i-URUSDIRI: Mobile Application for Primary Students With Special Need (Learning Problem)

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Abstract

The traditional educational system in schools is no longer viable in this era since the learning environment has changed dramatically. Traditional learning bores students where the teacher delivers, students pay attention and do assignments in class. Existing teaching resources, such as books, cards, and other learning material created by teachers, require regular upkeep and only placed in the file, cannot be used extensively. Along with the change of the educational system of the country that is guided by digital technology, this mobile app was developed to be used as a teaching tool. This app is more interactive, flexible and able to stimulate the interest of special educational students (learning problems) to understand the topic of Basics Self-Management. Developed using ADDIE model that are Analysis, Design, Development, and Implementation, the Evaluation phase are yet to be done. Through the implementation phase, this e-module can help teachers to obtain materials for teaching and giving new learning experience to the students. i-UrusDiri Mobile App can be technological innovation which can deliver positive impact in the education world. All teaching and learning materials are only available at the end of the finger.

Keywords: Mobile Application; Special Need; Learning Problem; Self-Management

1.0 Introduction

The development of technology and the IR4.0 revolution has had a lot of impact in every sector, regardless of the economy, industry or education (Kraleva, 2017). This includes the use of mobile applications in daily activities. The use of mobile applications in life has changed conventional methods, provided new experiences to users. The use of educational mobile apps can help to increase value to the learning and teaching activities in the classroom (De La Cruz et al., 2023). According to previous study, digital learning environment should be led by technology application as the platform to share information and knowledge while at the same time extending the learning impact. Technical tools such as mobile app can be used to help teaching and learning in speeding up the understanding process (Nayan et al., 2020). A study of Arabic application development prototypes, indicate that Android applications can assist teachers in providing teaching aids through technology-based and fun learning strategy (Abdelhamid et al., 2018).

Hence, this research aims to embark new teaching and learning tool through development of i-UrusDiri Mobile App. The study focuses to empower students with special need (learning problem) to acquire topics in basic self-managecment class in primary schools in Perak. The design content of i-UrusDiri Mobile App is based on the *Dokumen Standard Kurikulum dan Pentaksiran (DSKP) Pengurusan Kehidupan, Komponen Pengurusan Diri Pendidkan Khas (Masalah Pembelajaran)* for Year 1 and Year 2 (Abd. Rahman et al., 2015). This reference ensures that the development material created is effective and reliable along with the curriculum requirement. The primary target group of users are students with learning problem in Year 1 and Year 2.

This development may allow more options for teachers and students to teach and learn in more fun and interactive environment using digital device. The teaching and learning material will no longer need to be kept in conventional storage. This study is divided into few sections that are introduction, literature review, methodology, result, discussion and followed by conclusion.

1.1 Problem Statement

Self-management is one of the subjects taught to primary school students under the special education stream. These subject help special need (learning problem) students to have basic self-management knowledge such as identifying body parts, steps in hygiene management and so on. However, the teaching and learning process is less effective due to the lack of interactive teaching tools and learning materials. In the past, educators mainly relied on conventional methods of instruction and rarely embraced cutting-edge IT. Without technology, conventional methods of teaching and learning were used; teachers could only communicate knowledge of a subject through books or newspaper clippings. Teachers can now employ mobile learning as a teaching aid thanks to the development of current technologies, (Roslin & Salleh, 2021). Hence, the i-UrusDiri Mobile App has been developed to provide a different and more flexible learning and teaching experience.

1.2 Objectives

The goal of this research is to create an application that can be utilize as an engaging teaching tool to help children with learning problem practice basic self-management skills. It also attempts to make learning more enjoyable and accessible at any time, whether at school or at home.

2.0 Literature Review

Mobile applications are now widely used in a variety of industries, including education. In the field of education for children with special need (learning problem), mobile apps can help teachers provide students with a clear comprehension of a topic and an engaging learning experience. According to Kraleva and Kralev (2018), mobile applications promote group learning and engagement, and their development must consider pedagogical strategies, such as interface components and other characteristics.

