

The Development of Interactive E-Book-Based Teaching Materials for Senior High School Students

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Abstract

This study aimed to develop interactive e-book-based teaching materials for Madrasah Aliyah students in class X to support independent learning and to assess the levels of validity and practicability of their use. The growth of students' learning is positively impacted by the creation of teaching materials that are appropriate for their circumstances and ages, especially those that encourage independent learning. Field evidence indicates that students must build their knowledge outside the classroom to learn effectively, as suggested by the constructivist theory. This research employed the research and development method with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model. The data were collected through questionnaires and observations and then analyzed using descriptive statistical techniques. The product of this research was an interactive e-book assisted by a Heyzine Flipbook with *al-tahbiyyat wa al-ta'aruf* materials that could be accessed online via smartphones, tablets, and laptops. Based on the validation conducted by media experts, material specialists, and Arabic linguists, the validity of this product was rated as legitimate and worth testing with a feasibility score of 4.42, which was good, and an average eligibility percentage of 88%. Responses from 40 students and five Arabic teachers, who had a very positive response rate of 91%, were used to determine the practical value of use. Based on these results, the interactive e-book-based teaching materials assisted by the Heyzine Flipbook *al-tahbiyyat wa al-ta'aruf* materials for Madrasah Aliyah students were valid and practical for use.

Keywords: Teaching material; interactive e-books; Heyzine Flipbook; self-study

Introduction

As we moved into the 21st century, traditional education models that rely on face-to-face meetings changed in a big way. The role of online academic learning has led to dramatic changes in the lives of students. Also, the aftermath of COVID-19 has led to the rise of digitalization, which has made students more competitive. New trends have emerged, such as online learning, homeschooling, self-learning, and distance learning.¹ Advanced technology must be designed so that it is easy for teachers to use. Teachers' skills and knowledge in using learning technology must continuously be improved. Various teaching and learning facilities must be presented through various media, sources, and representative teaching aids to support learning.

E-learning is expected to stimulate independent learning. Every student needs to own their independence in learning. This is in line with Butler's view that students need to build independent learning skills to succeed in their studies. The learning success of students must be supported by strategies to manage their time and assignments.² One strategy that can be used to support independent learning based on e-learning is by using electronic-based teaching materials so that they can be accessed anytime and anywhere. Based on the regulation of the Minister of Education and Culture number 8 of 2016 concerning textbooks used by educational institutions, students who learn fast can optimize their learning abilities by studying textbooks. However, students who experience obstacles and need to be faster in receiving learning material can study books repeatedly.³ Creating or developing teaching materials/teaching media that help students learn independently is something that needs to be done, one of which is interactive electronic teaching materials.

In a way, developing learning Arabic language skills that include listening, speaking, reading, and writing based on information technology in the form of e-learning can make it easier for students to get learning information and increase interest in learning Arabic with the provision of attractive and communicative web designs.⁴

¹ Muhammad Yaumi, *Media Dan Teknologi Pembelajaran*, ed. Sitti Fatimah Sangkala, Kedua (Jakarta, 2018), 14-15.

² Deborah L Butler, "Individualizing Instruction in Self-Regulated Learning," *Theory Into Practice* 41, no. 2 (2002), h.82; <https://doi.org/10.1207/s15430421tip4102>; dikutip dalam Laifa Rahmawati, *E-Learning & Konsep Belajar Mandiri*, (Cet I; Yogyakarta: Penebar Media Pustaka, 2018), h.25.

³ Sutri Ramah and Miftahur Rohman, "Analisis Buku Ajar Bahasa Arab Madrasah Aliyah Kurikulum 2013" *Arabiyatuna: Jurnal Bahasa Arab* 2, no. 2 (2018):145. <http://journal.staincurup.ac.id/index.php/arabiyatuna>.

⁴ Haniah, "Pemanfaatan Teknologi Informasi Dalam Mengatasi Masalah Belajar Bahasa Arab," *Al-Ta'rib: Jurnal Ilmiah Program Studi Pendidikan Bahasa Arab LAIN Palangka Raya* 2, no. 4 (2014): 1–19. DOI: <https://doi.org/10.23971/altarib.v2i1.588>

There are many different kinds of teaching materials, both in terms of how they are used and how they help teachers with learning activities. The intended content can be in the form of both printed and non-printable materials.⁵ The benefits of teaching materials are to improve the delivery of learning material, form an exciting learning process, and increase the quality of learning outcomes. Learning through appropriate media or teaching materials is considered better and more efficient than having non-teaching students use media. Research by Umi Hijriyah et al. shows that using media increases student scores from an average of 55.65 to 88.00, an increase of 32.30. In addition, learning will be more exciting and enjoyable for students.⁶ Teachers are required to realize innovative and fun teaching and learning activities in the classroom by using media, thus helping to improve learning outcomes and activities.⁷

The above aligns with KMA number 183 of 2019 concerning strengthening multimedia-based learning as a basis for strengthening student media literacy, strengthening learning patterns in a network, and strengthening interactive learning patterns.⁸ The purpose of learning Arabic is to master language skills, and mastering a foreign language has its own characteristics and difficulty level. If not facilitated with the right technology, it does not rule out the possibility of not achieving the expected learning objectives.⁹

In learning Arabic, four language skills that learners should possess include *istima'* (listening), *qira'ah* (reading), *kalam* (speaking), and *kitabah* (writing). These four skills are combined and used simultaneously. However, in practice, linguistic and non-linguistic problems often occur. Linguistic problems, such as sound systems, vocabulary, grammatical errors, structure, and meaning, while non-linguistic errors, such as difficulties that occur related to the learning

⁵ Irma, Azhar Arsyad, Safe'i and Bahraeni, "Pengembangan Bahan Ajar Teknologi Pembelajaran Berbasis Web-Blog Pada Mahasiswa Fakultas Tarbiyah Dan Keguruan Universitas Islam Negeri Alauddin Makassar", *JIP: Jurnal Inspirasi Pendidikan* 8(1), 271–80. <https://doi.org/10.24252/ip.v8i2.7888>

⁶ Lita Yuniarti Umi Hijriyah, Muhammad Aridan, Ahmad Nur Mizan, Aldio Dealintang, "Developing Digital Comic Media for Learning Qira'ah for the Fifth Grade Students of Madrasah Ibtidaiyah" *Arabiyatuna: Jurnal Bahasa Arab* 6, no. 2 (2022): 693–710.

⁷ M Sayid Umar et al., "Pengembangan Bahan Ajar Bahasa Arab On-Line Berbasis Website Wakelet Pada Program Intensif Pusat Pengembangan Bahasa UIN Maulana Malik Ibrahim Malang," *Lisanan Arabiya: Jurnal Pendidikan Bahasa Arab* 4, no. 2 (2020):177.

