

Development of Electronic Step-Game-Based Physical Fitness Learning Media for the Child With Special Needs

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ABSTRACT

The aim of the research is to produce a new product in the form of Electronic Step-Game learning media for children with special needs. This study uses the Instructional Development Institute (IDI) model by using 5 steps. Place of research carried out in the Faculty of Sports Science. The samples for this study were media experts, physical fitness experts, and adapted physical education course lecturers. This research instrument was carried out by interviewing and filling out questionnaires by experts. Research results Expert Test 1 (First). Electronic step-game-based physical fitness learning media experts, from the distribution of statements, and questionnaires given to media experts from indicator four, obtained an average total indicator of 84% with the category very feasible to use. Physical fitness experts from the four indicators, an average total of 81% of the indicators is obtained with the category very feasible to use. Determination experts for adapted physical education from the four indicators obtained a total average of 85% for all indicators with the category very suitable for use. Expert Test 2 (Second) Electronic step-game-based physical fitness learning media experts, from the distribution of statement questionnaires given to media experts, it was obtained an average total indicator of 90% with the category very feasible to use. Physical Fitness Experts obtained an average total indicator of 95% with a very suitable category for use. Determination experts for adapted physical education obtained an average total indicator of 90% with the category very suitable for use. The conclusion from this research is that the products created are fit for use by children with special needs.

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1. INTRODUCTION

Physical Education, Sport and Health are basically part of the reconstruction of the national education system as a whole. In this case the level of progress in Physical, Sports and Health Education in education units has a very important role to create effective learning and goes well (Junaedi, 2016). Physical, Sports and Health Education treats students as a unified whole, social beings, from to regard him as a separate person in his physical and mental qualities (Kurniawan et al., 2022). Physical

Education, Sports, and Health of course there are 2 processes of physical activity. Physical activity is a process for students to improve functional values such as cognitive, affective, and social and also improve motor skills, so that children can grow and develop properly and normally (Pamungkas & Dwiyo, 2020). Physical Education, Sports, and Health play a crucial role in promoting holistic development among students by focusing on both physical and mental well-being. By engaging in physical activities, students not only enhance their motor skills but also improve cognitive, affective, and social aspects essential for their overall growth and development.

In general, children have the right and opportunity to develop properly and normally according to their potential, this is reinforced by the decision of the State Minister for Women's Empowerment and Child Protection of the Republic of Indonesia Number 5 of 2011 concerning the policy of fulfilling children's right to education, the first point is that every child has the right to education and teaching in the context of personal development and level of intelligence in accordance with their interests and talents (Utomo et al., 2020). Someone who is physically and intellectually normal will undergo general education according to regulations made by the government, while children who have intellectual and physical deficiencies are sometimes underestimated by others. In terms of education, it is also known as children with disabilities or children with special needs. Children with special needs are children whose condition and growth experience deviations in terms of physical, mental, social, and emotional (Dwianti et al., 2021).

Children with special needs differ from typically developing children in terms of physical fitness development. Various obstacles contribute to the low physical fitness levels of children with special needs. An example of a child with special needs is a child with intellectual disabilities. Children with mental retardation face challenges in motor development due to deficits in cognitive and motor abilities affecting the coordination of fine and gross motor movements during activities (Mukhlis et al., 2020). Educational Research and Development (R&D) is a procedure utilised for creating and confirming the effectiveness of educational products (Arief et al., 2021). The process is commonly known as the R&D cycle, involving studying research findings, developing a product, field testing it, and revising it to correct any deficiencies. Discovered during the test submission step (Kemal, 2020). In more thorough research and development programmes, this process is repeated until field-test data shows that the product satisfies the specified behavioural goals (Wijaya & Kanca, 2019). Research and development methodologies are extensively utilised in the disciplines of Natural Sciences and Engineering. Most technological products encompass electrical devices, motorised vehicles, aeroplanes, ships, weaponry, pharmaceuticals, medical devices, and more. Development research can also be applied in social sciences including psychology, sociology, education, management, and other related subjects (Ayu, 2018). Research and development utilise descriptive, evaluative, and experimental methodologies. The descriptive technique is utilised in preliminary research to gather data on current conditions, whereas the evaluation method is employed to assess the trial phase of product development. Product development involves conducting a series of experiments using an experimental approach to assess the capabilities of the final product.

