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Development of basic movement learning models of the concept of play and games modification elementary school level

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ABSTRACT

The limited facilities for physical education (PE) teachers cause learning less varied patterns, so it impacts the development of students' basic movements. This study aims to develop a learning model using the play and games modification concept to facilitate the needs of basic movement at the elementary school level. This research is development research with five stages, namely; (1) need assessment, (2) product design selection, (3) product development, (4) implementation, and (5) product evaluation. This research produces a product and investigates the efficiency of that product to facilitate elementary school students' basic movement fulfillment. The subjects in this study are the physical education teachers from Malang regency, Lumajang Regency, Malang City, Lamongan Regency, Blitar City, and Kediri Regency, East Java, Indonesia. From the six regions, 10 schools are involved as subjects, each of which included 25 teachers.The research results suggest that this learning model with play and games modification concept can be used and facilitate the attainment of elementary school students' basic movement. Thus, the learning model can be categorized as feasible and can promote the fulfillment of the basic movement needs at the elementary school level. The results have significance for elementary school students. The findings can assist teachers in providing facilities for the basic movement needs of children at the elementary school level.

Keywords: Development; learning; play; games

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INTRODUCTION

Physical education is highly affiliated with physical activities. Those physical activities include the movement learning to attain skill (Hanief & Sugito, 2015). The objectives of physical and sports education are biological, psychological, and social that involves movement to develop an integrated and balanced personality (Lleixà & Nieva, 2020). The movement learning requires stages in obtaining the expected skill. Meanwhile, several learning styles can be involved in this learning, such as visual, auditorial, and kinesthetic

(Shamsuddin & Kaur, 2020). With kinesthetic learning, students are facilitated to learn through touching, direct practices, physical involvement, and object manipulation (Ibrahim & Hussein, 2015).

Kinesthetic learning is exceedingly appropriate for physical education (O'Connor & Penney, 2021). In this learning, the teachers can provide direct practicum and learning experiences for the students (Adi & Fathoni, 2020a). Students' growth and development can be enhanced through a game that facilitates social interaction between students (David & Grobler, 2020). Students' movement activities should be improved gradually, following the development of their physiological and psychological development (Mikalsen & Lagestad, 2020). During the learning, the teacher should modify the learning game to accelerate students' skill attainment and learning (O'Donnell, 2014).

Recently, the Z generation's need for movements is less facilitated due to the presence of online games (Nugraha et al., 2020). These unfacilitated needs obstruct their movement skills development, resulting in their deficient movement skills. Besides, the minimum physical activities also cause a decrease in students' health (Çobanoğlu et al., 2018).

This study develops learning models using the play and games modification concept. The play and games concept employs uncomplicated games with minimal tools and rules (Adi & Fathoni, 2020c). The simplification aims to fascinate and ease the students to create a relaxing and fun learning (Yue & Jing, 2016). Play and games modification is divided into several types based on their movement resemblance, such as target games, invasion games, net, and wall games, as well as striking and fielding games (Lee et al., 2020).

In addition, need assessment is a systematic process to locate and identify performance disparity caused by inadequate knowledge, behavior, and skills (Budiyanti & Damayanti, 2015). Need assessment is used to administer most educational programs (Nasrulloh & Ismail, 2017). Therefore, the purpose of need assessment is to aid the practitioners to determine and regulate factors affecting the learning decision-making and program improvement.

Several previous studies also attempted to develop students' basic movements through Team Games Tournament (TGT) (Fahrudin et al., 2020), interactive multimedia (Darmawan & Asmawi, 2017), and traditional games (Rejeki et al., 2022). Some previous studies are limited to conventional games, none of them are integrated with the app yet. In this study, researchers attempt to integrate the application-based basic movement learning model with the concept of play and games for physical education teachers at the elementary school level in East Java, Indonesia.

