Optimization of Big Data-Based Interactive World History *Babon* Application Features as A Hybrid Learning Media for History Education Students

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Abstract. In 2021 the author conducted development research (PNBP UNIMED) which produced a Big Data-based World History *Babon* Book Application product as a distance learning medium. Therefore, this advanced development research is essential to carry out as an effort to perfect/optimize the Big Data-based *Babon* Book Application so that it has better performance, is more adaptive, more effective, and more efficient in meeting the needs of history education in higher education during the MBKM period, especially in the implementation of Hybrid Learning at UNIMED, especially in the Department of History Education. The method used in this research is the research and development method. This interactive World History *Babon* Book Application Optimization process uses the research and development (R&D) model by Borg and Gall (2003). The stages of the R&D development model include: a) the needs analysis stage; b) the design phase of teaching materials products; c) the stage of production/implementation of initial product development; d) material and media validation stage; e) revision stage; f) product testing phase; g) final revision stage and mass production; h) The last step in this research is the effectiveness test.

Keywords: Optimization, *Babon*, World History.

1 Introduction

One of the Minister of Education and Culture's strategic policies/programs for raising the calibre of Indonesia's human resources through higher education in order to meet global problems is the Independent Learning Campus Independent Curriculum (MBKM). By offering possibilities for studying outside of the study program at the same university or by enrolling in the same study program at a different university, Permendikbud No. 3 of 2020 explains that every university is required to help students build their competence [1]. Since 2019/2020 T.A. State University of Medan has been an A-accredited PT (SK BAN-PT No. 2988/SK/BAN-PT/Akred/PT/XII/2016), in response to this program, providing students with the broadest chances to pursue academic endeavours. Through several student exchange programs, like Permata, this policy is implemented. A further incentive provided by the Ministry of Education program is for Medan State University to enhance remote learning in order to meet MBKM's

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needs for holding online lectures using tools like SIPDA, GFE (Google for Education), Zoom, etc. These platforms are undoubtedly crucial for teachers and students who wish to apply hybrid learning at MBKM, particularly at this time of epidemic [2].

Every lecturer must create interactive digital learning materials as an alternative to printed teaching materials in order to maximize Hybrid Learning, in addition to utilizing the learning platform offered by the State University of Medan. Learning tools that include comprehensive teaching materials enhanced with multimedia features including audio, video, animation, photographs, graphics, journal web connections, etc. are known as interactive digital teaching resources. These instructional resources make it possible for students from all over the nation to access pertinent learning resource applications on Android and iOS devices via Google Play and the App Store, enhancing the effectiveness, flexibility, and efficiency of hybrid history study. These interactive digital teaching resources are uncommon in the State University of Medan Faculty of Social Sciences.

The Department of History Education is one of the A-accredited departments within the FIS UNIMED environment that implements the MBKM curriculum in accordance with the Rector's Regulation No. 0362/UN33/PRT/2020 concerning Freedom of Learning (SK BAN-PT No. 1161/SK.BAN-PT/Akred/S/VII/2016). Every Lecturer in the Department of History Education at FIS UNIMED must be able to create PBM activities based on hybrid learning in order to adapt to the fourth industrial revolution in education, according to the MBKM curriculum. Additionally, an interactive digital teaching material application that can be used successfully, flexibly, and pertinent to the CPL-CPM is required to maximize the Merdeka Learning lecture program, which enables History Education Department students from other universities to come to join and attend lectures at the Department of History Education FIS UNIMED. [3]

The absence of a current and applicable global history digital *Babon* book for the CPL-CPMK Department of History Education FIS UNIMED was one of the major challenges encountered in lectures throughout the RI 4.0 era and the MBKM Curriculum. Particularly for the category of global history courses, sometimes known as "spatial histories," which includes American history, European history, African history, Asian history, and other spatial history courses. Arnold Toynbee's *Babon* book on world history, which is now on the market and is printed rather than digital, was reissued in 2017 and is a copy of the original *Babon* book that was released in 1939. This indicates that the printed *Babon* book's content only covers 20th-century historical studies (not current), and even then, it contains only a small amount of spatial history information and is not based on the MBKM Curriculum developed by the Team Department of History Education. As a result, these teaching materials are unable to satisfy the demands of lecturers and students for current world history teaching materials. [4]

In 2021, the authors undertook development research (PNBP UNIMED) in response to these difficulties, leading to the creation of a Big Data-based World History *Babo*n Book Application as a remote learning tool. Taking into account that at the time Distance Learning (PBJJ) was put into place as a rule to prepare for the Covid-19 pandemic's spread on the UNIMED campus. The application increased the motivation and learning results of history education students in the spatial history course, passing the effectiveness test .[5]

Nasution [6] proposes that the Borg and Gall development stages, which are divided into four stages: basic study, development, field testing, and product dissemination and socialization, are

what the development of the world history *Babon* book application relates to. For educational purposes, literature that has been produced quantitatively and qualitatively is appropriate. The "good" category includes both the media experts' assessments and the viability of teaching materials as determined by the evaluation of material experts. Regarding efficiency, the usage of the Big Data-based *Babon* World History book product in spatial history learning yielded an average score of 90.47 with a total of 84 students completing the course. As a result, it can be determined that the World History *Babon* Book Application is used extremely efficiently in the learning process because 100% of the students have achieved the threshold value.

Despite being effective and having been developed in 2021, some parts of the World History *Babon* Book application still need to be optimized. For instance, the application can only be used on Android-based smartphones (cannot be used on Windows PCs and IOS-based gadgets), the available images are not 3D-based so they still appear simple, and there is no live quiz feature that can be used as a regular task media. Due to a lack of content and features based on case studies and team-based projects, the software utilized has not been updated to the most recent version and has not accommodated the growth of student literacy HOTS to its fullest extent. the functions/content that are currently in use, particularly with regard to hybrid learning Therefore, it is crucial to carry out this advanced development research in an effort to enhance/optimize the Big Data-based *Babon* Book Application so that it performs better, is more adaptive, more effective, and more efficient at satisfying the needs of history education in higher education during the MBKM period. especially in the Department of History Education at UNIMED, where hybrid learning is being used.

