Interactive Multimedia Based on Construct 2 with Basic Movement Material for Students in Inclusive Elementary Schools

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ABSTRACTS

Purpose: This research develops interactive multimedia based on Construct 2, focusing on Basic Movement Activity materials suitable for learning in inclusive elementary schools.

Materials and Methods: The study employs the Research and Development (R&D) method based on the Brog and Gall model, which consists of ten stages, ranging from needs analysis to mass production. The development process involved collaboration with media experts and material experts. The multimedia was tested on 77 Phase A students across two schools to evaluate its effectiveness and user-friendliness in learning. Effectiveness was assessed through observations, questionnaires, and teacher and student feedback. The evaluation results indicate that this interactive multimedia, developed using Construct 2, can significantly enhance understanding, engagement, and learning effectiveness.

Result: The trial results indicated that 95% of the students provided positive feedback. This multimedia resource enhances students' understanding of Basic Movement Activity content while offering an interactive, innovative, and engaging learning experience. Before the introduction of multimedia, students, especially those with special needs, struggled to understand and apply basic movements. However, after incorporating interactive multimedia into their learning, there was a significant improvement in their understanding of concepts, student engagement, and motor skills. Additionally, the multimedia tools proved to be more engaging and motivating for students throughout the learning process.

Conclusion: Additionally, it supports the development of students' cognitive, psychomotor, and affective skills. Despite its effectiveness, this free Construct 2 software has some limitations, notably regarding layer variations. Overall, this multimedia is an innovative solution for teaching basic movement activities in inclusive primary schools, with potential for further enhancements.

Keywords: Interactive multimedia; Construct 2; Basic movement activities; Inclusive school.

INTRODUCTION

Inclusive schools are designed to provide educational services to all students, including those with special needs or disabilities, allowing them to learn alongside their peers (Darma et al., 2015). Inclusive education supports individual growth and creates a more tolerant, inclusive, and just society (Amahoru & Ahyani, 2023). It is a crucial component of education with three key areas of assessment: cognitive, psychomotor, and affective. These areas help to enhance students' overall abilities, including their physical skills, spiritual growth, and health quality (Wijayanti et al., 2021).

Inclusive education requires accessible and engaging learning methods for all students, including those with special needs. Technology-based learning tools—incredibly interactive multimedia—offer a promising solution in this context. Interactive multimedia enables a more dynamic and adaptable presentation of materials, increases student engagement, and enhances understanding of concepts. The role of interactive learning media used by students and teachers can increase student motivation. Students are not only passive listeners but also participate in the learning process. One of the keys to improving learning quality is using learning media (Irsyada et al., 2023).

Teachers need to comprehend the significance of physical education in inclusive primary schools to enhance children's physical growth and development (Yestiani & Zahwa, 2020). This understanding is essential for optimizing their physical and motor development (Oktarifaldi et al., 2024). Learning media is one of the most important learning components as a bridge in delivering material, and the influence of interactive learning media can also improve students' critical thinking skills (Harsiwi & Arini, 2020). The basic movement plays a crucial role in supporting student development. Through basic movement activities, students can enhance both gross motor and fine motor skills (Zulfikar et al., 2021). However, in practice—especially in inclusive classrooms—teachers often encounter challenges, such as varying student abilities, limited facilities, and insufficient training in inclusive education. Addressing these challenges requires flexible strategies, including the adaptation of activities, the use of assistive devices, and differentiation-based approaches, along with support from parents and schools (Fridayati et al., 2022). Implementing the right approach can help students build confidence, develop social skills, and prepare for future academic success (Saba, 2024).

Interactive multimedia technology offers numerous advantages, including increased student engagement and understanding (Nadila, 2024). Integrating multimedia elements can create a more engaging and enjoyable teaching and learning experience. The combination of text, graphics, animations, and audio fosters a conducive and effective atmosphere for learning (Salsidu et al., 2017). Consequently, multimedia technology strategies are crucial in creating a more innovative and inclusive learning experience (Velinda et al., 2024). Construct 2 is interactive multimedia development software that is well-suited for creating visual-based applications, such as games and educational tools, without complex programming skills (Dzikro & Dwiningsih, 2021). The main advantages of Construct 2 include its flexibility in designing various interactive media. Additionally, the applications created can effectively and engagingly convey learning material through animation, interactivity, and compelling multimedia elements. These features make Construct 2 an ideal tool for supporting modern education (Sukmawijaya & Fauzi, 2020).