⁸ Direktorat KSKK Madrasah et al., "Keputusan Menteri Agama Nomor 183 Tahun 2019 Tentang Pai Dan Bahasa Arab Pada Madrasah," (2019):7.

⁹ Haniah And Jumadil, "Visual Technology Development For Arabic Learning Based On Addie Development Model," *Al Maqayis: Jurnal Pendidikan Bahasa Arab Dan Kebahasaaraban* 9, No. 2 (2022): 147–60, Doi: <https://Dx.Doi.Org/10.18592/Jams.V4i1>. Haniah And Jumadil, "Visual Technology Development For Arabic Learning Based On Addie Development Model," *Al Maqayis: Jurnal Pendidikan Bahasa Arab Dan Kebahasaaraban* 9, No. 2 (2022): 147–60, Doi: <https://Dx.Doi.Org/10.18592/Jams.V4i1>.

process, including the social environment, teaching methods, teacher competence, students' learning interests, learning tools such as media and teaching materials, as well as the time available, are inadequate.¹⁰

Between the two problems, problems related to non-linguistics are often found in the field. These problems include the use of inadequate teaching materials or media. Even though appropriate strategies and teaching materials will support learning motivation, active learning, and optimizing available time.¹¹

Based on the results of interviews with Arabic language teachers at MAN Polman, basic competence can be achieved, but the strengthening of the material is inadequate due to a lack of time while students need to repeat the material to understand it better.¹² Arabic teacher MAN Polman supports if there are multimedia-based teaching materials that can help the learning process be effective, easy to carry anywhere, and facilitate the learning process. Students can also do self-taught learning at home, and it can be accessed anytime and anywhere via a laptop or Android.¹³

Based on the results of the analysis of the needs of students, information was obtained that students considered Arabic subjects challenging to understand because they had to be able to read Arabic script correctly, in addition to *mufradat*, which had to be memorized.¹⁴ Cases like this need to be overcome by providing instrumental and integrative motivation. The view that Arabic is difficult must be removed by helping students be motivated to learn to achieve learning objectives.¹⁵

Teachers still use printed books to teach Arabic and do not maximize non-printed media or teaching materials, while students prefer variety and a fun learning atmosphere.¹⁶ Print textbooks make students need teachers to explain,

¹⁰ Siti Nikmatul Rochma, Umi Mahmudah, and Yuangga Kurnia Yahya, "Utilizing Technology in Arabic Teaching: Implementation of Media 'Learning Aljazeera.Net' on Listening Skill Teaching at University of Darussalam Gontor" *Arabiyatuna: Jurnal Bahasa Arab* 5, no. 2 (2021): 197–216.

¹¹ Ainur Rofiq Sofa, Abd. Aziz and Muhammad Ichsan, "Bahasa Arab: Problematika dan Solusi Dalam Studi Pembelajaran Bahasa Arab" *Jurnal Inovasi Penelitian* 1, no. 9 (2021):1764

¹² Bungarosi (45 tahun), Guru Bahasa Arab MAN 1 Polman, *Wawancara*, Polewali Mandar, 20 Mei 2022.

¹³ Hajrah (52 tahun), Guru Bahasa Arab MAN 1 Polman, *Wawancara*, Polewali Mandar, 20 Mei 2022.

¹⁴ Muthmainnah (15 tahun), Siswa kelas 10 MAN 1 Polman, *wawancara*, Polewali Mandar, 20 Mei 2022.

¹⁵ Muhammad Syaifullah and Nailul Izzah, "Kajian Teoritis Pengembangan Bahan Ajar Bahasa Arab" *Arabiyatuna: Jurnal Bahasa Arab* 3, no. 1 (2019): 127–44, <https://doi.org/10.29240/jba.v3i1.764>.

¹⁶ Asep Muhammad Saepul, "Faktor Demotivasi Pembelajaran Bahasa Arab Dalam Perspektif Siswa Madrasah" 2, no. 1 (2015): 1–16.

so they need teaching materials that they can learn on their own to present interactive material in sound, pictures, and videos.¹⁷

In Huda, Khorat and Shamir said that e-books are digital versions of traditional books that include video, animation, and sound.¹⁸ According to *Daisy J. Hofstetter* in Rina, e-books are books that are interactive by utilizing electronics and contain information that can be in the form of images or text.¹⁹ According to *Smeets* and *Bus*, cited in Winatha, electronic books containing multimedia features can enrich the reading experience if used correctly. Electronic books can contribute to increasing students' interest in reading increases.²⁰

Kwarto explained in Rina Tiya Lestari that the benefits of e-books in supporting the learning process are: 1) increasing the activeness of students because there is an exciting learning process and deep meaning; 2) students can combine creative ideas with the knowledge they already have before being able to understand the meaning and doubts or curiosity that he has been thinking about; 3) enabling collaboration in groups; 4) helping students achieve the desired learning goals; 5) learning situations become more meaningful; 6) directing the attention and interest of students to realize what they have learned.²¹

¹⁷ Siti Nikmatul Rochma, Umi Mahmudah, and Yuangga Kurnia Yahya, "Utilizing Technology in Arabic Teaching: Implementation of Media 'Learning Aljazeera.Net' on Listening Skill Teaching at University of Darussalam Gontor" *Arabiyatuna: Jurnal Bahasa Arab* 5, no. 2 (2021): 199. <http://dx.doi.org/10.29240/jba.v5i2.2730>.

¹⁸ Nurul Huda et al., "Application-Based Arabic E-Book Media Development Kvisoft Flipbook Maker For Madrasah Aliyah Students Pengembangan Media E-Book Bahasa Arab Berbasis Aplikasi Kvisoft Flipbook Maker Untuk Siswa Madrasah Aliyah" 4, no. 3 (2021): 765–78, <https://doi.org/10.18860/ijazarabi.v4i3.12101>. Korat and Shamir, "Do Hebrew Electronic Books Differ from Dutch Electronic Books? A Replication of a Dutch Content Analysis," *Journal of Computer Assisted Learning* 20 (2004): 257–268.; dikutip dalam Nurul Huda et al., "Application-Based Arabic E-Book Media Development Kvisoft Flipbook Maker For Madrasah Aliyah Students Pengembangan Media E-Book Bahasa Arab Berbasis Aplikasi Kvisoft Flipbook Maker Untuk Siswa Madrasah Aliyah" 4, no. 3 (2021): 765–78, <https://doi.org/10.18860/ijazarabi.v4i3.12101>.

