, Ahmad, et al. Metode Pembelajaran Klasikal Ilmu Sharf Pada Mahasiswa Pendidikan Bahasa Arab FITK UNSIQ Jawa Tengah. Lisanan Arabiya: Jurnal Pendidikan Bahasa Arab, 2023, 7.1: 116-129.

<sup>&</sup>lt;sup>9</sup> Busyro, Muhtarom. Shorof praktis: Metode krapyak. Putera Menara, 2007.

change, and d) the rare use of *ditashrif* vocabulary in everyday life<sup>10</sup>. In addition, the methods and media used during learning also do not increase students' motivation in learning Arabic, especially in *sarf* material<sup>11</sup>.

Based on previous research, there is an offer of a solution that has been implemented in *sarf* learning is to apply card games. Mawangi (2020) revealed that quartet cards applied in *sarf* learning have a positive impact and can improve mastery of *sarf* knowledge<sup>12</sup>. In addition, according to Anisnaini, card games can improve the understanding of *qawa'id* of class VII-B students of MTsN 8 Kediri<sup>13</sup>. Unfortunately, in these studies, the media used are still conventional even though education is currently starting to experience digital transformation. In addition, the management of the game system is still not maximized, resulting in students only focusing on playing activities instead of learning. Therefore, in this study, the researchers will innovate *sarf* learning media by integrating technology based on multiliteracy activities so that the media concept is in accordance with the times and the needs of students.

One of the *sarf* materials studied by ninth grade students of Madrasah Tsanawiyah is *fi'il madli*, which is a verb that shows activities in the past, usually marked with *fathah* punctuation at the end of the letter<sup>14,15</sup>. The study of *sarf* in *fi'il madli* material looks easy but confusing and requires strong memorization skills. This is because *fi'il madli* often involves root changes (triconsonantal) which students have the potential to not understand if they do not master the patterns of change to form words that are appropriate in the past tense. In addition, students' abilities to identify word changes is needed, so they must have literacy skills to be more thorough in knowing the changes in *fi'il madli* according to the *dlamir* set. After that, students are expected to apply it in daily conversations.

Najah, Muhajirun. Penerapan Pembelajaran Shorof Bagi Pembelajar Tingkat Pemula Menggunakan Metode Pemerolehan Bahasa. Al Mahāra: Jurnal Pendidikan Bahasa Arab, 2019, 5.1: 117-140.

<sup>11</sup> Ahyani, H. *Situasion Method* dalam Pembelajaran Sharaf di Era Revolusi Industri 4.0. 'A *Jamiy: Jurnal Bahasa dan Sastra Arah*, 2021, 10.1: 167-188. DOI: http://dx.doi.org/10.31314/ajamiy.10.1.167-188.2021

<sup>12</sup> Mawangi, Fatimah Indah. (2020). Pengaruh Penggunaan Media Permainan Kartu Kuartet Untuk Meningkatkan Penguasaan Ilmu Sharaf (Studi Eksperimen Kuasi pada Siswa Ma Al Inayah) [Other, Universitas Pendidikan Indonesia]. http://repository.upi.edu

<sup>&</sup>lt;sup>13</sup> Anisnaini, Emmy. Upaya Meningkatkan Pemahaman Qawaid Melalui Penggunaan Media Kartu Bagi Siswa Kelas VII MTsN 8 Kediri. *Edudeena: Journal of Islamic Religious Education*, 2021, 5.2: 111-124.

<sup>&</sup>lt;sup>14</sup> Agratama, Efranjy. *Express Mudah Belajar Bahasa Arab*. Gramedia Widiasarana Indonesia, 2016.

تحليل الأخطاء الصرفية في الكتابة العربية لدى طلاب الصف التاسع بالمدرسة Nuraini, Hasna ألمتوسطة الإضلامية نور المجتهدين ملاراك فونوروجو (دراسة الأخطاء عن كتابة الأفعال الماضية والمضارعة وفق (٢٠٢١ PhD Thesis. IAIN Ponorogo.

