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Innovative roller-based physical fitness training media for enhancing motor skills in children with special needs

Nurhayati Simatupang[1*], Albadi Sinulingga[2], Indra kasih[3], Dicky Edwar Daulay[4], Samsuddin Siregar[5]
[1,2,3,4,5]Universitas Negeri Medan, Indonesia; nurhayati@unimed.ac.id (N.S.) father@unimed.ac.id (A.S.) indrakasih@unimed.ac.id (I.K.) dickydaulay@unimed.ac.id (D.E.D.) samsuddinsiregar@unimed.ac.id (S.S.)

Abstract: This study aims to evaluate the quality of roller-based physical fitness training media for children with special needs. This research was conducted at the State University of Medan, Faculty of Sports Science, in the Sports Science study program. The data collection was carried out using expert test sheets and questionnaires. This evaluation involved learning media experts, fitness experts, and language experts. In addition, this study also involved students to measure the practicality of the developed training media. This study found that the roller-based physical fitness training media for children with special needs, which were developed based on the results of expert tests, had met the criteria for training media, learning media, fitness training, language, and practicality. This can be seen from the results of the expert test, which showed that after going through two tests and one revision, the developed training media obtained a score of 90% for fulfilling media criteria, 95% for fulfilling learning media criteria, 91% for fulfilling fitness training criteria, 91% for fulfilling language criteria, 90% for fulfilling practicality criteria. Based on these results, it can be concluded that the developed roller-based physical fitness training media is ready to be used.

Keywords: *Fitness training, Learning media, Special needs children.*

1. Introduction

Education is an important part of human life that cannot be left behind. Another meaning of education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential (Chazan, 2022; Woenardi et al., 2022). Fulfillment of the right to obtain quality education is a measure of justice, equality of development results, and an investment in human resources needed to support the sustainability of national development.

Referring to the description above, education is also entitled to be obtained by children with special needs. Children with special needs have physical, emotional, mental, intellectual, and/or social disabilities and have the right to receive special education (Mason, 2010; Mudrick, 2002). Physical education, specifically for children with disabilities, is called adaptive sports education. Adaptive sports education is a comprehensive and comprehensive service delivery system designed to identify, find, and solve problems in the psychomotor domain (Carless et al., 2014; Tabaie et al., 2022). Adaptive sports education programs are tailored to the type and characteristics of student disabilities (Kwon & Block, 2017; Tabaie et al., 2022). This is intended to provide opportunities for students with disabilities to participate safely and successfully and gain satisfaction (Lape et al., 2018; Nayak et al., 2021; Yazicioglu et al., 2012). Adaptive sports education is not only aimed at developing students' physical abilities; through physical activities, other potentials are also developed, such as children's cognitive, affective, and psychomotor (Groff et al., 2009; Isidoro-Cabañas et al., 2023). Motor skills or basic movement skills are phenomena that are always inherent in children's ages. Motor skills develop along with the growth and development of children.

In Indonesia, the government is taking an approach by changing the education system to inclusive education as the basis for organizing education. Inclusive education is an education system that provides

* Correspondence: nurhayati@unimed.ac.id

a role for all students in a climate and learning process together without distinguishing between social, political, economic, ethnic, religious or belief backgrounds, groups, gender, physical or mental conditions so that schools are a miniature of society (Michailakis & Reich, 2009; Saka & Celik, 2024).

To support the Indonesian government program and to help children with special needs in the physical education learning process, learning media that suits the needs of children with special needs is important. Media can convey messages stimulating a work process (Gehlen-Baum & Weinberger, 2014). Media is a combination of tools (hardware) and materials (software) that can be used as messages, people, materials, tools, techniques, and environments (Abdulrahaman et al., 2020). Learning media is one method for overcoming problems in teaching, not only solving problems but also providing comprehensive information to students. Learning media are as can explain learning materials more simply, increase the relevance of students in the learning process, maximize all senses, guide students to be more independent in increasing insight, and provide the same information to all students (Haleem et al., 2022; Kandia et al., 2023; Nurhalimah & Azzahra, 2023). However, to ensure that the learning media can help students with special needs optimally, the learning media must be evaluated first (Molina et al., 2018; Sholihin et al., 2020). For this reason, this study aims to evaluate a roller-based physical fitness training media developed for children with special needs. It is hoped that with this evaluation, the media can be ensured to meet the specified criteria. So, later on, the media can help children with special needs to follow health and physical education learning better, improve their learning achievements, and at the same time, make them healthier.

2. Metode

This research is an evaluative research conducted to measure and improve the quality of the media developed. This research was conducted at the State University of Medan, Faculty of Sports Science, in the Sports Science study program. This research was conducted from February to June 2024. Following the objectives of this research, this research produced a roller-based physical fitness training media for children with special needs. Furthermore, the media was evaluated in terms of its suitability with the criteria for media, learning, fitness training, and appropriate language. For this reason, this research involved several experts in learning media, fitness training, and language. Data were collected using an expert test sheet to measure the percentage of fulfillment of the criteria for media, learning, fitness training, and language. In addition, data was collected using a questionnaire to measure the percentage of fulfillment of the practicality criteria. The questionnaire was distributed to 30 students categorized as children with special needs. Following the data obtained, the data was analyzed quantitatively to obtain a percentage for each expert test result and questionnaire for students with special needs.