¹⁹ Yerry Soepriyanto Rina Tiya Lestari, Eko Pramono Adi, "E-Book Interaktif," *Jurnal Teknologi Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Malang* 1, no. 1 (2018): 71–76. Hofstetter, *Multimedia Interaktif* (Jakarta: Yudistira, 2001); dikutip dalam Rina Tiya Lestari, Yerry Soepriyanto and Eko Pramono Adi, "E-Book Interaktif," *Jurnal Teknologi Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Malang* 1, no. 1 (2018): 71–76.e - iISSN: 2615-8787.

²⁰ Daisy J.H. Smeets and Adriana G. Bus, "Interactive Electronic Storybooks for Kindergartners to Promote Vocabulary Growth," *Journal Of Experimental Child Psychology* 112, no. 1 (2012): 36–55, <https://doi.org/10.1016/j.jecp.2011.12.003>.; dikutip dalam Winatha and Suharsono "Pengembangan E-Modul Interaktif Berbasis Proyek Pada Mata Pelajaran Simulasi Digital Kelas x Di Smk Ti Bali Global Singaraja," *Jurnal Teknologi Pembelajaran Indonesia* 8, no. 1 (2018): 13–25. ISSN: 2614-2015.

²¹ Kwartolo, "Teknologi Informasi Dan Komunikasi Dalam Proses Pembelajaran.," *Jurnal Pendidikan Penabur* 9, no. 14 (2010): 15–43; dikutip dalam Rina Tiya Lestari, Yerry

In contrast to common e-books, which only contain text and pictures, the e-books referred to by researchers are interactive e-books that contain multimedia such as images, audio, video, and learning games and are not only based on mobile learning because interactive e-books will be developed and can be accessed online via laptops, computers, and tablets by simply clicking on the e-book link.

In making interactive e-books, researchers use Heyzine Flipbooks. Heyzine Flipbook is a web-based application for creating e-books. Using Heyzine, the e-books that are created can have videos, pictures, graphics, sound, and links added so that they look more attractive. Students can read by feeling like they are opening a book physically because there is an animation effect where switching pages look like opening a book physically.²²

This interactive e-book is about *al-tahiyat watta'aruf*. According to KMA number 183 of 2019, it is the first part of a class X MA textbook. The main reason the researcher chose *al-tahiyat watta'aruf* material is that this is the first thing that is widely taught when learning Arabic for the first time, namely self-introduction. Hence, the researcher wants to give the first impression to students that learning Arabic is not as difficult as one might imagine but rather fun by mixing this material into teaching materials in the form of interactive e-books.

Research by Mahyudin Ritonga, Sobhan, and Bambang in 2022 concerning the use of technology to improve the quality of learning Arabic in Indonesia shows that to implement technology-based media in each academic unit, it is necessary to be open and accept change with an internet connection. With the need to increase teacher competency in utilizing media-based technology and this study showing an increase in the quality of learning by utilizing technology.²³ Then, research by Nur Hanifatus Sholehah in 2022 regarding the design of an e-book based on Flip PDF Professional for listening comprehension shows that e-books are superior to printed books, help

Soepriyanto and Eko Pramono Adi, "E-Book Interaktif," *Jurnal Teknologi Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Malang* 1, no. 1 (2018): 71–76. e - iSSN: 2615-8787.

²² Ni Ketut Erawati, Ni Kadek Rini Purwanti, and Dewa Ayu Putri Diah Saraswati, "Pengembangan E-Modul Logika Matematika Dengan Heyzine Untuk Menunjang Pembelajaran Di Smk," *JPM: Jurnal Pendidikan Matematika* 8, no. 2 (2022): 71–80.

²³ Mahyudin Ritonga, Sobhan, and Bambang, "Utilizing Technology to Improve the Quality of Learning in Indonesia: Challenges and Consequences for Arabic Teachers," *Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaan* 9, no. 1 (2022): 56–68. <http://dx.doi.org/10.15408/a.v9i1.24516>. Mahyudin Ritonga, Sobhan, and Bambang, "Utilizing Technology to Improve the Quality of Learning in Indonesia: Challenges and Consequences for Arabic Teachers," *Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaan* 9, no. 1 (2022): 56–68. <http://dx.doi.org/10.15408/a.v9i1.24516>.

understand *istima'*, and are more effectively used.²⁴ The novelty offered by the research that will be carried out is that previous research has yet to develop printed textbooks for class X MA into interactive e-books that contain audio, video, and interactive quizzes. The application used is also different with different materials.

The research and development (R&D) were conducted at MAN 1 Polewali Mandar with 40 test subjects in class X IPA 1. The research was carried out using the ADDIE development model, which in detail, according to Robert Maribe Branch in Sugiyono, was divided into five stages, namely analysis, design, development, implementation, and evaluation.²⁵ The development steps with the ADDIE model included: 1) The analysis stage, in which the researchers analyzed the needs of students by conducting field studies and literature studies, identified the characteristics of learning Arabic according to KMA number 183 of 2019, and identified teaching materials and materials, 2) The design stage, in which researchers designed products and research instruments, 3) in the development stage, the researchers made the product that had been designed and validated the product through the validation of learning media experts, material experts, and Arabic language experts (media experts here were learning media experts who actively developed teaching materials, material experts were lecturers in the field of Arabic who were active in research on the development of teaching materials, as well as Arabic linguists) as well as product revisions, 4) The implementation stage, namely the e-book, which had been declared worthy of being tested on students in the class for six meetings with an interactive learning model, namely the scientific approach, and 5) The evaluation stage, namely formative evaluation to revise the final product. The researchers collected the results of the student and teacher response questionnaires and the results of observing student activities using e-books developed for learning. The following was a picture of the stages of developing the ADDIE model.²⁶

²⁴ Nur Hanifatus Sholeha, Abdul Hafidz bin Zaid, and Fairuz Subakir, "Designing of an Electronic Book Based on Flippdf Professional in Listening Comprehension for Matriculation Programme" 6, no. 2 (2022): 671–692, <http://dx.doi.org/10.29240/jba.v6i2.5247>.

²⁵ Sugiyono, *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif Dan R&D*, 26th ed. (Bandung: Penerbit Alfabeta, 2017),h.432.

²⁶ Sugiyono.