Nowadays, augmented reality technology is starting to be widely utilized in the field of education to develop learning media. This is necessary to meet the needs of media literacy in students. The use of this technology is supported by constructivism theory which states that learning is an active process for students to construct new knowledge based on prior knowledge 16. The learning environment becomes interactive and dynamic when it is based on the principles of constructivist theory, which allows students to modify elements in their environment to try out ideas by experimentation<sup>17</sup>. Augmented reality provides opportunities for students to be active in the learning process and conduct experiments related to the material being studied, thus enabling the creation of a constructive learning environment <sup>18.19</sup>. Learning by doing allows for more effective understanding and retention of material than traditional teaching methods<sup>20</sup>.

Based on the previous explanation, the researchers designed a sarf learning media product in the form of quartet cards based on multiliteracy activities. This is done to improve students' mastery of sarf material, especially tashriful fi'il madli sub-material for grade IX Madrasah Tsanawiyah students. This card is a modification of the quartet card which is equipped with an integrated application of Augmented Reality technology. This media can represent sentences containing tashriful fi'il madli in the form of 2D/3D visualization by scanning the Augmented Reality marker. In addition, the application developed also has comic features, sample sentences, AR and QR scans, and evaluations to facilitate learning activities.

This research was a form of Research and Development (R&D) that was developed using the ADDIE approach by Robert Maribe Branch. Its aim was to describe the process and assess the feasibility of developing quartet card media equipped with integrated applications of Augmented Reality technology based

<sup>17</sup> Silva, Mónica, Karina Bermúdez, dan Karina Caro, "Pengaruh Aplikasi Augmented Reality pada Prestasi Akademik, Motivasi, dan Penerimaan Teknologi Mahasiswa Universitas dari Kimia." Komputer Ġ; Pendidikan: Reality Xhttps://doi.org/10.1016/j.cexr.2023.100022.

<sup>&</sup>lt;sup>16</sup> Bruner, Jerome Seymour. Tindakan Makna Empat kuliah tentang pikiran dan budaya. Vol. 3 (Harvard University Press, 1990).

<sup>&</sup>lt;sup>18</sup> Ibáñez, María-Blanca, Ángela Di-Serio, Diego Villarán-Molina, dan Carlos Delgado-Kloos, "Simulator Berbasis Augmented Reality sebagai Alat Pembelajaran Penemuan: Sebuah Studi Empiris," Transaksi IEEE tentang Pendidikan 58, no. 3 (Agustus 2015): 208-13, https://doi.org/10.1109/TE.2014.2379712.

<sup>&</sup>lt;sup>19</sup> Yilmaz, Rabia Meryem, dan Yuksel Goktas, "Menggunakan Teknologi Augmented Reality dalam Kegiatan Mendongeng: Mengkaji Keterampilan dan Kreativitas Narasi Siswa SD," Realitas Virtual 21, no. 2 (1 Juni 2017): 75–89, https://doi.org/10.1007/s10055-016-0300-1.

<sup>&</sup>lt;sup>20</sup> Yang, Ya-Ting Carolyn, "Membangun Kota Virtual, Menginspirasi Warga Cerdas: Game Digital untuk Mengembangkan Pemecahan Masalah dan Motivasi Belajar Siswa," Komputer &; Pendidikan 59, September 2012): 365-77, https://doi.org/10.1016/j.compedu.2012.01.012.

on multiliteracy activities concerning the *sarf* material. Multiliteracy activities are activities in learning that connect 4 multiliteracy skills namely reading, writing, spoken language, and mastering information technology<sup>21,22,23</sup>. Thus, if this learning model could be applied in Arabic learning, it could have enhanced students' language proficiency. The stages of designing learning media using the ADDIE model began with Analysis, followed by Design, Development, Implementation, and Evaluation. However, based on these objectives, researchers limited the following research stages only to the development stage to create media products and then obtained validation results and responses from students and teachers.

The data used in the following development research were qualitative and quantitative data obtained before the implementation of the quartet card media development product. Qualitative data were data obtained from the results of literature studies and observations of one of the *madrasah tsanawiyah* in Malang City. Meanwhile, quantitative data were obtained from a needs analysis questionnaire. The data were analyzed using methods according to their type to describe the results of the research.<sup>24</sup>

Qualitative data were reviewed and used as input suggestions for designing media development concepts to suit student needs. The analysis technique used in qualitative data was a descriptive technique. Meanwhile, quantitative data in the form of numbers from data processing from the student needs analysis questionnaire were processed using descriptive statistics. This aimed to convert it into qualitative data. The researchers used a Likert scale to measure the opinions, attitudes, and perceptions of individuals or groups related to social phenomena that occurred.<sup>25</sup> Thus, it was hoped that the developed media could be useful for creating a more interactive and meaningful Arabic learning atmosphere in everyday life for students, and educators could maximize the implementation of technology in the learning process.

