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Jom Solat-iVAK: An Interactive Android Mobile Application in Learning Wudhu and Salah for Children with Learning Disabilities

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Abstract—Jom Solat-iVAK Mobile Application is an interactive android mobile application in learning Wudu and Salah for children with learning disabilities. The existing and new criteria for evaluating Wudu and Salah mobile applications implemented in this project have been improved and developed from the level of quality assessment to a deeper element of Wudu and Salah mobile application design and interface. Similarly, additional aspects such as language, examples used, and compliance with the Islamic Foundation of Shari'ah, which relies on primary and secondary sources of knowledge such as the Qur'an, Sunnah, and Fiqh Science, have been considered to determine whether it is appropriate for children with learning disabilities. According to the research, developers should design and develop additional Wudu and Salah mobile applications for children with learning disabilities, particularly those with a unique education that relates to their learning style and entertainment aspects. This study also identifies some prerequisites and criteria for developing Wudu and Salah applications for Muslim children, particularly those with learning disabilities. This application is divided into three sections, each represented by a different module: Wudu, Salah, and Quiz. Quizzes allow children to evaluate their progress during a learning session. This application followed Visual, Auditory, and Kinesthetics (VAK) learning styles components that are truly suitable for children with learning disabilities. They can learn by reading (Visual), hearing audio (Auditory), and watching videos (Kinesthetics). As a result, children will value and enjoy their studies, and they will be able to quickly absorb knowledge and correctly say prayer.

Keywords—Mobile Application, Learning Disabilities, Wudu and Salah, Visual, Auditory, Kinesthetics

I. INTRODUCTION

Learning disabilities, learning disorder, or learning difficulty is a brain issue that causes problems understanding or processing information which can be caused by a variety of conditions [1]. Given the difficulty of learning in a typical manner, the potential to learn with a new approach is not ruled out. As a result, some persons can be more correctly defined as having a learning difference, avoiding any misinterpretation about learning disabilities and potential negative stereotyping. When the child is young, a learning deficit might result before, during or soon after birth. Things can happen to the central and peripheral nervous system brain and spinal cord before birth, resulting in a learning disability. Early childhood diseases, accidents, and seizures might result in a learning disability after birth.

While the term learning disability (LD) is distinct in several respects. A learning disorder is defined as significant learning difficulties in an academic discipline. However, these concerns are inadequate to warrant a formal diagnosis. A learning disability, on the other hand, is a formal clinical diagnosis in which a person fits criteria as verified by a professional such as a psychologist, speech-language pathologist, or paediatrician. The distinction between the two lies in the severity, frequency, and depth of diagnoses and issues, thus they should not be confounded. When the term LD is used, it refers to a collection of conditions marked by poor academic,

linguistic, and speech development. Reading (dyslexia), arithmetic (dyscalculia), and writing (dysgraphia) are examples of learning disabilities. A learning disability is a lack of innate intelligence and trouble with everyday duties such as communication that lasts a person's entire life. Children with intellectual disabilities take slower to learn and may require assistance in developing new skills, comprehending complex information, and interacting with others. The disability affecting the brain's ability to accept, and analyse data is the underlying factor. This disability can make it difficult for someone to adapt as quickly or as effectively as someone who is not disabled. When left to sort this mess out on their own or taught in traditional ways, children with learning disabilities (CLD) have difficulty executing specific sorts of skills or courses of a season. Individuals with learning disabilities (LD) encounter problems that might last a lifetime.

Interventions and modern technologies such as mobile applications may be utilized to help individuals learn skills that will support future success, depending on the level and severity of the handicap. Many critical steps may be identified when creating the interface for a mobile application aimed at children. First and foremost, the target age group must be identified. From the research, there has been a growing necessity over the years to target extremely specific age groups when designing an application for children [2]. There is no such thing as designing for children, which is defined as everyone aged 3 to 12. At the very least, distinguish between young (3-5), middle-aged (6-8), and older (9-12) youngsters. Each demographic has distinct behavioural, physical, and cognitive capacities, and users become much more tech-savvy as they age. And the differences in demands extend far beyond the apparent necessity to design differently for pre-readers, beginning readers, and moderately experienced readers. Following that, appropriate melodies and noises improve children's perception of apps. Musical accompaniment, whether in the form of noises, ring tones, or songs, has been shown in practice to be a crucial aspect of children's perception. Furthermore, simple tasks in the application are crucial. Children should not be assigned tough tasks. Difficult activities would weary them and cause them to avoid using the application.

II. LITERATURE REVIEW

A. Learning Style

According to [3], in learning settings, a person's learning style is their characteristic or preferred manner of absorbing, acquiring, processing, storing, and recalling information. While most of us can learn using any of these strategies, many people believe we have a favoured method. The validity of this hypothesis has been questioned, and a variety of learning style models have been established. The Visual, Auditory, and Kinesthetics (VAK) Learning Styles categorise three types of learners, according to one of the most generally used models:

- Visual: Visual learners think in pictures and like to learn through visual aids like overhead slides, diagrams, and handouts, among other things.
- Auditory: Auditory learners learn best by listening to lectures, debates, and cassette recordings, for example.
- Kinesthetic or Tactile: Tactile or kinesthetic learners love to learn through moving, touching, and doing things like active world exploration, science projects, and experiments, among other things [4].

