

## Development of ICT TPACK learning media for gymnastics material

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### ABSTRACT

*ICT TPACK-oriented Physical Education learning media is an urgent matter at this time. This study aimed to develop a video task of forward fold, balance, and jumping for elementary school students by adopting the ADDIE model design. This article focused on the analysis and planning phases. The research population consisted of a total number of students 683. This study took a sample of 448 students in 5 public elementary schools in the Buleleng District. The research instrument used a closed questionnaire in the form of a Google Form and a motion task validation sheet. The analysis technique used quantitative-qualitative descriptive analysis. Based on the study's results, it was found that 1) 96.9% (448 people) of students needed Physical education videos for learning motion tasks. 2) the content expert scored 69 from the highest score, 75. Based on the research and discussion results, this research could be concluded: 1) Elementary School Physical education teachers needed a motion task video and carried it out according to this study 2) The motion task was considered valid by Physical education content experts.*

**Keywords:** Physical education, balance, ICT TPACK

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## INTRODUCTION

The motoric development of early childhood will have an impact on other aspects of development (Ulfah, Dimiyati, & Putra, 2021). Motor development will affect the mental and cognitive development of children in the future (Ibda, 2015). So that motor development must be a serious concern and assistance from educators in early childhood education units is needed (Mashuri et al., 2022). Educators in early childhood education units must provide broad opportunities for children to move according to the rules of child movement, provide learning experiences to find something, teach activities that involve large and small muscles, increase self-confidence, to form the concept of the child's vision (Ulfah et al., 2021).

The age of kindergarten is a very decisive period for the development of children when they become adults (Rohmawati, 2015) and the golden age that must get serious attention in motor development (Sujarwo & Widi, 2015). In other words, the age of 4-6 years is a fundamental age for the development of body organ functions. So it is necessary to get

stimulation and direction of movement to optimize the work of the organs of the body when they are adults (Mashuri et al., 2022).

Improving motor skills and physical fitness of children is one of the goals of early childhood education institutions (Chen, Mason, Hammond-Bennett, & Zalmout, 2016). Children who have good motor skills and who are physically fit are more likely to be active, skilled, and creative people (Stodden, Langendorfer, & Robertson, 2009). Therefore, various efforts have been made by early childhood education teachers so that students can move for fitness and develop their motor skills, one of which is through gymnastics (Pasaribu & Mashuri, 2019).

The development of motor competence during infancy and childhood is dependent upon and influenced by the growth and maturity characteristics of the child interacting with the environment in which a child is reared (Malina, 2004). Motoric development of students develops well if they have a large enough opportunity to carry out physical activities in the form of movements that involve various parts of the body, thus enabling students to master motor skills well. What is meant by appropriate sports assignments for students are sports tasks that are carried out in stages from easy to difficult and from simple to complex according to the characteristics and needs of students to ensure the students safety (Gunarto, Suwiwa, & Tisna, 2022).

In activity learning, the media used for movement tasks is also very much needed to support the learning process in the classroom. In addition, during the pandemic, many teachers use video tutorial media for classroom learning, but this is sometimes not effective in the learning process (Adnyana & Gunarto, 2020) because students still do not dare to do the assignments given by the teacher. Therefore, the researcher designed a media that would facilitate the motor task for the teacher. The researcher plans to change the learning media that was previously provided by the teacher in the form of video tutorials, now uses audio-visual media (Widyalaksono, Mashuri, & Lusianti, 2020).

One of the materials that can improve the task of movement so that students are more fit is gymnastic (Pasaribu & Mashuri, 2019). Gymnastics is one of the materials in physical activity learning. Gymnastics is also a good movement activity to improve the physical fitness of students. Gymnastics is a sport that is done with music and aids for movement, gymnastics can also help keep the body healthy (Pasaribu & Mashuri, 2019). Gymnastics is any form of physical learning that is systematically arranged by involving selected and planned movements

to achieve certain goals. In gymnastics there is one material, namely gymnastic activities.

Gymnastics is an effective physical activity to optimize children's growth and development. Doing rhythmic gymnastics regularly and routinely will optimize children's motor development (Saputri, Sasmiati, & Sofia, 2017). Rhythmic gymnastics has a role in increasing children's basic movement skills (Zulfahmi, 2016). Gymnastic movements are very suitable in physical education learning, because they can stimulate the development of components of physical fitness such as strength, endurance, and flexibility. In elementary schools, especially in lower grades, gymnastics activities have been carried out previously, with the material of moving movements, in-place movements, and manipulatives. Students do learning using video tutorial media and still do not use motion media that can be demonstrated directly by students. The learning process in this 21st century era, of course, physical activity learning cannot be separated from the role of ICT (Information and Communication Technology). In learning communication, learning media is needed to increase the effectiveness of achieving learning objectives. That is, the learning process will occur if there is communication between the recipient of the message and the source/distributor of the message through ICT media (Jannah et al., 2019). By incorporating the role of ICT into the world of learning design, it will certainly increase the passion of the world of education, especially in PJOK learning.