<sup>&</sup>lt;sup>21</sup> Abidin,Y., Mulyati, T., dan Yunansah,H. "Mengembangkan Model Pembelajaran Literasi Berbasis Konsep Multi Literasi, Terpadu, dan Berdiferensiasi di SD," no. 2 (2017).

<sup>&</sup>lt;sup>22</sup> Lewier, M., Somelok G., and Anatasya Yoris, "Peningkatan Keterampilan Berbahasa Produktif Melalui Model Pembelajaran Multiliterasi Pada Mahasiswa Program Studi Pendidikan Bahasa Dan Sastra Indonesia Fkip Universitas Pattimura Ambon," *ARBITRER: Jurnal Pendidikan Bahasa Dan Sastra Indonesia* 3, no. 1 (1 April 2021): 405–22, https://doi.org/10.30598/arbitrervol3no1hlm405-422.

<sup>&</sup>lt;sup>23</sup> Rifai, Akhmad Bahtiar and Nas Haryati Setyaningsih, "Keefektifan Model Multiliterasi Digital dan Model Kreatif-Produktif pada Pembelajaran Menulis Teks Cerita Fantasi," *DWIJA CENDEKIA: Jurnal Riset Pedagogik* 3, no. 1 (31 Agustus 2019): 50–61, https://doi.org/10.20961/jdc.v3i1.33260.

<sup>&</sup>lt;sup>24</sup> Maryam Ramadani, E. L. I. A. Pengembangan Media Pembelajaran Berbasis Aplikasi Android Menggunakan Powerpoint Ispring Pada Materi Teori Kinetik Gas. 2021. Phd Thesis. Universitas Siliwangi.

<sup>&</sup>lt;sup>25</sup> Sugiyono, P. D. Metode penelitian Kuantitatif Kualitatif dan R&D, penerbit Alfabeta. 2016.

#### Result and Discussion

The purpose of describing the results of the study is to answer the formulation of problems that have been determined. The results of the data described in this study are; (1) describing the stages of developing quartet card media equipped with integrated applications of Augmented Reality technology and (2) describing the feasibility of quartet card media equipped with integrated applications of Augmented Reality technology. The process of developing quartet card media 5 stages of the ADDIE model, namely analysis, design, development, implementation, and evaluation. However, this research was confined to just three stages, excluding the implementation and evaluation phases.

The media developed in this research is in the form of cards integrated with Augmented Reality technology on smartphone applications. This card is designed in a multiliteracy learning model as a sarf learning media. The stages of multiliteracy learning consist of 5 stages, namely the stages of involving, responding, elaborating, reviewing, and presenting. Through these stages, it is expected that student activeness in learning will increase so that they can master sarf material.

The card development utilizes augmented reality technology to make it easier for students to visualize the meaning of words in tashriful fi'il madli material. The existence of 2D/3D images can improve students' mastery of vocabulary representation in tashriful fi'il madli material. The design of augmented reality technology can provide more detailed information and can stimulate students' mindset regarding changes in fi'il madli<sup>26</sup>. Based on previous research, AR applications in Arabic language subjects have been developed for learning Hijaiyah letters<sup>27</sup>, learning mufradat<sup>28</sup>, dan practicing speaking skills<sup>29</sup>. The use of AR can support Arabic language learning based on multiliteracy activities that require digital literacy skills. Therefore, researchers want to apply AR to improve

<sup>&</sup>lt;sup>26</sup> Syawaludin, A., Gunarhadi, dan Peduk Rintayati, "Pengembangan Multimedia Interaktif Berbasis Augmented Reality untuk Meningkatkan Keterampilan Berpikir Kritis dalam Pembelajaran IPA," Jurnal Instruksi Internasional 12, no. 4 (Oktober 2019): 331-44.

<sup>&</sup>lt;sup>27</sup> Nisa'ul Hafidhoh dkk., "Pengenalan Huruf Hijaiyah dengan Tanda Baca Menggunakan Augmented Reality," Jurnal Teknologi Informasi TIERS 4, no. 1 (25 Juni 2023): 25-31, https://doi.org/10.38043/tiers.v4i1.4348.

