

Development of a digital app-based sambo sports book for students at high school level extracurricular activities

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Abstract

The survey in North Sumatra was conducted by researchers in the areas of Medan, Tanah Karo, Tebing Tinggi, Asahan, Serdang Bedagai, Deli Serdang, Labuhan Batu, Tanjung Balai, Humbahas, and Binjai, many coaches and athletes still do not have adequate guidance in Indonesian. Most of the information is still in foreign languages, making it difficult to understand Sambo's techniques and rules. This study aims to develop a digital application-based sambo sports book. Method, in this research, uses the research and development (R&D) method. The research subjects consisted of 10 athletes, coaches, and sambo sports enthusiasts for the main field trial and 20 athletes, coaches, and sambo sports enthusiasts for the operational field trial. Data were collected through observation, interviews, and questionnaires, with instruments in the form of feasibility assessment sheets from sambo sports experts, linguists, media experts, and user subjects. Data analysis was carried out using a percentage quantitative descriptive technique. The results showed that this digital application-based sambo sports book was very good and feasible. This book has great potential to improve the understanding of sambo techniques and rules among athletes, coaches, and sambo enthusiasts by providing easy-to-understand guidelines in Indonesian and emphasizing the importance of technology-based approaches in Sambo.

Keywords: Sports, development, sambo, digital apps.

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INTRODUCTION

Development is the process of improvement or refinement (Adelia et al. et al., 2022). Development can be applied to various fields, including books. The book itself is a written work that contains different information, guides, and references (Arin Prajawinanti, 2020). Sports are physical activities carried out regularly to improve health and fitness and develop

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skills and achievements in various sports ([Zalikal Ilham, 2021](#)). Sambo is an unarmed martial arts sport with special techniques and principles ([Syamsul Arifin et al., 2023](#)).

Sport is a physical activity carried out to improve health and fitness, both physically and mentally ([Novri Gazali et al., 2023](#)). When a person engages in sports, they not only move the body but also move the mind to achieve achievements in certain sports ([Dedy Pranata, 2022](#)). This activity, which is the basic foundation for improving the quality of life of a nation, shows that sports require physical and mental energy to achieve goals and achievements in their fields ([Adi Rahadian et al., 2021](#)).

Among the various sports, Sambo is unique in that it illustrates the importance of physical and mental balance. Sambo is both a martial art and a combat sport ([Marinella Coco et al., 2022](#)). Sambo is sometimes capitalized to mean unarmed self-defense ([Flavia Figlioli et al., 2021](#)). This Russian sport was first developed in the early 20th century ([Nikola Todorovi'c et al., 2021](#)). In Indonesian, Sambo was introduced in 2008. Sambo is a sport based on certain age and weight categories ([Tatjana Trivic et al., 2020](#)). After 80 years of development, Sambo finally received temporary recognition from the International Olympic Committee (IOC) and competed in the Olympics ([Supriyono, 2022](#)).

Sambo is often referred to as a hodgepodge martial arts sport because it combines jujitsu, judo, wrestling, and boxing techniques. Even so, this sport is still unfamiliar to the public ([Novri Gazali et al., 2023](#)). However, the uniqueness of Sambo lies in its ability to modify techniques from various sports so it is not monotonous and can reduce the risk of injury ([Dyah et al., 2019](#)). The sport of Sambo in Indonesian is very important to support a healthy lifestyle and produce outstanding athletes at the international level ([Ida Zubaida et al., 2022](#)). However, the sport faces obstacles such as a lack of facilities, minimal development of young athletes, and a lack of government support. Coaches rely on Russian-language books and videos from YouTube, which reduces training

effectiveness because the language and methods still need to be fully understood.

A sports book on Sambo will provide information and guidance on techniques and strategies. Along with technological advances, digital applications have become an important tool in disseminating information and learning. Digital applications are software designed for portable devices such as smartphones, and users need to download the application to be able to use it (Dandi Saputra, 2022). Using digital applications, sports books about Sambo can be developed into a more interactive and accessible format. Therefore, developing a digital application-based sambo sports book aims to combine guidelines and information about sambo sports into an application that can be downloaded and used on smartphones and facilitate access for its users.

