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4 Weeks Physical Literacy Program Using A Before–After School System (4 Week-BeAf School Program) Based on Artificial Intelligence Technology Powtoon Animation for Elementary School Children

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Abstract

This research aims to develop a Physical Literacy program based on PowToon technology and AI Animation designed for elementary school students, using a four-week Before-After School approach. The program aims to improve students' understanding and physical skills through interactive and fun learning methods. In its development, the researcher used the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model, starting with an analysis of the need to find out the problems that exist in physical learning in elementary schools. Furthermore, the researcher designed a module combining PowToon technology and AI, so that learning materials can be delivered in a more interesting and easy-to-understand way for students. After the design and development stage, the program was piloted in three elementary schools in Subang Regency involving 70 students. The results of the study show that this program has succeeded in improving physical literacy, basic motor skills, and healthy lifestyles of students. With the use of PowToon technology and AI, the program has managed to provide a more enjoyable learning experience, which has a positive impact on increasing student engagement in physical activity. This is evident from the results of observations made by practitioners who show excellent judgment without any significant revision to the program. Expert validation tests provide a wealth of useful feedback for the refinement of the initial model, which is then revised to improve product quality. The results of observations and feedback from practitioners show that this program is very feasible to be implemented in elementary schools because it is in accordance with the characteristics of students and the needs of sports learning. This program has proven to be effective in supporting more interesting physical literacy learning and can be implemented well in the context of physical education in elementary schools. With these results, the 4Week-BeAf School Program can be an innovative and practical model in improving the quality of physical education at the elementary school level.

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INTRODUCTION

Physical education, sports, and health, to develop aspects of physical fitness, is designed systematically (Rosdiani, 2013). The main goal is to shape learners into physically educated individuals through learning experiences that involve physical activity (Abduljabbar, 2019).

Physical literacy is key to achieving overall health and well-being (Gilic et al., 2022). Every individual can improve their quality of life and contribute to a healthier society (Castelli et al., 2014). Improving PJOK lessons in schools supports students' physical health by giving them the opportunity to engage in age-appropriate physical activities and interests (Zummah & Achmad, 2020). It is integrated with BSNP standards to increase physical freshness (Hasbi et al., 2021).

Physical literacy is an important concept in physical education that includes the cognitive, affective, and psychomotor development of students. Initially related to reading and writing, now literacy also involves physical aspects (Whitehead, 2016). Physical literacy has become a focus in education in many developed countries, with the aim of addressing the problem of physical inactivity (Gani et al., 2022). A holistic approach that integrates mind and body, promoting a strong desire to live actively (Amalia et al., 2021). Individuals who have good physical literacy are expected to have the cognitive knowledge, physical skills, and mental motivation to lead an active lifestyle (Amalia et al., 2021). This term is also often interpreted as physical intelligence (Asmawi et al., 2022). Showing a person in understanding and using their body (Kwan, 2019). Physical literacy helps individuals to move confidently and competently in a variety of physical activities (Fathiyati et al., 2022). It is an important foundation in achieving physical performance (Harjono, 2023). Learning involves interaction between learners and their environment, such as learners, teachers, or subject matter (Stevens-Smith, 2016). A person is considered to have learned if he can show a change in his behavior (Foulkes et al., 2020). Physical activity is an important part of human life done by exercising (Huang et al., 2021). Exercising has been shown to be beneficial for the health of the body because it improves good blood circulation for the heart and can improve concentration (Packham & Street, 2019). Physical Education plays a strategic role in the formation of the individual as a whole (Putro & Winarno, 2022). Physical education and sports not only have a positive impact on children's physical growth, but also on their mental, intellectual, emotional, and social development (Zaidah et al., 2020). Understanding physical literacy can provide a foundation for learners with the aim of improving general understanding of physical literacy (Corbin, 2016). In physical literacy learning, it is important to choose and plan activities that cover different areas of motion, such as land, water, and air (Maryanti & Gustiawati, 2023). The main focus should be on