The observation results from the online interview with the head of physical education of elementary schools signify that student learn offline, from their home, during the Covid-19 pandemic, through the WhatsApp group. The teachers distribute the learning materials online, along with the textbook to support the learning process. According to the questionnaire distributed in the initial stage of this study, 94.5% of the physical education teachers have never developed online learning material, while all of them have no idea about application-based learning media. This fact is also supported by empirical data from research conducted by Argi et al. (2021) in the study, which report that online physical education learning is much less effective (67.27%). This means that PE teachers have not prepared online learning materials. Additionally, all of the teachers also agree that the development of application-based learning media is required. Those results of the needs assessments indicate that their current learning issues demand a solution. The developed learning models using play and games modification concepts are expected to facilitate movement learning for students at the elementary school level. Further, it is also expected to enhance students' basic movement skills and health. Students' excellent basic movement skills that follow their developmental stage affect their psychomotor, social, and spiritual aspects. This study aims to develop a learning model using the play and games modification concept to facilitate the needs of basic movement at the elementary school level.

METHOD

This study is carried out in three stages. The first stage is the need assessment on the required learning models using play and games modification concepts. In the second stage, the learning models using play and game modification concept is developed. Meanwhile, in the third stage, the developed learning models are tried out (Farias et al., 2019).

Research Design

In the initial phase of this study, the need assessment data are obtained. The prototype of learning using play and games modification concept are developed in the second stage. Those prototypes are tried out in the last stage of this study. Research and development is a research design adopted to develop a product. (Winarno, 2011) states that research and development design produce a product based on the needs of society. This design can also be carried out by modifying an existing product to adjust its function to the current demand and knowledge (Kurniawan, 2019). Research and development in the physical education field are carried out to resolve the learning issues. This study adopts learning model development established by previous researchers, consisting of 1) need assessment, 2) product design selection, 3) product development, 4) implementation, and 5) product evaluation (Svoboda, 2017), as illustrated in Figure 1.

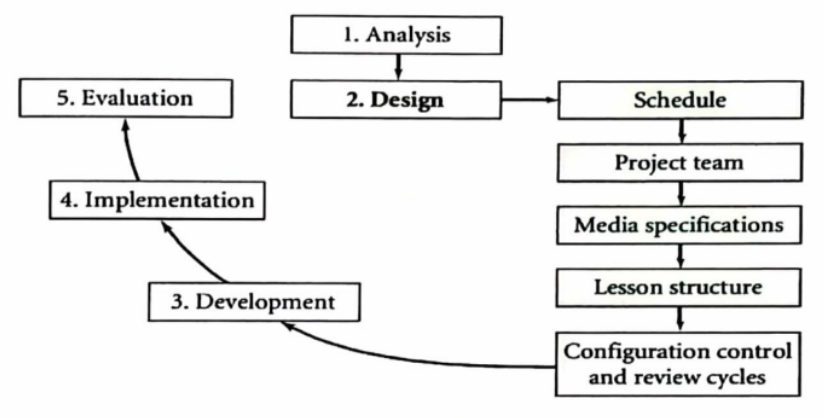

Figure 1. Interactive Learning Multimedia Developmental Stages (Svoboda, 2017)

Research Subject

The subjects in this study are the physical education teachers from Malang regency, Lumajang Regency, Malang City, Lamongan Regency, Blitar City, and Kediri Regency, East Java, Indonesia. From the six regions, 10 schools are involved as subjects, each of which included 25 teachers. Those regions are selected because according to the initial survey results, the physical education teachers in those areas have the ability to operate digital products (Hakim & Yudasmara, 2018).

Research Variable

Based on the gathered data, the issues discussed in this study are the identification of recent issues, the learning process, supporting factors, and the expected results.

Research Instrument

The instruments used to measure the variables in this study are adopted and developed based on the research indicators. The instruments in this study are 1) need assessment instrument, 2) games expert validation, 3) learning expert validation, 4) media expert validation, and 5) try out the instrument (Koningstein & Azadegan, 2021).

Data Analysis

The obtained data are analyzed using the inferential non-parametric statistic. Descriptive statistic is selected for the data analysis process. Meanwhile, the Likert Scale is used in the data collection phase in measuring the attitude, opinion, and perception of a people or a group of people on a social phenomenon (Joshi et al., 2015). The Likert scale instrument carries a level of the answer, from very positive to very negative. For the quantitative data analysis process, a decided score is used, as presented in Table 1.