3. Findings

3.1. Media Expert Test

The data collection conducted by media experts found that for the Media Development Objective indicator, the score was 85%, Media Safety for Children with Special Needs 85%, Tool Meaningfulness 80%, and Ease of Use 80%. So, from the first test with media experts, a mean score of 83% was obtained for a feasible category. However, even though it had reached a feasible value, the researcher revised the developed media according to the suggestions given by the media expert. After the revision, the media was tested again. The second media expert test results showed that the Media Development Objective indicator score was 85%, Media Safety for Children with Special Needs 90%, Media Meaningfulness 90%, and Ease of Use 95%. So, from the second test results, a mean score of 90% was obtained with a very feasible category.

3.2. Fitness Expert Test

From the data collection conducted by fitness experts, it was found that for the media Development Objective indicator from the fitness side, a score of 80% was obtained, the safety of exercises delivered on the media for children with special needs was 90%, ease of use of media to guide fitness exercises 80%. So, the media obtained a mean score of 83.3% with a feasible category. After that, the media was revised and resubmitted. The results of the second test by fitness experts showed that for the media

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Development Objective indicator from the fitness side, a score of 95% was obtained, the safety of exercises delivered on the media for children with special needs was 90%, the meaningfulness of the Tool 95%, ease of use of media to guide fitness exercises 85%. From the second test, a mean score of 91% was obtained with a very feasible category.

3.3. Language Expert Test

The data from media experts indicated that language usage for exercise movement guides had a score of 82%, text layout arrangement of 78%, font size of 85%, and suitability of font type in the guide of 80%. The first test's results obtained a mean score of 81% with a very feasible category. After being revised according to expert input, a second test was conducted, and from the second test, a value of 84% was obtained for the Language usage indicator for exercise movement guides with a score of 92%, Text layout arrangement with 93%, and suitability of font type in the guide 94%. Thus, a mean score of 91% was obtained from the second test with a very feasible category.

3.4. Practicality Test

From the data collection conducted on a small sample, 10 students with special needs, it was found that to develop media with a score of 78%, media safety for children with special needs, 79%, media meaningfulness, 78%, ease of use 80%. So, the media development is feasible, with a mean score of 79%. After the physical fitness teaching media for children with special needs went through a small-scale trial stage, the physical fitness teaching media for children with special needs was used in the learning process with 30 students. Students as respondents provided assessment responses to the physical fitness media based on aspects of media development objectives, media safety for children with special needs, tool meaningfulness, and ease of use. to see student responses to the use of teaching media. The results of the assessment of responses to physical fitness teaching media for children with special needs showed that from the media Development Objective indicator, a score of 90% was obtained, media safety for children with special needs 88%, Media meaningfulness 90%, and ease of use 92%. Thus, these results obtained a mean score of 90%, with a very feasible category.

4. Discussion

The results of the study showed that media testing by media experts in the first stage obtained an average score of 83% with the category "feasible." After revisions were made based on input from media experts, the second test produced an average score of 90%, included in the category "very feasible." This increase indicates that the revisions made succeeded in improving the quality of the media. The development of effective learning media must pay attention to learning objectives, ease of use, and the meaningfulness of the tool (Lusiana & Maryanti, 2020; Selviana & Ahmadi, 2024). This is in line with the results of this study, where improvements in the aspects of the meaningfulness of the tool and ease of use after revision indicate that the media has met these standards. Repeated evaluation in media development is important to ensure its relevance and effectiveness in the learning context (Tran-Duong, 2023).

Furthermore, the fitness expert test showed that the media obtained an average score of 83.3% in the first stage, included in the "feasible." After revision, the score increased to 91%, which was included in the category "very feasible." This increase mainly occurred in the indicators of the tool's meaningfulness and the media's ease of use. In instructional design theory, learning media must be designed to support the safety and meaningfulness of the material delivered (Susanti et al., 2022). Safety is essential for children with special needs because they need guidance specifically designed for them. Research by Gilbert (2019) also supports the importance of prioritizing safety in media used to support physical activity for children with special needs.

The results of the linguist test showed that after the revision, the average score increased from 81% to 91%, with significant improvements in the aspects of writing layout, font size, and font type suitability. These changes indicate that the revision improves readability and user comfort. According to Tomlinson (2012), exemplary grammar and visualization are crucial in learning media to facilitate

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understanding. Research by Gardner et al. (2024) and Louch and Ferguson (2024) also found that using appropriate fonts and attractive layouts can increase student engagement in learning.

The practicality test showed that on a small scale, the media scored an average of 79%, included in the "decent" category. After being implemented on 30 students, the average score increased to 90% with the category "very feasible." This increase indicates that students with special needs can receive the media on a larger scale. The acceptance of new learning media depends on the perception of ease of use and the benefits felt by the user (Scherer et al., 2019). The results of this study are consistent with this theory, where high scores on the indicators of ease of use and meaningfulness of the media reflect positive acceptance from students. The results of this study have important implications for the development of learning media for children with special needs. This media can be used effectively in physical fitness learning by improving the quality of safety, meaningfulness, and ease of use. As a recommendation, media developers are advised to continue to involve end users in the revision and evaluation process to ensure the media remains relevant and appropriate.

5. Conclusion

The study results indicate that the physical fitness learning media for children with special needs has experienced a significant increase in quality after the revision stage based on input from media, fitness, and language experts. This media is considered "very feasible," with an average score of 90% after retesting in all aspects, including development objectives, safety, meaningfulness, and ease of use. The limitation of this study is the focus on a limited trial scale on children with special needs in one particular environment, so the results may not fully represent the needs of children with special needs in other environments. In addition, this study has not explored the effectiveness of the media in the long term. Therefore, as a recommendation for further research, trials should be conducted on a broader and more diverse scale, and the impact of using this media on long-term learning outcomes should be examined.

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