B. Technology application for learning disability (LD)

Technology is the latest mobile swipe-touch base technology that interests many groups of people. The device is providing a child-friendly interface and is intuitive. The features are able for children to learn vastly about the ability to swipe and touch on icons that have been provided on the screen [5]. The idea of this study is to assist those with learning disabilities, especially slow learners in using recent technology which is currently utilized by many industries out there. Mobile technology has been used as a tool for slow learners to get familiarized and exposed to mobile technology.

The motivation of children with learning disabilities able to be enhanced with the use of tablets and apps. The portability and social acceptability created enjoyment and gave satisfaction to the learning disabilities children to use the tablet technology and apps[6]. Another research done by [7] has proven the use of tablet technology and apps could enhance the motivation of those with learning disabilities in their learning. The intuitive touch screen and the multimodal features of the tablet device have created confidence for the learning disabilities participants to perform their tasks on the apps with the tablet. The research has applied the motivation elements to boost the motivation of slow learners in their learning.

While in the research [8], the initiative was the use of the tablet in learning as a promising technology tool, especially in a one-to-one session. They have suggested practical guides in having one-to-one use of a tablet for general and even special education learning. On the other hand, [6] has seen how tablet technology could be a highly effective ability to improve the academic outcomes of children with disabilities. The research found as utilizing tablets in learning can enhance social interaction within the group with learning disabilities.

Several apps for tablets and smartphones have recently been available to assist children with learning disabilities. There is a wide range of studies on the inclusion of people with learning disabilities in ICT use. Among the studies presented is research presented by [9], which introduced a mobile application called *Easylexia* for children with special learning needs, which provides a learning environment that fosters learning and helps children

with their learning difficulties by improving some of their basic skills, such as language and mathematical abilities. However, its usefulness has yet to be shown, thus this mobile application cannot be considered definitive at this time [10].

III. METHODS

This section discusses the phases of the Waterfall model, as well as the activities and deliverables that must be completed to meet the project's goals. The first three phases of the project, requirement collecting and analysis, design, and implementation, will be the only emphasis of this project. In this Waterfall model, the output of one phase is often used as the input for the following step in a sequential fashion.

A. Phase 1: Requirement Analysis

After examining relevant work from three separate systems, a series of questionnaires is created to recognize the "Jom Solat-iVAK" business process. A study was conducted through online articles and websites that detailed how to guide and create some ideas about how to conduct a survey question. The survey was conducted using a Google Form. Not only that, an interview was conducted with a few instructors, teachers and parents of special needs to find information to gain thoughts and concerns regarding the issues, problems, and learning styles of the children with learning disabilities.

The survey data is processed in Google Form, and the results are presented in the form of a pie chart. The materials will provide children with a stronger grasp of the notion of Wudu and Salah, which will be implemented using a Graphical User Interface(GUI). The surveys were done on the Google Form platform with parents and teachers from May 25th to June 3rd, 2021. There were 43 parents and teachers who responded to the survey, all of whom had students or children with learning disabilities. The purpose of performing the survey is to obtain the required information as well as to define clear objectives for the project's development. In this phase, Software Requirements Specification (SRS) is documented based on all the requirements and analyses.

B. Phase 2: Design

The methodology's second phase is designing. Since the system will be created as per the specifications to satisfy the system stimulates the development, the design stage presents a clear image of the design phase. Several diagrams are developed during the design process, including entity relationship diagrams (ERD), detail class diagrams, package diagrams, and multilayer sequence diagrams. The activities that have been completed include designing the application's user interface and database following the requirements and documenting everything in a software design description (SDD).

C. Phase 3: Implementation

The implementation phase is when the system for the project is created. As mentioned in the previous section, a few tools are utilized to create the system, including the Android Studio IDE, Gradle, and Firebase Database. The system is written in Java, and the Android Studio IDE is utilized as a coding platform for this project's development. Furthermore, Gradle is an application server that is used to run the system's Java servlets, and Firebase Database is used to store and retrieve data.