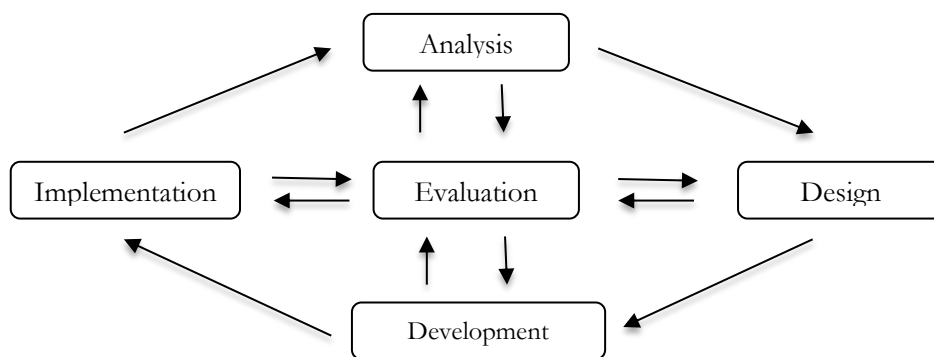


Figure 1. ADDIE Development Model

Data collection techniques in this study were through questionnaires, observation, and documentation. The research instruments used were questionnaires, observation guidelines, and documents. The questionnaire sheet consisted of e-book validation sheets by media experts, material experts, and Arabic language experts to assess the feasibility of interactive e-books, as well as student and teacher response questionnaire sheets to assess the level of practicality of using e-books in learning.

Data was obtained by using a questionnaire and analyzed using descriptive statistics. Descriptive statistics included the presentation of data through tables, graphs, and histograms. There were two kinds of data analysis according to the data collected in this study: validity data analysis and practicality data analysis. The validity of e-book products was analyzed by assessing e-books using validation instruments. The aspects assessed by media experts were physical appearance, presentation, graphics, ease of access, and operation. Aspects assessed by material experts and Arabic language experts were content feasibility, usability, accuracy of the multimedia presented, and the accuracy of language use. They also provided suggestions for improvements to the e-book being developed. The type of scale used was a Likert scale of 5 (1 = not good, 2 = not good, 3 = good enough, 4 = good, and 5 = very good). The expert validator's assessment results were then processed in a percentage way using the following analysis formula.²⁷

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

Information:

P = Eligibility Percentage

$\sum X$ = Total score of the validator's answers

$\sum Xi$ = Sum of ideal scores

²⁷ Sugiyono.h.135

After the data was analyzed, conclusions were drawn. According to Sugiyono, the guidelines used for assessing the feasibility of this e-book were based on the following criteria: very feasible, feasible, sufficiently feasible, less feasible, and not feasible.

Table 1. Validity Criteria²⁸

Percentage (%)	Validity Criteria	Information
90-100	Very Feasible	No Revision
75-89	Feasible	No Revision
65-74	Sufficiently Feasible	Revision required
55-64	Less Feasible	Revision required
0-54	Not Feasible	Total Revision

The practicality analysis of the interactive e-books was assessed by analyzing the responses of students and teachers after using the product in learning. The type of scale used was a Likert scale of 4 (strongly agree, agree, disagree, and strongly disagree).²⁹ The researchers analyzed the responses of 40 students and 5 Arabic teachers by performing the following activities: 1) calculating the results of the responses for each statement; 2) calculating the frequency of respondents who answered "strongly agree," "agree," "disagree," and "strongly disagree" to each statement; 3) calculating the total average score using the formula: $\text{Score} \times \text{Frequency}$; and 4) calculating the percentage of respondents for each statement using the formula:

$$\frac{\text{Total score average}}{\text{Total score obtained}} \times 100\%$$

5) then calculate the maximum score with the formula:

$$\text{Highest score} \times \text{number of respondents} \times \text{total item}$$

6) calculate the percentage of the average practicality level with the formula:

$$\text{Practicality Level} = \frac{\text{Total score obtained}}{\text{Maximum score}} \times 100\%$$

7) determine the positive response categories of students by matching the percentage results with predetermined criteria. The student response criteria were adapted as in the following table:

²⁸ Sugiyono.h..413

²⁹ Sugiyono. h.136

Table 2. Response Criteria³⁰

Percentage (%)	Response Criteria
$RS \leq 50$	Not Positive
$50 \leq RS \leq 60$	Less Positive
$60 \leq RS \leq 70$	Fairly Positive
$70 \leq RS \leq 85$	Positive
$85 \leq RS \leq 100$	Very Positive

If the results showed that the response was not positive, then the e-book was revised. The use of teaching materials was considered to be achieved if the criteria for a positive response were met, which was 70%.³¹

Findings and Discussion

Development of Interactive E-book Based Teaching Materials Based on Heyzine Flipbook

Development was carried out using the ADDIE model as follows:

Analysis Phase

At this stage, the researcher conducted a field study by collecting preliminary information from teachers and students at MAN 1 POLMAN regarding the learning environment, methods, and learning styles to find out the basic needs of students and teachers. Unstructured interviews were conducted with teachers to find an overview of Arabic language learning at MAN 1 POLMAN and have 40 students fill out a questionnaire to obtain initial data before conducting research. 87.5% of students thought there was a need for new learning resources to support the learning process. The theory suggests that analyzing learning needs and conditions determines suitable technology.³² So it is not technology that forces itself to be used, but consideration of user needs.

The researcher also conducted a literature study by identifying the characteristics of learning Arabic in KMA 183 of 2019 because this is the basis

³⁰ Ahmad Saifuddin, "Pengembangan Buku Ajar Mata Kuliah Cross Cultural Understanding Berbasis Media Sosial," *Jurnal Riset Dan Konseptual "Briliant"* 3, no. 4 (2018): 522.

³¹ RiFatul Khoriyah and Muhid. Abdul, "Inovasi Teknologi Pembelajaran Dengan Menggunakan Aplikasi Wordwall Website Pada Mata Pelajaran PAI Di Masa Penerapan Pembelajaran Jarak Jauh: Tinjauan Pustaka," *Tarbiyah Wa Ta'lim: Jurnal Penelitian Pendidikan Dan Pembelajaran* 9, no. 3 (2022): 192–205.

³² Muhammad Aridan, Ahmad Bukhari Muslim, and Agus Setiawan, "Pengembangan Mobile Learning Untuk Penguasaan Mufrodat Siswa MTs" *Arabiyatuna: Jurnal Bahasa Arab* 4, no. 2 (2020): 265–78, <https://doi.org/10.29240/jba.v4i2.1769>.

for compiling interactive e-books, identifying appropriate teaching materials, and supporting independent learning according to the constructivist theory that students are individuals who are responsible for the formation of their knowledge.³³ As in KMA number 183 of 2019, which supports multimedia-based learning,³⁴ the researcher decided to develop teaching materials from printed form to electronic form, such as ordinary printed books into electronic books in which there is a combination of several media (multimedia), in the form of interactive electronic books containing images, audio, video, and quizzes.

Design Stage

At this stage, the researcher began to design teaching materials based on interactive e-books with the help of a website-based application, namely Heyzine Flipbooks, considering various existing aspects when collecting initial information.

