

Development of Teaching Media Based on Android Application for Floor Gymnastic Blended Learning

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ABSTRACT

This study developed an Android app for integrated floor gymnastics instruction. The 10-stage R&D research approach is used: (1) Preliminary study, (2) Research planning, (3) Initial product development, (4) Initial (limited) field trials, (5) Revision of limited field test results, (6) Expanded field tests, (7) Revision of field test results, (8) Due diligence, (9) Revision of due diligence results, (10) Final product dissemination and distribution. The study was carried out in the Faculty of Sports Science, Medan State University. The research samples included language specialists, media experts, learning experts, and students from both small and big sample sizes. For a sample size of 20 students and a sample size of 75 students. The research utilised expert observation, interviews, and documentation as instruments. The development research utilised t-test analysis for data analysis. This study employs a qualitative technique. The research findings by language experts indicate that the language utilised in the media is highly suitable, achieving a total score of 81% with revisions. According to the first and second media experts, the media used received a total score of 83%, placing it in a highly suitable category for revision. Subsequent media specialists, the media chosen is suitable, receiving a total score of 90% in the highly feasible category. The learning method employed received a total score of 81% from the first and second experts, placing it in the extremely practicable category for modification. Secondary education specialist. The learning utilised a total score of 90% inside a highly achievable category. The small sample achieved a cumulative score of 79% in the relevant area through revision. Extensive samples achieve a 90% rating in the highly usable category. The study's conclusion is that the learning media utilised are highly practical. The results suggest that the learning materials used in this study are very effective and appropriate for their intended purpose. The findings indicate that the chosen learning techniques and resources are appropriate for attaining the intended learning goals.

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1. INTRODUCTION

Physical education, sport, and health are integral components of the overall restructuring of the national school system. The amount of improvement in physical, sports, and health education in educational institutions is crucial for fostering effective learning, as stated by Junaedi (2016). In addition, integrating physical education and sports into the curriculum can enhance kids' general well-being and academic achievement. Schools must prioritize these subjects to ensure a comprehensive approach to education.

Science and technology can primarily be acquired, applied, and developed through education. Whether in or out of a classroom, education encompasses all forms of learning and value acquisition (Weniati & Rochmawati, 2022). Research and practice build upon what is gained from a variety of sources in the scientific and technological communities (Aritonang & Safitri, 2021). Education forms and produces human resources that are powerful and vital for building themselves and their environment. Technology is a tool that people use to learn, both alone and in conjunction with other forms of education (Siregar & Ramadhani, 2021). Educators are under constant pressure to refine their methods of instruction in light of the era's dizzying pace of technological advancement. In order to meet students' competency requirements, educators must think outside the box while developing lesson plans and identifying appropriate learning resources (Burhanuddin, 2022). Incorporating technology into the classroom does double duty: it improves students' learning experiences and gets them ready for life in the digital world. Consequently, in today's technologically advanced society, teachers need to be flexible and creative to fulfil their students' ever-changing demands. In addition to improving the quality of instruction, incorporating technology into the classroom better equips students to thrive in the information age. Consequently, in today's technologically advanced society, teachers need to be flexible and creative to satisfy the demands of their students.

Traditionally, learning involves professors, academic pursuits, and texts. The information that students need to learn is found in the textbook, and it is the teacher's duty to provide this information to the students (Budiyono Saputro, 2020). Learning is now seen as a systematic method of giving resources to facilitate the learning process in students. Learning is a discipline focused on enhancing and refining the process of acquiring knowledge. The primary objective is to provide the most effective techniques to promote initiative and support learning.

Learning is the process of organising the external environment to assist student learning. Environmental management efforts are implemented via providing educational resources. Students can acquire knowledge from a multitude of sources beyond just lecturers, such as experts, practitioners, peers, the community, academic publications, media, and online resources (Suwarti et al., 2022). These diverse sources provide students varying viewpoints and knowledge that might enhance their educational journey. Students can enhance their comprehension and cultivate critical thinking abilities by using a variety of materials.