Table 1. Scoring Scale for Positive Statement

No.	Description	Answer	Positive Score
1.	Very Agree	A	4
2.	Agree	B	3
3.	Doubtful	C	2
4.	Disagree	D	1

(Joshi et al., 2015)

The formula used to calculate the percentage is presented below (Akbar & Sriwiyana, 2011):

$$V = \frac{TSEV}{S - max} \text{ x } 100\%$$

Description:
V : Validity
TSEV : Total empirical score from validator
S-max : The highest expected score
100% : Constant

Later, the calculation results are classified following the criteria presented in Table 2.

Table 2. Criteria of Product Quality

Percentage	Classification	Description
75,01%-100,00%	Very Valid	Can be used with no revision
50,01%-75,00%	Valid	Can be used with minor revision
25,01%-50,00%	Invalid	Cannot be used
00,00%-25,00%	Very Invalid	Prohibited to be used

(Akbar & Sriwiyana, 2010)

Experts Criteria

This study involves an expert in the learning process, an expert in learning media, and an expert in the game. These people are invited to provide critics and suggestions to support and polish the developed product.

Media Expert

The learning media expert involved in this study is a lecturer from the Science Education Faculty of Universitas Negeri Malang who has a master's degree in science education and an excellent understanding of learning media.

Learning Expert

The learning expert is a lecturer from the Sports Science Faculty of Universitas Negeri Malang, with a master's degree and exceptional comprehension of physical education.

Games Expert

The games expert is also a lecturer in the Sports Science Faculty of Universitas Negeri Malang, who has a master's degree and outstanding comprehension of play and games modification concepts.

RESULTS AND DISCUSSION

The data analysis aims to identify the feasibility of the application-based learning games media variation using play and games concept for the physical education teacher at the elementary school level, in East Java, Indonesia.

Results of need Assessment on The Physical Education Teachers in Elementary School Level

The results of the need assessment on the physical education teachers at the elementary school level are presented in Table 3.

Table 3. The results of Need Assessment Analysis from a 10 Items Instrument

No.	Questions	Answers	%
1.	I have delivered learning material using play and games concept	Ever Never	61 39
2.	I have delivered material on the variations of locomotor, non-locomotor, and manipulative basic movement using the game with play and modification concept	Ever Never	55,5 44,4
3.	I have delivered basic movement variation material using play and game concept	Ever Never	50 50
4.	I have developed online learning material using play and game concepts accessible for the students	Ever Never	5,5 94,4
5.	I have ever encountered obstacles during the learning process	Frequently Never	5,5 94,5
6.	I have ever faced hindrances during the teaching of basic movement variation material using play and games through the smartphone.	Ever Not yet Never	22,2 61,1 16,7
7.	I know a learning process can be carried out using an Articulate Storyline application.	Know Do not know	0 100
8.	I support the development of basic movement material media using play and game concept	Agree Disagree	100 0
9.	There is a Wifi or internet connection in my school	Have Do not have	100 0
10.	I have ever used an internet connection to deliver the learning material	Ever Never	

(Source: Research data)

From the data presented in table 3, some conclusions can be made: 1) half of the research subjects admit that they have ever delivered movement variation material using the play and game concept, while the other half never used the concept, 2) only 5.5% of the research subjects mention that they have developed online learning media, while the remaining 94.5% have never developed online media, 3) 17% of the subjects explained that they have never experienced hindrances in delivering material using play and game concept, while the 61% say never, and the other 22% of subjects admit that they have ever encountered obstacles, 4) all of the research subjects mention that they have no idea of the Articulate Storyline application, 5) all of the subjects also agree on the development of application-based learning media on the basic movement variation material using play and game concept for elementary school level, 6) all of the subjects also say that their school provides WIFI or internet connection.

Results of the Evaluation from the Media Expert

The assessment from the experts focuses on the clarity, accuracy, simplicity, attractiveness, and conformity of the media.

Table 4. The Assessment Results from Media Expert

No	Aspect	Percentage	Category	Description
1.	Clarity	85	Very Valid	Can be used with no revision
2.	Accuracy	100	Very Valid	Can be used with no revision
3.	Simplicity	82	Very Valid	Can be used with no revision
4.	Attractiveness	90	Very Valid	Can be used with no revision
5.	Conformity	80	Very Valid	Can be used with no revision
	Average	91	Very Valid	Can be used with no revision

The average score from the media experts is 91% so that the developed product is categorized as valid to be used and implemented in the learning process.