The e-book was designed to be distinct from most paid e-books, which typically only contain text and pictures, or lack interactive quizzes. In addition to being available online, the e-book's contents include audio, video animations, hyperlinks, images, and tools for accessing other topics in the form of online games and dictionaries. Zeny stated that paper books would shift and be replaced by electronic books.³⁵ The following is the component concept for the interactive e-book that had been created.

³³ Ndaru Kukuh Masgumelar and Pinton Setya Mustafa, "Teori Belajar Konstruktivisme Dan Implikasinya Dalam Pendidikan Dan Pembelajaran," *GHAITSA: Islamic Education Journal* 2, no. 1 (2021): 49–57. <https://siducat.org/index.php/ghaitsa>

³⁴ Madrasah et al., "Keputusan Menteri Agama Nomor 183 Tahun 2019 Tentang Pai Dan Bahasa Arab Pada Madrasah."h.7.

³⁵ Zeny Dwi Martha, Eka Pramono Adi, and Yerry Soepriyanto, "E-Book Berbasis Mobile Learning," *JKTP* 1, no. 2 (2018): 109–14.e - iISSN: 2615-8787.

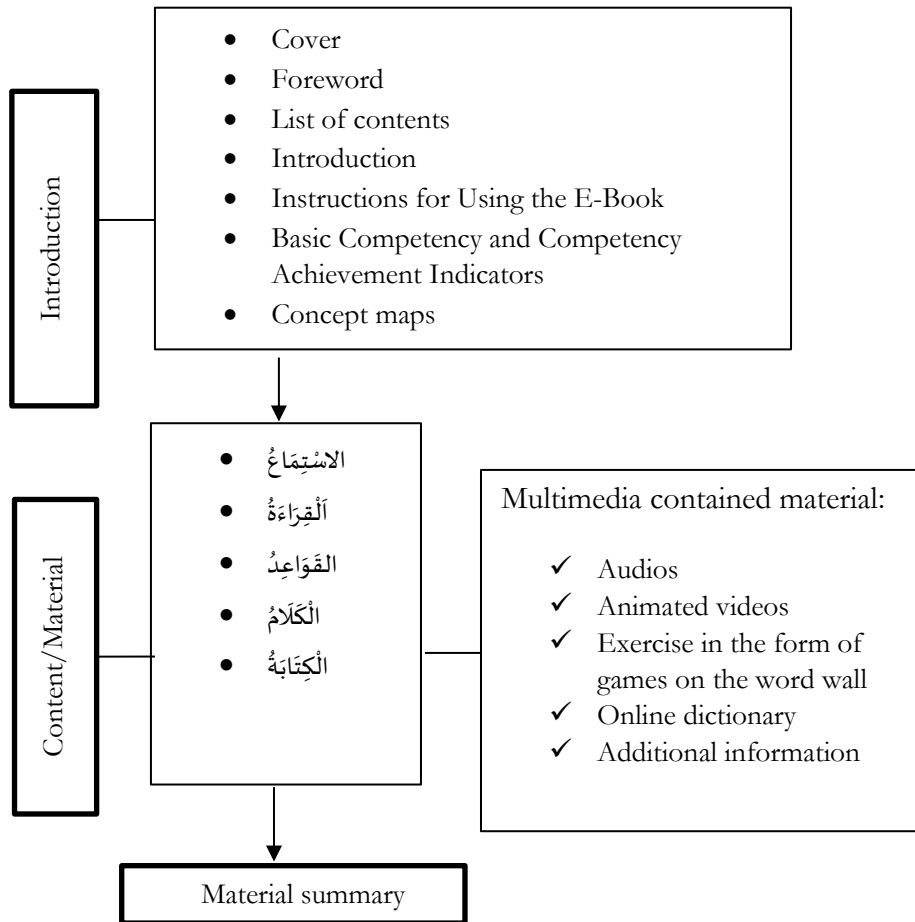


Figure 2. Interactive e-book component

The components mentioned above were subsequently developed by the researchers with the aim of creating interactive teaching materials. The materials were created by combining various media, such as *istima'* materials with audio to train students' listening skills, as well as other materials like *al-qira'ah*, *qawa'id*, and *al-kalam* that are accompanied by animated videos and material explanation videos for students to study independently. Each material also includes exercises in the form of games to make the learning process more enjoyable, while still improving the students' Arabic language skills.

The steps taken by researchers in designing interactive e-books included the following: 1) Conceptualized the components of the interactive e-book, 2) Studied each feature function by logging into the Heyzine Flipbook website, 3) Wrote the contents of the e-book in Microsoft Word, 4) Sorted out the sub-chapters that add to the material in the form of video, audio, and other sections in the form of games and training, 5) Downloaded the video maker application

and signed in to the audio editing and quiz website, and 6) Designed the e-books through Microsoft PowerPoint.

Development Stage

After conducting product analysis and design activities, the researcher proceeded to develop the teaching materials in the form of interactive e-books using Microsoft PowerPoint and Heyzine Flipbooks as the primary media. Additionally, other media such as videos made through Animaker, Kine Master, and Microsoft PowerPoint, audio through a voice recorder, soundoftext.com, freets.com, veed create, and MP3Cut.net, and exercises in the form of games via wordwall.net were utilized in creating the contents of the e-book. In the initial stage of the development process, the researcher created an e-book with the aid of Microsoft PowerPoint.

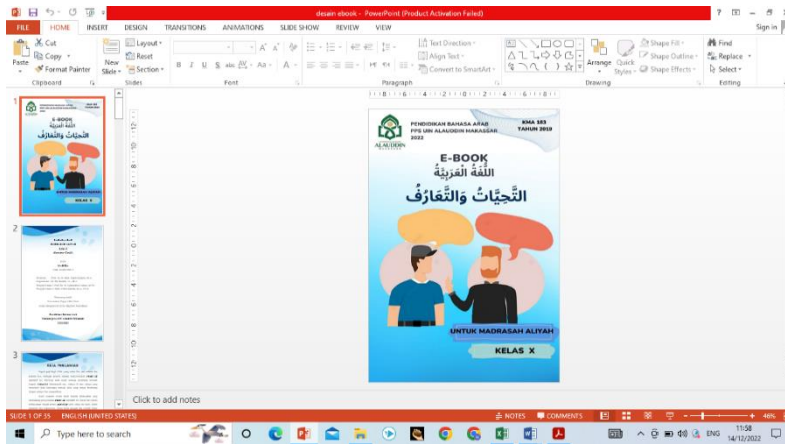


Figure 3. Making the e-book in Microsoft PowerPoint

The second stage was the creation of videos, audio, and exercises in the form of games. Materials made in video form were *himar* (conversation), *al-bayanatu syakhsyyah* (personal biodata), *bitaqatu syakhsyyah* (identity card), *aqsamul kalimah* (word division), and *annasul wasfiyyu* (descriptive text).