Strategy is typically defined as a plan of action designed to attain specific goals. Strategies in teaching and learning refer to the overall patterns of activity between teachers and students aimed at achieving specific educational objectives. There are four fundamental strategies in teaching and learning: (1) Defining criteria and qualifications for desired changes in students' behaviour and personality. (2) Selecting a teaching and learning approach system based on societal objectives and perspectives (Jamaluddin et al., 2018). Choosing the most suitable and effective procedures, methods, and techniques for learning and teaching to guide teachers in their teaching activities, and setting standards for success to evaluate teaching and learning outcomes, providing feedback for improving the instructional system (Sitepu et al., 2019).

Most people think of learning as something that happens to people as a result of their experiences rather than as something that happens naturally to their bodies or traits from birth (Trianto, 2012). Interactions between students, teachers, and learning materials in a classroom constitute the learning process. Educators facilitate learning when they offer their pupils the resources they need to learn new information, develop their character, and build their attitudes and beliefs. Rosdiani (2013) states that

knowledge, abilities, and values can be gained through a variety of means, including instruction, observation, and experience; this is known as learning. If people want to get the most out of their educational experience, they need to be actively involved in learning.

In Pardede's (2012) view, blended learning combines the benefits of online learning with traditional learning to create a more interactive and innovative educational experience. Blended learning was initially coined to refer to courses that aimed to integrate in-person and online learning. As the term blended gains popularity, an increasing number of combinations are being labelled as blended learning. Within research methodology, the concept of mixing refers to blending quantitative and qualitative research. Some argue that learning involves combining different approaches, as suggested by Sari et al. (2023). Blended learning can also involve a mix of self-paced and instructor-led activities, providing flexibility for students. This approach allows for a personalized learning experience that caters to various learning styles and preferences.

Dwiyogo (2017) mentioned that blended learning can enhance the learning process by providing various resources for individuals to develop their skills. Blended learning involves integrating traditional classroom instruction with online learning activities. This indicates that incorporating technology into learning involves a mix of traditional face-to-face instruction and digital resources accessible on various devices like computers and mobile phones (Aqib, 2013). Blended learning aims to offer students the chance to learn independently, consistently, and grow throughout their lives.

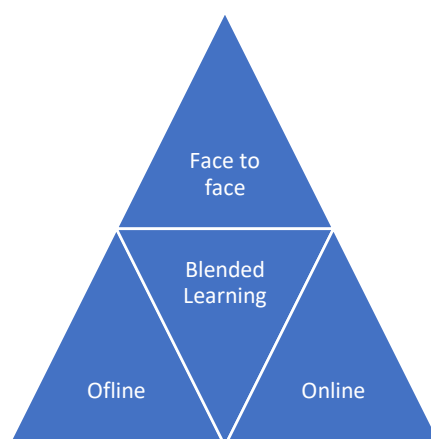


Figure 1. Learning Components Based on Blended Learning

According to Hanief (2016), gymnastics is a structured form of physical exercise that offers numerous benefits to individuals who engage in it, helping them reach their fitness goals. The handspring movement involves a dynamic technique where the body is positioned in a handstand with the pelvis extended forward, creating an arched shape, and landing on both feet at the same time. (Dodik et al., 2018). Gymnastics involves flexibility and coordination among the limbs. There are three types of gymnastics: basic, agility, and rhythmic, as mentioned by Prasetyo (2020). Agility gymnastics can be performed with or without equipment. Exercises done without equipment are referred to as floor exercises, while exercises involving tools are known as tool exercises. When it comes to floor gymnastics, there are different types of movements involving bending, twisting the body, and maintaining balance (Prasetya, 2016).

One branch of the gymnastics family is floor exercise. As the name suggests, this workout mostly consists of floor-based motions and forms. According to Nugraheni (2019), the floor or mattress is the implement in question. "Movement exercises with various variations of movements, including forward rolls, backward rolls, elastic rolls, tiger jumps, cartwheels, and hand elastics" are what floor exercises are described as by Sari et al. (2016). When doing a back roll "rolling backwards, the position of the body must still be rounded, namely the legs are folded, the knees remain attached to the chest, the head is lowered

until the chin is attached to the chest." Since proper execution of floor exercises requires focus and concentration, they are good for both physical and mental health. Along with relieving tension and increasing flexibility, strength, and coordination, these exercises are great for general well-being.