<sup>&</sup>lt;sup>28</sup> Cahyani, Aisyah dan Kholisin, Kholisin, "Mengembangkan ArVo: Aplikasi Berbasis Augmented Reality untuk Meningkatkan Penguasaan Kosakata Bahasa Arab," Arabiyatuna: Jurnal Bahasa Arab 6 (4 November 2022): 465, http://doi.org/10.29240/jba.w6e2.4798.

<sup>&</sup>lt;sup>29</sup> Setiawan, Muhammad Adi. "Pengembangan Materi Ajar Secara 3D Augmented Reality Untuk Pengajaran Berbicara Bahasa Arab: Indonesia," Tarling: Jurnal Pendidikan Bahasa 3, no. 1 (31 Desember 2019): 25–39, https://doi.org/10.24090/tarling.v3i1.3357.

madrasah tsanawiyah students' mastery of sarf material, especially tashriful fi'il madli through this research.

## **Analysis Stage**

The analysis stage is the first stage of development research that refers to the theory of Branch (2009)<sup>30</sup>, this stage is the initial stage of the process of making Augmented Reality integrated quartet card media based on multiliteracy activities. At this stage the researcher analyzes the basic needs required during product development through observations and surveys. Needs analysis includes analyzing the state and availability of media used by students as the main information that supports the implementation of Arabic language learning.

Based on observations made by researchers one *madrasah tsanawiyah* in Malang City, the media used in *sarf* learning is Power Point (PPT) and then printed independently by students, often the media is left at home or even lost. According to some students, this media tends to spend a lot of money. In addition, students' mastery of neural material is also still not optimal, this is evidenced by the scores of some students who are still fitting or lacking, namely as many as 60.71% or 17 students out of a total of 28 students have scores below the Minimum Completion Criteria (KKM) which has been set at 80.

Survey results from questionnaires filled out by grade IX students who have studied *sarf* material, showed that as many as 71.4% or 20 students stated that the teacher had not fully implemented the multiliteracy learning model, 96.4% or 27 students revealed the teacher had never taught using Augmented Reality technology, 85.7% or 24 students considered the application media to make learning more fun, and 89.28% or 25 students agreed if the learning media was designed in the form of augmented reality integrated quartet cards based on Augmented Reality integrated multiliteracy activities on the *sarf* material.

Based on the results of the observation and survey analysis above, the researchers concluded that the augmented reality integrated quartet card media based on multiliteracy activities needs to be designed. This is in accordance with the results of a literature review conducted by previous researchers, that media is needed to facilitate students to make it easier to master Arabic language learning in *Sarf* material<sup>31</sup>. In this stage, researchers also explore the concepts, materials, and illustrations in media development in depth so that they can be applied and in accordance with the achievements and learning objectives in *sarf* material, especially *tashriful fi'il madli*.

# Design Stage

The design stage aims to design the flow and appearance of the quartet card media developed according to the needs of students in learning Arabic

<sup>&</sup>lt;sup>30</sup> BRANCH, Robert Maribe. *Instructional design: The ADDIE approach*. New York: Springer, 2009.

العبة البطاقة الرباعية متكاملة الواقع المعزز في Khoirunnisa, Tsania; Mujahidah, Zulfa Azalia العزية المعزز في العبية المعزز في Proceeding Of International Student Conference on Arabic Language and Teaching (ISCALT) .2024, 2(1), 33-46.

language Sarf material based on multiliteracy activities. The results of this stage are in the form of a quartet card story board design and manual sketch design to facilitate User Interface design. It is expected that this product is able to facilitate students in understanding the material because of the interactive and real 3D visualization in Sarf material in the application. At this stage, the researchers compiled instruments in the form of media expert validation sheets, material expert validation sheets, student response questionnaires, and teacher response questionnaires.