developing physical literacy for students (Pd et al., 2024). Learning content aims to increase motivation, confidence, physical skills, as well as students' knowledge and understanding (Fahrudin et al., 2020). Students understand the concepts and techniques needed to improve their physical literacy skills (Peralta, 2022). The lack of Physical Literacy material guidance makes it difficult for teachers to provide basic movement instruction to students, triggering the urge to overcome physical inactivity (Huang et al., 2021). Regular physical activity is important for growth and health, but children often engage in sedentary activities such as playing games and watching TV (Krisdian et al., 2024). In Indonesia, the concept of physical literacy is still not well known in physical education, By overcoming various challenges and taking advantage of existing opportunities, it is hoped that physical literacy can become an important part of physical education in Indonesia (Muzakki et al., 2023). It will help children to develop active and healthy living habits from an early age, so that it can improve their quality of life in the future (Judith, 2022). The importance of physical literacy has been written by the International Physical Literacy Association (IPLA) in 2017 that physical literacy can provide motivation and belief in every child that physical activity is an inseparable part of their lives (Curtin, 2024). Children's skills and movement patterns can be developed through physical activity (Bremer, 2020). Physical freshness is closely related to the concept of Physical Literacy mentioning the meaning of physical literacy with physical literacy The Indonesian Physical Education Teachers Association (AGPJI) in 2019 stated that physical literacy is when children have developed their skills and confidence so that they can be physically active for their lives to become physically fit (Sudarwo et al., 2023). That Physical Literacy contributes to the fundamental concept of motor skills and the identification of sports talents that can be improved through physical education learning as well as in the development of Before-After School programs for significant physical activity within a period of 4-Weeks (Calzada-Rodríguez et al., 2023). Physical activity in children can be done through the concept of physical literacy through Before-After School 4-Weeks play can affect motor development in elementary school-age children (Campelo et al., 2023). So it is useful in enriching healthy and fit body movements so that it is able to create a better mindset for students at the elementary school level (Johnston, 2023). The development of physical activity skills in elementary school must be fun because the concept of Physical Literacy includes Motivation, Confidence, Knowledge, Behavior, and Physical Competence (Kurnia & Septiana, 2020). This can improve the child's motor skills. The concept of physical literacy by Whitehead is about motivation, confidence, physical competence, knowledge, and understanding to engage in lifelong physical activity that must be applied (Coyne, 2019). The results of

observation of the habit of exercising in elementary schools in Subang Regency are not good. The data shows a low level of physical freshness of students. In Ciasem District, half of the students have a low level of freshness. Physical activity learning has not been optimal, and there has been a shift from traditional games to technology-based games. Stimulus is needed to increase the physical activity of students better (Kurniawan et al., 2022). In addition, the problem-solving approach to the use of Artificial Intelligence (AI) Technology can be significant in improving the Physical Literacy (PL) Program during 4-Weeks Before-After School. Teachers can manage data efficiently, provide personalized learning, and effective feedback to students. The impact is higher academic achievement in physical activity learning using AI, as well as increased student engagement in learning (Abimanto & Mahendro, 2023). Problem-Solving Strategies In This Study, Physical Education, especially in physical activity, can adjust the difficulty level of the physical literacy program tasks, offering a more interesting 4-week before-after school physical literacy program. This is because the concept of Physical Literacy includes 4 basic components, namely, Motivation and Confidence, Knowledge and Understanding, Behaviours and Physical Competence as explained by the International Physical Literacy Association (IPL) (Lundvall & Gerdin, 2021). Correlation between physical freshness and the concept of Physical Literacy. The market used in physical education learning in physical activity based (AI) virtual mentors, voice assistants, intelligent content and presentation translators are connected to through the PowToon website process carried out via android and computer (Abdo et al., 2021). Learning media is materials and tools or all sources of material (Serban, 1995). Learning media that is often used today is often used along with the development of technology, learning media is increasing, one of which is the Artificial Intelligence Animation PowToon learning media (Nadarzyński, 2019). By developing AI- based programs at the elementary school level, it is hoped that students can acquire Physical Literacy so that they can do physical activities and become the foundation for the development of more complex physical activity skills in the future (Kartini, 2023).