The purpose of developing this interactive multimedia is to facilitate students' understanding of basic motion concepts through an adaptive and engaging approach, particularly those in inclusive schools. Previous research indicates that interactive multimedia can boost students' interest in learning and improve their understanding of the material, especially in inclusive settings that require adaptive learning methods. Most previous studies have focused on using interactive multimedia in academic subjects such as mathematics, reading, and science (Alisyafiq et al., 2021). However, there is a lack of research explicitly exploring how multimedia can be utilized to teach motor skills, particularly for inclusive students. Furthermore, few studies have developed and evaluated interactive multimedia, specifically using Construct 2, for teaching basic movements to inclusive primary school students. This study addresses this gap by creating and assessing Construct 2-based interactive multimedia tailored for learning basic movements in inclusive primary educational settings. By incorporating the principles of inclusive instructional

design, this research seeks to provide a learning tool that is both engaging and accessible to students with a variety of learning needs. This finding is reinforced by studies that have undergone validity and feasibility testing, such as those by (Samiaji & Kurniawan, 2023) on swimming, (Hariyanto, 2020) on short-distance athletics, and (Ockta et al., 2024) on locomotor motion. However, the literature review reveals that there has been no development of Construct 2-based physical education learning media specifically for Basic Movement Activity materials. Therefore, research and development efforts are crucial to creating effective learning materials for Basic Movement Activities. This process should involve assessing the validity, practicality, and participant responses to interactive learning media focused on Basic Movement Activity materials at the primary school level to increase student motivation and interest in the learning content.

METHODS

Study Participants: This research involved 77 students from two inclusive elementary schools. The study began with a small-scale test involving 15 Class 1 SDN Nongkosawit 01 students. Afterward, a large-scale test was conducted with 62 students, including 20 from Class 2 SDN Nongkosawit 01, 23 from Class 1 SDN Sukorejo 02, and 19 from Class 2 SDN Sukorejo 02.

Study Organization: This research employs the Research and Development (R&D) method to transform traditional teaching materials into interactive learning media. It is based on the Borg and Gall Model, which consists of ten stages. This model aims to develop and assess the effectiveness of interactive multimedia products created with Construct 2, specifically designed for teaching basic movements to inclusive elementary school students.

Statistical Analysis: Data collection involves using a validation questionnaire that includes input from one media expert, which evaluates indicators compiled according to multimedia development standards, assessing design, navigation, interactivity, accessibility aspects, and two materials. The objective is to review the content of the developed interactive multimedia, assess its alignment with the curriculum, evaluate its effectiveness in teaching basic motion concepts, and determine how easily inclusive students can understand it. Validation involved using a Likert scale-based questionnaire (1-5) to assess the multimedia's technical and pedagogical aspects. Additionally, expert input was collected, analyzed, and used as a reference to improve the product before it was tested with students: experts and a student respondent questionnaire during both the small-scale and large-scale testing phases. The collected data will be analyzed using a rating scale and percentage range. This analysis aims to provide insights into the validity, practicality, and student responses to the Learning Media focused on Basic Movement Activities for Phase A, which includes grades 1 and 2.

RESULT

Research and Data Collection Phase

This research stage employs two methods: interviews and observations of essential movement activity learning in inclusive primary schools. Some key findings from the research indicate that students in these schools struggle to grasp the concept of basic movement activities without interactive visual aids, especially children with special needs (ABK). Additionally, teachers face challenges in delivering material that meets the diverse needs of their students, particularly for those with special needs, who require clear explanations for better understanding. Moreover, the learning media used in inclusive primary schools are often not innovative, relying heavily on textbooks and traditional demonstrations. As a result, students frequently feel bored during

lessons. Developing application or website-based learning resources for Basic Movement Activities is crucial, as these can assist teachers and students in achieving their educational goals. According to Pangkey and Mahfud (2020); Mahfud (2020), interactive multimedia based on Construct 2 can effectively enhance student understanding in inclusive primary schools.

Planning Phase

After identifying the needs, this assessment's validation consists of three components: Media Validation, Material Validation, and Student Responses. The research instruments used are adaptations of previous studies tailored to meet specific needs. This stage results in creating interactive media designed to help students understand basic movement activities, including non-locomotor, locomotor, and manipulative skills. The next step involves creating the initial design for the visual appearance of interactive multimedia by selecting Construct 2 as the software platform for developing learning materials in this study. Construct 2 utilizes a user-friendly drag-and-drop system and an event-based development approach that does not require coding, making it very accessible for users. With HTML5 technology, Construct 2 enables games to function across various platforms and offers export features to multiple systems. Construct two can be downloaded from www.scirra.com and is compatible with Android and PC. The software can be used both online and offline. This interactive multimedia can become more engaging with the assistance of www.Netlify.com and Google Sites.