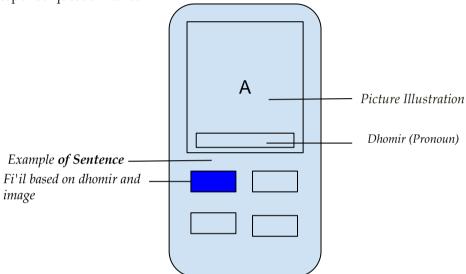


Figure 1. Storyboard Quartet Card Game

The above is the story board of the quartet cards made. The quartet card product developed consists of 56 ordinary cards and 8 question cards. The ordinary cards contain illustrations and expressions accompanied by 4 fi'il madli words (mujarrad and mazid) according to their dlamir. Images on ordinary cards can be scanned using Augmented Reality markers on the application to increase student understanding. Question cards are cards that players can use to prevent opponents from collecting the desired cards. The card can be used by players if they can answer the questions listed on the card regarding tashriful fi'il madli material to be demonstrated both orally and in writing. On the card is included a OR Code to check the correct answer from the question answerer. After creating a story board, researchers create use case diagrams and flowchart diagrams to facilitate application developers in making applications.

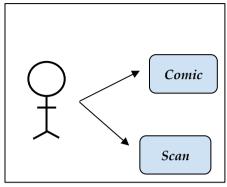


Figure 2. Usecase Diagram

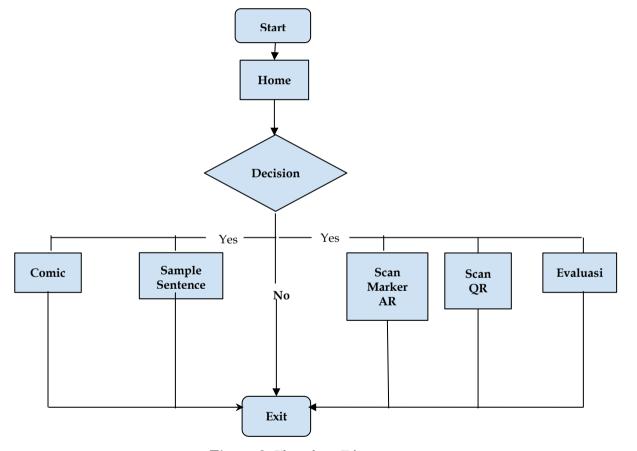


Figure 3. Flowchart Diagram

The diagram above is the flow of using the application to complement the quartet card media. Based on the diagram above, when users start using the application, they will be directed to the splash screen, then 5 features are displayed on the application homepage, namely the comic feature, sample sentence feature, AR and QR scan feature, and evaluation feature. If they have

finished using the application, they can press the exit button provided. The comic feature contains digital comics on the topic of Islamic New Year, the sample sentence feature contains examples of the application of tashriful fi'il madli, the AR scan feature to bring up a 3D visualization of the quartet card, the QR scan feature to see the answers to the questions, the evaluation feature to collect student presentation results.

## **Development Stage**

After designing, the next stage is the development stage. At this stage, researchers began developing products with the following step: 1) developing material content presented in quartet cards and scan marker applications, 2) creating illustration designs to be included in applications and cards using Medibang Paint, Canva, and CorelDRAW software, 3) Production of 3D objects for augmented reality through blender and Adobe XD applications, 4) after finishing designing the User Interface, creating 3D illustration objects as objects that appear, 5) open Unity 3D software to link and match, cards as markers of 3D objects, 6) After the component is processed into an object, the object is given a command (this happens in Unity), 7) Publish or Export, by clicking Convert then select publish after selecting the desired file extension, for example for scanning applications on smartphones, namely in the form of applications so that they can be played on mobile phones. The cards that have been made are then printed measuring 9x11 cm using A3 art paper in portrait position. The cards are printed in color with a high level of augmentability. After the product was completed, the researcher developed a product usage guide for teachers and students. The following is a picture of the card and application user interface that has been developed.



Figure 4. Quartet Card and Menu Display on the Application

Playing this card is quite easy. In general, the way to play is the same as the usual quartet cards. At the beginning of the game, each player is dealt 4 cards randomly, after which the game begins using hompimpa. The first player will submit and verbally mention one of the cards according to the category he wants, for example, *dlamir huwa*. Then the other players must deposit cards according to the category proposed by the first player. For players who cannot submit a card according to the category, then the player must take another card. When the main player has managed to collect at least 4 kinds of cards of the same category from the opposing players, then the player can take the 4 cards. The player who can collect the most card categories will be the winner. However, because this media is developed with multiliteracy activities, its implementation in learning must be adjusted.