Media is any tool that can convey messages to facilitate the initiation of a work process. Media is a blend of hardware and software that can be utilised for communication, including messages, individuals, materials, tools, procedures, and the environment. The media's benefits include enhancing the clarity of message delivery. 2) Surpass the constraints of space, time, and memory. 3) Objects vary in size, ranging from huge to little. Motion can vary in speed, being either fast or slow. 5) Previous occurrences. Elaborate item. 6) Complexity can vary in scope from broad to narrow. 7) Conquer the inherent characteristics of the players. 8) Establishing a shared experience, when the participants' viewpoints vary (Zainal Aqib, 2013). The media is essential for improving communication by offering multiple methods to efficiently deliver messages. It enables the clear and engaging display of information, accommodating various learning styles and preferences. Moreover, media has the ability to cultivate a collective experience among participants, enhancing comprehension and bonding among persons engaged in the communication process.

Physical fitness involves a range of physical attributes that impact one's ability to engage in physical activities (Endang Rini Sukanti, 2016). In addition to being translated as physical fitness, Physical Fitness can also be expressed in other terms such as physical ability and physical well-being. Throughout its evolution, the term physical fitness has emerged as the most widely used translation for Physical Fitness. Simply put, physical fitness refers to being physically fit or suitable. Fit can also refer to being in good health, so fitness can be synonymous with health (Ardilla et al., 2021).

Fitness as physical appropriateness is the starting point for this paper's discussion of the topic. What this means is that the kind or degree of the task at hand necessitates a certain level of physical fitness in order to be physically feasible. One definition of physical fitness is the degree to which one's current state of physical health permits the performance of physically demanding activities (Anwar, 2018). This indicates that specific physical abilities are necessary for performing certain types of work.

This definition still requires further elaboration, especially in relation to certain physical requirements that are: Anatomical (Structural). Physiological (Functional) (Giriwijoyo & Sidik, 2010) : 1) Temperature; 2) Humidity; 3) Altitude; 4) the nature of the terrain, and/or physical tasks. Various forms of activity and physical workload (intensity), physiologically, namely: the body's organs function within normal limits, efficiently, and there is no excessive or cumulative fatigue. had fully recovered before the same task came the next day. Based on the cause, children with special needs can be grouped into two, namely temporary and permanent disorders. Permanent disorders come from birth or genetics, while temporary disorders occur due to the environment, such as natural disasters, and accidents (Mahfud, 2022).

Mental retardation itself can be classified into four, namely mild mental retardation with an IQ of 10-55, moderate mental retardation with an IQ of 55-40, severe mental retardation with an IQ of 40-25, and very severe mental retardation with an IQ <25. That is, mental retardation refers to general intellectual functioning that is significantly below average along with a lack of behavior in adjustment and lasts during its development period. To support the development of elderly children in the cognitive, affective, and psychomotor domains, special education is needed according to their needs (Yanni et al., 2020) .

Technology and communication (ICT) have a substantial impact on developments across different aspects of people's life. Computers and the internet are key technology driving advances in education. The discipline has undergone significant transformations since the information era began. Technological integration enhances the efficacy and efficiency of human activities, fostering many innovations in society. We consistently strive to stay updated on advancements in communication technology, considering it a primary necessity for the family (Prawiradilaga, 2013).

The advent and utilisation of technology in the current era represent a notable advancement that impacts education, specifically the lecture delivery. Education is evolving due to the prevalence of information technology, necessitating educators to enhance their methods, abilities, creativity, and innovation to facilitate students in reaching learning goals effectively (Angga et al., 2020). Learning using electronic media. E-learning, short for Electronic Learning, is education given using electronic media connected to the Internet (World Wide Web) and Intranet, linking computer units worldwide and within a company. Having a computer with an Internet connection enables you to engage in e-learning. The number of students that can participate in online learning is not restricted by the size of the classroom, allowing for a greater potential participation compared to traditional classroom settings (Elyas, 2018). E-learning provides students with the flexibility to access educational resources at their convenience, regardless of time and location. Furthermore, it encourages self-directed learning and customised education to meet specific needs.

Utilising technology in education to create effective learning tools involves developing interactive and innovative software/applications on a PC or laptop to facilitate the teaching and learning process. Android is a touch-based operating system designed for mobile devices such as cellphones (Ricky, 2021). It is important for educators to adapt to the use of technology in order to engage students and enhance their learning experience. By incorporating interactive software and applications on devices like PCs and laptops, students can have access to a variety of resources that cater to different learning styles.