Initial data collected from the survey results directly became the basis for researchers. The survey in North Sumatra was conducted by researchers in the areas of Medan, Tanah Karo, Tebing Tinggi, Asahan, Serdang Bedagai, Deli Serdang, Labuhan Batu, Tanjung Balai, Humbahas, and Binjai, many coaches and athletes still do not have adequate guidance in Indonesian. Most of the information is still in a foreign language, making it difficult to understand Sambo's techniques and rules. Therefore, an Indonesian language guidebook is needed to improve the quality of training and understanding of athletes. This research aims to develop a digital application-based sambo sports book in Indonesian. The book is designed to assist athletes, coaches, and sambo enthusiasts by providing a resource that is easily accessible via smartphone. Although the sport of Sambo is widely recognized internationally, there needs to be a significant gap in the dissemination of knowledge about the basic techniques, history, rules, and ethics of the sport in the Indonesian language. Existing books and training materials are often limited to foreign languages or need to fully cover important aspects of Sambo (Benjamin et al., 2023). This research can address this gap by providing a digital app-based sambo sports book in Indonesian. The book will provide up-to-date

and customized information, supporting the development of sambo sports more effectively. This book is urgently needed by athletes, coaches, and fans of the sport of Sambo to improve their knowledge, skills, and achievements. It is also designed to guide the development of sambo techniques and tactics and deepen understanding of important aspects of the sport. With detailed and practical information, this book will become a key reference in training, exercise programming, and competition planning, thus supporting individual progress and the wider development of the sport of Sambo.

METHOD

This study uses the Borg and Gall research and development (R&D) method in the book ([Eny Winaryati et al., 2021](#)), which includes 10 steps of research and development design, namely: research and information gathering, planning, initial product development, initial field testing, main product revision, main field testing, operational product revision, operational field testing, final product revision, dissemination, and implementation. However, this research and development only uses 9 steps, namely only until the final product revision, this is based on the limitations and needs of the research ([Febby et al., 2020](#)).

This research was conducted at the Persambi Building, Medan, North Sumatra. The research subjects consisted of 30 athletes, coaches, and sambo sports enthusiasts. For small-scale trials, or trial 1, there were 10 samples, and the second trial, or large-scale trial, consisted of 20 people.

In this study, data collection techniques were carried out through observation and questionnaires, using instruments in the form of feasibility assessment sheets for the development of digital application-based sambo sports books addressed to sambo sports experts, linguists, media experts, and user subjects. The data analysis technique used was a quantitative descriptive analysis of percentages to interpret the data in a more structured way and provide an overview of the level of validity and usability

of the digital application-based Sambo sports book that was developed. The data analysis technique used in this study refers to (Nana Sudjana, 2019). The formula used to analyze the data is as follows:

Formula for processing data per expert subject

$$P = \frac{X}{X_i} \times 100\%$$

Description:

- P = percentage of expert subject evaluation results
- X = number of score answers by expert subjects
- X_i = the maximum number of answers scored by the expert subject
- 100% = constant

To determine the conclusions that have been reached, the criteria are set as in the following Table:

Table 1. Criteria for percentage evaluation results

Percentage	Description	Meaning
80%-100%	Valid	Used
60%-79%	Fairly valid	Used
50%-59%	Less valid	Replaced
<50%	Invalid	Replaced

RESULT

This process involves calculating the percentage of the scores given by experts on various aspects of the digital application-based sambo sports book. The percentage results are then interpreted based on criteria to determine the feasibility level of the book. The analyzed data will provide a clear picture of the valid and usable aspects, as well as areas that require improvement or further development. This technique is used to obtain structured and measurable findings so that concrete data can support decisions made regarding the feasibility of the book.