The following are the stages for using quartet cards according to multiliteracy activities, the first is the involving stage carried out by drawing students' attention to the learning material through the presentation of digital comics and discourse texts that contain the context of cultural and social issues regarding the Islamic New Year. The second, the responding stage is carried out by students by observing and collecting data from questions given by the teacher based on the results of reading the discourse text and digital comics. The third, the elaboration stage where students play quartet cards, after which they identify each quartet card that has been obtained. The fourth, the review stage, where students review the quartet cards that have been analyzed by their friends together for review and as a muraja'ah of the material that has been discussed. The presentation stage, students are asked to convey what has been learned orally through the Evaluation feature that has been provided in the media support application. Through the activities carried out by students through the implementation of the media can improve the mastery of fi'il madli material in students.

After developing the product, researchers conducted product validation tests on media experts and material experts, namely Malang State University lecturers. Media experts are people who are experienced in developing technology-based Arabic learning media, namely Muhammad Lukman Arifianto, S.S., M.A., while material experts are people who are experienced in compiling Arabic learning materials, namely Laily Maziyah, S.Pd., M.Pd. After the product was validated, the researcher revised the product according to the validator's input and suggestions so that the media was suitable for testing.

The implementation stage and evaluation stage were not carried out in the following development research. This was done because researchers wanted to focus on completing media development. Meanwhile, the implementation and evaluation stages will be carried out by researchers as a continuation stage of this development research. Thus, it is expected that the media that has been developed can be more feasible to be widely implemented to see how effective this media can be used on a large scale.

## Feasibility of Quartet Card Game Media Integrated Augmented Reality on Sarf Material

After going through the validation test of media experts and material experts, the feasibility of augmented reality integrated quartet card media on sarf material can be known. Below are the results of the calculation of material expert validation in table 1.

No	Indicator	Percentage (%)	Category
1	Feasibility and completeness of the material	81.75	Valid
2	Feasibility of language	81.50	Valid
3	Presentation of material content	85	Valid
	Mean	82.75	Valid

**Table 1.** The Result of Material Validation

The validation results from the material experts in table 1 show that the media received a valid category to be tested with a percentage of 82.75% and some revisions need to be made. The material expert gave advice on the media to improve a sentence on a regular card that was less precise in terms of sentence structure, الْأَبُ احْتَقَلَ بِذِكْرَى سَنَةِ هِجْرَيَّة جَدِيْدَةِ بِالْأَمْسِ should be الْأَبُ احْتَقَلَ بِذِكْرَى سَنَةِ هِجْرَيَّة جَدِيْدَةِ بِالْأَمْسِ In addition, the question cards are asked to replace بِذِكْرَى سَنَةَ هِجْرِيَ جَدِيْدَةِ بِالْأَمْسِ some words to make them more appropriate, for example اجْعَلْ جُمْلَةً الَّتِيْ تُتَاسِبُ The rest of the materials in this media ! الجُعَلُ جُمْلَةً تُنَاسِبُ النَّمُوْذَجَ becomes !النَّمُوْذَجَ are suitable to be given and implemented to students.

The quality of the material is an important consideration before the media is given to students. The components of the material quality indicators validated in this media include the feasibility and completeness of the material, feasibility of language, and presentation of material content. The selection of these validation indicators is based on research conducted by Ningtyas and Rahmawati (2023) regarding material eligibility criteria <sup>32</sup>. Thus, the material in this media is in accordance with the standard material eligibility criteria.

No	Indicator	Percentage (%)	Category
1	Display of Media interface	86.50	Valid
2	Display of media images and	90.15	Valid
	illustrations		
3	Display of text	93	Valid

Table 2. The Result of Media Validation

<sup>32</sup> Ningtyas, Hesti Afril; Rahmawati, Laili Etika. Kelayakan Isi, Penyajian, Kebahasaan, dan Kegrafikan Bahan Ajar Teks Deskripsi di SMP Kelas VII. 2023. PhD Thesis. Universitas Muhammadiyah Surakarta.

Mean 89.88 Valid

Based on table 2, validation from media experts shows a percentage of 89.88%. This shows that the media is valid to be applied to learning *tashriful fi'il madli* material by making several revisions. Suggestions obtained from media experts include paying attention to the selection of color contrasts on the media, being more consistent in the selection of fonts used on cards, and making guidebooks that are easier for students to understand.