2 Method

The research and development technique was applied in this study. The development research method is a technique used to create specific items and evaluate their efficacy (Sugiyono, 2010:407). Research and development is a process or series of stages that can be accounted for in the development of new products or the improvement of current ones [7].

The research and development (R&D) paradigm by Borg and Gall [8] is used in this interactive World History *Babon* Book application optimization process. The stages of the R&D development model are as follows: a) the needs analysis stage, which entails student analysis, material analysis, and goal specification; b) the design phase of teaching materials products, which entails teaching material selection and initial design; c) the production/implementation stage of initial product development, which entails the production of teaching materials and the preparation of assessment instruments (validation sheets, questionnaires/quators). d) the validation stage, which includes evaluations from material experts (Historical Education Lecturers) and design experts (Historical Education Lecturers); e) the revision stage, which includes media revisions or improvements based on suggestions by the validators; f) the product trial phase, which includes testing the material on students, having students complete questionnaires, and conducting learning outcomes tests; g) the final revision and dissemination The effectiveness test is the last stage of this investigation [9].

3 Results and Discussion

3.1 Analysis Stage

Analysing some of the required requirements is the first step in developing this material. To be utilized as a guide in the creation of the World History *Babon* Book, these needs include material selection and user decision.

1) User (user)

Students in the Department of History Education at the Faculty of Social Sciences, State University of Medan, are the application's target audience. According to interviews with a number of students, learning on mobile devices (such as smartphones) is very engaging for them and can support independent learning whenever and whenever. The World History *Babon* Book that will be created can be accessed by the typical student thanks to data from a preliminary study that researchers completed through observation and interviews. [10]

2) Material Needs

The learning materials for the Spatial History course are the ones being discussed here. The researcher then presents students with a number of learning themes she has prepared before conducting interviews. Based on the requirements they faced in the lectures, students were asked to rate how significant these issues were to them. The researcher wanted to know how crucial it was for students to learn the supplied material in order to advance their skills in the World History course. [11]

Students also require learning resources to display on the World History *Babon* Book application. According to data gathered by researchers, the typical student believes that audio and video media are crucial for teaching research methods. [12]

Therefore, the researchers will offer a number of additional features, such as practice questions and films connected to the Indonesian History course, to address the needs of students. The movie that is being shown is one regarding occurrences or symptoms connected to the topic of the course on Indonesian history, and it will be used as the basis for student projects in that course.

3.2 Product Design Phase (Design)

The creation of project-based research method teaching materials and the development of the World History *Babon* Book Application for android-based research method teaching materials constitute the two elements of the study's product design for the World History *Babon* Book Application.

1) Initial Design of the World History *Babon* Book Application Product.

The development of a product in the form of the World History *Babon* Book Application comes after the stages of analysis and project-based learning-based textbook production. In order to enable lecturers to update the developed World History *Babon* Book Application at any time, the initial design of the Android-based World History *Babon* Book application product was split into two designs: the front-end design, namely the design for users (students taking Indonesian

History courses), and the back-end design, namely the design for administrators, namely lecturers. [13]

The creation of the World History *Babon* Book Application is the next step after the analysis and production of project-based learning-based textbooks. In order to enable lecturers to update the developed World History *Babon* Book Application at any time, the initial design of the Android-based World History Babon Book application product was split into two designs: the front-end design, namely the design for users (students taking Indonesian History courses), and the back-end design, namely the design for administrators, namely lecturers. [14]

3.3 Product Development Phase (Development)

The process of creating the World History *Babon* Book Application is called the development stage. The *Babon* Book of World History application. This World History *Babon* Book Application was created with design in mind. The process of gathering the photographs, films, and animations that will be used to complete the content of this World History *Babon* Book Application begins first. Google, YouTube, and electronic books are used to find these resources. The World History *Babon* Book Application, the Android version of the World History *Babon* Book Application, is created using the Sigli program after all the materials have been gathered.

3.4 Product Validation

Two specialists—material experts and media experts—validated the big data-based world history *Babon* book application. Material experts carry out validation of the content (concepts and facts) and training (concern for the development of attitudes and abilities). Presentation (systematics and visuals) by media professionals and History Education Class C Reg 2019 students as a product test of the big data-based *Babon* Book Application for world history. [15]

Results of the material expert assessment show a proper score of 77.1%. With the right criteria, the quality of the content is assessed with an average percentage of 80%, the viability of the presentation is assessed with an average percentage of 80%, the language aspect is assessed with an average percentage of 60%, and the approach assessment for the American History Course is assessed with an average percentage of 80%.

With a maximum score of 30, the total value of the media expert validation on the instructional material size indicator is 25, making the percentage value 83%. The layout design indicator has 48 validation variables with a maximum score of 50, yielding a 96% success rate. The content design has 38 validation values, and the maximum score is 40, thus the percentage value is 95%. The media expert's design validation findings were deemed to be very plausible. With a maximum score of 120 and a total media validation score of 111, the overall percentage of media experts is 92.5%, which is extremely good .[16]

4 Conclusion

The developed World History Babon Book application can be an effective learning medium for students and help in learning Spatial history. The Hybrid Learning model will certainly be more

effective when accompanied by the use of the *Babon* Book Application. In addition, the use of the World History *Babon* Book Application can stimulate students in developing a learning and independent culture and also increase students' Literacy Hots abilities.

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