Results of the Evaluation from the Learning Expert

Similar to the assessment from the media experts, the evaluation from the learning expert also accentuates the media's simplicity, accuracy, precision, attractiveness, and suitability.

Table 5. The Evaluation Results from Learning Expert

No	Aspect	Percentage	Category	Description
1.	Simplicity	75	Very Valid	Can be used with no revision
2.	Accuracy	75	Very Valid	Can be used with no revision
3.	Precision	75	Very Valid	Can be used with no revision
4.	Attractiveness	75	Very Valid	Can be used with no revision
5.	Suitability	75	Very Valid	Can be used with no revision
	Average	75	Very Valid	Can be used with no revision

The average score from the learning expert is 75%. Therefore, the developed learning media is categorized as very valid and can be implemented in the learning process.

Results of Assessment from The Games Experts

The assessment from games experts focuses on the clarity, accuracy, attractiveness, and suitability of the developed media.

Table 6. Results of Evaluation from the Game Expert

No	Aspect	Percentage	Category	Description
1.	Clarity	98	Very Valid	Can be used with no revision
2.	Accuracy	95	Very Valid	Can be used with no revision
3.	Attractiveness	97	Very Valid	Can be used with no revision
4.	Suitability	90	Very Valid	Can be used with no revision
	Average	95	Very Valid	Can be used with no revision

The evaluation from games experts shows a 95% average score, indicating that the developed product is very valid and can be implemented in the learning process.

The Results of Small Group Try Out

The analysis results on the small group try-out data also focus on the product's clarity, accuracy, simplicity, attractiveness, and suitability.

Table 7. The Analysis Results of Small Group Try Out

No	Aspect	Percentage	Category	Description
1.	Clarity	78,1	Very Valid	Can be used with no revision
2.	Attractiveness	79,3	Very Valid	Can be used with no revision
3.	Simplicity	92,1	Very Valid	Can be used with no revision
4.	Accuracy	78,1	Very Valid	Can be used with no revision
5.	Suitability	79,9	Very Valid	Can be used with no revision
	Rata-rata	81,3	Very Valid	Can be used with no revision

The average score obtained from the small group try-out is 81.3%. Thus, the developed product can be categorized as very valid and can be adopted in the teaching and learning process.

Analysis Results of Large Group Try Out Data

Identical to the small group try out, the large group try-out also accentuates the product's clarity, accuracy, simplicity, attractiveness, and suitability.

Table 8. The Analysis Results of Large Group Try Out Data

No	Aspect	Percentage	Category	Description
1.	Clarity	86	Very Valid	Can be used with no revision
2.	Attractiveness	99,6	Very Valid	Can be used with no revision
3.	Simplicity	82,6	Very Valid	Can be used with no revision
4.	Accuracy	79	Very Valid	Can be used with no revision
5.	Suitability	96,8	Very Valid	Can be used with no revision
	Average	82,1	Very Valid	Can be used with no revision

The average score of the large group try-out is 82.1% so that the developed product is classified as very valid and can be used as an alternative media for the learning process.

The overall score of the product's evaluation from the experts is 91%, categorized as valid. The above 90% score indicates that the developed learning media is feasible, can be easily understood and implemented in the learning process. (Fauziah, 2016) explains that if the media experts give above 86.5% average score, then the developed product can be used with a high-efficiency level. This makes the use of the product expected for physical education subject teachers to use this product as an example of a variety of learning media products. This high score can be disseminated for wide use, this product can be disseminated to teachers through schools and students as a source of learning. In teaching students to be in accordance with the way of learning, the manufacture of this product can be achieved optimally, in practice the teacher must remember that there is no learning model that is most appropriate for all situations and conditions. Therefore, the teacher in choosing a learning model must pay attention to the condition of his students, the content of the material in the teaching materials, the existing media facilities, and the condition of the teacher himself.