Product Design Phase

At this stage of creating and designing learning media using Construct 2 software, we focus on selecting a simple design to ensure that interactive multimedia is accessible to students in inclusive schools. Ease of navigation is also a major consideration, as students have varying motor skills and understanding levels. With a minimalist and intuitive design, all students can use the learning media more effectively. Three main components are highlighted in developing this interactive media: Material, Video, and Quiz. The material is presented through text and simple images to help students grasp the concepts of Basic Movement Activities. The video serves as a visual aid, illustrating the movements taught to enhance student understanding of the material. Additionally, the quiz assesses the student's comprehension of the Basic Movement Activities. The development of learning media on Basic Movement Activity material can be seen in Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, and Figure 7.
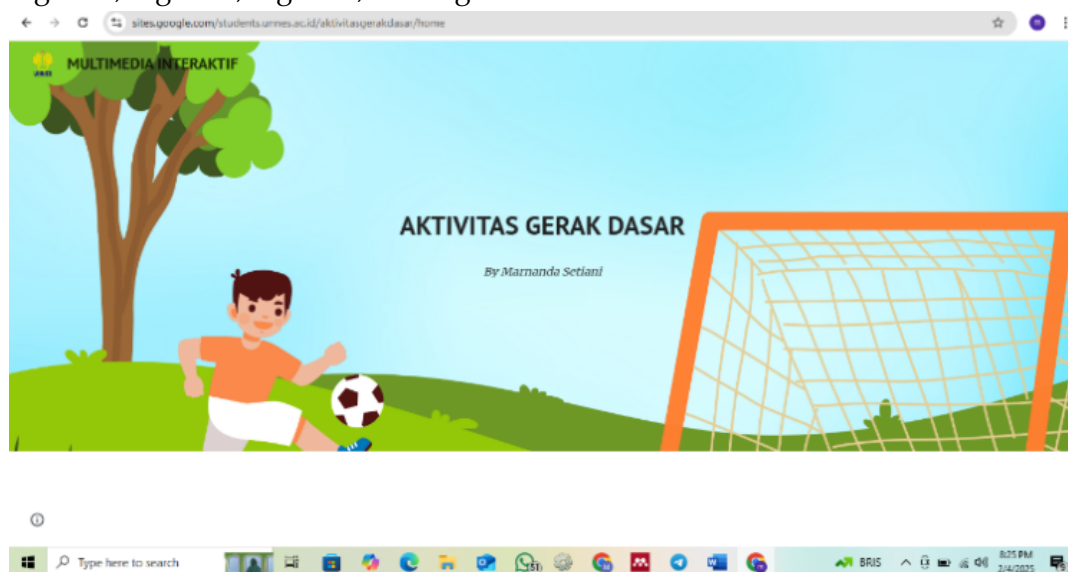

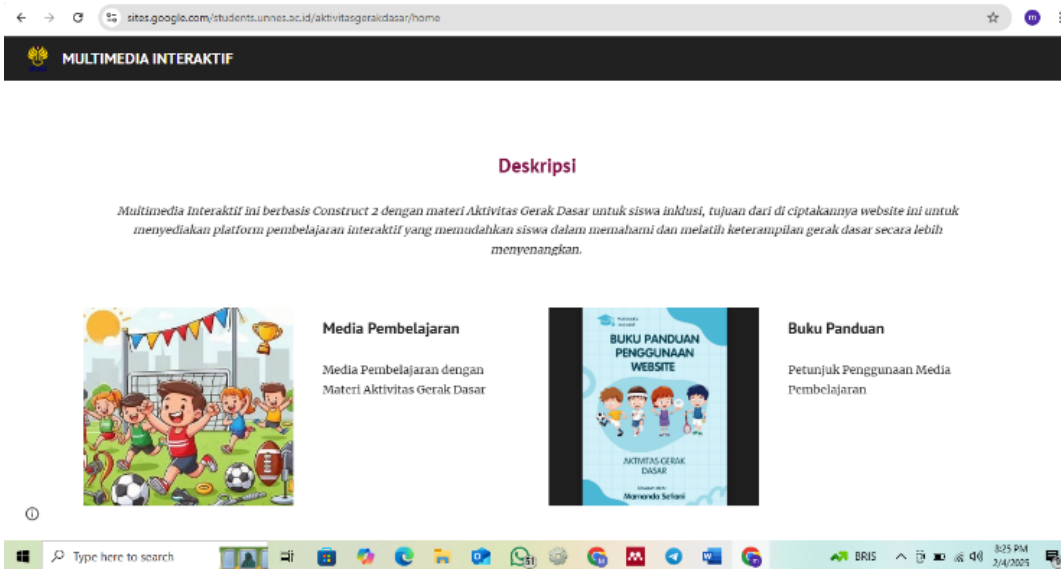**Figure 1.** Main menu for the interactive multimedia website