Study Kraleva and Kralev (2018), found that, despite the huge diversity of applications available on the market, those that are suited for children with learning problem are far too few. Certain features, such as user-centered design, contextual and cooperative design, have been discovered by Western scholars to be a suitable approach to providing new learning experiences, and must be taken into account in order to ensure that special need with learning problem students can use mobile applications effectively (Kraleva, 2017). As a result, the I-UrusDiri Mobile App was developed to comply with this method in order to ensure that students easily acquire the knowledge.Previously, teaching and learning occurred in the classroom using traditional teaching strategies, as indicated by Samsudin et al. (2018). Since learning does not occur on a constant basis, children are not getting the skills effectively.

However, educational mobile app focused on enhancing student interest to gauge knowledge more efficient and engaging.Based on the foregoing, a mobile application must also have high usability features in order to be more efficient, particularly for pupils with learning problem. Western researchers define usability refers to a product's ability to be used by specific people to achieve specific goals in a specific context with effectiveness, efficiency, and satisfaction (Zurita et al., 2019). Thus, mobile app development should focus on usability concerns in order to provide students with the finest educational experience possible.Three applications — Kodable; Daisy the Dinosaur; and Lightbot — had given results that demonstrated how structured puzzles and other obstacles may assist kids enhance their coding, math, and problem-solving skills, (Papadakis, 2021). Children are thus actively solving obstacles by navigating the maze using the directions. This demonstrates that these components in mobile applications make learning more enjoyable for students.

3.0 Methodology

This application is being developed using the ADDIE instructional design model, which comprises five phases, including the analysis, design, development and implementation phases, as shown in Table 1.0 below.

Table 1: ADDIE Model Design Framework, (Branch, 2009)

Phase	Activities
Analysis	Analysis of problems and application development needs
Design	Design an application that contains several menus: Teaching Materials. Teaching & Learning Video, Edugames and eModules
Development	Develop an application that contains modules as planned in Design phase
Implementation	This phase involves implementation activities that involved students-teacher in class.
Evaluation	Receive user feedback on the overall functionality of the i-Urus Self Mobile App app developed through distributed survey surveys. (To be conducted)

Implementation activities which involve application in class can help teachers

to manage materials for teaching and engage the special need students with spectrum such as Dyslexia, Slow Learner, Autism, Cerebral Palsy, Down syndrome, Speech Delay and ADHD. Primary school students with learning problem and teachers are the main audience of this development, however, this application may also be used in early stage education.

The content outline of the main menu cover:
i. Teaching materials with explanation.
ii. Teaching and Learning video.
iii. Interactive learning games.
iv. e-modules that can be used as teaching materials and student work sheets

Evaluation phase of this development will be conducted in the next research studies using qualitative and quantitative method.

4.0 Result and Discussion

i-UrusDiri Mobile App objectively designed to enhance teaching and learning activities for special need (learning problem) students to acquire basic in Self-Management class.

4.1 Design & Development

During the design and development process, an app builder was used to develop the application while Adobe Photoshop to enhance graphic design. Some educational sites were integrated into the application for easy access such as Wordwall and Liveworksheets.

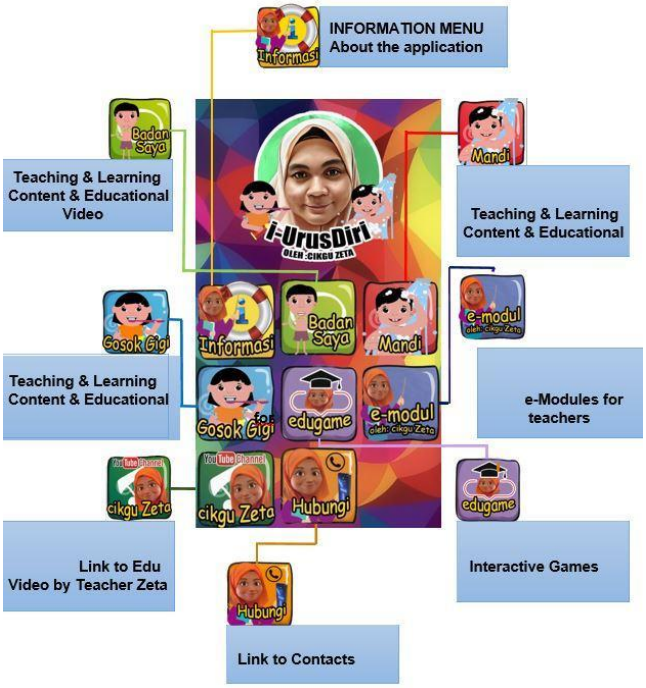
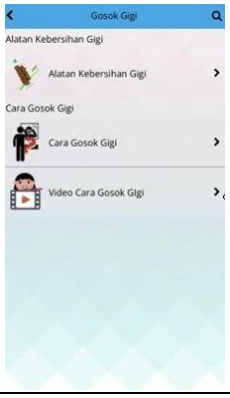
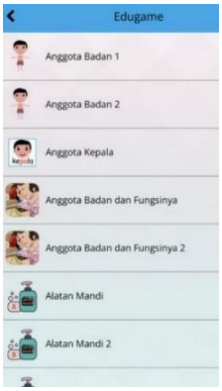
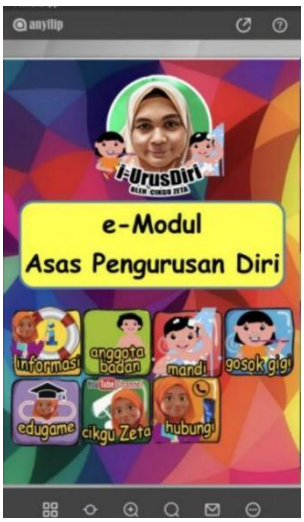