In this digital age, it is essential to produce new forms of instructional media to pique students' interest and inspire them to actively participate in their own learning. Students will have a much easier time understanding lessons according to the current curriculum if physical education, sports, and health teaching media are developed using applications found in smartphones, which are a trait of the current generation and can be carried anywhere. The goal of this research is to create integrated learning materials for floor gymnastics that are based on android applications.

2. METHODS

This study was a form of research and development (R&D). In Sugiono's (2011) study, the R&D research method involves 10 stages: Preliminary Study, Research Planning, Initial Product Development, Initial (Limited) Field Trials, Revision of Limited Field Test Results, Wider Field Trials, Revision of Field Test Results, Due Diligence, Revision of Due Diligence Results, and Dissemination of the Final Product. This method is used to create specific products and evaluate their effectiveness. The research was conducted at the Faculty of Sports Science, Medan State University by A. Y. S. Siregar and Widowati in 2022. The time of day The research was conducted for one semester, specifically from April to June 2021. The study population consisted of 155 students enrolled in the Physical Health and Recreation Education Study Programme, specifically pursuing volleyball courses from classes A, B, C, D, and E. The research sample consisted of 75 students selected using random sampling technique. The small sample consisted of 20 students, the large sample included 55 students, and the comparative sample comprised 30 students. There were six individuals in the sample group consisting of media experts and floor exercise material experts.

Research and development strategies are utilised to create specific items and evaluate their efficacy. Research involving requirements analysis is utilised to create specific goods and to assess their performance for broader societal use, necessitating a longitudinal development process spanning multiple years (Sugiono, 2011). The term "research and development" (R&D) is synonymous with the "development research" method. instructional research involves developing and validating instructional goods. Research and development is a methodical process aimed at creating a new product or enhancing an existing one, as stated by Albiladi and Alshareef (2019).

The data utilised in this blended learning study were qualitative, as they were presented in phrases rather than numerical values. Quantitative data is derived from qualitative data through a process of assigning numerical values to the qualitative information. The research data was collected via a questionnaire consisting of closed statements that required short answers or the selection of one alternative answer from a list of statements. This method facilitated a more organised process for collecting data and evaluating the outcomes. The study utilised both qualitative and quantitative data to offer a thorough comprehension of the efficacy of blended learning in this specific situation.

3. FINDINGS AND DISCUSSION

3.1 Language Expert Test

3.1.1 Language Expert Test (First)

Linguists collected data on language usage in the video, finding 82% feasibility, 78% proper layout, 85% correct pronunciation, and 80% suitable tone. The language utilised in the media is very practical, achieving a total score of 81% with revisions (Suryadani et al., 2022). The wording in the video is deemed effective and well-received by viewers. It also indicates that enhancements can be implemented in specific areas to improve communication effectiveness.

Table 1. Language Expert Test 1

Linguist Assessment Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Use of language in the Video	245	300	82%	Very appropriate
2	Language layout settings	235	300	78%	Appropriate
3	Language Pronunciation in Videos	255	300	85%	Very appropriate
4	Language tone	241	300	80%	Appropriate
Total		976	1200	81%	Very appropriate

3.1.2 Language Expert Test (Second)

Table 2. Language Expert Test (Second)

Linguist Assessment Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Use of language in the Video	1080	1200	90%	Very appropriate
2	Language layout settings	1056	1200	88%	Very appropriate
3	language pronunciation	1078	1200	90%	Very appropriate
4	Language tone	1097	1200	91%	Very appropriate
Total		4311	4800	90%	Very appropriate

From the data collection carried out on linguists with the indicator of the use of language in the video with a percentage of 90% is categorized as very appropriate, language layout settings are 88% categorized as very feasible, language pronunciation in videos is 90% categorized as very feasible, language tone is 91% categorized as very feasible. Then, the media with the language used is categorized as very feasible, with a total score of 90%. Overall, the linguists rated the language used in the video as highly appropriate and feasible across various aspects. This indicates a strong level of proficiency and effectiveness in communication through language in the media.