METHOD

In this study, two methods are combined, namely qualitative and quantitative (Muhyi et al., 2020). In this way, we can get more complete and in-depth research results (Waruwu, 2023). This method combines two approaches in a single study. In research, the qualitative approach is used in needs analysis, while quantitative in the development of research programs (Mustaqim, 2016). Through a Research and Development (R&D) approach, this research aims to design, develop, and evaluate the effectiveness of innovative learning

materials and models (Mawarni & Hendriyani, 2021). The final goal and research of this development is to produce a product in the form of a learning program that uses PowToon Animation Artificial Intelligence Technology and integrated BSNP to improve the 4-Week Physical Literacy Program with the Before- After School system for elementary school students, the application of the ADDIE model in this study aims to produce innovative and fun learning materials, so as to increase student learning motivation. The ADDIE model was chosen for its systematic, efficient, and goal-oriented structure and stages (Rustandi, 2021). Using the ADDIE model, the study systematically went through five stages to design, develop, and evaluate effective learning products. (Fachrozi et al., 2020). Using this model, we hope to create a more systematic physical activity education program, so as to increase effectiveness in achieving learning goals (Krissanthy et al., 2020). From this understanding, it confirms that physical education is an integral part of general education (Cahyadi et al., 2022). At the Assessment/Analysis stage, the initial stage has been carried out, namely with a need assessment in the form of collecting materials and designing learning that can improve the 4-Week Physical Literacy Program with the Before-After School system for elementary school students, it needs to be explained clearly. The following is a flowchart in the ADDIE model that PowToon's Artificial Intelligence Animation technology can be presented as follows:

Sampling Procedure

Sampling

The sample in this study has referred to the validation of development research by ADDIE, namely fourth and fifth grade elementary school students and teachers of Ciasem District. Sampling uses expert judgment that has been adjusted and refers to the minimum validation for development research by ADDIE.

Procedure

The design of the 4-Week Physical Literacy program with a Before-After School System Based on AI and Powtoon Animation Technology aims to improve the physical literacy of elementary school children in a fun and interactive way. The program lasts for 4 weeks, with daily sessions before and after school, 30 minutes each. The program uses Powtoon to present creative animations that teach physical movements and AI technology to provide personalized feedback based on the child's abilities. Each week has a different theme: Week 1 (basic physical activity), Week 2 (balance and coordination), Week 3 (strength and endurance), and Week 4 (social skills and cooperation).

Children can access the material through

a mobile app or website, which provides animated videos, interactive instructions, and progress reporting. The AI also provides weekly feedback on the child's progress and areas that need improvement. This program aims to improve children's physical skills, as well as their motivation to move more actively. Evaluations are conducted weekly with progress reports for children and parents. The next step is the implementation of AI and Powtoon-based learning models for 4th and 5th grade elementary school students. The development of this product has been validated by a team of experts, and subsequently Powtoon's animation learning media will be applied to children to improve their physical literacy.

learning at school conducted a trial to find out the response of students and the attractiveness of a PowToon Animation Artificial Intellectual-Based Learning Media in the 4-Week Physical Literacy Program with the Before-After School system for elementary school children.

No	Nama Model	Skor max	Hasil				Total	Persentase %	Keterangan
			Prkts 1	Prkts 2	Prkts 3	Prkts 4			
1	*Program Physical Literacy Before School*	40	10	8	9	9	36	90%	Layak/Diterima
2	*Program Physical Literacy After School*	40	9	8	8	10	35	88%	Layak/Diterima

The following is a table of data eligibility criteria to determine the feasibility of data obtained from the trial learning model of the Physical Literacy Program 4-Weeks Before-After School System Based on Artificial Intelligence Technology Animation PowToon for Elementary School Children.

Skala Persentase	Kategori Kelayakan
< 40%	Tidak layak
40% - 55%	Kurang Layak
56% - 75%	Cukup layak
76% - 100%	Layak digunakan

The following are suggestions and inputs given by physical education, sports and health practitioners in elementary schools after field trials in 3 elementary schools in Subang Regency related to a trial of the Development of a 4-Week Physical Literacy Program for the Before-After School System Based on Artificial Intelligence Technology, PowToon Animation for Elementary School Children.

No	Nama Model	Masukan & Saran
1	*Program Physical Literacy Before School*	Baik untuk Pembelajaran gerak dasar di Sekolah Dasar sebelum masuk kelas.
2	*Program Physical Literacy After School*	Baik untuk Pembelajaran gerak dasar di Sekolah Dasar setelah pulang sekolah.

