

## Children's physical literacy development needs using mobile learning

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### Abstract:

During the COVID-19 pandemic, children's health and immune system must be maintained so that children do not easily contract the virus. This is the importance of seeing and paying attention to physical fitness in children during COVID-19 through physical literacy because a healthy body will affect future development. Some teachers use mobile learning in some subject matters. Mobile learning is a learning model that involves mobile devices so that students can access learning materials, learning instructions, and learning applications without being limited by space and time, wherever and whenever they are. This study aims to describe the needs of mobile learning for teachers in PAUD. Survey research method with sampling techniques conducted with simple random sampling amounted to 52 PAUD teachers. Data collection using questionnaires that include the implementation of physical activity and the use of mobile phones. The questions are: (1) Have you ever given examples of physical activity to children; (2) Have you ever given an example of physical activity in children using a smartphone (HP); (3) Do you often do physical activity at home; (4) Is physical activity done with the family. Data analysis using quantitative descriptive concluded the model of presentation in the form of graphs. Base on the data concluded that almost all teachers gave examples of physical activities in children. The teacher uses a cellphone in learning. Furthermore, parents support physical activity at home and carry out physical activity in the family. Therefore the results showed that the development of early childhood physical literacy using mobile learning is needed for PAUD teachers. Mobile learning is a solution in learning that prioritizes aspects of convenience and practicality and can be used anywhere and anytime to develop children's physical literacy.

**Key Words:** physical literacy development, mobile learning, COVID-19

### Introduction

Various countries in the world are affected by the COVID-19 pandemic. China is listed as the first country to report covid-19 cases in the world as of December 31, 2019. At the end of 2019, WHO in China explained about the type of pneumonia whose cause is unknown. An acute respiratory infection that attacks the lungs was initially detected in the city of wuhan, Hubei province, China (Cash et al.s, 2020; Hui et al., 2020). Since it was first discovered until now it has spread throughout the world to cause a global pandemic (UNESCO, 2020). Almost all sectors by Covid-19 ranging from the economic, business, tourism, and education sectors do not escape. Various ways are done by the Government to prevent the spread of pandemics one of the ways in the field of education is social distancing and the establishment of distance learning systems or often referred to as online learning/mobile learning, and Early Childhood Education (PAUD) affected by government policy.

During the COVID-19 pandemic, children's health and immune system must be maintained so that children do not easily contract the virus. Children's physical fitness must be because it is something that can help the body's immune system to stay healthy, strong and awake (Bluth & Wahler, 2011), Considering early childhood is in its golden age. Aspects of the child's physical development undergo tremendous development ranging from the growth of brain cells and other organs so that rough motor development such as walking, running, jumping, climbing and so on are progressing rapidly. This is the importance of seeing and paying attention to physical fitness in children during COVID-19 through physical literacy because a healthy body will affect future development.

*Physical literacy was officially recognized by the world community in 2014. In short, physical literacy as motivation, self-confidence, physical competence, knowledge, and understanding is responsible for the involvement of lifelong physical activity. (National Physical Activity Plan Alliance., 2018). Higgs revealed that physical literacy is a very practical approach in learning sports development during child life span (Colin Higgs, 2010). According to Pot and Hilvoorde, Physical literacy centered on the environment is expected to foster responsibility, independence, and development (Pot & van Hilvoorde, 2013). Physical involvement is the main goal of physical literacy, and extends to the context of sport that directs and regulates one's own behavior and body movements (Whitehead, 2010; Pot & van Hilvoorde, 2013). Physical literacy has recently become popular in the world community. It is not actually a "new item" because it has become a formula of competence and orientation formally contained in the formal school curriculum including PAUD institutions. The hope of the*