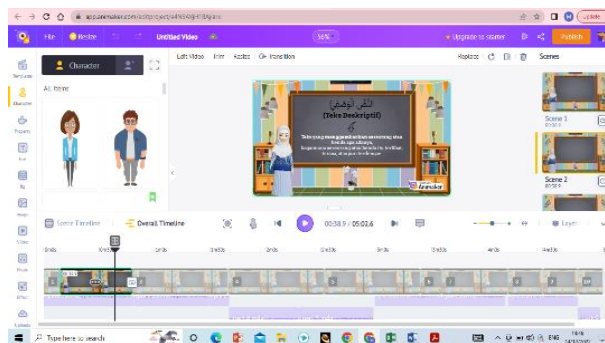


Figure 4. Making a video in animaker

After creating materials in video and audio form, the next step was to edit the audio using tools such as soundoftext.com, freets.com, veed create, and MP3Cut.net. Then, the researchers proceeded to create educational games using wordwall.net, a website that offers 18 types of games for free accounts, including quizzes, matchups, completing words, sorting words, and pairing pictures with words. To use wordwall.net, the first step was to register an account at <https://wordwall.net/> by clicking on "Sign Up" and filling in personal details such as name, email address, password, and location. In the *al-tabiyyat watta'aruf* material, the researchers designed eight exercises in the form of games, as shown in the following table. The materials made in audio form included *istima'* material (listening), *biwar* (conversation), *qira'ah* (reading), and *al-arqam* (numbers).

Table 3. A list of learning games in interactive e-books on the Heyzine Flipbook

<i>al-Tadribat</i>	Type of Game	Hailaimain paidai e-book
<i>al-Mufradaat</i>	Label the diagram or pair the vocabulary with the image	Page 5
<i>al-Ta'birat wa al-Ruddud</i>	Match up or pair <i>al-ta'biraat</i> with <i>al-ruddud</i>	Page 7
<i>al-Qiraa'ah</i>	Quiz or right and wrong quiz	Page 10
<i>Bitaqah al-Syakhsiyyah</i> (identity card)	Game show <i>quiz</i> or right and wrong quiz	Page 13
<i>Aqsamu al-kalimah</i> (word division)	Airplane or point the plane at a word that includes <i>ism, fi'il</i> or <i>huruf</i>	Page 16
	<i>Missing word</i> or find the missing word in the sentence.	Page 16
<i>al-Arqam</i>	Game show <i>quiz</i> , choose the right answer	Page 17
<i>al-Kitabah</i>	Jumble or Arrange words into complete sentences	Page 23

The third stage was the creation of an interactive e-book on the Heyzine Flipbook page. First, register on the Heyzine Flipbook page, <https://heyzine.com/>. After having an account and logging in, the e-book design was converted into a PDF and uploaded to the Heyzine Flipbook. Video, audio, images, website links as additional information, and word wall links were all included in the heyzine to complete the e-book creation stage of the heyzine. The link to access this interactive e-book for class X *al-tabiyyat watta'aruf* material could be accessed via the <https://heyzine.com/flip-book/52f9d70cfc.html> page. The following is how the e-book looks after it has been uploaded to the Heyzine Flipbook for editing.

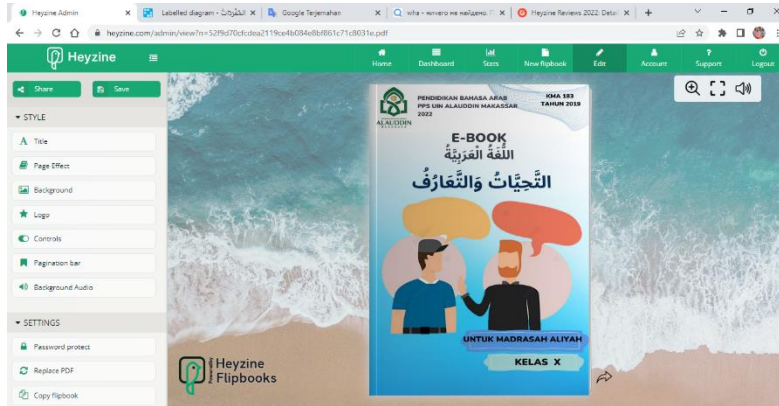


Figure 5. The main page for editing the e-book

After all the product manufacturing series were completed, before being distributed to users, the researchers met with experts in the field of learning media, material experts, and Arabic language experts to validate the interactive e-book-based teaching materials for *al-tahyyat watta'aruf* class X Madrasah Aliyah. Once the experts and researchers had examined the e-book, had made revisions, and the product was declared feasible for testing, the researchers continued at the stage of implementing the product on a small scale, namely in class X IPA1 MAN 1 POLMAN.

Implementation Stage

At this stage, the validated product was implemented and tested on 40 students from class X IPA 1 MAN 1 POLMAN after undergoing revision. The trial aimed to assess the practicality of the interactive e-book-based teaching materials developed, particularly on the *al-tahyyat watta'aruf* material. After learning Arabic using the interactive e-book, questionnaires were distributed to both teachers and students to gather their responses on the practicality of the teaching materials. The product implementation took six meetings, and each student was required to bring their mobile phone to access the e-book.

Evaluation Stage

The evaluation referred to here is a formative evaluation that places more emphasis on the process. Each development phase was revised based on the advice of an expert validator and underwent an in-depth analysis of the product that had been developed to determine whether it met the valid, practical, and effective criteria as the purpose of the development was carried out. The following table contains comments from experts regarding the feasibility of e-books.

Table 4. Suggestions/improvements from the validator

Suggestions/improvements
<p>Learning Media Expert:</p> <ol style="list-style-type: none"> 1. Describe the icon image to clarify the purpose of the command. Like the speaker icon, provide information for what command. 2. Please display the video on the whole screen. 3. The link included is described what to access. 4. Maintain the size of the margins so that the appearance of the e-book is orderly.
<p>Material Expert:</p> <ol style="list-style-type: none"> 1. The accuracy of the material meets the suitable criteria. It is just that there are a few words that need to be corrected in writing, such as the use of hamzah was}al and hamzah qot'i, writing vowels, and writing letters (between <i>dal</i> and <i>dad</i>). 2. Use the appropriate word or word equivalent
<p>Arabic Language Expert :</p> <ol style="list-style-type: none"> 1. The writing of vocabulary on page 5 and so on needs to be improved further and with care both in the writing of the letters and the vowels. 2. On page 9, an audio reading can be listened to for reading. This should be optional because the instructions given in the reading see, read and understand, not an order to listen. 3. On page 12, there is an audiovisual with a laptop and readings, but there are no instructions. It is necessary to give an imperative sentence before playing the audiovisual and understand the reading according to it. The command could be like, see the reading below based on the audiovisual on the laptop below. 4. The quizzes on pages 13 and 16 are excellent and exciting; it is just that it needs to be given a description of how to play/game instructions in the target language (Arabic) or the source language (Indonesia) so students/students do not make mistakes in doing the quiz.