Data Design or Analysis

1. Analysis

The analysis step consists of two stages: performance analysis and needs analysis. Performance analysis aims to identify and classify problems related to learning media used in schools, as well as find solutions through the development of physical activity programs. Meanwhile, needs analysis focuses on determining the physical activity program needed to improve the quality of learning and student learning achievement. Direct observation was carried out in elementary schools, especially in Ciasem District, Subang Regency, with observation instruments to collect relevant data.

2. Design

1. Instrumen Survey

No	Aspek yang di telti	Ada	Tidak	Catatan Pengamatan
1	Terdapat pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School* disekolah.			
2	Guru memiliki program Pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*			
3	Guru Mempunyai Referensi Untuk mengajarkan *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School.*			
4	Siswa Melakukan dan antusias untuk melakukan pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*			
5	Siswa terlibat aktif dalam pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*			

The second step is to design (design), like a building design, so before it is built, there must be a building design on paper first. In this physical activity program, the steps of designing media are seen in terms of design, material and language. Then move on to the next stage by developing a physical activity program.

3. Development

The third step in the development of learning media is to create a 4-Weeks Before-After School Physical Literacy program based on PowToon Animation AI. This process includes: 1) Creation of media with a different design, materials, and language than the physical program used in the school; 2) Review and validation of the program by a team of media, material, and language experts; 3) Program improvement based on input from a team of experts to improve the media. This validation aims to ensure the quality and suitability of the program in the development of physical literacy of elementary school children.

Nama Program Fisik :
Tanggal Pengisian :

NO	Klasifikasi	Kategori	
		S	TS
1	Seberapa relevan program ini dalam meningkatkan literasi fisik anak sekolah dasar.		
2	Bagaimana penilaian anda terhadap kualitas konten animasi PowToon yang digunakan dalam program ini.		
3	Apakah metode pembelajaran yang ditetapkan dalam program ini efektif untuk anak-anak.		
4	Seberapa baik teknologi artificial intelligence digunakan dalam memberikan umpan balik kepada siswa.		
5	Apakah program ini berhasil meningkatkan keterlibatan anak dalam aktivitas fisik.		
6	Apakah durasi 4 minggu dianggap cukup untuk mencapai tujuan literasi fisik yang diinginkan.		
7	Seberapa mudah program ini diakses oleh siswa dan orang tua.		
8	Apakah metode evaluasi yang digunakan untuk menilai kemajuan siswa sudah efektif.		
9	Apakah anda ppercaya bahwa program ini dapat memberikan dampak positif jangka ppanjang terhadap kebiasaan aktivitas fisik anak.		
10	Apakah anda memiliki saran untuk meningkatkan efektivitas program ini.		

Validation Instrument for Motor Experts for Elementary School Children Development of a 4-Week Physical Literacy Program with a Before-After School System Based on Artificial Intelligence Technology Animation PowToon for Elementary School Children.

Nama Program Fisik :
Tanggal Pengisian :

NO	Klasifikasi	Kategori	
		S	TS
1	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah sesuai dengan Capaian Pembelajaran (CP) dalam mata pelajaran PJOK SD.		
2	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah sesuai dengan Tujuan Pembelajaran (TP) dalam mata pelajaran PJOK di SD.		
3	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini mudah di lakukan oleh siswa Sekolah Dasar.		
4	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah tepat sebagai Bahan Ajar yang digunakan dalam pembelajaran Gerak Dasar di SD.		
5	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah sesuai dengan karakteristik siswa atau subjek penelitian.		
6	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini bermanfaat dalam pembelajaran Gerak Dasar di SD.		
7	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini mampu membuat proses belajar lebih menyenangkan.		
8	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini membantu untuk meningkatkan hasil belajar Gerak Dasar siswa.		
9	Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah aman bagi siswa SD.		
10	Sarana yang digunakan untuk Program Physical Literacy 4-Weeks dengan sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini sudah aman bagi siswa SD		

Validation Instrument for Digitalization Experts for the Development of 4-Weeks Physical Literacy Program with a Before-After School System Based on PowToon Animation Artificial Intelligence Technology for Elementary School Children.