Information and Communication Technologies (ICT) is a broad umbrella term covering all technical equipment for processing and conveying information. ICT includes two aspects, namely information technology and communication technology. Information technology includes everything related to the process, use as a tool, manipulation, and management of information. While communication technology is everything related to the use of tools to process and transfer data from one device to another. TPACK is important for teachers, because as technology develops, teachers must be more able to use technology in the teaching and learning process in the classroom. They are making learning media that can help the learning process and can make the learning more interesting so that students do not feel bored with the previous learning. For TPACK students it is important, by utilizing existing technology, the learning process can be more effective and efficient. And if students have a card that can be scanned to open the motion task video, then students will understand more about the given motion task.

The Great National Sports Design (DBON) is a design made to advance Indonesia to be more active in sports (Setiawan & Oktriani, 2022). According to the Presidential Regulation of

the Republic of Indonesia (PERPRES) Number 86 of 2021 concerning the Great Design of National Sports or (DBON) is a master plan document that contains the direction of national sports coaching and development policies that are carried out in an effective, efficient, superior, measurable, systematic, accountable and accountable manner. sustainable in the scope of educational sports, recreational sports, achievement sports, and the sports industry. p learning in floor exercise material is the scope of educational sports contained in DBON. In relation to floor exercise, DBON is very suitable to be applied in physical activity learning. Because in DBON's vision which realizes a fit Indonesia, with superior character and achievements in the world, really helps students in living healthy, growing good characters and achieving.

Based on observations made by researchers at the State Elementary School 3 Banjar Jawa, on January 15, 2022, in physical activity learning one of the materials provided by the teacher, namely the teacher exercise activity material looks still monotonous in giving movement assignments, so that students tend to be less enthusiastic in the learning process. Where in gymnastics activities the teacher does not yet have learning media in the form of motion assignments, so far the teacher only uses video tutorial media. It can be seen that students are still afraid to do gymnastic activity movements, previously the teacher had also provided video tutorials but still students were afraid to do gymnastic activity movements, because students still did not have an understanding of how to implement the movements. Therefore, researchers plan to develop audio-visual media based on motion tasks.

Learning media in the form of audiovisual video in DVD format based on motor tasks. Learning media is designed in such a way that films (video) and audio (sound) can involve students in presenting material in the form of audiovisual (Dewi & Herman, 2017; N. I. Hasana, Sugihartono, & Raibowo, 2021; Widyalaksono et al., 2020). This learning media contains material about the meaning of gymnastics activities, packaged in the form of video tutorials with videos of motor tasks, including locomotor, non-locomotor, and manipulative material. This material is found in learning activities for class I, II, and III gymnastics.

Based on the above background, the researcher intends to develop ICT-TPACK in conducting PJOK learning. Because students need motion task media to support learning so that the learning process can run smoothly. Therefore, researchers are interested in conducting research with the title "Development of Learning Media for ICT-Oriented Gymnastics

Activities TPACK for Students in Elementary Schools".

## **METHODS**

This research was a research and development (R&D) using the ADDIE model. The selection of this development model was based on a model that developed in a structured manner with the needs and characteristics of learning. The ADDIE model included five steps, namely: (1) analyze, (2) design, (3) development, (4) implementation, and (5) evaluation (Carolin, Astra, & Suwiwa, 2020; Putra, Kanca, & Suwiwa, 2017; Tegeh & Kirna, 2013). The product trial subjects who actively participated in the development of learning media for ICT-oriented gymnastics activities TPACK came from students in grades I, II, III at the State Elementary School 3 Banjar Jawa . In individual trials involving 5 students, while in small group trials involving 15 students . There were two forms of data collection instruments, namely test and non-test. Non-test is done by conducting surveys, interviews, and questionnaires (closed and open). The data were analyzed qualitatively by using interview and observation techniques and quantitatively by processing the data obtained through questionnaires and the width of expert validation, in the form of descriptive percentages and FCE conversions.

## **RESULTS AND DISCUSSION**

### ***Results***

At the initial stage, a needs analysis related to physical activity subjects was carried out for class I, II, III students and teachers. Needs analysis includes 2 (two) things, namely: 1) curriculum analysis and 2) learning media needs analysis. Curriculum analysis uses interview, observation and questionnaire techniques for teachers . Based on the results of interviews with teachers, it was found that physical activity learning, especially floor exercise material, was equipped with media in the form of learning videos, but there were no movement assignments. Then, from the results of observations that have been carried out, related to the tools used to carry out school floor gymnastics, there were limitations in providing mattresses to support learning. In addition, observations made on the curriculum also found that the curriculum used was Merdeka Learning with the material for knee-kiss, balance, and jumping exercises. Respondents' needs for the ICT TPACK-oriented motion video task can be seen in the figure below.



Fig.1 Respondents' needs for the ICT PACK-oriented motion task video can be seen in the figure above

Based on Figure 1, it could be seen that as many as 440 people (97 %) students of Class I, II, II II Public Elementary Schools in Buleleng Sub-district need ICT TPACK - oriented motion task videos, while 5 ( 1 %) other students think they don't need and hesitate as many as 9 people ( 2 %) of the learning media.

