ARABILITAS: A WEB-BASED ARABIC LEARNING APPLICATION AND TEACHING MATERIAL FOR VISUALLY IMPAIRED STUDENTS IN HIGHER EDUCATION

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Abstract

This research aims to design learning media in the form of Web Accessible for blind students. This is done to help blind students understand the material with learning media that suits their characteristics. This research considers the experience of blind students in implementing online learning in higher education and their needs for learning media in the form of Elearning. The results of the data collection will be used as recommendations for developing learning media that can help blind students in online learning in higher education. This research emphasizes that the features that must be present in the learning media must answer the obstacles faced by blind students in online learning in higher education. Web Arability is the answer to help the difficulty of learning Arabic. The result is an increase in understanding in learning Arabic when using Web Arabilitas.

Keywords: Arabilitas; Teaching; Learning; Blind Students.

Abstrak

Penelitian ini bertujuan untuk merancang media pembelajaran dalam bentuk Web Accessible untuk siswa tunanetra. Hal ini dilakukan untuk membantu mahasiswa tunanetra dalam memahami materi dengan media pembelajaran yang sesuai dengan karakteristik mereka. Penelitian ini mempertimbangkan pengalaman mahasiswa tunanetra dalam menerapkan pembelajaran online di perguruan tinggi dan kebutuhan mereka akan media pembelajaran berupa Elearning. Hasil dari pengumpulan data tersebut akan digunakan sebagai rekomendasi dalam mengembangkan media pembelajaran yang dapat membantu mahasiswa tunanetra dalam pembelajaran daring di perguruan tinggi. Penelitian ini menekankan bahwa fitur-fitur yang harus ada pada media pembelajaran harus menjawab kendala yang dihadapi mahasiswa tunanetra dalam pembelajaran online di perguruan tinggi. Web Arability adalah jawaban untuk membantu kesulitan belajar bahasa Arab. Hasilnya adalah adanya peningkatan pemahaman dalam belajar bahasa Arab ketika menggunakan Web Arabilitas.

Kata Kunci: Arabilitas; Pembelajaran; Belajar; Tunanetra.

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INTRODUCTION

Every human being is born with rights and obligations. Every human being has the right to life, the right to learn, the right to religion and other rights needed by every human being to live a prosperous and happy life. In relation to education and learning, every human being has the right to learn wherever and whatever the conditions. Because it is through education and learning that human dignity and degree can increase and become the most perfect creature of Allah. Law No. 20 of 2003 concerning the national education system states that national education aims to develop the potential abilities of students to become human beings who are faithful and devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. According to government regulation No. 47 No. 2008 concerning Compulsory Education Chapter 1 Article 2 states that compulsory education functions to function to seek the expansion and equalization of opportunities to obtain quality education for every Indonesian citizen(Razik, Taher A & Swanson, 1995). And aims to provide a minimum education for Indonesian citizens to be able to develop their potential to live independently in society or continue their education to a higher level(Gay, 2000).

At this time the compulsory education program has been rolled out throughout the archipelago, but compulsory education has not been able to touch all people who must learn, including people who have limitations, and privileges in physical and mental. Based on data, the problem found in Indonesia is not much different, many ADDs have not been able to access the education system. According to the estimation of the Chairman of the Indonesian Disabled Persons Association, only 10% of ADDs have access to the education system. Data from Susenas 2009 shows that (43.87%) of school-age children with disabilities (7-17 years old) have never attended education, a third (35.87%) are currently in school and about 20.87% have never attended education. were currently in school and around 20.26 % were no longer in school. Children with disabilities are still quite large in Indonesia, according to the results of data collection by the Directorate of Social Rehabilitation of Disabled Persons of the Ministry of Social Affairs (2009) in 24 provinces, there are 65,727 children, consisting of 78,412 children with mild disabilities, 74,603 children with moderate disabilities and 46,148 children with severe disabilities (Alhamuddin Alhamuddin et al., 2022) (Alifuddin et al., 2021)Therefore, educational institutions are needed that can accommodate children with disabilities so that they can follow the learning that is their right(Alhamuddin Alhamuddin et al., 2022).