The average score from the learning expert is 75% that is also classified as valid. Compared to the product developed by (Masgumelar et al., 2019) that has attained a 90.9% validity score from the learning expert, the content and discussion in the developed product using play and games modification concept in this study should be improved to get a more exceptional product that can be easily comprehended and facilitate the basic movement learning in the elementary level. The trial on learning experts is still relatively low at this stage, the instrument is good, there is no need for revision, but there are some additions and input from learning experts, to increase the content so that it can be understood by readers so that the level of validation can be higher.

In addition, the product also gains a 95% score from the game's experts, categorized as very valid. Linear to a study carried out by (Ma'ruf et al., 2019) on the modification of the game that obtains 86% score, categorized as very good. Thus, this media developed using play and game modification techniques is highly feasible and can be implemented in the learning process. If the game product is still considered unsupportive for the development of students in terms of the physical and affective aspects of students, as well as the ability of this game product to support the ability of students to be active in moving. If it is not done piloted by a long period in the stages of the tool research, with a model of the actual match. Thus, in the above-mentioned matters have not been considered to have great benefits. Therefore, the trial of this game product has become the right step in its treatment, so that it can be used properly.

Product trials must be carried out on small or limited group test subjects, this group trial aims to test whether a product is feasible or not to be given to users or respondents. This small group trial is intended to identify the product at the initial problem when the product will be used. Through this small group test, it can be expected that there are no fundamental problems when an interactive product is used. The small and large group try-out in this study involved a 30 items instrument that is disseminated to the respondents. The average scores from the small and large group try out are 81.3% and 82.1%, categorized as very valid. An increase from the small group try out to the large group try out is observed by 0.8%. Research carried out by Nissa et al. (2018) on the implementation of modified jump rope games on small and large groups attain 97.25% and 98.35% scores, respectively. The developed product on that research produces a higher score than the product developed in this study so that the content and discussion on the product in this study should be improved. At the time of research, students are selected in small group trials, students are asked to provide comments or input about the product by filling out the questionnaire provided.

This developed product is in the form of application with games variations that developed through an articulate storyline that associates several aspects, such as text, video, animation, and audio. Learning media is extremely essential to enhance students' enthusiasm to join the learning process. During the learning process, teachers should facilitate the students' learning (Adi & Fathoni, 2020b). The learning process involves any activities relevant to the process of attaining knowledge, skills, and positive values using various learning sources (Carter et al., 2020).

In addition, the precise meaning of learning is any activities that facilitate the educational process (Fathoni, 2018). Besides, it can also be translated into the process of obtaining knowledge and information through a series of activities that positively transform someone and improve their skills, knowledge, and ability (Saefuddin & Berdiati, 2015). Learning activities are carried out to facilitate, initiate, and accelerate students learning's intensity and efficiency (Winataputra et al., 2014). Learning also illustrates the struggle of students to learn (Falahudin, 2014). Learning is a process of change in the human personality and that change can be manifested in the form of increasing the quality and quantity of behavior such as increasing knowledge, increasing skills, improving attitudes, changing habits, increasing understanding, skills, developing thinking power, and other abilities. Learning is a complex and unique process which means that someone who learns involves several aspects of his personality, both physically and mentally. The involvement of all aspects of this personality will make one's learning behavior visible. This visible learning behavior can be unique, which means that behavior can occur if it is in that person and not in others. Everyone who raises learning behavior is different. The uniqueness of this learning behavior is caused by the differences in the characteristics that determine the learning behavior itself, such as that person's learning style, a person's cognitive style in receiving knowledge, talents, interests, a person's level of intelligence, intellectual maturity, and others can be referred to the characteristic's individual students.

According to Suyono and Hariyanto (2014), learning activity is signified with the educational process, where the teacher teaches and guides the students to be better individuals. Additionally, learning also means a concept of designated teaching and learning activities that should be realized and directed to obtain the learning goals in the form of competencies mastery, as the learning results (Supriadie et al., 2013). In short, learning represents the teaching and educational process aiming to attain learning purposes. The process facilitates the attainment of knowledge, skills, behavioral, and mindset changes through the interaction among teachers and students.