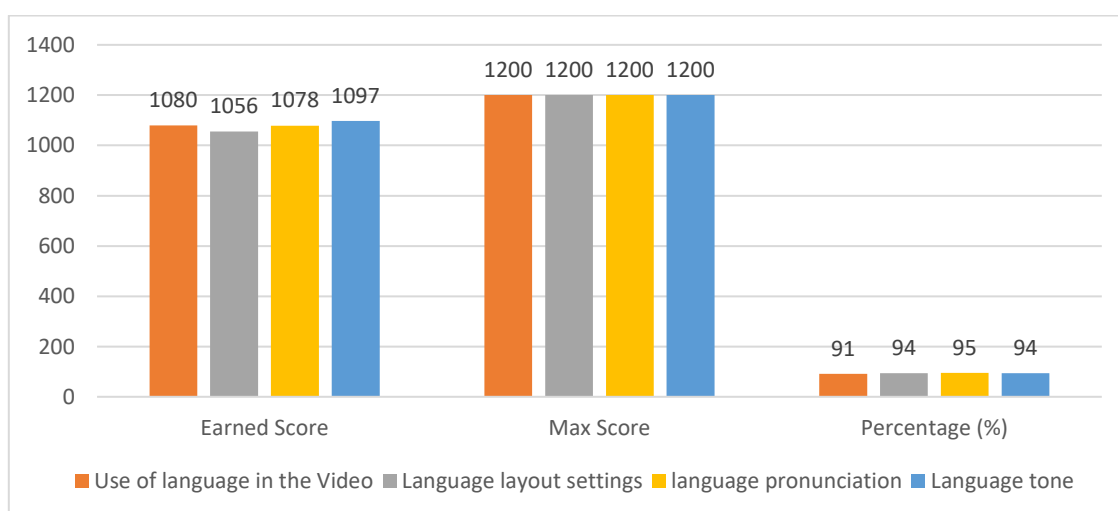


Figure 2. Language Expert Test (Second)

3.2 Media Expert Test

3.2.1 Media Expert Test (First)

Table 3. Media Expert Test (First)

Media Expert Test Questionnaire Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Video view	255	300	85%	Very appropriate
2	Slow motion display	245	300	82%	Very appropriate
3	Lighting	251	300	84%	Very appropriate
4	Voice	241	300	80%	Appropriate
Total		992	1200	83%	Very appropriate

Media experts collected data on the language, video display, slow-motion display, lighting, and voice in the video. The video display was rated as very appropriate at 85%, slow-motion display as feasible at 82%, lighting as very feasible at 84%, and voice as very feasible at 80%. The media with a total score of 83% falls into a very viable category for correction. The audience has clearly responded well to the media elements overall. Some slight modifications may be necessary to improve the video presentation's efficacy.

3.2.2 Media Expert Test (Second)

Table 4. Media Expert Test (Second)

Media Expert Test Questionnaire Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Video view	1085	1200	90%	Very appropriate
2	Slow motion display	1078	1200	90%	Very appropriate
3	Lighting	1078	1200	90%	Very appropriate
4	Voice	1100	1200	92%	Very appropriate
Total		4341	4800	90%	Very appropriate

Media experts collected data on language use in the film and rated the feasibility of video display, Slomotion Display, Lighting, and Voice at 90% or above. The media utilised is deemed practicable, achieving a total score of 90% and falling into the very decent category (Faridah & Nugroho, 2022). The high feasibility ratings in many areas of the video production suggest a high probability of success in captivating the viewers. The findings indicate that media specialists have successfully employed language, video display, lighting, and voice to produce a persuasive and powerful video.