Tanggal Pengisian :

NO	Klasifikasi	Kategori	
		S	TS
1	Apakah Aplikasi Artificial Intellegence Animasi PowToon dalam Program Physical Literacy Model untuk Anak Sekolah Dasar ini Mudah di oprasikan ?		
2	Apakah Aplikasi Artificial Intellegence Animasi PowToon dalam Program Physical Literacy Model ini sudah sesuai/cocok untuk siswa sekolah dasar?		
3	Apakah tampilan Aplikasi Artificial Intellegence Animasi PowToon dalam Program Physical Literacy Model untuk Anak Sekolah Dasar ini sudah sesuai dan menarik ?.		
4	Apakah jenis huruf dalam Aplikasi Artificial Intellegence Animasi PowToon dalam Program Physical Literacy Model untuk Anak Sekolah Dasar ini sudah sesuai dan menarik ?		
5	Apakah ukuran Huruf pada aplikasi Artificial Intellegence Animasi PowToon dalam Program Physical Literacy Model untuk Anak Sekolah Dasar ini sudah sesuai dengan desain?.		

The Filling Procedure for the Penjas Learning Expert Assessment involves the following steps: 1) Before starting the filling, fill in the Physical Activity Program Name and Filling Date. 2) Put a check mark (√) on the assessment column with two options: S (Appropriate) if the elements in the classification are visible in the learning, and TS (Not Appropriate) if the elements are not visible in the learning. This instrument is used for validation by observers in the development of the 4-Week Physical Literacy Program with a Before-After School System based on AI Technology

and PowToon Animation for elementary school students.

Nama Program Fisik :
Tanggal Pengisian :

NO	Item Observasi	Hasil Observasi	
		YA	TIDAK
1	Program *Physical Literacy 4-Weeks* dengan Sistem *Before-After School* Berbasis *Artificial Intellegence Animasi Powtoon* Untuk Anak SD ini sesuai dengan karakteristik anak sekolah dasar		
2	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini dilaksanakan secara bertahap dalam tingkat kesukarannya sehingga mudah dilakukan oleh anak.		
3	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Dalam Fundamental Tournament Model Untuk Anak SD ini aman dilaksanakan dalam proses pembelajaran untuk anak.		
4	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini memicu keinginan anak dalam belajar gerak.		
5	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD ini di lakukan oleh anak sesuai dengan kemampuannya.		
6	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD menyenangkan bagi anak SD		
7	Media Pembelajaran Berbasis Artificial Intellegence Animasi Powtoon Dalam Fundamental Tournament Model Untuk Anak SD mendorong anak aktif bergerak dengan rasa percaya diri.		
8	Media Pembelajaran Berbasis Artificial Intellegence Animasi Powtoon Dalam Fundamental Tournament Model Untuk Anak SD mempermudah guru dalam melaksanakan pembelajaran gerak dasar anak SD		
9	Instriksi yang digunakan dalam Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD bersifat verbal untuk meningkatkan kognitif anak SD.		
10	Program Physical Literacy 4-Weeks dengan Sistem Before-After School Berbasis Artificial Intellegence Animasi Powtoon Untuk Anak SD memungkinkan mengembangkan kemampuan gerakan dasar anak SD		

The Observer Guideline Filling Procedure at the time of the study includes the following steps: 1) Before starting the observation, write down the Name of the Physical Activity Program and the Date of Filling. 2) Put a check mark (√) in the assessment column, with the caption YES (Point 1) if the element in the classification is visible in learning, and NO (Point 0) if the element is not visible. Quantitative data from observer responses were analyzed using a feasibility calculation formula.

$$\text{Rumus Kelayakan} = \frac{SH}{SK} \text{ X } 100\%$$

Source:
Information:
SH = Count Score
SK = Criterion Score/ Score

Next Ideal The results of the calculation are made in the form of percentages, after obtaining the results of observers from physical education teachers at the school where the next research is conducted to determine the conclusion of the feasibility of the product, the results of the calculation from all the experts are combined with the following average formula:

$$\text{Rata-Rata Penilaian} = \frac{X1 + X2 + X3 + X4}{N}$$

Information:
X1 = Data Percentage Result 1
X2 = Data Percentage Result 2
X3 = Data Percentage Result 3
X4 = Data Percentage Result 4
n = amount of data