The teacher holds a role in guiding, directing, motivating, and demonstrating to the students to learn from the available learning sources. During the learning process, learning media is crucial in aiding teachers to deliver the material. The media can be used as a tool to deliver the message in a more efficient, unmistakable, and interesting way. Media can also facilitate the learning process without the physical presence of the teacher (Sadiman, 2011). In relation to its role as planner, teachers are obliged to develop learning objectives so that operational plans. General goals need to be translated into specific and operational goals. In planning it, students need to be involved so as to ensure its relevance to their development, needs, and level of experience. This role demands that planning remains relevant to the situation of the residents, student study habits, student experience and knowledge, appropriate learning procedures and subject matter that matches their interests.

In terms of urgency, learning development is seen as meaningful and necessary for an organization, among others, due to: 1) With the existence of planning, it is hoped that a direction of activity will grow, there are guidelines for the implementation of activities intended to achieve development goals. 2) With planning, so that something can be tried to be estimated (forecasting) on things in the implementation period to be passed. It is assessed on the potentials and prospects for growth, but also on the obstacles and risks that may be experienced. 3) By planning the priority scale arrangement is tried. Sorting out sequences in terms of the significance of a goal, target or type of business activity. In improving teaching preparation, it must first be known the meaning and purpose, and understand the theoretical and instantaneous elements that exist in teaching preparation. The ability to make teaching preparation is the first step that must be possessed by teachers, and as the estuary of all theoretical knowledge, basic skills, and in-depth descriptions of learning objects and learning situations.

Learning media should have the ability to deliver messages related to education and learning purposes (Dwiyogo, 2010). Every object can be learning media, as long as it stimulates students' thought, feeling, attention, and willingness, so that it inspires deliberate, purposive, and controlled learning (Suryani et al., 2018). Besides, learning media is a tool that facilitates the teacher to teach and serves as a message carrier from the learning source to the students (Falahudin, 2014). Therefore, learning media is a tool taken by the teacher to aid the material delivery during the learning process. This tool creates a more authentic and motivating learning experience that strengthens their ability to comprehend the material.

In addition, learning media can come from different components from students' environment that provokes and motivates students to learn (Jamaluddin & Rifa'i, 2018). Learning media has grown following the technology advancement so that it should improve students' motivation to learn. Thus, learning media aids the realization of an efficient learning process since it helps the teacher to deliver the material during the learning process. It transforms the learning to be more interesting and eases students to understand the material.

Recently, online learning has gains excellent popularity caused by the Covid-19 pandemic that demands people to avoid face-to-face learning. Therefore, all learning process in the whole world is carried out online. Application is one of the alternative media that facilitates this online learning. Rohani (2019) explains that media is a facility or tool that can be used as a learning source.

Essentially, physical education grows students' sense of responsibility and comprehensive physical development, as well as religious advancement since it expands students' affective and cognitive skills. This course involves physical activities so that the students should actively move and learn through their movement (Jess et al., 2021). It is one of the conscious efforts to create an environment that grows the students' cognitive, affective, and psychomotor potential through physical activities (Tolgfors, 2020). Physical activities are expected to facilitate the attainment of cognitive, affective, and psychomotor learning objectives. This course is included in every educational level to gain a healthy and fit body, as well as the movement skills that affect students' behavior, intellectual, and psychomotor (Jeong & So, 2020). It comprises physical activities that enhance students affective, cognitive, and psychomotor (Baños et al., 2020).

Humans can basically grow and develop through a process in the natural process towards maturity both physically and psychologically (spiritual). This process can be carried out with the educational process, namely towards optimal human development in accordance with the potential and abilities it has. According to Lutan et al. (2002) physical education is essentially an educational process through physical activity as a "tool" to achieve educational goals. The purpose of physical education is comprehensive, covering the physical, intellectual, moral, social, and emotional aspects. Target space in physical education aims to foster health and awareness in the surrounding environment.

Physical education is an integral part of the extensive educational system that aims to develop physical fitness and health, along with social skills, logical skills, and moral action through sports activities. Besides, the inclusion of physical education in the education system aims to develops individuals, organically, neuromuscularly, intellectually, and emotionally (Jones & Penney, 2019). Therefore, physical education is part of every level of the education system that develops students' affective, cognitive, and psychomotor skills. In the placement of physical education positions, it is believed that the contribution to physical education will only be meaningful when students get motion experiences in physical education related to the student's life process as a whole later in this community environment can make the experience in the physical education process not contribute to the educational experience others, therefore there must be errors in implementing the physical education program.