After the product was revised based on the suggestions of the three experts and declared feasible, suggestions/comments from students and teachers were obtained after the implementation stage, as shown in the following table.

Table 5. Comments/suggestions of teachers and students

Comments and Suggestions
<p>Teacher :</p> <ol style="list-style-type: none"> 1. This e-book motivates students to prefer learning Arabic and helps teachers make assessments quickly through word wall media in the e-book. 2. Make it easy for students to understand Arabic material and for teachers to transfer their knowledge. 3. This e-book is excellent because it is interactive and makes it easier for students to complete assignments. 4. Generally, this e-book can increase student achievement in Arabic subjects. 5. An explanation of <i>fi'il</i> division, its signs, and the method of its formation needs to be completed so that independent learning can be more effective. 6. We hope that researchers can make all the chapters in the e-book interactive so that we teachers can use them on an ongoing basis and take them offline so they can be used more flexibly.
<p>Learners :</p> <ol style="list-style-type: none"> 1. Learning Arabic becomes very interesting and exciting 2. I intend to open and study the material because there are fun quizzes. 3. Learning Arabic is more helpful because it is equipped with video and sound. 4. It would be better if made offline to be used anywhere without a quota. 5. Some of the fonts on the quiz are difficult to read. 6. This e-book helps me to understand the material faster. 7. This e-book helps me, who is less interested in learning, by opening books. 8. It would be better if all chapters were made in this interactive e-book. 9. This e-book is beneficial. Thank you for making it.

Comments and suggestions from experts and users helped researchers revise e-books. However, every product is flawed and bound to have flaws. As with previous research studies by Sutri Ramah and Miftahur Rohman, the evaluation and revision phases are ongoing activities.³⁶ Among the advantages of this interactive e-book are 1) helping students learn independently; 2) helping teachers streamline study time in class; 3) supporting interactive learning; 4) training to hone Arabic language skills; 5) making it easy and practical to use. Among the shortcomings that cannot be revised are: 1) upgrading the e-book to

³⁶ Sutri Ramah and Miftahur Rohman, "Analisis Buku Ajar Bahasa Arab Madrasah Aliyah Kurikulum 2013." *Arabiyatuna: Jurnal Bahasa Arab* 2, no. 2 (2018): 147. <http://journal.staincurup.ac.id/index.php/arabiyatuna>

an offline form; 2) changing the font type used in the wordwall.net because it is not possible because the wordwall.net software does not have access to change the Arabic font type.

Level of Validity of Teaching Materials in the Form of Interactive E-Books Based on Heyzine Flipbook Material *al-Tahiyat wa al-Ta'aruf*

Aspects that need to be considered to assess the validity of a learning device or teaching material are the construction of the content/material, language, completeness, presentation techniques, integration, and benefits/usages.³⁷ The aspects assessed on the media expert validation sheet were physical appearance, presentation, graphics, and ease of access and operation. Details of the calculation results are shown in the following table.

Table 6. The results of the assessment of learning media experts

No.	Aspects of Qualification	Value	Assessment
1.	Physical appearance	4,4	Good
2.	Presentation	4,5	Very Good
3.	Graphics	4,25	Good
4.	Ease of Access and Operation	4,7	Very Good
Average		4,7	Very Good
Eligibility Percentage		89%	Feasible

Based on the calculation data above, learning media experts stated that the interactive e-book on the Heyzine Flipbook material *al-tahiyat watta'aruf* class X MAN 1 POLMAN was "feasible of testing" with an eligibility percentage of 89% "**Feasible**" (75% -89% Feasible). However, to improve the feasibility of interactive e-books, researchers revised the prototype based on suggestions for improvements from media experts.

The aspects assessed on the material expert validation sheet were the feasibility of the content/material, usability, and accuracy of the multimedia presented in interactive e-books. The following table shows the results of the analysis by material experts.

³⁷ Muhammad Khalifah Mustami, Mardiana Suyuti, And Maryam, "Validitas, Kepraktisan, Dan Evektivitas Perangkat Pembelajaran Biologi Integrasi Spiritual Islam," Jurnal Al-Qalam 23, No. 1 (2017): 77-70, [Http://jurnalalqalam.Or.Id/Index.Php/Alqalam/Article/View/392/277](http://jurnalalqalam.Or.Id/Index.Php/Alqalam/Article/View/392/277). Muhammad Khalifah Mustami, Mardiana Suyuti, And Maryam, "Validitas, Kepraktisan, Dan Evektivitas Perangkat Pembelajaran Biologi Integrasi Spiritual Islam," Jurnal Al-Qalam 23, No. 1 (2017): 77-70, <Http://jurnalalqalam.Or.Id/Index.Php/Alqalam/Article/View/392/277>.

Table 7. Results of material expert assessment

No	Aspects of Qualification	Value	Remarks
1	Content/Material Feasibility	4,78	Very Good
2	Usability	4,75	Very Good
3	Multimedia accuracy presented in interactive e-books	4,75	Very Good
Average		4,75	Very Good
Eligibility Percentage		95%	Feasible

Based on the table above, the material expert stated that the interactive e-book on Heyzine Flipbook material *al-tahyyat watta'aruf* class X MAN 1 POLMAN "is very feasible to try out" with an eligibility percentage of 95% "**Very Feasible**" (90% -100% very worthy). However, to improve the feasibility of interactive e-books, researchers revised prototype one based on suggestions for improvement from material experts.

The aspects assessed on the Arabic linguist validation sheet were the accuracy of language use in the e-books and the accuracy of language use in multimedia in e-books.

Table 8. The results of the assessment of Arabic language experts

No	Aspects of Qualification	Value	Remarks
1.	The accuracy of language use in E-Book	4	Good
2.	Accuracy of Language Use in Multimedia contained in the e-book	4	Good
Average		4	Good
Eligibility Percentage		80%	Feasible

Based on the table above, Arabic linguists stated that the interactive e-book on the Heyzine Flipbook material *al-tahyyat watta'aruf* class X MAN 1 POLMAN was "feasible of testing" with an eligibility percentage of 80% "**Feasible**" (75% -89% Feasible). Nevertheless, to improve the feasibility of the interactive e-book, the researchers revised prototype one based on suggestions for improvements from Arabic language experts. The percentage level of e-book validity based on expert judgment can be seen in the following histogram.