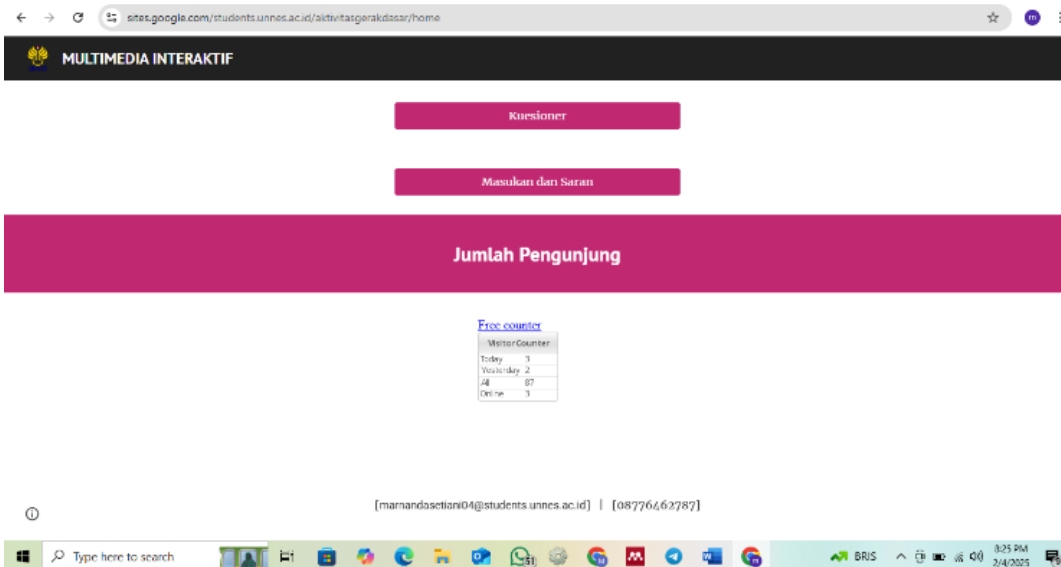**Figure 2.** Menu page for an interactive multimedia website

Figure 3. Menu page of an interactive multimedia website

Figure 4. Main menu for learning media

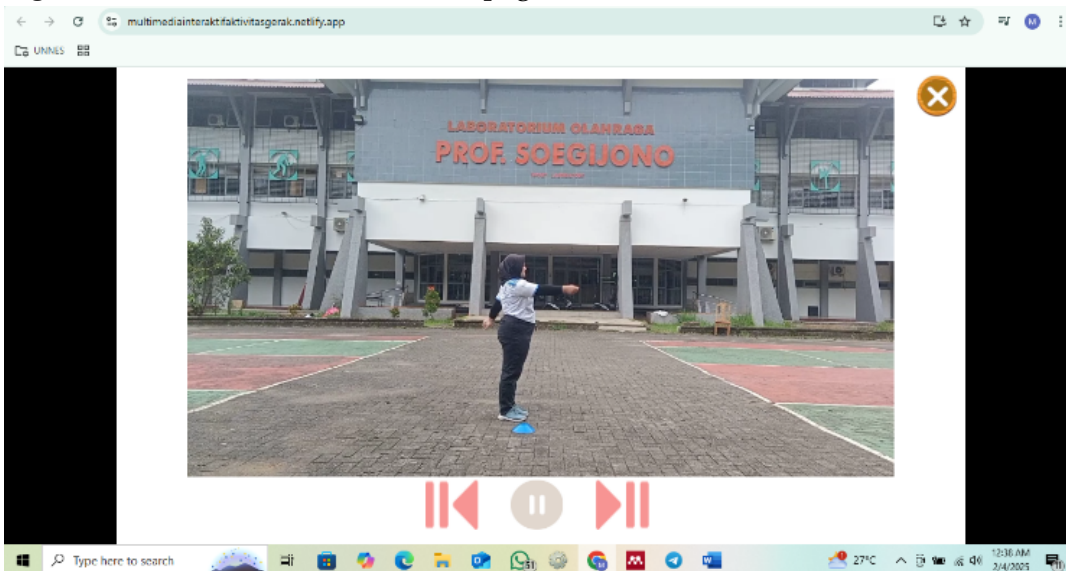**Figure 5.** The content of the material page

Figure 6. Video page content

Figure 7. Quiz page content

Figures 1, 2, and 3 display the menu of the Interactive Multimedia Website. Transitional Figure 4 shows the main menu of the Learning Media. Figure 5 presents the material page for Basic Movement Activities, while Figure 6 illustrates the Basic Movement Activity Video Page. Lastly, Figure 7 depicts the interactive quiz page.