After revising the media, researchers tested the media in Arabic language learning activities in the classroom. Initially, students were asked to pay attention to the researcher's explanation regarding the concept of using the media according to the guidebook, then students were asked to try independently, the media that had been developed. During the trial process, the researcher recorded any problems experienced by students as suggestions for using the media. After the trial was completed, students were asked to fill out the student response questionnaire that had been provided. Researchers also provide validation instruments to teachers as field practitioners to assess the use of media during learning. The response questionnaire serves to determine the level of ease (practicality) of the media used, then will go through a revision process if needed. The revision is based on suggestions and assessments obtained from student and teacher respondents.

In the aspect of the media *interface*, what is assessed is in terms of the appearance of the layout and ease of use of the product because it plays an important role in the development of digital media<sup>33</sup>. Based on the validation results, the media is suitable to be applied to *Sarf* material, the initial appearance listed on the media is in accordance with the concept of material and interesting to be given to students, the media is also classified as easy when operated by students. The instructions for use provided are also easily understood by students. Thus, the media *interface* aspect has been fulfilled on this media.

In the aspect of image and illustration display, more assess the quality of images and illustrations used in the product. Images and illustrations not only serve to beautify the media, but also make it easier for students to understand the content of the material well<sup>34</sup>. Based on the validation results, the images and illustrations used in the media have good image quality and are related to the content of the material being taught. Thus, the images and illustrations on this media have met the media feasibility standards.

In the writing aspect, assessing the use of appearance and type of writing. This aspect needs to be assessed because the clarity of writing affects

<sup>&</sup>lt;sup>33</sup> Winarno, et al. Teknik Evaluasi Multimedia Pembelajaran. Yogyakarta: Genius Prima Media, 2009.

<sup>&</sup>lt;sup>34</sup> Zeegen, Lawrence. The Fundamentals of illustration. Bloomsbury Publishing, 2012.

the level of readability and student understanding of the material presented<sup>35</sup>. The validation results show that the writing used on the quartet card media is clear, does not use many combinations of fonts, the spaces between lines and letters are appropriate. Thus, the writing used in this media is in accordance with the standards for the use of writing in the media. After validation, the media was revised and then tested on students. The following are the results of the student response questionnaire in table 3.

Indicator	Percentage	Category
Aspect of Media	85,30%	Practical
Aspect of Learning	90,15%	Practical
Aspect of Display	87,5%	Practical
Mean	87.65%	Practical

**Table 3.** The Result of Student Response Questionnaire

The percentage result of the student response questionnaire in table 3 is 87.65%, so it can be seen that this media is practically used in the learning process. Indicators of student response questionnaire include aspects of media, learning, and media display. Based on the media aspect, students feel that this media is in accordance with the sarf material given and its use is easy. Then, from the learning aspect, the quartet card media can add insight and make it easier for students to master sarf material through the concept of games and augmented reality representation. Furthermore, the visual aspect shows that students agree that the display used in the media attracts students' attention, motivates students, facilitates students in learning, so that students are able to master sarf material. Thus, this media can be stated to be used for large-scale classroom learning. In addition to the student response questionnaire, researchers also used a teacher response questionnaire to test the readability of the media. The following are the results of the teacher's response.

Indicator	Percentages	Category
Aspect of Media	85,30%	Practical
Aspect of Learning	90,15%	Practical
Aspect of Display	87,5%	Practical
Mean	84,70%	Practical

Table 4. The Result of Teacher Response Questionnaire

The teacher response questionnaire was filled in by one of the Arabic Language Teachers of Grade IX. The results of the questionnaire showed a percentage of 84.70% in the practical category. Based on the media aspect, the

<sup>&</sup>lt;sup>35</sup> Sulistiyawati, Puri; Prabowo, Dwi Puji; Ihya'ulumuddin, Dimas Irawan. Perancangan Media Pembelajaran Berbasis Audio Visual Untuk Mata Kuliah Tipografi pada Program Studi Desain Komunikasi Visual Universitas Dian Nuswantoro. ANDHARUPA: Jurnal Desain Komunikasi Visual & Multimedia, 2017, 3(1): 69-80.

teacher agrees that the augmented reality integrated quartet card media can improve student mastery and is suitable to be applied to *sarf* learning. In addition, the usage guide provided also makes it easier for students to use the media during classroom learning.