Physical education helps students to develop an understanding of what they need to be able to make lifelong commitments about the importance of living a healthy, active, and developing capacity to be able to live a satisfying and productive life so that later it will have an impact on increasing their productivity and readiness in learning, increase enthusiasm for learning, reduce absenteeism, reduce health care costs, decrease anti-social behavior such as bullying and other violence, as well as promote healthy and safe relationships, and increase personal satisfaction.

Playing is a fun, serious, and voluntary activity that can be a means to facilitate active learning (Benítez-Jiménez et al., 2020). It promotes the process rather than the final result since the process carries beneficial

values (Goršič et al., 2017). The characteristics of playing are, a) free, voluntary, and has no coercion; b) not limited by time and space; c) its results are planned; d) has no results or permanent values; e) its regulations depend on the situation, and are determined following the arrangement; and f) its quality represents the real-life situation (Fields et al., 2020).

A game is defined as a recapitulation of primary and dominant activities in human development. It is a form of social activity involving many people (Szumski et al., 2019). It involves physical skills, strategy, and combination. It requires various connections, energy, seriousness, and appreciation on the ones who can attain success. Meanwhile, the play and games modification is the simplified implementation of games with minimum tools and regulation. The game is selected as the learning approach due to it carries relaxing and entertaining learning (Lin & Liu, 2015). Play and games modification is divided into some types based on their movement similarities, such as target games, invasion games, net and wall games, along striking and fielding games (Johnson, 2017).

This play and games modification concept has some principles, such as 1) the content is based on tactical problems, not a skill; 2) the game is understandable and authentic so that it has to carry the elements of real games; 3) if the students are provided with the new game, the tactical issues can be anticipated and the learning task can be adopted from the previous learning; and 4) it requires a long period so that the students can experiment to find the possible solutions for the tactical issues (Radhakrishna et al., 2019).

Target games have some particular elements, such as 1) the activities focus on the target that emphasizes accuracy in delivering the object to a certain area; 2) it involves the skills to shot the target; 3) the ones who send the object made no movement; 4) it gives limitation on the body movement, to run, and dodge; and 5) it tends to have a minimum area (Aini, 2021). Meanwhile, the principles in the invasion game are 1) it focuses to control the object in a more specific area; 2) a group of the player has to control the object and move to the goal barrier or other place to attack their opponents, and 3) the player should move or obstruct the player who has the objects. The net and wall games also have some elements, such as 1) it involves movement and control on the object to keep it from other players; 2) send the object to the back wall or pass through the net; 3) control the area permanently and move based on the position to block the attack from the opponent. Lastly, the components of striking and fielding game are 1) the players attack an object; 2) the point is attained once the object goes out of the game area; 3) the game tends to be slower; 4) uncomplicated game tactic; 5) provides a longer period to make a lower number of decision (Beni et al., 2019).

Locomotor movement is a motion to move with movement on particular body parts. The basic locomotor movement is one of the fundamental basic movement domains. Locomotor skill is defined as the ability of an individual to move from one place to another place. Most of the locomotor skills develop at a specific maturity level, but their development also requires exercise and experience. An example of this skill is the ability to run fast, gallop, slide, and jump. These activities are challenging since it combines another basic movement pattern. Locomotor skills shape or become the fundamental of gross skills coordination and involve the big muscle movement.

In contrast, non-locomotor movement can be defined as a stable skill. This movement requires no or limited movement from their focus area. Besides, it also represents the movements that involve minimum to no basic buffer or do not require the player to move away. Examples of this movement are, stretching, bending, twisting, turning, swinging, swaying, pushing, and pulling. Meanwhile, manipulative movement involves the movement to control an object, specifically using hand and foot. This movement is classified into receptive and propulsive movements. Receptive movement is the movement in receiving the object, such as catching, while the propulsive movement is directing the force or energy toward the object, such as hitting, throwing, bouncing, or kicking. This movement becomes the fundamentals of many game skills. This movement requires energy, such as throwing, hitting, and kicking, or receiving an object.