Design Evaluation Phase

Data analysis was carried out to determine the validity, practicality, and student response to the interactive media based on construct Two, which was developed. The research data was analyzed descriptively statistically to get the average percentage value. The validity analysis involved an assessment of the validation sheet of media experts, material experts, and student responses, with assessment guidelines: Very good (5), good (4), enough (3), Not good (2), not very good (1), then add up all the total scores obtained from the validation of media experts, material experts, and student respondents. Value determination is done using a questionnaire:

$$Validity\ Value = \frac{Total\ score}{Maximum\ Score}\ x\ 100\%$$

The validity category of this construct 2-based interactive multimedia development is based on the final score obtained, seen in Table 1. The validity, practicality, and student response tests used a Likert scale and were analyzed using the validity test criteria.

Table 1. Validity test criteria

Interval (100%)	Category:
81% - 100%	Very good
61% - 80%	Good
41% - 60%	Enough
21% - 40%	Bad
1% - 20%	Very Bad

At this stage, the Interactive Multimedia product will be validated by engaging two experts: Media Experts and Material Experts. Mr Moh carried out media validation. Samsudin, S.Kom using a questionnaire. The assessment focuses on four key aspects: Web Introduction, Web Control, Web Display, and the Multimedia Design Principles applied within the Interactive Multimedia Web. Table 2 presents the results of the Media Expert validation.

Table 2. Media expert validation results

Aspect	Validator	Category
Web Introduction	95%	Very Good
Web Control	93%	Very Good
Web Display	86%	Very Good
Web Design Principles	90%	Very Good
Average	**91%**	**Very Good**

Following the media expert validation, the project achieved an impressive average score of 91%, indicating a "Very Good" level of validity. The media validation team's feedback emphasized incorporating instructional videos to demonstrate the movements, which would help students better comprehend the Basic Movement Activity material. Additionally, they suggested enhancing the responsiveness of the navigation buttons, which will be addressed in the revised design validation. Furthermore, material validation involved two experts specializing in Basic Movement Activity content. Their assessment focused on three key aspects validated by the material expert: the concept of basic movement activity material, presentation quality, and overall quality.

Table 3. Material expert validation results

Aspect	Validator 1	Validator 2	Average	Category
Basic movement activities	100%	85%	92,5%	Very Good
Presentation	95%	85%	90%	Very Good

Aspect	Validator 1	Validator 2	Average	Category
Quality	100%	90%	95%	Very Good
Average	**98,3%**	**86,7%**	**92,5%**	**Very Good**

The results of the material expert validation show that Validator 1 achieved an average score of 98.3%, indicating a classification of 'Very Good.' Similarly, Validator 2 received a significant average score of 86.7%, also reflecting a 'Very Good' classification. The overall average score from the material expert validation was 92.5%. Additionally, suggestions from the media expert validation included the addition of more comprehensive Basic Movement Activity materials, allowing students to learn all movements through interactive learning media.

Design Revision Phase

After the design validation stage, the next step is revising the design by incorporating feedback and suggestions from the expert validation instrument. The input received aims to enhance the construct 2-based learning media focused on basic movement activities. Specifically, the improvements include adding videos demonstrating how to perform these movements and providing visual representations of the basic movement activities. These refinements aim to enrich student's learning experiences, making exploring basic movement activities more engaging and effective for them.

Product Trial Phase

The next stage involves testing interactive multimedia products on a small scale with Grade 1 students at an inclusive elementary school, SDN Nongkosawit 01, with 15 students. This testing includes applying interactive multimedia based on Construct 2 in sports learning activities and collecting data through questionnaires to evaluate the practicality of the developed interactive multimedia web.

Table 4. Results of the product trial questionnaire

No	Interval	The number of students	%	Category
1	81% - 100%	8	53%	Very good
2	61% - 80%	7	47%	Good
3	41% - 60%	0	0	Enough
4	21% - 40%	0	0	Bad
5	0% - 20%	0	0	Very Bad

Based on the results from the students' questionnaire at the trial stage, 53% of students categorized as "Very Good" expressed high satisfaction with the appearance, interactivity, and ease of use of the tested interactive multimedia. Additionally, 47% of students in the "Good" category believed that this interactive multimedia effectively helped them understand the material related to basic movement activities. Overall, students responded positively to the interactive multimedia.

Product Revision Phase

Following the product trials, the next step is product revision. During this phase, a thorough evaluation of the Interactive Multimedia Web being developed takes place, considering the feedback from the product trials and student input. The teacher noted that this multimedia resource is very beneficial for teaching students; however, there are some issues with the Manipulative video demonstrating throwing movements, particularly with the foot movements. Therefore, enhancements to the video are necessary.

Usage Trial Phase

The next stage of the Usage Trial aims to evaluate the effectiveness and application of Construct 2-based interactive multimedia in learning at inclusive elementary schools. The trial was conducted in two inclusive schools, involving 62 students: 20 Grade 2 students from SDN Nongkosawit 01, 23 Grade 1 students from SDN Sukorejo 02, and 19 Grade 2 students from SDN Sukorejo 02. This diverse student participation was intended to gather broader and more

representative data. The testing process involved implementing Construct 2-based interactive multimedia in sports learning activities and collecting data through questionnaires to assess the practicality of the interactive multimedia web that was developed. The results of the student questionnaires from the product trial stage are detailed in Table 5.