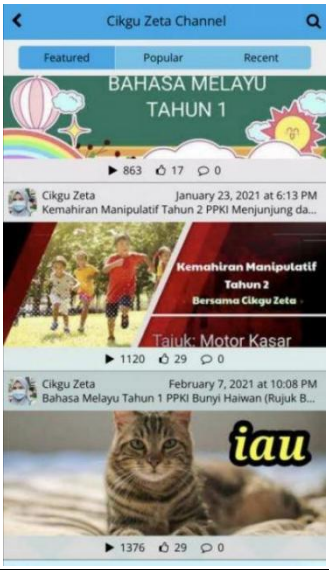
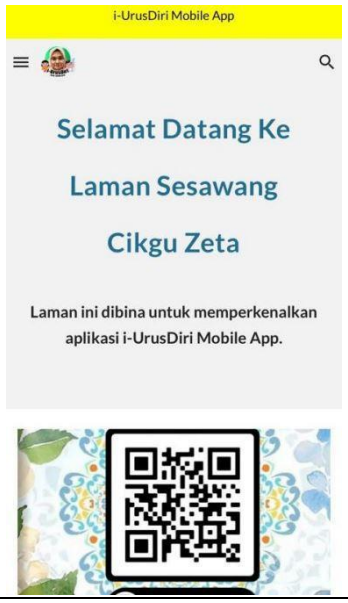
Figure 1: Homescreen for i-UrusDiri Mobile Application

ADDIE instructional model was used during the development process to instill the learner-centered elements to enhance effective learning experience as it was proven success method in developing instructional system design (Branch, 2009).

Table 2. Design & Development of i-UrusDiri Mobile App

Menu Icon	Mobile Screen	Content
		The Information Page describes the intrduction of the i-UrusDiri Mobile App.
		My body i. My body shows the name of the entire part of the human body. ii. The body is divided into three parts.
		The bathroom is divided into several sections: i. Toilet ii. Shower iii. Safety Instruction iv. Simulation Video v. Self-Cleaning Tools

		The page is divided into several sections: i. Tooth Cleaning Tools ii. How to brush teeth iii. Video how to brush teeth
		Edugame has a collection of digital learning games. Users can play without having to download this game. There are 12 interactive games related topics that the students have learned. This interactive game will grow over time
		The Basic Self-Management e-Module can be accessed directly on Anyflip without having to be downloaded. this e-module is very interesting because it can be printed like a real module. This e-module can also be downloaded for reference purposes and teacher prints. Teachers can print worksheets to give to students. Graphic materials can be printed and used as a teaching tool or placed in the Self-Management Corner.

		The Application provide a collection of educational video from teacher Zeta.
		Information about the teacher are provided in this menu.

4.2 Implementation

Implementation in the class has been done that involves student-teacher in class before proceed to evaluation phase (next research studies). The application was distributed in nine (9) schools in Perak to be implemented in class for special need (learning problem) students that are SK Kampung Boyan, SK Bukit Jana, SK Seri Aman, SJKC Aulong, SK Jelapang Jaya, SK Sultan Yussuf, SK Sungai Rokam, SK Pengkalan Pegoh and SMK Doktor Burhanuddin.