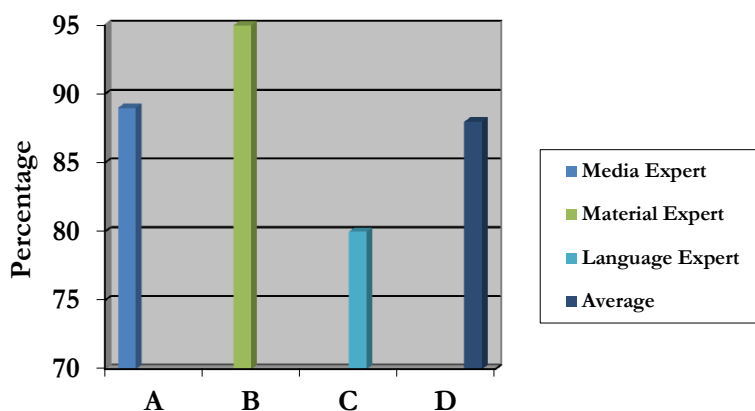


Figure 6. Percentage level of e-book validity based on expert judgment

The total average results of the three experts obtained a feasibility score of 4.42, "good" with a feasibility percentage of 88%, meaning "valid or feasible of testing".

Level of Practicality of Teaching Materials in the Form of Interactive E-Books Based on Heyzine Flipbook Material *al-Tahiyat Watta'aruf*

According to Nieveen in Mustami, the assessment of a learning tool or material is considered practical if it fulfills two criteria, namely: the developed device or material is determined to be suitable for use according to experts, and the developed tool or material can be applied in practice in the field.³⁸

The aspects contained in the items of the teacher's response questionnaire include the attractiveness of teaching materials for use by teachers in learning Arabic, the suitability of teaching materials and materials, the ease of applying teaching materials, the validity of the material in teaching materials in the form of audio, video, and images, the level of implementation of learning using teaching materials, and the usability of teaching materials according to their use to achieve learning objectives. The teacher response questionnaire analysis showed that the average percentage of positive responses was **91%**, with

³⁸ Plomp T and Nieveen N, "Educational Design Research Educational Design Research," *Netherlands Institute for Curriculum Development: SLO*, (2013), <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ815766>; dikutip dalam Mustami, Suyuti, and Maryam. "Validitas, Kepraktisan, Dan Ewektivitas Perangkat Pembelajaran Biologi Integrasi Spiritual Islam," *Jurnal Al-Qalam* 23, no. 1 (2017): 77–70, <http://jurnalalqalam.or.id/index.php/Alqalam/article/view/392/277>. Mustami, Suyuti, and Maryam. "Validitas, Kepraktisan, Dan Ewektivitas Perangkat Pembelajaran Biologi Integrasi Spiritual Islam," *Jurnal Al-Qalam* 23, no. 1 (2017): 77–70, <http://jurnalalqalam.or.id/index.php/Alqalam/article/view/392/277>.

the criteria of "very positive" based on the results of the teacher's response percentage, the use of interactive e-books on the Heyzine Flipbook in al-tahiyat watta'aruf class X MAN 1 POLMAN was declared achieved/practical.

Aspects assessed to obtain students' responses to the practicality of interactive e-books on Heyzine Flipbooks include interest in learning using interactive e-books, appropriateness and clarity of the material, interactivity of teaching materials, ease of using e-books, benefits of e-books for independent learning, and achievement of learning objectives. There were 21 positive statements with a total of 40 respondents. If the respondent chose the answer strongly agree and agree, it means "positive response," but if the answer chosen is not agreed and disagree means "negative response." The average student who chose "strongly agree" was 69%, agreed as much as 30%, disagreed as much as 0%, and 0% did not agree. The average percentage of student responses is 91% with the "very positive" criterion. The following is a histogram of the percentage of teacher and student responses to using interactive e-books in learning Arabic in class X IPA 1 MAN 1 POLMAN.

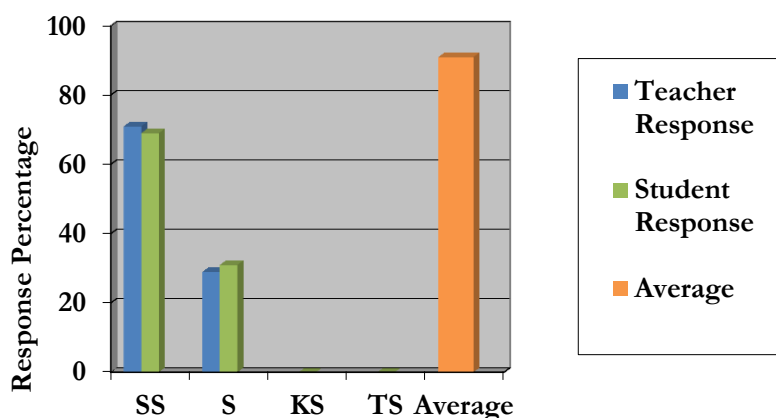


Figure 7. Percentage of teacher and student responses to the use of interactive e-books in learning Arabic in class X IPA 1 MAN 1 POLMAN

Based on the results of the average student response and teacher response, it showed a "very positive response" of 91% (85% ≤ RS ≤ 100% means very positive). Thus the teaching material in the form of an interactive e-book on Heyzine Flipbook material *al-tahiyat watta'aruf* fulfilled the applicable criteria and was suitable for learning Arabic for class X MAN 1 POLMAN..

Conclusion

This research has succeeded in developing online-based electronic teaching materials, namely interactive e-books with material *al-tahiyat watta'aruf* for class X MA students with the help of Heyzine Flipbooks. The material in

this e-book is presented by modifying the material, which was initially just plain text in an Arabic printed book for class X MA, to become more exciting material accompanied by audio, animated videos, links, and exercises in the form of games. This e-book can be accessed via the link: <https://heyzine.com/flip-book/52f9d70cfc.html>.

This interactive e-book product has been tested through assessments by learning media experts, material experts, and Arabic language experts. The total average result of the three experts obtained a feasibility score of 4.42, "good" with an eligibility percentage of 88%, meaning "valid or worth testing" after revisions were made based on expert suggestions.

The study results show that interactive e-book-based teaching materials on Heyzine Flipbook material *al-tabiyyat watta'aruf* fulfill the applicable criteria and are suitable for learning Arabic for class X MAN 1 POLMAN. This is based on very positive responses from teachers and students so the researchers hope to contribute positively to improving the Arabic language skills of class X MAN 1 POLMAN and can be tested more broadly on class X students of Madrasah Aliyah.

This research produces products that are still limited to access online so that they can still be developed into offline-based products so that they can be accessed by students in areas where internet access is still difficult and makes it easier for students to use their internet quota.

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