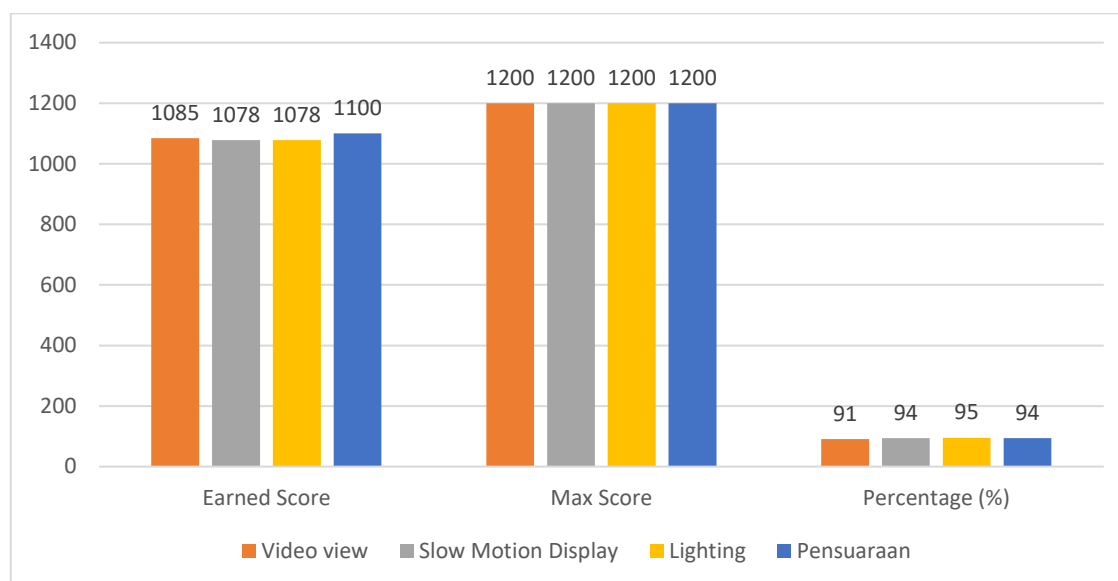


Figure 3. Media Expert Test (Second)

3.3 Learning Expert Test

3.3.1 Learning Expert Test (First)

Table 5. Learning Expert Test (First)

Basic Gymnastics Learning Expert Questionnaire Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Learning methods	247	300	82%	Very appropriate
2	Assignment	245	300	82%	Very appropriate
3	Evaluation	239	300	80%	Appropriate
4	Assessment method	241	300	80%	Appropriate
Total		972	1200	81%	Very appropriate

Data collection was carried out by learning experts with indicators of Learning Methods with a percentage of 82% very feasible, Assignments 82% feasible, Lighting Evaluation 80% feasible, Assessment method 80% worthy (Destiawan & Adi, 2021). Then, learning used a total score of 81% with a very feasible category with revision.

3.3.2 Learning Expert Test (Second)

Table 6. Learning Expert Test (Second)

Basic Gymnastics Learning Expert Questionnaire Results					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Learning methods	1078	1200	90%	Very appropriate
2	Assignment	1077	1200	90%	Very appropriate
3	Evaluation	1078	1200	90%	Very appropriate
4	Assessment method	1100	1200	92%	Very appropriate
Total		4333	4800	90%	Very appropriate

From data collection carried out to learning experts with indicators of Learning Methods with a percentage of 90% very feasible, Assignment 90% Very feasible, Lighting Evaluation 90% Very feasible, Assessment method 92% very feasible. So, the learning used is a total score of 90% with a very decent category (Kurniawan & Hasan, 2021).