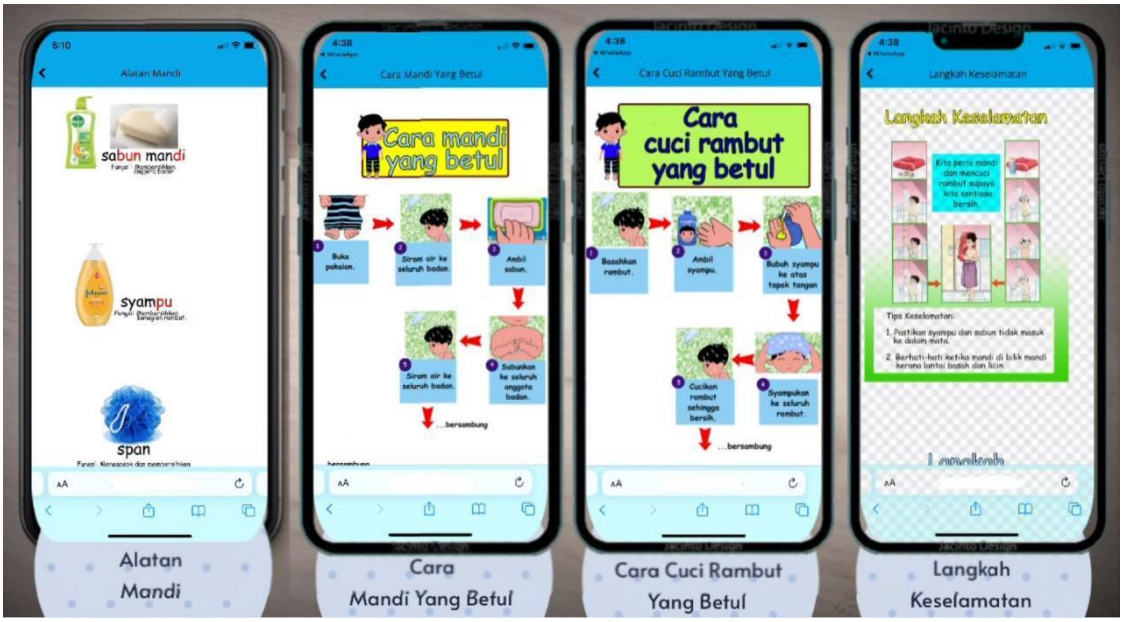


Figure 2: The screenshot of i-UrusDiri Mobile App

The application that has been developed can be accessed using mobile phone via web progressive app (WPA) which available for Android and IPhone users. It can also accessible through computer browser. This features helps teachers and students to access with various device at their flexible time.

4.3 Evaluation

Even though the implementation has been executed in several schools, proper evaluation phase has yet to be done at this time.

4.4 Impact on Teaching & Learning

I-UrusDiri Mobile App was designed by the teacher to the students. This initiative was taken to empower student's ability to learn in the best interactive and fun way as show in Figure 3.

Figure 3: The application implemented in the class

The data from this study can help to enhance the teaching and learning experience in basic Self-Management class for students with special need (learning problem) in primary school. The instructional elements that has been added to the application would create new learning and teaching experience where all the related material can be access easily, during flexible time or in class. The Edu Game menu in the application lead into interactive and fun learning among students to engage them with the learning topics (Dahal et al., 2022). Figures 4 and 5 show the Edu games among the students.

Figure 4: The application implemented in the class

Figure 5: Students respond to the mobile application

Multimedia elements in such of image, text, video, audio and interactivity enhance the class activities. Along with the digital growth, i-UrusDiri Mobile App is now transforming the conventional to digital and paperless method.

5.0 Conclusion

This research aims to develop an application that can be implemented as an interactive and engaging learning tool to help children with learning problem practice basic self-management skills. It also expected to make class more enjoyable and accessible at any time, whether at school or at home. In 2022, this innovation had won 2022 Innovation Competition for Larut, Matang and Selama District. This recognition had given another added value to the application as the potential innovation for commercialization.

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Author Contributions

R. Zubir: Methodology. Software, Conceptualisation, Data Curation and Writing- Original Draft Preparation; **J. Zamri:** Supervision, Data Curation, writing-Reviewing and Editing; **N. Bulat:** Data Curation, Validation, Writing-Reviewing and Editing.