According on the results of teacher and student responses, it shows that quartet cards integrated with augmented reality technology can be used as a learning media for *sarf* material. This media is considered capable of making students' abilities in learning Arabic increase, especially in *sarf* material. In addition, this media can also foster students' motivation in learning Arabic so that they are not bored. This is supported by Sholikhah's opinion, Arabic language learning using quartet cards is considered effective because it can make it easier for students to learn so that they better master the material provided<sup>36</sup>.

The quartet card media integrated with *augmented reality* technology on *sarf* material is designed to implement multiliteracy activities. This is done because multiliteracy activities involve the ability to understand reading, writing, speaking skills, and master digital media<sup>37</sup>. Multiliteracy is a paradigm formed as a result of literacy learning. Then this paradigm was developed to improve language competencies that require skills to operate information technology<sup>38</sup>. Therefore, researchers used multiliteracy as the basis for learning syntax using quartet card games integrated *augmented reality*.

Each phase in multiliteracy learning applied to the cards has systematic activities. In the *engaging* stage, it is done by attracting students' attention to the learning material through the presentation of digital comics and discourse texts that contain the context of cultural and social issues related to the topic of Islamic New Year Celebrations that contain *tashriful fi'il madli* sentences. The response stage is carried out by students by playing games using quartet cards. In the elaboration stage, students identify the cards that have been collected, the vocabulary of *fi'il madli* on the card including the type of *fi'il mujarrad* or *mazid* and using any *dlamir*. At the review stage, students review the results of the analysis that has been obtained by their groupmates, then at the presentation stage students present the results that have been reviewed with their friends into a video uploaded to the link available on the application.

<sup>&</sup>lt;sup>36</sup> Sholikhah, Zumrotul Laila dan Muadz. Istikhdām Bithāqati Kuartet fī Ta'līmi Hifdz al-Mufradāt al-'Arabiyyah lith-Thullāb al-Fashli al-'Āsyir fil Madrasah al-'Āliyah al-Islāmiyyah al-Ahliyah "Raudhatul 'Ulūm" Mujuduwur Mujuwarnu Jumbang. At-Tadris. 2023. 11(2). 304-318.

<sup>&</sup>lt;sup>37</sup> Morocco, Catherine Cobb; Aguilar, Cynthia Mata; Bershad, Carol J. Supported literacy for adolescents: Transforming teaching and content learning for the 21st century. John Wiley & Sons, 2010.

<sup>38</sup> Lewier, M., Somelok, G., & Yoris, A. (2021). Peningkatan Keterampilan Berbahasa Produktif Melalui Model Pembelajaran Multiliterasi Pada Mahasiswa Program Studi Pendidikan Bahasa dan Sastra Indonesia FKIP Universitas Pattimura Ambon. ARBITRER: Jurnal Pendidikan Bahasa dan Sastra Indonesia, 3(1), Article 1. https://doi.org/10.30598/arbitrervol3no1hlm405-422.

The concept of playing while learning is applied in the *quartet cardgame* media on special cards consisting of several questions. Each question has a category of HOTS questions ranging from analysing, evaluating, to applying. Each category of HOTS questions also has its own rewards. Some examples of rewards that players will get are the right to scan the main card to see the 3D augmented reality representation and get one more turn to play. The game concept in *card* games can make the learning process effective and interactive<sup>39</sup>.

## Conclusion

Sarf material is one of the studies in the *gawaid* elements that must be learned in Arabic language education. One sub-material in sarf science that confuses students is the tashriful fi'il madli mujarrad and mazid. Therefore, it is necessary to develop media that can enhance students' mastery of this material. The developed media consists of quartet cards integrated with Augmented Reality using the ADDIE development model (Analyze, Design, Development, Implementation, and Evaluate). Each stage includes activities conducted by the researcher so that the product can be implemented. This media can improve students' mastery of sarf material, as it has been tailored to the needs of the students who are the subjects of the research. Massive development of technology-based media is necessary to ensure that digital literacy skills are evenly distributed among students. Especially today, every student is required to master 21st-century skills. Therefore, teachers must be more innovative in utilizing technology-based media.

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<sup>&</sup>lt;sup>39</sup> Primasari, Dwi Amelia Galuh; Suparmanto, Suparmanto; IMANSYAH, M. Information and communication technology as media innovation and sources of learning in school. International Journal of Educational Review, 2019, 1.2: 44-55.

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