Table 5. Usage testing questionnaire results

No	Interval	The number of students	%	Category
1	81% - 100%	18	29%	Very Good
2	61% - 80%	41	66%	Good
3	41% - 60%	3	5%	Enough
4	21% - 40%	0	0	Bad
5	0% - 20%	0	0	Very Bad

Based on the results of the usage trial, 29% of students rated the interactive multimedia as "Very Good," indicating they were delighted with its appearance, interactivity, and ease of use. Additionally, 66% of students categorized it as "Good," expressing that the interactive multimedia was very effective in helping them understand the material related to basic movement activities. Only 5% of students fell into the "Moderate" category, which may be due to their limitations in understanding the material or challenges in using technology. 95% of students responded positively to using this interactive multimedia in the "Very Good" and "Good" categories. These results suggest that the interactive multimedia based on Construct 2 is well-received by students and has significant potential to enhance student motivation and understanding of fundamental movement activity material. Therefore, this interactive multimedia is suitable for widespread implementation in learning environments at inclusive elementary schools.

Usage Revision Stage

During the final revision stage, a thorough evaluation will be conducted based on the results of the large-scale trial conducted across three classes. This evaluation ensures that the Construct 2-based interactive multimedia meets quality standards regarding learning effectiveness, accessibility, and ease of use for students and teachers. According to the pilot test results, most students responded positively to using this interactive multimedia for learning basic movement activities. No significant technical issues or deficiencies were identified that would necessitate major revisions. Therefore, this final revision stage focuses on optimizing performance, ensuring smooth navigation, and verifying that all features function correctly without any issues.

After completing the final revision stage, the researchers have prepared the Construct 2-based interactive multimedia for broader implementation in inclusive schools. This product is expected to be an innovative solution for teaching basic movement activities, making learning more engaging, interactive, and accessible for all students, including those with special needs.

Mass Production Stage

After several trials and revisions, construct 2-based interactive multimedia with basic movement activity material for students in inclusive elementary schools entered the mass production stage. At this stage, the refined product begins to be reproduced and disseminated for use in learning in various schools and through social media.

Mass production is carried out by ensuring that more students and teachers can access this interactive multimedia. In addition, a guidebook for using this interactive multimedia is also available to help with the optimal utilization of this multimedia in the school environment and independent learning at home.

With mass production, this multimedia is expected to be one of the innovative solutions in learning basic movement activities, especially for inclusive primary schools. Widespread implementation will help improve the learning experience for students in an interactive, engaging,

and customized way. Before introducing interactive multimedia based on Construct 2, students in inclusive elementary schools faced several challenges in understanding basic motion concepts. Some students struggled to follow the teacher's instructions, lacked the motivation to learn, and had difficulty coordinating movements due to motor limitations or other special needs. Additionally, traditional teaching methods, such as direct demonstrations and textbooks, were less effective in engaging students with visual and kinesthetic learning styles.

After implementing interactive multimedia, we observed a significant increase in student engagement and understanding. Using animations, videos, and interactive elements in the application helps students grasp basic motion concepts more effectively. Students are more enthusiastic about learning because they can practice independently with visual and audio guidance tailored to their needs. Additionally, the included accessibility features, such as easy navigation and repeatable instructions, allow all students to learn at their own pace. Interactive multimedia enhances students' understanding, making learning more engaging, inclusive, and effective.

DISCUSSION

Leveraging technology, specifically through the development of learning media using Construct 2 software, can significantly enhance the efficiency of learning about motion, particularly in the context of Basic Movement Activities. This interactive multimedia resource has been created due to the lack of innovative educational tools to support students with diverse learning needs, including those with special requirements (Hang & Van, 2020). The research focuses on creating interactive learning media tailored for phase A students in Inclusive Elementary Schools. The methodology employed is Research and Development (RnD), which involves collaboration with media experts, material experts, and students, who serve as subjects for testing the validity and practicality of the educational media.

The research results on the development of Interactive Multimedia based on Construct 2, which focuses on Basic Movement Activities for students in inclusive schools, indicate that technology in education positively affects student understanding and engagement. This multimedia is specifically designed to cater to the diverse needs of students, including those with special needs, making it suitable for use in inclusive school settings.

Based on the results of both the small-scale and large-scale tests involving a total of 77 students, it was found that 96% of the students responded positively. Specifically, 34% rated their experience as "Very Good," 62% rated it as "Good," and only 4% rated it as "Medium." These findings indicate that interactive multimedia effectively enhances students' motivation and provides a fun and easy-to-understand learning experience. Additionally, teachers reported that this media can aid in explaining the concepts of basic movement activities more effectively.