Preliminary Field Testing

Sambo sports experts are tasked with testing the feasibility of digital application-based sambo sports books by filling out a digital application-based sambo sports book assessment instrument sheet. The results of the feasibility test of the early-stage sambo sports expert can be seen in Table 2:

Table 2. Results of the initial Sambo Sport Expert feasibility test

No	Indicator	Score	Maximum Score	Formula	Percentage
A	History of the sport of Sambo	11	15	$(11/15) \times 100$	73,33%
B	Basic sambo knowledge	13	20	$(13/20) \times 100$	65%
C	Sincerely Sambo	7	10	$(7/10) \times 100$	70%
D	Basic sambo techniques	20	30	$(20/30) \times 100$	66,66%
E	Sport sambo	10	15	$(10/15) \times 100$	66%
F	Combat sambo	24	35	$(24/35) \times 100$	68,57%

Based on Table 2, the results of the feasibility trial of sambo sports experts in the early stages, the percentage obtained for the history of sambo sports is 73.33%, for basic sambo knowledge, 65%, for respect sambo, 70%, for basic sambo techniques, 66.66%, for sport sambo, 66%, and for combat Sambo, 68.57%.

The percentage result for the history of sambo sports comes from 3 indicators, where each indicator has a maximum value of 5. So, the total maximum score for the history of the sambo sports component is 15. Sports experts assess with a score of 11 out of a total of 15. The eligibility percentage is calculated by dividing the score obtained (11) by the maximum score (15), then multiplied by 100. The result of this calculation produces a percentage of eligibility of 73.33%, likewise for other components.

Linguists are tasked with testing the feasibility of digital application-based sambo sports books by filling out a digital application-based sambo sports book assessment instrument sheet. The results of the feasibility test of early-stage linguists can be seen in Table 3:

Table 3. Results of the preliminary stage linguist feasibility test

No	Indicator	Score	Maximum Score	Formula	Percentage
A	Language feasibility	27	30	$(27/30) \times 100$	90%
B	Material feasibility	14	15	$(14/15) \times 100$	93,33%
C	Construction feasibility	18	20	$(18/20) \times 100$	90%

Based on Table 3, the results of the feasibility trial of early-stage linguists, the feasibility of language is 90%, the feasibility of material is 93.33%, and the feasibility of construction is 90%.

Linguists are tasked with testing the feasibility of a digital application-based sambo sports book by filling out an assessment

instrument sheet. In the initial trial stage, 3 indicators were assessed: language feasibility, material feasibility, and construction feasibility. In the language feasibility indicator, the score given is 27 out of a maximum score of 30. The feasibility percentage is calculated by dividing the score obtained (27) by the maximum score (30), then multiplied by 100, which results in 90%. The same is done for the material feasibility indicator (93.33%) and construction feasibility (90%). These results illustrate the feasibility of each indicator based on the assessment of linguists.

Media experts are tasked with testing the feasibility of digital application-based sambo sports books by filling out a digital application-based sambo sports book assessment instrument sheet. The results of the feasibility test of early-stage media experts can be seen in Table 4:

Table 4. Results of the initial media expert feasibility test

No	Indicator	Score	Maximum Score	Formula	Percentage
A	Book size	7	10	$(7/10) \times 100$	70%
B	Book cover design	19	25	$(19/25) \times 100$	76%
C	Book content design	22	30	$(22/30) \times 100$	73,33%

Based on Table 4, the results of the feasibility trial of early-stage media experts, the book size percentage obtained is 70%, the book cover design percentage obtained is 76%, and the book content design percentage obtained is 73.33%.

Media experts are tasked with testing the feasibility of the digital application-based sambo sports book by filling out the assessment instrument sheet. In the initial trial stage, media experts assessed three indicators: book size, book cover design, and book content design. For book size, the score obtained was 7 out of a maximum score of 10, with a feasibility percentage of 70%. For book cover design, the score obtained was 19 out of a maximum score of 25, resulting in a percentage of 76%. For book content design, the score obtained was 22 out of a maximum score of 30, with a percentage of 73.33%.

This percentage is calculated based on the score obtained from the validation sheet table filled out by the media expert in the media expert validation sheet grid table.