Based on Law No. 8/2016 Article 10 states that Persons with Disabilities have the right to receive quality education in education units in all types, pathways, and levels of education inclusively and specially. Persons with disabilities can not only get basic level education but are also given the right to get higher education, this is stated in Law No. 12/2012 article 32 paragraph (1) which states that educational services for persons with disabilities in higher education can be carried out in the form of special education and special service education (Alhamuddin et al., 2023). According to Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 46 of 2017 concerning Special Education and Special Service Education in Higher Education, article 8 paragraph (1) states that Higher Education facilitates learning and assessment according to the needs of Students with Special Needs without reducing the quality of learning outcomes, and in paragraph (2) states that learning as referred to in paragraph (1) can be done in the form of adjustments: a. material; b. tools/media; c. learning process; and/or d. assessment(Alhamuddin et al., 2020).

Bandung Islamic University or UNISBA as a higher education institution that has several students with special needs should design a model and assistive learning technology that is appropriate, suitable, and suitable for people with disabilities. So that people with disabilities can pursue education at UNISBA comfortably and easily like other normal students. There are many kinds of disabilities, one of which is those who have impaired vision or blindness. In recent years, there have been approximately 4 blind students who have enrolled in the study program.

Islamic religious education (PAI) UNISBA. Some of them are already in the final semester, fourth semester, and in early semester. This is certainly a separate problem faced by blind students,

especially in accessing the learning website provided. Among them stated that it was difficult to access the website because the available website was not accessible for the blind.

Based on these problems, the research team tried to apply an accessible learning website for blind students learning Arabic. This is by the mandate of Article 9 of the UN Convention on the Rights of Persons with Disabilities. As well as those mandated in Article 24 of Law Number 8 of 2016 concerning persons with disabilities. Website accessibility has become an issue and focus of web developers and designers around the world. The World Wide Web Consortium (W3C) is an international organization that provides guidelines for managing a website that has been recognized internationally. W3C as the Web Accessibility Initiative (WAI) seeks to realize website accessibility by creating a web content accessibility guideline (WCAG) 2.0.

METHODOLOGY

This study uses an ADDIE model with the type of research and experiment. The ADDIE Development Research Model as the name implies is a model that involves the stages of model development with five development steps/phases including: Analysis, Design, Development or Production, Implementation or Delivery, and Evaluations). The ADDIE model was developed by Dick and Carry in 1996 to design learning systems(Dick et al., 2015). The purpose of the ADDIE development research model is to produce or develop a product that is empirically tested. To produce a new and tested product, it is necessary to have documented and measurable stages of activity at all stages of development/making.

Figure 1: Steps of Research

Research is used to find out the obstacles experienced by blind students during online learning and development is carried out to design web design. Subjects in research activities amounted to one blind student from the Islamic University of Bandung. In research activities, researchers used interview instruments to find out the implementation of online learning in universities and their needs for Web Arabilitas. Development activities are carried out by conducting Focus Group Discussions between learning media experts and application developer experts(Kenneth D Bailey, 1978). The interview data was then processed qualitatively and concluded as the basis for developing Web Arabilitas, while the FGD data was used to develop the application. The application that has been designed is then validated by experts to get input and then the Web is made as a whole(Gay, 2000).

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RESULTS AND DISCUSSION

Arabic for children is a compulsory course in the Islamic Education program at Bandung Islamic University. This course is in semesters 1-4. Students can attend lectures if they have completed Arabic language lectures in semester 1. Arabic language courses combine two important things in learning, namely concepts and applications or practices. The concept relates to material that is knowledge related to Arabic language learning which consists of learning foundation, language skills development, teaching materials, methods, media planning, and learning evaluation. While the application is material related to Arabic vocabulary. The vocabulary learned is adjusted to the existing learning themes such as body members, my family, colors, jobs, fruits, objects in the classroom, and verbs. To follow this lecture, in addition to basic knowledge of the Arabic language, students are also required to be able to choose themes learning methods, and techniques that are suitable for children(Alifuddin et al., 2021). Then students are also required to be able to think creatively and creatively in making learning media that is clear, interesting, and fun for children. In the current lecture, there is one blind student who attended the lecture. So for these students to attend lectures well, an innovation is needed that can be used to deliver two types of material, involve active students and solve problems, and produce products as the achievement of predetermined learning indicators(Alhamuddin et al., 2021).