IV. RESULTS AND FINDINGS

There are two users of the system which are Admin and Children. The admin can create, view, update and delete Wudu, Salah and quiz information in the application and view children's profile information and children's quiz results in the application. Fig.1 shows the mobile user interface design on how the system is operated. In Module 1, the purpose of this section is to allow users to create, update and view those accounts. This section also is where the login code is also constructed. Whenever the children are done with registering the account, it will lead to a user profile to let them verify their email. Email verification is important to make sure they used valid email. In Module 2, the children have options by clicking on any button to start their learning session. The pages also are to create wudu and salah and edit the existing information. There are Wudu charts, steps and video and also Salah charts, steps and video. Finally, in Module 3, the quiz results are displayed on the children's side view of the application, as well as the quiz dashboard, where the children can select which quiz type they want to challenge themselves with. Children must choose either one on the quiz dashboard and click start quiz to start the quiz session. Whenever all the questions have been answered by the children, the quiz results will be shown based on their correct and wrong answers. For each quiz session, the children must finish all the questions in 60 seconds to let them pass the quiz. Each quiz types contain 4 questions and the children must answer all the questions to get their result. Each question has 4 options for answers, children need to choose only one answer before proceeding to the next question. The correct answer will be turned to green colour and the wrong answer will be red colour.

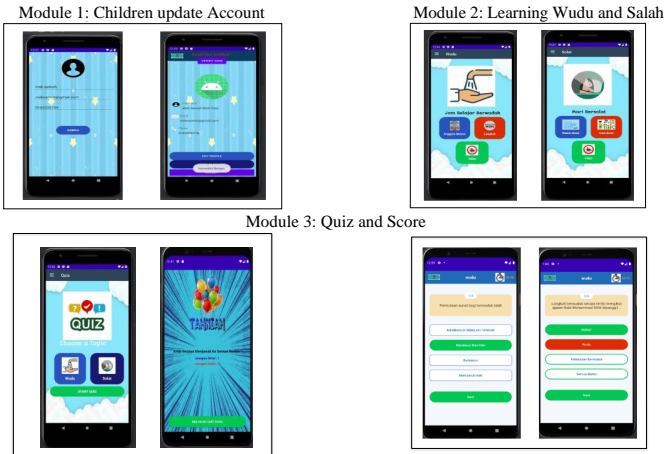


Fig. 1 Mobile User Interface Design

V. CONCLUSIONS

The project has met its objectives and goals, which are to build “JOM SOLAT-IVAK” (Interactive Android Mobile Application in Learning Wudu and Salah for Children with Learning Disabilities) to help children with learning disabilities eager in learning Wudu and Salah for their life as Muslims. With several functions in the system, this initiative has aided children with learning difficulties in their learning process. There are, nevertheless, a few recommendations that might help this project develop in the future. Firstly, the application may display a quiz score as a graph so that the children can see their development and history of outcomes. The parent will be aware of their child's progress if reports are sent to them. So, they may take it for granted that their children would continue to learn Wudu and Salah until they can do prayer correctly.

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REFERENCES

- [1] Gates, Bob; Mafuba, Kay (2016, March 1). "Use of the term 'learning disabilities in the United Kingdom: issues for international researchers and practitioners". *Learning Disabilities: A Contemporary Journal*. 14 (1),9-23. 1937-6928
- [2] Katie Sherwin, Jakob Nielsen (2019). Children's UX: Usability Issues in Designing for Young People. Retrieved January 13, 2019, from <https://www.nngroup.com/articles/childrens-websites-usability-issues/>
- [3] Teaching Job London. (2018). VAK Learning Styles: What are they? What do they mean? Retrieved November 8, 2018, by Fiona MacMillan, from <https://engage-education.com/aus/blog/vak-learning-styles-what-are-they-and-what-do-they-mean/#/>
- [4] Becirovic, S. (2020). The Relationship between Learning Styles, GPA, School Level and Gender. *European Researcher, Series A*, 11(1). <https://doi.org/10.13187/er.2020.1.51>
- [5] Monroe-Ossi, H., Ohlson, T., Wehry, S., & Fountain, C. (2013). iPad Integration in the Primary Grades: Enhancing Literacy Instruction Through Teacher Professional Development. In J. Herrington, A. Couros & V. Irvine (Eds.), *Proceedings of EdMedia 2013--World Conference on Educational Media and Technology (2175-2178)*. Victoria, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved February 6, 2022, from <https://www.learntechlib.org/primary/p/112273/>.
- [6] Kim, M. K., Park, Y., & Coleman, M. B. (2017). The quality of evidence in tablet-assisted interventions for students with disabilities. *Journal of Computer Assisted Learning*, 33(6), 547-561. <https://doi.org/10.1111/jcal.12206>
- [7] Hassan, A., & Mahmud, M. (2015). Tablet Technology and Apps to Enhance Slow Learners Motivation in Learning 21(5), 3165-3169
- [8] Schmidt, M. (2016). Realizing the promise of mobile devices in a one-to-one iPad initiative: Perspective from a dual-licensure teacher preparation program in Hawaii, 10(2), 61-67
- [9] R. Skiada, E. Soroniati, A. Gardeli, D. Zissis (2014), EasyLexia: A Mobile Application for Children with Learning Difficulties. *Procedia Computer. Sci*, 27 (2014), 218-228
- [10] Fatima Ezzahra B. Jamal E.K, Ali E. (2017), Communication Technology for Users with Specific Learning Disabilities. 110 (2017), 258-265