Main Field Testing

Sambo sports experts are tasked with testing the feasibility of digital application-based sambo sports books by filling out a digital application-based sambo sports book assessment instrument sheet. The results of the feasibility test of the main field sambo sports expert can be seen in Table 5:

Table 5. Main field Sambo sport expert feasibility test results

No	Indicator	Score	Maximum Score	Formula	Percentage
A	History of the sport of Sambo	14	15	$(14/15) \times 100$	93,33%
B	Basic sambo knowledge	18	20	$(18/20) \times 100$	90%
C	Sincerely Sambo	9	10	$(9/10) \times 100$	90%
D	Basic sambo techniques	27	30	$(27/30) \times 100$	90%
E	Sport sambo	14	15	$(14/15) \times 100$	93,33%
F	Combat sambo	30	35	$(30/35) \times 100$	85,71%

Based on Table 5, the results of the feasibility trial of the main field sambo sports experts, the percentage obtained for the history of sambo sports is 93.33%, the percentage obtained for the basic knowledge of Sambo is 90%, respect for Sambo is 90%, the percentage obtained for basic sambo techniques is 90%, sport sambo is 93.33%, and combat sambo is 85.71%.

Media experts are tasked with testing the feasibility of digital application-based sambo sports books by filling out a digital application-based sambo sports book assessment instrument sheet. The results of the main field media expert feasibility test can be seen in Table 6:

Table 6. Main field media expert feasibility test results

No	Indicator	Score	Maximum Score	Formula	Percentage
A	Book size	9	10	$(9/10) \times 100$	90%
B	Book cover design	23	25	$(23/25) \times 100$	92%
C	Book content design	27	30	$(27/30) \times 100$	90%

Based on Table 6, the results of the feasibility test of the main field media experts, the size of the book is 90%, the book cover design is 92%, and the book content design is 90%.

The main field trial user subjects involved 10 users of digital application-based sambo sports books consisting of athletes, coaches,

and sambo sports fans. The results of the feasibility trial by the main field user subjects can be seen in Table 7:

Table 7. Main field user subject feasibility test results

No	Indicator	Score	Maximum Score	Formula	Percentage
A	Quality of book format and structure	130	150	$(130/150) \times 100$	86,67%
B	Attractiveness and motivation	160	200	$(160/200) \times 100$	80%
C	Clarity and appropriateness of book content	250	300	$(250/300) \times 100$	83,33%
D	Benefits of movement activities	80	100	$(80/100) \times 100$	80%

Based on Table 7, the feasibility trial results by the main field user subjects, the quality of the format and structure of the book, the percentage obtained is 86.67%, the attractiveness and motivation, the percentage obtained is 80%, the clarity and suitability of the book content, the percentage obtained is 83.33%, and the benefits of movement activities, the percentage obtained is 80%.

Operational Field Testing

User subjects of operational field trials involving 20 users of digital application-based sambo sports books consisting of athletes, coaches, and sambo sports fans. The results of the feasibility trial of operational field user subjects can be seen in Table 8:

Table 8. Operational field user subject feasibility test results

No	Indicator	Score	Maximum Score	Formula	Percentage
A	Quality of book format and structure	140	150	$(140/150) \times 100$	93,33%
B	Attractiveness and motivation	180	200	$(180/200) \times 100$	90%
C	Clarity and appropriateness of book content	275	300	$(275/300) \times 100$	91,67%
D	Benefits of movement activities	92	100	$(92/100) \times 100$	92%

Based on Table 8, the results of the feasibility trial of operational field user subjects, the quality of the format and structure of the book, the percentage obtained is 93.33%, the attractiveness and motivation of the percentage obtained is 90%, the clarity and suitability of the contents of the book, the percentage obtained is 91.67%, and the benefits of movement activities, the percentage obtained is 92%.

The results of this eligibility percentage are taken from raw data obtained through user eligibility testing. Each indicator is assessed based

on the score given by the user in the validation sheet by comparing the score achieved to the maximum score available. The raw data from the user eligibility test shows how each aspect of the book is assessed, and this percentage illustrates the book's eligibility level based on that assessment.

DISCUSSION

Based on the research results, the development of a digital-based Sambo sports book was designed and produced into an initial product in the form of Sambo sports history and techniques. The Sambo sports book aims to add references to coaches and extracurricular student-athletes who are training in Sambo sports techniques. The purpose of this study is to develop a digital-based Sambo sports book. The need was found in the field, there was a need for a lack of Sambo sports book references that provide guidelines for coaches and athletes. For this reason, this study focuses on the development of a digital-based Sambo sports book. The production of digital books on physical education, sports, and health is a necessary qualification, and this digital book product is competent and practical (Jumarni Anty, 2023).