The characteristics of this product are a web LMS in which there are Arabic language education materials. In this application, fourteen topics are indicators of Arabic language course material. The material contained in this application is presented in a language that is easy to understand, relaxed, and communicative. Each material is also given evaluation material that can be used as a self-evaluation of the Arabic language. The product name of this web-based learning model is ARABILITAS. Arability is taken from the words Arabic and disability. The name Arabic represents the learning material while bilitas is taken from the substance of the material in it, namely material about inclusive education, and the universal design philosophy of this application that can be used by blind students.

The implementation design that will be developed through the ADDIE approach(Dick et al., 2015), consisting of the Analysis stage, is a process of defining what students will learn through needs analysis, problem identification, and task analysis, in this case analyzing needs related to learning methods and models tailored to the needs of blind students. The next stage is Design, which is determining learning strategies, selecting methods and media, and other resources. All of these things are poured into the form of lesson plans which are then developed into teaching material preparation guides that will be used in model development. The development stage is the stage of pouring the concept that has been designed at the previous stage into a teaching plan or lesson plan that suits the needs and field analysis then validated by experts related to the learning(Moore et al., 2011). Then the teaching plan is improved according to the requests of the experts and then finalized for the next stage. The implementation Stage is the stage where the design and teaching materials, media, and methods that are suitable for Arabic lectures, where all of these things have been validated by experts and developed by the research team are tested in the field or lectures attended by students with slow learners. The Evaluation Stage, is the last stage of the ADDIE approach, at this stage, an evaluation is carried out in two forms, namely formative and summative evaluation. Formative evaluation is carried out at the end of each face-to-face (weekly) while summative evaluation is carried out after the activity ends as a whole (semester). Summative evaluation measures the final competency of the subject or learning objectives to be achieved(Alhamuddin et al., 2018).
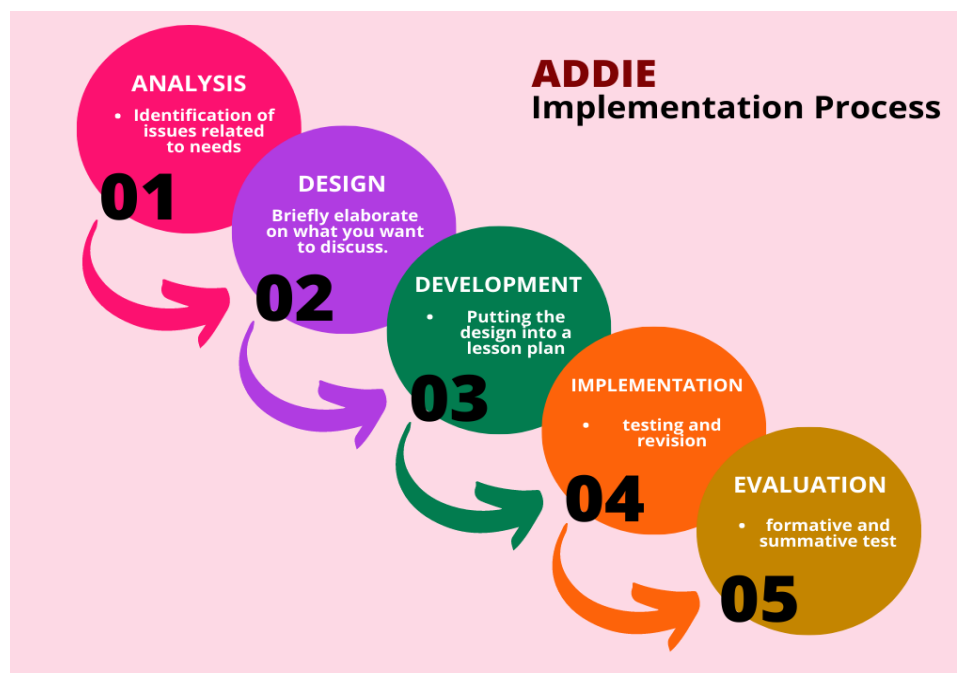
Figure 2: Implementation Process