In the school-age (six-12 years old), children are in the concrete operational development. During this period, they have to learn, but they also face instability of desire since they only receive knowledge that should be memorized and skills with low mental level. On the other hand, the movement stimulates their growth and development. The arranged movement pattern increases children's development quality. Therefore,

elementary school students tend to like playing activities that are fun, free, and independent (Bégin et al., 2020).

Elementary school is a school level where it penetrates the transition period from the small child phase to the big child phase. Big children are children aged between 6 to 12 years. Physical growth in older children tends to be different from the period before and after. The development of the hands and feet is faster than the development of the togok. In older children, the development of movement skills is in the form of the growth of coordination of movements, as well as the growth of basic movement abilities. The growth of coordination of movements in older children begins to appear, it can be seen from the skills of applying certain movements, for example the skills of holding, hitting, throwing, catching, bouncing the ball, bouncing, and various movements to change body position quickly. In carrying out these various skill movements, children usually face a gradual increase. The development of coordination of body movements is the key to the growth of the ability of various movements of skills.

Concentration of physical training is not attempted during the newcomer period, which in fact is a child because the developmental aspect is still vulnerable. Graham et al. (2007) reported, "this consideration stems from the fact that the child's skeleton is immature and is facing rapid development. During this period the skeleton is prone to injury which if not identified and not treated properly can result in permanent destruction." This consideration should be used as a reference, so that you are more careful in distributing motion activity modules. In this session, it is hoped that it can trigger children's movement skills to be better. Exciting game activities are highly recommended to be able to trigger the growth of children's movements, so that the development process becomes better.

Every child has exceptional brain potential that should be utilized optimally. Meanwhile, the right and left brains carry different roles. Intellectual intelligence is the natural ability given by God. In contrast, emotional and spiritual intelligence should be exercised from an early age. Therefore, in determining students' learning style their intelligence should be considered. Besides, the learning style should also maximize the use of the sense of sight, hearing, and other senses (Nancekivell et al., 2020). Children's intelligence can be divided into eight types (Alzain et al., 2018). First, linguist intelligence, representing the ability to speak and write properly. Second, logical mathematic intelligence covers the ability of reasoning, counting, and logical thinking. Third, the visual-spacial intelligence, consisting of the ability to paint, photograph, and sculpt. Fourth, kinesthetic-physical intelligence which means the ability to use the body parts. Fifth, musical intelligence, representing the ability to compose music, sing, and play musical instruments. Sixth, interpersonal intelligence that means the ability to socialize. Seventh, interpersonal intelligence, the ability to manage their own feeling and self-awareness. Lastly, naturalist intelligence is the ability to get to know nature easily.

The developed product in this study has been validated by the experts of media, learning, and games. Besides, it has also been tried out twice, in small and large groups. The product has also been revised following the suggestion from those validations and try-out process. From those processes the benefits of this developed product are: 1) it is developed through articulate storyline application, its final version is in the form of application accessible through laptop and handphone, 2) it can be downloaded and can be set accessible offline with low capacity, 3) it consists of variation on play and game composed in the form of the game, 4) this product is developed following the needs of the physical education teachers, 5) it subsists of badminton material for the elementary school level, 6) the game is arranged using the facility and infrastructure that are widely available, 7) it can be used as a reference to aid the teacher in the learning process using badminton material at the elementary school level.

In addition, the limitations of this product are: 1) it only focuses on the game variations, 2) the developed articulate storyline application can only be used by the physical education teachers at the elementary school level, 3) it is only developed based on the needs of the physical education teachers in the East Java Province, Indonesia.

CONCLUSION

The findings show that the basic movement learning models of the concept of play and games modification at elementary school level are feasible to use. In the online teaching and learning process, learning media in the form of application can be the alternative media for the teacher. This media helps to attain successful learning, as well as to realize the innovation in the education field so that the students are motivated to learn. The developed learning media is equipped with audio, text, and graph, composed in an alluring way that follows students' interests. Besides, it also provides evaluation, in the form of exercises or quiz that can automatically generate the scores, similar to the real games. Future research is expected to develop a learning model to improve the basic movements of early childhood based on hybrid learning so that teachers can control student development through offline meetings.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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