Conflicts Of Interest

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its Submission and declare no conflict of interest in the manuscript.

References

Abd. Rahman, S., Hj Jali, Abd. R., Yusof, H., Wan Muhamad, W. M., Zulkifli, Z., Gudin, N., Abd Rahman, A., Ridzwan, I. S., Zaharudin, M. F., Sudar, N., Mohd Rehat, S. A., Abd Rashid, S. W. N., Ismail, R., Abdul Hamid, F. M., Sufian, N., Tahir, R., & Kosnan, Y. (2015). Kurikulum Standard Sekolah Rendah Pendidikan Khas (Masalah Pembelajaran). Pengurusan Kehidupan. In *http://bpk.moe.gov.my/index.php/terbitan-bpk/kurikulum-pendidikan-khas/category/150-dskp-tahun-1*. Kementerian Pendidikan Malaysia. http://bpk.moe.gov.my/index.php/terbitan-bpk/kurikulum-pendidikan-khas/category/150-dskp-tahun-1

Abdelhamid, I. Y., Abu Bakar, K., Zailani @ Hj. Ahmad, S., Yahaya, H., & Puasa, B. (2018). Pembangunan Aplikasi Android Pembelajaran Aasa Bahasa Arab. *ASEAN Comparative Education Research Journal on Islam and Civilization (ACER-J), 2(2).* https://www.researchgate.net/publication/344297850

Branch, R. M. (2009). Instructional Design: the ADDIE approach. In *Springer eBooks*. https://doi.org/10.1007/978-0-387-09506-6

Dahal, N., Manandhar, N. K., Luitel, L., Luitel, B. C., Pant, B. P., & Shrestha, I. M. (2022). ICT tools for remote teaching and learning mathematics: A proposal for autonomy and engagements. *Advances in Mobile Learning Educational Research, 2*(1), 289-296. https://doi.org/10.25082/AMLER.2022.01.013

De La Cruz, E. M., Meza, M. a. T., & Andrade-Arenas, L. (2023). Mobile application to improve the learning of secondary school students. *Advances in Mobile Learning Educational Research*, *3*(1), 586–595. https://doi.org/10.25082/amler.2023.01.007

Kraleva, R. (2017). ChilDiBu – A Mobile Application for Bulgarian Children with Special Educational Needs. *International Journal on Advanced Science, Engineering and Information Technology, 7*(6), 2085. https://doi.org/10.18517/ijaseit.7.6.2922

Kraleva, R., & Kralev, V. (2018). An Evaluation of The Mobile Apps for Children with Special Education Needs Based on The Utility Function Metrics. *International Journal on Advanced Science, Engineering and Information Technology, 8*(6), 2269. https://doi.org/10.18517/ijaseit.8.6.6309

Nayan, N., Mahat, H., Hashim, M., Saleh, Y., Kurniawan, E., & Arif, N. (2020). Pembangunan android dalam menyokong pengajaran dan pembelajaran Geografi: Kajian kes GeoSudut. *Geografia, 16*(1). https://doi.org/10.17576/geo-2020-1601-10

Roslin, N. B., & Salleh, N. M. (2021). Penggunaan M-Learning Sebagai Bahan Bantu Pengajaran dalam Kelas Pendidikan Khas. Malaysian Journal of Social Sciences and Humanities, 6(5), 53–63. https://doi.org/10.47405/mjssh.v6i5.781

Samsudin, M. R., Tse Guan, T., Mohd Yusof, A., & Mustapha, A. (2018). Effectiveness Malaysian Sign Language Mobile Application in Teaching and Learning for Deaf and Mute Students. *Advanced Journal of Technical and Vocational Education, 2(1).* https://doi.org/10.26666/rmp.ajtve.2018.1.4

Papadakis, S. (2021). The impact of coding apps to support young children in computational thinking and computational fluency. A literature review. *Frontiers in Education, 6* (p. 183). https://doi.org/10.3389/feduc.2021.657895

Zurita, G., Baloian, N., Peñafiel, S., & Jerez, O. (2019). Applying Pedagogical Usability for Designing a Mobile Learning Application that Support Reading Comprehension. *Proceedings*, *31*(1), 6. https://doi.org/10.3390/proceedings2019031006