2. METHODS

2.1 Research methods

The research methodology employed in this study is Research and Development (R&D). Research and development is a method used to create specific items and evaluate their efficacy. Conducting a requirements analysis research is essential to develop specific goods and evaluate their performance for broader community use, as indicated by Cahyaningtias & Ridwan (2021). This research utilizes the Instructional Development Institute (IDI) model, which comprises stages such as determination, development, and evaluation.

2.2 Place and time of research

The research location will be held at the Faculty of Sports Science, Medan State University. This research is planned for April-August 2023.

2.3 Population and samples

The population is a generalization area consisting of objects or subjects that have certain quantities and characteristics determined by researchers to be studied and then concluded. According to (Sugiono, 2007) sample is part of the population. In accordance with the opinion above, the population and sample in this study were learning experts, physical fitness experts, adapted physical education lecturers, and physical education experts.

2.4 Research Instruments

Data collection methods used in research this development is to use the questionnaire method with data collection instruments in the form of questionnaires or questionnaires. The questionnaire is a data collection technique that is carried out by giving a set of written questions to the respondent to answer.

2.5 Research design

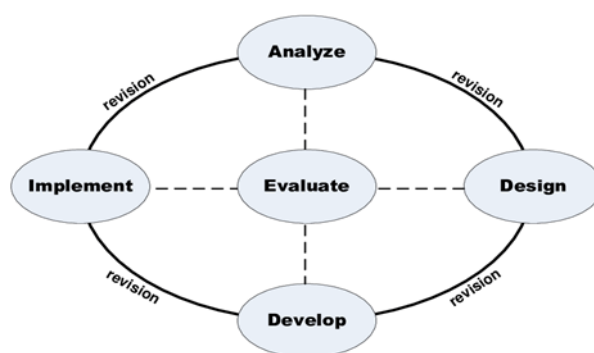


Figure 1. Research Design

The research design uses the ADDIE development research model as the name implies, which is a model that involves the stages of model development with five development steps/phases including Analysis, Design, Develop, Implement, and Evaluate. (Evaluation). The ADDIE model was developed by Dick and Carry in 1996 to design systems (Omega et al., 2021).

3. FINDINGS AND DISCUSSIONS

3.1 Expert Test 1

3.1.1 Learning Media Expert

In distributing a questionnaire to see the usefulness and usefulness of the tool for children with special needs by learning media experts, it can be concluded that from the indicator of interest in the

design of the tool to be used, a percentage of 85% is obtained with the category very suitable for use. From the indicator arrangement of symbols in physical fitness equipment, a percentage of 80% is obtained with a very suitable category for use (Rohayati et al., 2019). From the safety indicator for the tool to use, a percentage of 80% is obtained with the very proper category to use. From the indicator of ease of use of the tool, a percentage of 80% is obtained with the category very feasible to use. The conclusions from the step-game electronic-based tool media expert can be used for improvement.