Furthermore, after obtaining the average score of expert assessment from the formula above, the results can be classified into four eligibility categories using the following percentage scale:

Skala Dalam Persentase	Kategori Kelayakan
< 40%	Tidak layak
40% - 55%	Kurang Layak
56% - 75%	Cukup layak
76% - 100%	Layak digunakan

Sumber : (Mandasari et al., 2020)

4. Implementation

This step is to implement learning media in the learning process in elementary schools. By conducting small group trials and large group trials, students are involved to find out student responses and the attractiveness of Artificial Intelligence (AI) learning media.

5. Evaluation

Based on the implementation stages, Artificial Intelligence (AI) needs to be evaluated. At the evaluation stage, a final revision was made to the product developed based on the suggestions and input of students given during the implementation stage.

RESULT

The research conducted is research and development (R&D) to create Physical Literacy material products and learning models that utilize Artificial Intelligence (AI) Technology and PowToon Animation. The purpose of

this research is to increase the physical freshness of elementary school students through interesting and motivating physical activities. The ADDIE model was chosen because it allows for product evaluation and validation at every stage. This process consists of five phases: Assessment/Analysis, Design, Development, Implementation, and Evaluation. In the analysis stage, materials were collected and model designs were carried out to increase students' physical activity. After getting input from experts, the model was improved and tested. The results of observations show that this program is effective in increasing students' physical activity. The developed model provides a fun learning experience and is in accordance with the characteristics of elementary school students, including: triggering interest in learning movement, increasing confidence, and supporting learning with verbal instruction. This program also makes it easier for teachers to teach and improve the physical and spiritual fitness of students. After revision, this model was declared feasible and effective for use in physical learning in elementary school.

1. Before Program

No.	HARI	PROGRAM	KESIMPULAN	KETERANGAN
1.	HARI KE - 1 : SENIN	UPACARA	Upacara bendera yang dilaksanakan setiap hari Senin di sekolah dasar bertujuan untuk menanamkan rasa cinta tanah air, kedisiplinan, dan tanggung jawab pada siswa. Kegiatan ini melibatkan penghormatan kepada bendera, menyanyikan lagu kebangsaan, dan penyampaian pengumuman penting. Dengan rutin mengikuti upacara, siswa diharapkan dapat menghargai nilai-nilai kebangsaan dan memperkuat rasa persatuan di antara mereka.	
2.	HARI KE - 2 : SELASA	CORNER BALL	Aktivitas fisik melalui pembelajaran gerak dasar manipulatif terbukti penting dalam mengembangkan keterampilan siswa. Dengan metode pembelajaran yang melibatkan kompetisi kelompok, siswa dapat meningkatkan pemahaman dan kemampuan mereka dalam memukul dan melempar bola. Penilaian dan penghargaan yang diberikan memperkuat motivasi siswa untuk berpartisipasi aktif dalam aktivitas fisik	
3.	HARI KE - 3 : RABU	RUN CLOP	Tujuan dari pembelajaran ini adalah untuk meningkatkan kemampuan lokomotor siswa melalui variasi gerak berjalan, berlari, dan melompat. Dengan menggunakan metode kompetisi kelompok, siswa dapat berlatih secara aktif dan saling mendukung. Penilaian dilakukan berdasarkan hasil lompatan, dan penghargaan diberikan kepada kelompok pemenang, yang mendorong motivasi dan semangat berkompetisi.	
4.	HARI KE - 4 : KAMIS	ROUND BOLLING	Tujuan pembelajaran ini adalah meningkatkan kemampuan manipulatif siswa dalam menggelinding bola. Melalui metode kompetisi kelompok, siswa dapat berlatih secara aktif dan saling mendukung dalam menggelindng bola ke gawang. Penilaian dilakukan berdasarkan poin yang diperoleh dari gol yang dicetak, dan penghargaan diberikan kepada kelompok pemenang, yang mendorong semangat dan kerja sama di antara siswa.	
5.	HARI KE - 5 : JUMAT	LOMPAT GALAH TOYA	Tujuan dari pembelajaran ini adalah untuk meningkatkan kemampuan lokomotor siswa melalui gerakan melompat. Dengan menggunakan metode kompetisi kelompok dalam permainan lompat toya, siswa dapat berlatih dan saling mendukung. Penilaian dilakukan berdasarkan siapa yang mencapai garis finish terlebih dahulu, dan penghargaan diberikan kepada kelompok dengan poin terbanyak, yang mendorong semangat dan kerja sama di antara siswa.	
6.	HARI KE - 6 : SABTU	SENAM BERSAMA	Senam bersama yang diadakan setiap Sabtu di sekolah dasar bertujuan untuk meningkatkan kebugaran fisik dan membangun kerja sama antar siswa. Kegiatan ini melibatkan pemanasan, gerakan aerobik, dan sesi pendinginan, yang semuanya membantu siswa menjadi lebih aktif dan sosial. Selain manfaat kesehatan, senam bersama juga menciptakan suasana ceria dan mempersiapkan siswa untuk kegiatan belajar di minggu mendatang.	