The first stage is the preparation stage or preliminary activities. The teacher makes apperceptions related to the material to be delivered. Students are given teaching materials in the form of material then they conduct discussions through student discussion forums or Zoom meetings. At this stage, students use their auditory to have a conversation, visual to see the material displayed in the lecture, and their intellectual or thinking ability to understand the material presented.

The second stage is the material delivery stage. The instructor presents the core material using PPT, Learning Video development results, and other videos as support and PDF textbooks. The use of these media is to help facilitate students in learning the material that has been delivered. In the material, there are definitions, examples, and illustrations that can help slow learner students understand the material (Maisyaroh et al., 2021). Then students are given time to conduct discussions related to the core material presented. activities in the form of asking, answering, and practicing. So at this stage slow learner students use their thinking power to understand the material, audio and visual to read and listen to the delivery of material, and somatic for discussion and practice activities carried out.

The third stage is practice. At this stage students practice based on their understanding of the core material. There are various practices, namely: preparation of papers, journal reports and making Arabic vocabulary cards as well as making learning videos as well as preparing Arabic vocabulary books for children, and writing hijaiyah letters for children(Alhamuddin, Alhamuddin, Bukhari, 2016).

The fourth stage is the performance or closing stage. At this stage, the evaluation of activities is carried out in the form of material understanding and practical assessment. For understanding, a quiz is used where students are allowed to answer five quiz questions in the form of multiple choice within a predetermined time. As for practical assessment, there are two types, namely direct assessment through Zoom meetings, namely in the form of Arabic vocabulary pronunciation and writing or imla activities. While the practical assessment is carried out indirectly

The implementation of this learning innovation development begins with conducting a field needs analysis (need assessment). Field needs analysis is carried out to know the problems in the field and the field's need for learning innovation. Need assessment is conducted by involving blind students. Need assessment data collection is done by interviewing blind students. The data

collection tools used in this need assessment activity are interview instruments and questionnaires. Both data collection tools consist of aspects of online learning implementation, and learning media. Based on the results of data collection on the implementation of online learning for blind students, the following results were obtained: a. The university has provided an online learning implementation platform that is less accessible to blind students. b. Online learning increases the knowledge of blind students in terms of learning platforms such as Zoom, googleclassroom, Google Meet, and Elearning (Borromeus Mulyatno et al., 2022). Online learning also speeds up students in confirming to lecturers when compared to offline which requires energy and time. d. Various kinds of teaching materials are also provided by lecturers to enrich student references such as PowerPoint, pdf, and Word documents, and videos. Lecturers also explain maximally through existing learning platforms f. Signal, device, and quota are things that cannot be denied to be basic obstacles during online learning g. Teaching materials/media provided by lecturers in the form of PDFs sometimes contain text in images or PDF format photos. Screen readers owned by blind students cannot read image/photo formats. h. Some features on the campus e-learning platform are difficult to access. i. Features in written teaching materials that contain unreadable symbols j. The existence of capsca in learning applications such as Google Forms makes it difficult for students because it is not readable by screen readers. k. PPTs that use videos sometimes make it difficult to open because they need other applications, thus making the cell phone full. In general, the results and discussion in this article are divided into two, namely an analysis of the use of the website in the Arabilitas application developed based on the analysis of the literature review and an analysis of the understanding of the material based on several references collected and analyzed regarding the effectiveness of the use of media on understanding Arabic(Weuffen et al., 2023).