This research demonstrates that developing Interactive Multimedia based on Construct 2 can provide an innovative solution for teaching sports with fundamental movement skills, particularly in inclusive schools. By integrating cooperative, psychomotor, and affective aspects, this multimedia enhances students' understanding, fosters social interaction, improves motor skills, and increases student interest in learning. Research conducted by (Hakim, 2020) demonstrated that the development of application-based interactive learning media in Islamic Religious Education can significantly enhance the attention and motivation of students with special needs. These findings align with the results of the current study, which indicate that students were more enthusiastic and engaged when using Construct 2-based applications

compared to traditional teaching methods. Furthermore, implementing this interactive multimedia shows that technology can serve as an effective solution for creating more inclusive and adaptive learning environments. This educational media can be accessed via PC and Android devices, allowing students to study independently at home.

Many previous studies have primarily focused on the use of multimedia for academic subjects such as math, reading, and science. However, limited research has been done on using interactive multimedia for learning motor skills. This research contributes to inclusive physical education, an area that has not been extensively explored in the existing literature, by expanding the scope of educational technology. The development of this interactive multimedia project utilizes Construct 2, a free version that comes with limitations, particularly regarding the number of layers. To overcome these restrictions, using the paid version of Construct 2 is a suitable solution, as it allows for unlimited layers and the ability to export files in Cordova format, enabling instant application development. Overall, creating an interactive multimedia resource based on Construct 2, aimed at basic movement activities for students in inclusive elementary schools, can serve as an effective alternative to enhance the quality of basic movement learning in such settings. In the future, it will be important to expand the range of available materials and ensure that this interactive multimedia resource can be continuously updated to meet students' needs and keep pace with technological advancements. The study will involve various categories of special needs, such as students with physical disabilities, autism, and sensory processing disorders, to assess the effectiveness of this multimedia tool for a broader range of learners. An experimental approach will also be employed, including a control group, to compare the outcomes between students who use the multimedia and those who do not.

CONCLUSION

Based on the research and development conducted, it has been proven that learning media developed using Construct 2 can be an effective educational tool for students in inclusive schools. The results indicate a high level of effectiveness, with media validation scores averaging 91% and material validation scores averaging 92.5%. Additionally, research involving 77 students revealed an average score of 96%, with 34% categorized as "Very Good" and 62% categorized as "Good." Therefore, this learning media can be a practical educational resource for students in inclusive settings.

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CONFLICT OF INTEREST

There are no conflicts of interest.

REFERENCES

Alisyafiq, S., Hardiyana, B., & Dhaniawaty, R. P. (2021). Implementasi Multimedia Development Life Cycle Pada Aplikasi Pembelajaran Multimedia Interaktif Algoritma dan Pemrograman Dasar Untuk Mahasiswa Berkebutuhan Khusus Berbasis Android. *Jurnal Pendidikan Kebutuhan Khusus*, *5*(2), 135–143. https://doi.org/10.24036/jpkk.v5i2.594

Amahoru, A., & Ahyani, E. (2023). Psikologi Pendidikan Inklusif: Menciptakan Lingkungan Belajar yang Ramah Bagi Semua Siswa. *Indo-MathEdu Intellectuals Journal*, 4(3), 2368–2377. https://doi.org/10.54373/imeij.v4i3.522

Darma, I. P., Rusyidi, B., Abd.Kadir, Astuti, R., Dyah Herawati, V., & Dermawan, O. (2015). PENYELENGGARAAN SEKOLAH INKLUSI DI INDONESIA Abd. Kadir (Dosen PAI FTK UIN Sunan Ampel Surabaya). *Pengabdian Pada Masyarakat*, 03(2), 223–227.

Dzikro, A. Z. T., & Dwiningsih, K. (2021). Kelayakan Media Pembelajaran Berbasis Laboratorium Virtual pada Sub Materi Kimia Unsur Periode Ketiga. *Chemistry Education Practice*, 4(2), 160–170. https://doi.org/10.29303/cep.v4i2.2389

Fridayati, B. A., Lubis, M. R., Fitriatun, E., & Yusuf, R. (2022). Strategi Pembelajaran Pendidikan Jasmani Adaptif di Sekolah Dasar Inklusif. *Discourse of Physical Education*, 1(1), 41–56. https://doi.org/10.36312/dpe.v1i1.608

Hakim, M. L. (2020). Multimedia Interaktif Bagi Siswa Berkebutuhan Khusus. *Al-Aulad: Journal of Islamic Primary Education*, 3(1), 48–55. https://doi.org/10.15575/al-aulad.v3i1.5903