2. After Program

No.	HARI	PROGRAM	KESIMPULAN	KETERANGAN
1.	HARI KE - 1 : SENIN	BUDAYA POLA HIDUP SEHAT	BERAKTIFITAS DI HARI SENIN JAUH LEBIH PADAT DENGAN MINUM AIR PUTIH SECARA TERATUR SEPANJANG HARI UNTUK MENJAGA TUBUH TETAP TERHIDRASI AGAR BAIK DENGAN BEROLAHRAGA STRECHING AKTIVITAS.	
2.	HARI KE - 2 : SELASA	POLA DIET SEIMBANG	MAKAN YANG SEHAT PADA POLA DIET SEIMBANG DI HARI SELASA LALU TIDAK MAKAN DI ATAS JAM 7 MALAM, POLA HIDUP SEHAT KAITAN DENGAN ISTIRAHAT TERATUR DENGAN DI IMBANGI OLAHRAGA JAMPING JACK.	
3.	HARI KE - 3 : RABU	POLA MAKAN YANG SEHAT	POLA MAKANAN YANG SEHAT KAITAN DENGAN POLA HIDUP SEHAT DENGAN DI IMBANGI OLAHRAGA PLANKS DILAKUKAN PADA HARI RABU.	
4.	HARI KE - 4 : KAMIS	POLA TIDUR TERATUR	POLA TIDUR TERATUR ANAK-ANAK TIDAK BOLEH BERGADANG DI ATAS JAM 10 MALAM KEMUDIAN KAITANNYA DENGAN POLA HIDUP SEHAT DENGAN DI IMBANGI OLAHRAGA LOMPAT TALI DILAKSANAKAN PADA HARI KAMIS.	
5.	HARI KE - 5 : JUMAT	POLA MANAJEMEN STRES	PRAKTIKKAN TEKNIK RELAKSASI SEPERTI MEDITASI, YOGA ATAU PERNAPASAN DALAM. LUANGKAN WAKTU UNTUK HOBI DAN AKTIVITAS YANG MENYENANGKAN KAITANYA DENGAN POLA HIDUP SEHAT DENGAN DI IMBANGI OLAHRAGA SQUATS DILAKSANAKAN PADA HARI JUMAT.	
6.	HARI KE - 6 : SABTU	POLA REKREASI	POLA REKREASI DENGAN JOGGING DI AREA LINGKUNGAN SEKITAR SEPERTI KELILING KAMPUNG ATAU KOMPLEK DAN MAKANAN YANG SEHAT DILAKSANAKAN PADA HARI SABTU.	

Research on the development of the 4-Weeks Before-After School Physical Literacy Program based on Artificial Intelligence (AI) Technology and Powtoon Animation for elementary school children faces several obstacles.

These obstacles include complex application creation, inadequate device access in some schools, and difficulties for students and teachers in operating animation software. In addition, the involvement of stakeholders, especially parents and schools, is less than optimal, which affects children's participation.

Differences in students' readiness to participate in the program are also an obstacle, with some students adapting to technology faster than others.

Scheduling that clashes with other activities at school and limited time and resources in evaluations also add to the challenges.