Several studies have found interesting facts related to the use of learning media in general and website-based media to help blind students in learning, especially in learning Arabic. Arability has similar and even higher specifications than some of the previously mentioned media. The learning method provided on this website aims to allow users who are blind students to visualize the material provided through sounds that can be commanded by voice messages as well. In addition, some blind people also cannot use braille. Therefore, the use of voice is an important alternative to overcome these problems. Previously, blind students who could not write braille needed to bring in a special assistant teacher (GKP) to help blind students read the material and questions in the book(Alhamuddin et al., 2020). However, because they cannot take notes, to repeat the material, blind students need to always be accompanied by GKP, which is neither effective nor efficient (Martinez, 2022). Blind students are no different from other normal students, they can understand the questions, know the material discussed, and even mention the data contained in the questions. In addition, based on (Maskar et al., 2020), independent learning can be done with the same results as conventional learning using teachers as long as it is supported by appropriate and technology-based learning media(Martinez, 2022). This fact shows that this application where the exercise questions in the application are read through voice messages and solutions will be expressed by students directly to assistants or lecturers will run effectively and efficiently. In addition, the use of voice stored in the application also streamlines time and is cost-efficient(Alhamuddin & Zebua, 2021).
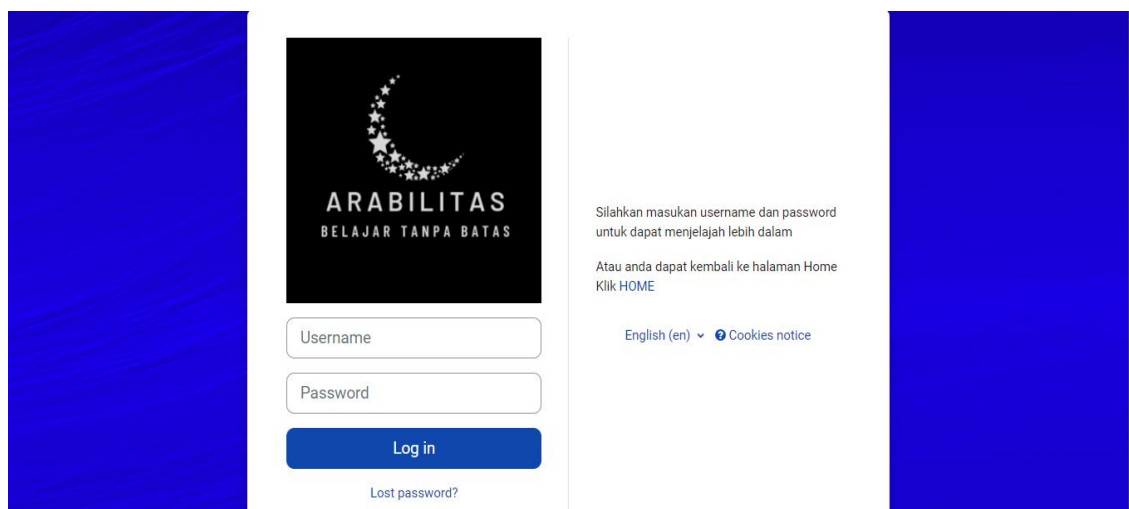
Figure 3: login view

Web arabilitas serve to minimize student learning difficulties in Arabic courses. This web has a fairly simple appearance so that each button can be easily accessed by blind students. The advantages of this web are also not like other complex webs but rather functions that can only be used by the blind. The placement of features is not randomized so that the scan reader reads clearly. Effective learning skills determine the success of education for the visually impaired. The skills in question are all techniques used by students to complete their learning tasks effectively and efficiently(Singla, 2021). Blind students need effective learning skills just like normal students to complete learning tasks efficiently and for optimal academic potential. Some learning skills for the visually impaired are time management, storing and obtaining information, being active in class, and so on. Awareness to master some of these skills is expected in every student while accessing the web must be accessible. If they have difficulty accessing it, Web Arabilitas is the answer for blind students.