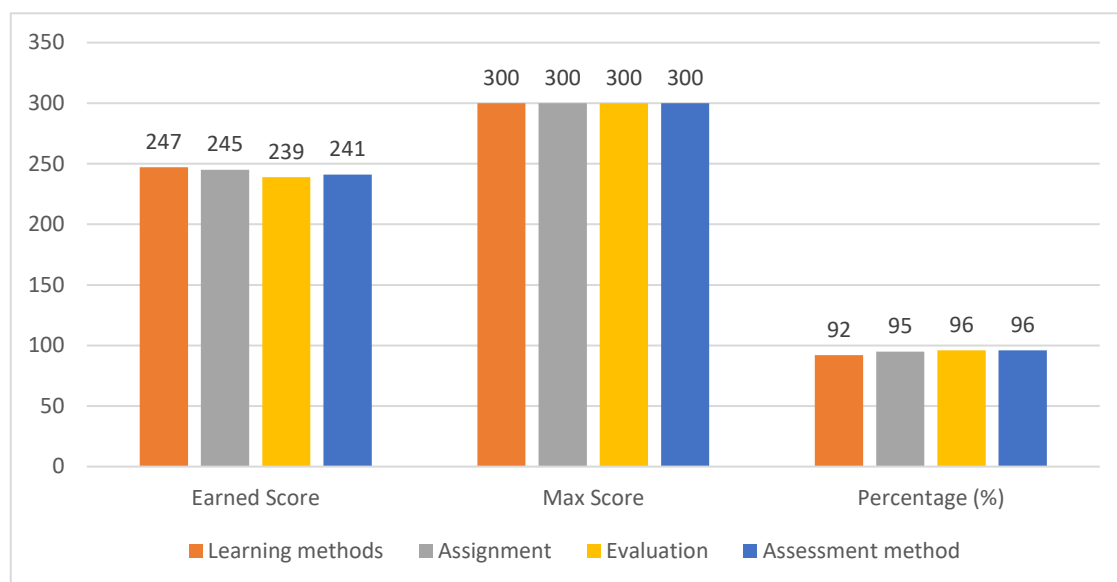


Figure 4. Learning Expert Test (Second)

3.4 Small Sample

Table 7. Small Sample

Results of a Small-Scale Trial Questionnaire Conducted by CLASS F Basic Gymnastics					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Roll forward and back	235	300	78%	Appropriate
2	Meroda and the round of	237	300	79%	Appropriate
3	Forward and back somersaults	235	300	78%	Appropriate
4	Back Handspring and Tiger Jump	241	300	80%	Appropriate
Total		948	1200	79%	Appropriate

Data was collected from small samples using forward and backward roll indicators, with a success rate of 78% for Meroda and round, and 79% for front and back flips. Back Handspring and Tiger Jump have an 80% success rate. The media used is considered practicable with a total score of 79% falling under the feasible category after revision. Overall, the data suggests that the chosen media is effective in conveying the desired message to the target audience. However, some minor adjustments may be needed to further improve its impact and reach.

3.5 Large Sample

Table 8. Large Sample

Results of a Small-Scale Trial Questionnaire Conducted by ABC CLASS Basic Gymnastics					
No	Rated aspect	Earned Score	Max Score	Percentage (%)	Category
1	Roll forward and back	1080	1200	90%	Very appropriate
2	Meroda and round of	1056	1200	88%	Very appropriate
3	Forward and back somersaults	1078	1200	90%	Very appropriate
4	Back Handspring and Tiger Jump	1100	1200	92%	Very appropriate
Total		4314	4800	90%	Very appropriate

Data was collected from small samples showing a 90% success rate for forward and backward rolls, 88% for Merodas and rounds, and 90% for front and back flips. Back Handspring and Tiger Jumping have a success rate of 92%. The media employed was deemed suitable, receiving a total score of 90% in the Very Feasible category according to Nurrochmah (2023). The results indicate a high level of proficiency in various gymnastic skills among the participants. These findings suggest that the teaching methods and media used were effective in facilitating skill acquisition.

4. CONCLUSION

The media language is highly accessible, achieving a total score of 81% with changes. The second linguist demonstrated a high level of proficiency in the language used, achieving a total score of 90%. Two media specialists rated the medium as highly suitable for revision, giving it a total score of 83%. Subsequent media specialists The media chosen is suitable, receiving a total score of 90% in the highly feasible category. Primary and secondary learning experts: Learning achieved a total score of 81%, falling within the doable category with room for adjustment. Advanced secondary education Learning achieved a total score of 90% in a very achievable category. The questionnaire distributed to a small sample received a total score of 79% and falls inside the relevant category upon review. The questionnaire distributed to a large sample received a total score of 90%, placing it in the Very Eligible category. The media produced is highly usable due to the treatment provided to language experts, media experts, learning experts, and various sample sizes. Teaching staff can utilise this media for learning floor gymnastics subject. Future scholars are encouraged to conduct additional research to enhance learning media.

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