In the early stages of development, observation and need analysis were carried out to understand the level of user needs related to the implementation of this program.

The two formulations of the problem to be examined are (1) whether this program is fun in learning physical fitness activities and increases student engagement and motivation, and (2) how feasible this program is in increasing student engagement, motivation, collaboration, communication, and retention. Based on the results of the analysis of needs and findings in the field, the researcher prepares a draft program

which is then tested by experts through Expert Judgment.

The data collection process was carried out through a survey with a questionnaire instrument containing a Yes/No statement. Data analysis was carried out in a quantitative descriptive manner.

No	Butir Pertanyaan	Skor	Skor Total	Presentase %
1	Terdapat pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School* disekolah.	26	30	87%
2	Guru memiliki program Pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	2	30	6,7%
3	Guru Mempunyai Referensi Untuk mengajarkan *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School.*	7	30	23,3%
4	Siswa Melakukan dan antusias untuk melakukan pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	7	30	23,3%
5	Siswa terlibat aktif dalam pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	7	30	23,3%

Sumber : (Data Lapangan, 2025)

From the results of the needs analysis in the table above, the key to the need for development is that (1) 100% of elementary school children learn physical activity in learning physical education, sports and health. (2) 6.7% stated that teachers have a Physical Activity learning program. (3) 23.3% of PJOK teachers have references to teach physical activity. (4) 23.3% of students performed and were enthusiastic to learn 53 physical activities. (5) 23.3% of students are actively involved in learning physical activity.

No	Butir Pertanyaan	Temuan Lapangan
1	Terdapat pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School* disekolah.	Ya, pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School* terdapat di kurikulum sekolah dasar
2	Guru memiliki program Pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	Belum, banyak guru PJOK yang tidak memiliki program *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School* untuk siswa sekolah dasar.
3	Guru Mempunyai Referensi Untuk mengajarkan *Physical Literacy* Program *4-Weeks* dengan sistem *Before-After School.*	Belum, Guru belum sepenuhnya mempunyai referensi untuk mengajarkan *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School* untuk siswa sekolah dasar.
4	Siswa Melakukan dan antusias untuk melakukan pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	Belum, hanya beberapa siswa yang terlihat antusias untuk melakukan *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*
5	Siswa terlibat aktif dalam pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School.*	Belum, pembelajaran yang telalu monton yang mengakibatkan banyak siswa tidak teralu aktif dalam pembelajaran *Physical Literacy* Program *4-Weeks* dengan sistem *Before- After School*

Sumber : (Data lapangan, 202)

After obtaining data from the analysis of user needs and findings in the field, the research conducted a discussion with the promoter and co-promoter together with expert lecturers. The results of the discussion decided that the researcher could develop a 4-Week Physical Literacy Program with a Before-After School System Based on Artificial Intelligence Technology for 54 Elementary School Children. For this reason, the researcher prepared a draft of the PowToon Animation technology-based physical activity learning program in accordance with the problems faced by students and teachers of Physical Education as well as adjustments to the program with the characteristics of elementary school children in providing physical activity learning.

DISCUSSION

Based on the results of expert validation, many suggestions were received to improve the 4-Week Physical Literacy Program model with the AI-based Before-After School system and Powtoon Animation. After the revision, the program was tested with excellent observation results, so that it was declared feasible and effective to increase the physical activity of elementary school children. The advantages of this model include triggering interest in learning movement, increasing children's confidence, adapting learning to individual abilities, and supporting teachers in the learning process. The program is structured and has been validated, providing an enjoyable and rewarding learning experience for students.

CONCLUSION

Based on the results of the study, the development of the 4-Week Physical Literacy Program with a Before-After

School System based on Artificial Intelligence (AI) Technology and PowToon Animation for Elementary School Children shows great potential in improving children's physical literacy. The program is designed to increase understanding and interest in physical activity through engaging animation technology, with a duration of 4 weeks and a before-after school system that provides flexibility for students and parents. The results of the development show that this program has been systematically arranged according to the abilities and characteristics of elementary school children, and is suitable for application in physical education learning in elementary schools to achieve more effective learning goals. Based on validation from experts and practitioners, this program is also feasible to improve the basic movement skills of children aged 10-11 years.

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