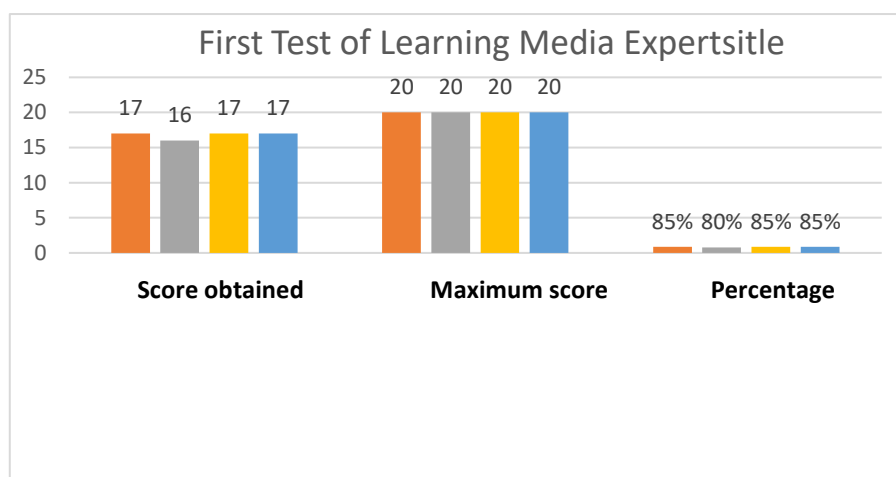


Figure 1. The First Test of Learning Media Experts

3.1.2 Physical Fitness Expert

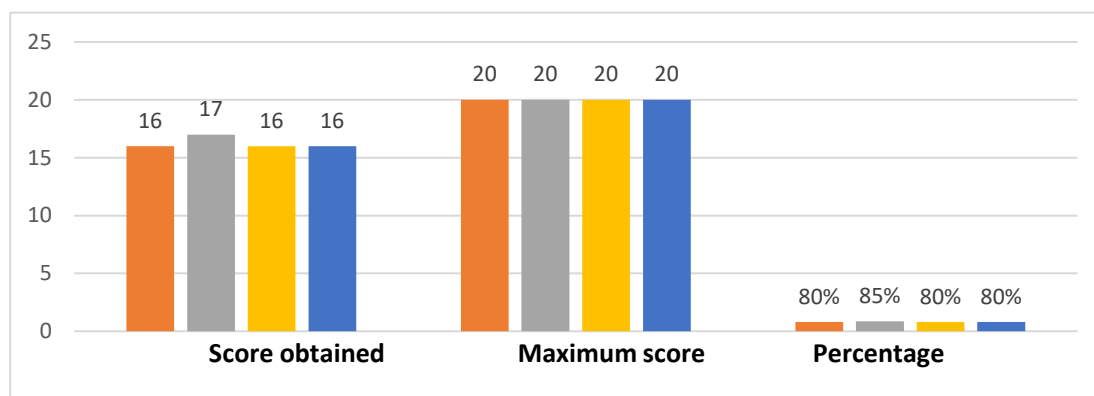


Figure 2. First Test of a Physical Fitness Expert

In distributing a questionnaire to see the usefulness and usefulness of the tool for children with special needs by physical fitness experts, it can be concluded that from the Interest indicator for the design of the tool to be used, a percentage of 80% is obtained with the category very suitable for use. From the indicator of the arrangement of symbols in physical fitness equipment, a percentage of 85% is obtained with a very suitable category for use. From the safety indicator for the tool to use, a percentage of 80% is obtained with the very proper category to use. From the indicator of ease of use of the tool, a percentage of 80% is obtained with the category very feasible to use. Conclusions from physical fitness experts with a total of 81% are very feasible to use (Elmunsyah et al., 2018) . Overall, the physical fitness equipment seems to be highly recommended for use based on various indicators. The experts' conclusion further supports the suitability of the equipment for users.

3.1.3 Provisional Expert for Adapted Physical Education

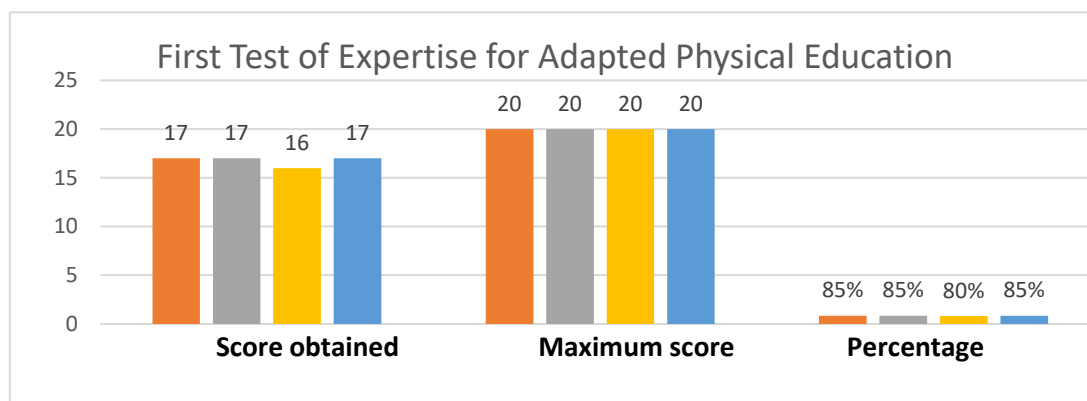


Figure 3. The First Test of Expertise for Adapted Physical Education

In distributing a questionnaire to see the usefulness and usefulness of the tool for children with special needs by a Provisions expert for adapted physical education, it can be concluded that from the Adapted tool indicator for children with special needs, a percentage of 85% is obtained with a very suitable category for use. From the indicator of representation of tool adaptation to crew members, a percentage of 85% is obtained with a very suitable category for use. From the indicator of achievement of physical fitness to adaptation, a percentage of 80% is obtained with a very suitable category for use. From the indicators of accuracy, safety, and comfort, a percentage of 80% is obtained in the category very suitable for use (Mulyati, 2021). The conclusion from physical fitness experts with a total of 84% is very feasible to use. Overall, the tool's performance in terms of representation, physical fitness achievement, accuracy, safety, and comfort is rated highly suitable for use by experts. This indicates that the tool is well-adapted for crew members and meets the necessary criteria for effective use.