The development of a digital-based Sambo sports book was tested based on expert assessment to determine the feasibility of the product being developed. A good book must pay attention to the principles and present basic techniques that are arranged systematically, including pictures and step-by-step instructions, so that readers can understand and master each movement effectively. In developing a book, what needs to be in the book is the method, limitations, and evaluation to achieve the learning objectives obtained and sub-competencies (Elvarita, 2020).

In this study, the subject users are extracurricular student-athletes and Sambo coaches; in the implementation of the assessment and responses of coaches as book users, namely to obtain initial assessment data, one coach was asked to provide evaluation guidelines in developing sportsbook products. The coach on the digital-based Sambo sports book

carried out the assessment. The indicators for the coach's evaluation of the digital-based Sambo sports book product are the book's role in implementing training techniques, the quality of the digital-based Sambo sports book, and the use of sports books. Indicators of the role of the book in implementing training include an assessment of the training perspective, presenting a source of Sambo problems, and providing a neatly arranged source of Sambo sports techniques.

The assessment of the use of Sambo books includes an assessment of the suitability of the content and implementation of the exercises, as well as the suitability of the illustrations with the implementation of the exercises. The assessment aspects above are aspects of the assessment of the level of user suitability for the digital-based Sambo sports book. The suitability of users in using the Sambo sports book can provide satisfaction to users in applying the product during training to the implementation of Sambo sports techniques. The suitability of the digital-based Sambo sports book based on the assessment of the main trainer as a user can be categorized as "very good" and suitable for use for dissemination.

Based on the test results of the subject users of the digital-based Sambo sports book, the category "very good" was obtained, and it is feasible to be used for distribution. Based on the results of the assessment and trial and use of the digital-based Sambo sports book product, it has been feasible and can be used as a reference for coaches and athletes in training and coaching in Sambo sports. Based on the assessment carried out by experts, there are shortcomings in the digital-based Sambo sports book, namely the digital-based Sambo sports book still needs to be clarified in the description of the technique and its description. The Sambo sports book should be made with clearer images and image editing to explain the movements in detail to the coach to implement the correct technique training. The shortcomings in the book can be a source of improvement for better research in the future.

The advantages of digital-based Sambo sports book products are that they are necessary for coaches to solve problems in the form of Sambo sports techniques. Digital-based Sambo sports book products are a reference for extracurricular student-athletes and coaches in providing information about Sambo sports, especially Sambo sports techniques and regulations. Sambo sports books have various techniques as guidelines for Sambo sports books.

While digital Sambo sportsbook products offer many advantages, there are some drawbacks that need to be considered. One of the drawbacks of this digital Sambo sportsbook is its dependence on stable internet access. Users with limited internet connections may need help accessing the full digital content, including the demonstration images and interactive materials that are an important part of the book.

This finding reinforces the idea that digital technology can be useful in learning and practicing sports (Tri et al., 2023). It also confirms that digital apps can be effective in helping users, especially in the context of sports such as Sambo. However, keep in mind that this study has limitations. The trials have not covered all different types of users or issues such as data security. Further research is still needed to ensure the app is useful and safe for everyone who might use it. So, these findings show the great potential of digital technology in sports but also highlight the importance of continuing to conduct more in-depth research to address any issues that may arise.

CONCLUSION

The development of a digital application-based sambo sports book in Indonesian succeeded in achieving the research objectives, namely creating an interactive resource that can be easily accessed by athletes, coaches, and sambo sports enthusiasts through smartphone devices. This development not only facilitates access to information and guidance on the sport of Sambo but also presents a format that is more interactive and adaptive to users' needs in the digital era. The relevance of these findings

is significant in the context of improving the effectiveness of Sambo training, suggesting that the integration of digital technology has great potential to support the development of Sambo. However, this research also emphasizes the need for further studies to expand user coverage and address related issues, such as data security. Based on these findings, it is recommended that app developers continue to make updates and adaptations to ensure that the apps remain relevant, safe, and effective for all categories of users. In closing, innovations in digital technology, such as the development of this digital app-based sambo sports book, have enormous potential to advance the world of sambo sports, provided that their implementation is carried out with in-depth and comprehensive studies.

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