In the stage of designing learning media there were 3 stages. First, develop learning objectives that were in accordance with KI and KD. The learning objectives of the forward roll and backward roll material were cognitive JVS , psychomotor BJKW , and affective JBC . Second, designing movement tasks that were in accordance with learning objectives and third, designing video tutorials and motion assignments resulting from content expert validation in the form of story boards and flowcharts. The feasibility of learning video media could be seen through the following percentage results.

$$\text{Presentation} = \sum \frac{(68 \times 1)}{15 \times 5} \times 100\% \sum \frac{(68 \times 1)}{15 \times 5} \times 100\%$$

$$\frac{68}{75} \times 100\% \frac{68}{75} \times 100\%$$

$$= 91\%$$

$$\text{Presentation} = \sum \frac{(70 \times 1)}{15 \times 5} \times 100\% \sum \frac{(70 \times 1)}{15 \times 5} \times 100\%$$

$$\frac{70}{75} \times 100\% \frac{70}{75} \times 100\%$$

$$= 93\%$$

The percentage scales of 91 % and 93 % were. on .very good qualification . That way the learning video media has a feasibility level very good from the material aspect.In the



For the results obtained from each of the questions answered by the 15 students, they got a score of 3 and got an average of 3.00. Furthermore, for the score of each component, namely questions 1-3, namely the results of the 15 students getting a score of 3 and getting an average of 3.00, for questions 4-5 was a component of willingness to get a score of 3 out of 15 students and get an average – an average of 3.00, the method component was questions 6 – 7, of the 15 students get a score of 3 with an average acquisition of 3.00, while questions 8 – 9 were a component of cooperation in which the 15 students get a score of 3 and get an average of 3.00. Overall FCE score standard can be seen in table 2.

**Table 3. Overall Standard Score of FCE**

| Value | Score of FCE | Category  |
|-------|--------------|-----------|
| 5     | 2,77-3,00    | Very Good |
| 4     | 2,58-2,76    | Good      |
| 3     | 2,34-2,57    | Average   |
| 2     | 2,15-2,33    | Poor      |
| 1     | Under 2,15   | Very Poor |

The table above showed that the results obtained from each component get a score of 3.00. It means that with a score of 3.00, it has very good qualifications and r.

### **Discussion**

The results of this study were supported by the results of several researchers who also focus on the development of learning media. [Swadesi & Kanca \(2018\)](#) conducted a study entitled "Development of ICT-Based Physical Activity Learning Media in Junior High Schools" the results of research on the development of Sports and Health Physical Education (PJOK) learning media for junior high school level for big ball games, which have been tested on students as users and get an average score of 4,349 with the criteria of "Very Good".

Similarly, research by [Nurhayatun Iis Hasana, Raibowo, & Sugihartono \(2021\)](#) entitled "Development of ICT-Based Audio Visual Learning Media Models for Elementary School Teachers in Seluma District" . The Seluma Sub-district State in the physical activity study included: "96% eligibility, for expert II stage I, media eligibility" very feasible "ratio" was 81%, and the final result of the evaluation was carried out by experts in the second stage of



second stage media eligibility, the ratio "very Eligible" was 94%, and the overall quality of the audiovisual learning media at the Seluma District Elementary School, the physical activity teacher's answer is in the very appropriate category, which was 96%. In learning communication, learning media is needed to increase the effectiveness of achieving learning objectives. That is, the learning process will occur if there is communication between the recipient of the message and the source/distributor of the message through ICT media (Jannah et al., 2019). By incorporating the role of ICT into the world of learning design, it will certainly increase the passion of the world of education, especially in PJOK learning.

The research conducted by Haking & Soepriyanto (2019) entitled "Development of Swimming Learning Video Media in PJOK Subjects for Class V Elementary School Students" was also declared effective because it have been proven that all audiences (students) can meet the KKM ( $\geq 70$ ), as evidenced by the results Student learning showed that in individual trials on 3 students, the average score on the pre test was 60% and on the post test is 90%, and there was an increase of 30%, while the percentage of students who meet the SKM from 33.3% to 100%. In a small group trial of 10 students, the average score on the pre-test was 56% and on the post-test was 90%, and there was an increase of 34%, while the percentage of students who met the SKM from 20% to 100%

Thus, the results of this study which focused on video media for learning gymnastics activities with forward fold, balance, jumping materials could help the learning process, and make it easier for students to understand the material contained in the learning video. It also made the teaching and learning process more interesting and not bored quickly, so that it could improve student learning outcomes.

## **CONCLUSION**

According to the learning content expert, the media is in the very good category and gets a percentage of 91%, (2) according to the design/learning media expert, the media is in the very good category and gets a percentage of 97%. The responses given by students in small group trials on the development of video media for learning gymnastics activities on the subject of forward fold, balance, jumping are very good. In addition, the responses given by students in small group trials on the development of video media for learning gymnastics activities on the subject of forward fold, balance, jumping are very good and get 3.00. So it can be concluded that the developed media is feasible according to experts and students.

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