3.2 Expert Test 2 (After Repairing)

3.2.1 Learning Media Expert

After distributing a questionnaire to learning media experts to assess the usefulness of a tool for children with special needs, it was found that 95% rated the design of the tool as very suitable for use. An indicator arrangement of symbols on physical fitness equipment yields a 90% rating, indicating a highly favourable category for use. The safety indication for the tool shows a 90% rating, indicating that it is quite practicable to use. An ease of use indication for the instrument shows a 90% rating in the highly feasible area. The findings of the step-game electronic-based tool media expert can result in a 95% overall enhancement.

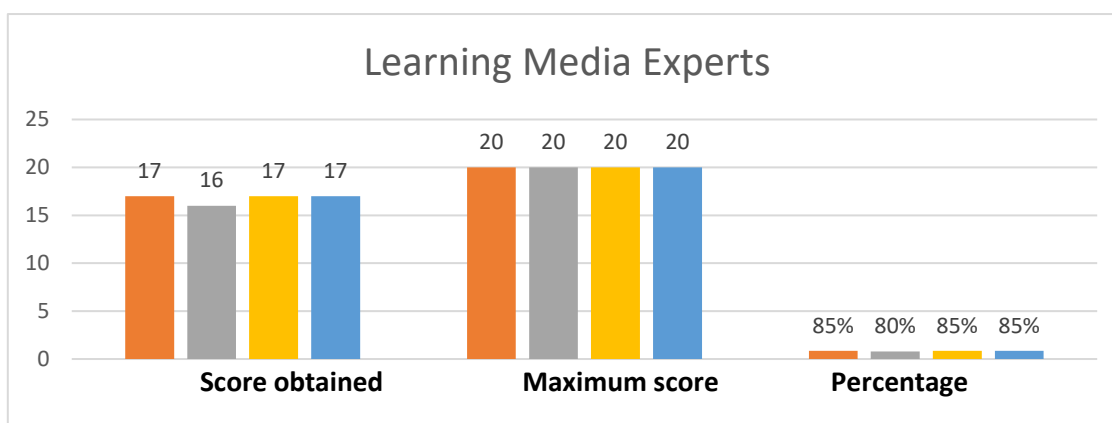


Figure 4. Test of the Two Learning Media Experts

3.2.2 Physical Fitness Expert

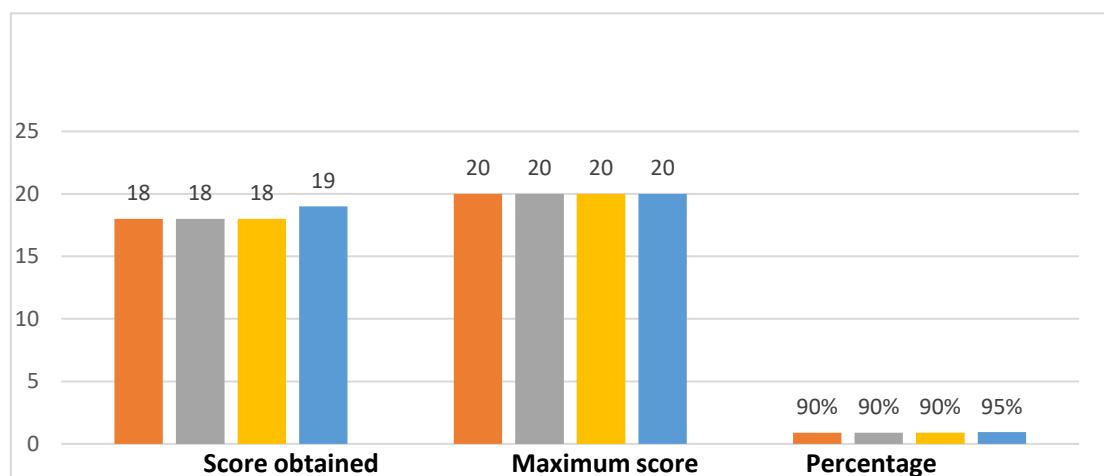


Figure 5. Test of the two Physical Fitness Experts

In distributing a questionnaire to see the usefulness and usefulness of the tool for children with special needs by physical fitness experts, it can be concluded that from the Interest indicator for the design of the tool to be used, a percentage of 90% is obtained with the category very suitable for use. From the indicator arrangement of symbols in physical fitness equipment, a percentage of 95% is obtained with a very suitable category for use. From the safety indicator for the tool to use, a percentage of 90% is obtained in the very feasible category (Widyatmoko, 2019) . From the indicator of ease of use of the tool, a percentage of 80% is obtained with the category very feasible to use. Conclusions from physical fitness experts with a total of 91% are very feasible to use. Overall, the physical fitness equipment is rated as very suitable for use based on various indicators, including safety, ease of use, and expert opinions. The high percentages obtained in each category suggest that the equipment is well-designed and user-friendly for individuals looking to improve their physical fitness.