Hang, L. T., & Van, V. H. (2020). Building strong teaching and learning strategies through teaching innovations and learners' creativity: A study of vietnam universities. *International Journal of Education and Practice*, 8(3), 498–510. https://doi.org/10.18488/journal.61.2020.83.498.510

Hariyanto, B. (2020). Pengembangan Aplikasi Anola Berbasis Android untuk Pembelajaran Atletik Nomor Lari Jarak Pendek. *Jurnal Didaktika Pendidikan Dasar*, 4(2), 515–536. https://doi.org/10.26811/didaktika.v4i2.150

Harsiwi, U. B., & Arini, L. D. D. (2020). Pengaruh Pembelajaran Menggunakan Media Pembelajaran Interaktif terhadap Hasil Belajar siswa di Sekolah Dasar. *Jurnal Basicedu*, 4(4), 1104–1113. https://doi.org/10.31004/basicedu.v4i4.505

Irsyada, R., Sudarmono, M., Billiandri, B., & Wijayanti, D. G. (2023). *Interactive Learning Media of Football Learning on Physical Education*. 2–6. https://doi.org/10.4108/eai.29-6-2022.2326087

Nadila. (2024). Pemanfaatan Teknologi Digital Dalam Pembelajaran. *JUPSI: Jurnal Pendidikan Sosial Indonesia*, 2(1), 37–46. https://doi.org/10.62238/jupsijurnalpendidikansosialindonesia.v2i1.72

Ockta, Y., Umar, U., Komaini, A., Firdaus, K., Padli, P., & Masrun, M. (2024). Walk, run, jump and learn: Interactive multimedia for teaching locomotor skills in primary schools. *Research and Development in Education (RaDEn)*, 4(1), 1–11. https://doi.org/10.22219/raden.v4i1.31831

Oktarifaldi, O., Marta, I. A., Nugroho, A. W., Hardi, V. J., & Utomo, S. (2024). Keterampilan Gerak Dasar Kelompok Usia 7 sampai 9 Tahun siswa Sekolah Dasar. *Jendela Olahraga*, 9(1), 10–23. https://doi.org/10.26877/jo.v9i1.17646

Pangkey, F. R., & Mahfud, I. (2020). Peningkatan Keterampilan Gerak Dasar Roll Belakang Pada Anak Sekolah Dasar. *Journal Of Physical Education*, 1(1), 33–40. https://doi.org/10.33365/joupe.v1i1.183

Saba, A. A. (2024). Pendidikan Jasmani yang Inklusif Untuk Siswa Berkebutuhan Khusus di Sekolah Dasar. … *Pendidikan Dan Kepelatihan Olahraga*, 2(1), 14–20.

Salsidu, S. Z., Azman, M. N. A., & Abdullah, M. S. (2017). Tren Pembelajaran Menggunakan Multimedia Interaktif dalam Bidang Pendidikan Teknikal: Satu Sorotan Literatur. *Sains Humanika*, 9(1–5), 21–27. https://doi.org/10.11113/sh.v9n1-5.1187

Samiaji, D. F., & Kurniawan, A. W. (2023). Pengembangan bahan ajar renang berbasis aplikasi construct untuk guru pendidikan jasmani, olahraga dan kesehatan. *Multilateral : Jurnal Pendidikan Jasmani Dan Olahraga*, 22(1), 13. https://doi.org/10.20527/multilateral.v22i1.14660

Sukmawijaya, F. M., & Fauzi, C. (2020). *Design and Build Desktop-Based Educational Game Save The Wildlife "With Game Engine Construct 2. 4*(36), 149–158.

Velinda, F., Valentinna, C. R., Ningrum, S. K., Hasanah, S. D., & Permatasari, T. (2024). Pemanfaatan Media Interaktif untuk Meningkatkan Kreativitas Anak Berkebutuhan Khusus di Sekolah Dasar. *Jurnal Basicedu*, *8*(4), 2420–2430. https://doi.org/10.31004/basicedu.v8i4.7872

Wijayanti, D. G., Kurniawan, W., Kurniawan, Z., & Arum, D. (2021). *Adaptive Physical Education Learning During Pandemic in School for Children with Special Needs*. https://doi.org/10.4108/eai.28-4-2021.2312251

Yestiani, D. K., & Zahwa, N. (2020). Peran Guru dalam Pembelajaran pada Siswa Sekolah Dasar. *Fondatia*, *4*(1), 41–47. https://doi.org/10.36088/fondatia.v4i1.515

Zulfikar, M., Hasyim, A. H., Ikadarny, I., & Anwar, N. I. A. (2021). Penguasaan Keterampilan Gerak Dasar Siswa Sekolah Dasar. *Jurnal Sport Science*, *11*(1), 27. https://doi.org/10.17977/um057v11i1p27-34