Web arabilitas is an application developed with the facility of using voice both from instructions and commands from web applications and running them. Web Arability also allows users who are blind students to be able to run Web Arability using voice commands. The chanted material can also be paused, resumed when the position is paused, or stopped by the user with voice commands so that users can learn easily. In addition, users who cannot write braille can utilize this application to repeat the material until the user understands the material presented. Furthermore, users can also check their understanding through the exercise menu provided. This web can work optimally and effectively used as a learning media for blind students to learn advanced Arabic. This conclusion was obtained based on the testing of 1 blind student. This has been tested to streamline the learning process for blind students and be able to increase the understanding and interest of blind students in Arabic(Khribi, 2021). This Reliability Web has been proven to be implemented in users, so it is recommended for students, lecturers, and educational institutions that house blind students to be able to utilize this Reliability Web to be able to assist in learning advanced Arabic. In addition, it is hoped that with the development of the latest media by utilizing technology, one day there will be Arabic language experts from among the blind.

The World Wide Web Consortium (W3C) introduced accessible principles that must be met in every website creation. These principles have been recorded in the Web Content Accessibility Guidelines (WGAC) since 2008. Here are the four principles of accessible websites for people with disabilities. **Perceivable** or acceptable. This principle requires a website to provide information that can be received, absorbed, and understood by people of different abilities.

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Currently, many websites in EU countries and the US already provide accessibility technology on their sites. **Operable**. This principle requires a website to be easy and operable by users with various abilities. The operable principle is not only for users with disabilities, but also elderly people, children, and people with learning delays. For example, the site can not only be operated with a mouse but also keyboard shortcuts. **Understandable**. The website must be understandable to anyone who reads it. The information or content of the website must be predictable to the user. The website design should not be too complicated and should help the reader process the information into a reference. **Robust** or reliable certainty. The content must be robust enough to be interpreted by a wide range of users, including those accessing the site with assistive technology. This principle requires the website to flexibly keep up with technological developments so that it can be accessed by anyone as operating technology continues to change(Weuffen et al., 2023).

Understandable. The website must be understandable to anyone who reads it. The information or content of the site must be predictable to the user. The website design should not be too complicated and should help the reader process the information into a reference. Robust or reliable certainty(Borromeus Mulyatno et al., 2022). Content should be robust enough to be interpreted by a wide range of users, including those accessing the site with assistive technology. This principle requires the website to flexibly keep up with technological developments so that it can be accessed by anyone as operating technology continues to change.

In addition, it is necessary to understand the meaning of assistive technology for disabilities. The term assistive technology refers broadly to any technology that can develop the abilities of children with learning disabilities so that they can participate in learning. Therefore, a variety of materials, services, systems, and equipment can be considered as assistive technology, if they help children with special needs to learn. For example, materials such as books recorded on cassettes, services such as note-takers and tutors, systems such as braille, and equipment such as large-button calculators and computers can be considered assistive technology(Abiodun ObayeluI Ogunlade, 2006). The principles of learning for the visually impaired are totality, demonstration, continuity, activity, and individualization (Reddt, 1997). Effective learning skills for blind students are time management, accessing information with alternative media, and recording information. assistance from others. reading and note-taking. being active in class (Weuffen et al., 2023).

CONCLUSION

Web arability is an application developed with the facility of using voice both from instructions and commands from web applications to run them. Web arability also allows users who are blind students to be able to run Web Arability as a whole by using voice commands. The chanted material can also be paused, resumed when the position is paused, or stopped by the user with voice commands so that users can learn easily. In addition, users who cannot write braille can utilize this application to repeat the material until the user understands the material presented. Furthermore, users can also check their understanding through the exercise menu provided. This web can work optimally and effectively used as a learning media for blind students to learn advanced Arabic. This conclusion was obtained based on the testing of 1 blind student. This has been tested to streamline the learning process for blind students and be able to increase the understanding and interest of blind students in Arabic.

This Reliability Web has been proven to be implemented in users, so it is recommended for students, lecturers, and educational institutions that house blind students to be able to utilize this Reliability Web to be able to assist in learning advanced Arabic. In addition, it is hoped that with the development of the latest media by utilizing technology, one day there will be Arabic language experts from among the blind. The development of assistive learning technology for students with special needs is a necessity that must be carried out by lecturers to provide maximum service and minimize injustice in obtaining the right to quality learning as well as other students.

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