3.2.3 Provisional Expert for Adapted Physical Education

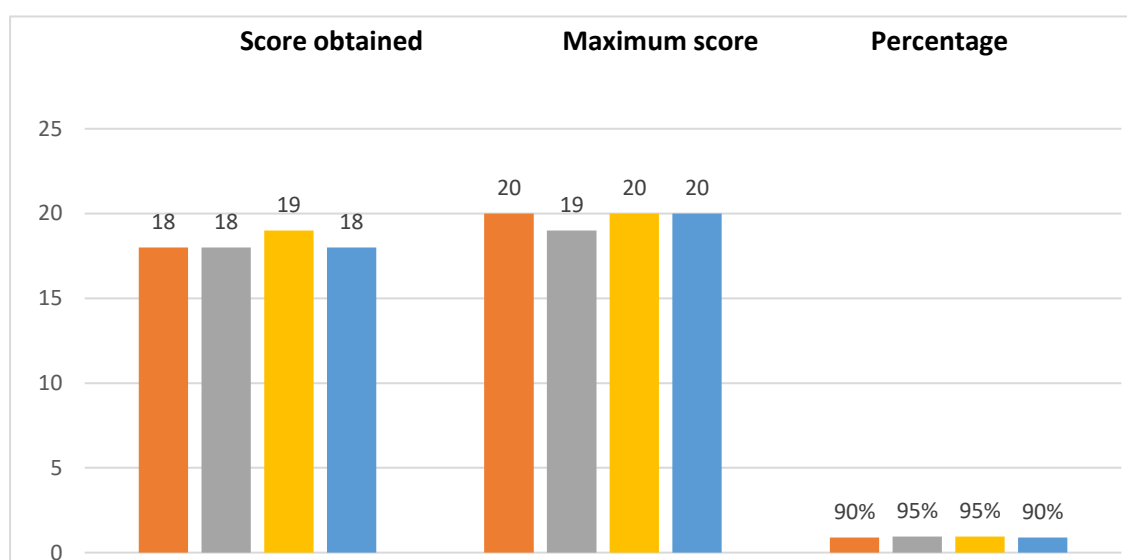


Figure 6. Test of the Two Experts for Adapted Physical Education

After a Provisions expert in adapted physical education administered a survey to assess the tool's usability and utility for special needs students, the results showed that 90% of students fell into the "very suitable" category on the Adapted tool indicator. With a 90% success rate in the tool adaption representation indicator, crew members are in an ideal situation for using the instrument. An impressive 95% falls into the "very suitable" category according to the criterion of achieved physical fitness for adaption (Meriyati et al., 2019). The indication for comfort and safety yields a value of 95%, classifying it as extremely viable to use. The 92% consensus among fitness professionals indicates that these findings are very applicable. In general, the study demonstrates that crew members' physical fitness and tool adaptation are highly effective, and that safety and comfort are also assessed as very feasible. With a high percentage suggesting acceptability for use, the experts' conclusions further reinforce the program's success.

4. CONCLUSION

Experts in physical fitness learning media achieved an average total score of 84%, indicating that the area is very usable. The survey of questionnaires distributed to Physical Fitness Experts revealed an overall average of 81% across all variables, indicating that the category is very suited for use. The statement questionnaires distributed to the Prosecutor Experts revealed an overall average of 85% across all variables, indicating a high level of feasibility. Physical fitness learning media professionals achieved an average total score of 90%, indicating that it is very feasible to use. The survey distributed to Fitness Experts revealed that the overall average of all parameters was 95%, indicating that the category is highly viable for use. The survey questionnaires distributed to professional evaluators in adapted physical education revealed an overall average of 90% across all categories, indicating a very high level of suitability. The experts in electronic step-game-based physical fitness learning media were highly user-friendly. The high average suggests that experts found the electronic step-game physical fitness learning media to be very useful and user-friendly. The good feedback indicates that the media could be an effective instrument for promoting physical fitness in school environments.

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