discovery of the Covid-19 vaccine, by implementing various who health protocols in daily life and most importantly prioritizes immunity. These two important things are closely related to physical literacy. Insights and behaviors apply who health protocols and seek proper and correct immunity is very clear in the concept of physical literacy. The latest data from UNESCO dated May 18, 2020 stated that 156 countries had implemented national closures of schools with a total of 1,210,295,995 students (69.1% of the world's total student population) (UNESCO., 2020). The policy of disbursing all educational activities by replacing them through online learning/mobile learning can inhibit and reduce the rate of spread of Coronavirus Disease 2019 (Rohayani, 2020). The statement is also supported by circular Letter No. 4 of 2020 on Implementation of Education during the COVID-19 pandemic, namely that learning during the pandemic is carried out in a remote way (online) that provides new innovations in the learning experience and means for students without being burdened with demands, online learning is focused on life skills regarding the Coronavirus Disease pandemic 2019 (Kemendikbud, 2020). Technological advances have created a new phenomenon among the public, namely activities that were originally carried out in the real world switching to cyberspace. Eric Schmidt predicts that by 2020 all humans in the world will be dominated by online activities (Schmidt & Cohen, 2013), and it turns out that it has happened now along with the emergence of the Covid-19 pandemic. Therefore, alternative efforts are chosen that can adjust to the existing conditions, namely using mobile learning. The driving factors in the development and application of mobile learning as a new model in learning activities, including a very high penetration rate of mobile devices, a relatively easy, easy to accept, and the price of devices that are more affordable than a personal computer (PC), cheaper rates and features that are growing and sophisticated, the range of wireless / mobile services is wider. In addition, mobile learning can form a flexible learning paradigm that can be done anywhere and anytime. Learning is conditioned like this to be very limited, considering that physical literacy basically requires physical practices directly. Therefore, this research examines and describes the needs of PAUD teachers in developing physical literacy in early childhood using mobile learning, especially during the Covid-19 pandemic.

#### **Literatur Review**

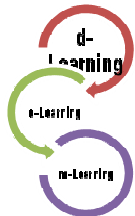
##### **Development of Children's Physical Literacy**

Children's physical literacy is basically based on the idea of equipping children with confidence and motivation to be physically active. Children are expected to know and understand the importance and benefits of physical activity from experiences that improve their physical competence so that they are encouraged to have a more active lifestyle (Houser, 2017). Teachers and parents need to realize that in essence the stimulation of physical literacy must start from the time the child is born. Children need to be equipped with physical skills, knowledge and understanding to maintain their motor development (Newport, 2013). In the early childhood realm, physical literacy aims to understand important factors that affect a child's physical activity including cognitive, affective, physical, and behavioral factors that affect movement and non-movement behavior in children (Taylor, 2018). Physical literacy that develops in children at an early stage can be seen in its ability to coordinate the whole body in activities such as jumping, climbing and applying these movement patterns in a variety of settings (Whitehead, 2013). The physical literacy component has the motivation, confidence, knowledge, skills, and fitness needed both physically and committed to healthy behavior habits, including recommended physical activities (Patricia E Longmuir & Tremblay, 2016). It is further said that children's physical literacy is related to the mastery of basic movement skills that allow children to move confidently and controlled in a variety of activity settings (Deborah & Smith, 2016). Similar to this statement, a child's physical literacy is defined as basic movement and sports skills that make the child more confident because they are able to 'read' what happens in the physical activity setting and control their movements on various physical activities, rhythm (dancing), sports situations and react appropriately to various events. (Higgs et al., 2015). Physical literacy in early childhood specifically leads to the practice and development of fundamental movement skills in three areas, namely locomotor, non-locomotor and manipulative where all movement skills develop in a predictable order and at almost the same time for all children. Ideally, children should have the opportunity to be physically active in four types of environments: soil, air, water, and snow/ice (Anderson, Clark, Danelesko, Pritchard, Stewart, Sutherby, Valenti, Van Wyk, 2011). A child's physical literacy is also defined as the level of fitness, behavior, knowledge, and basic movement skills (agility, stability, and coordination) that a child must have in order to actively participate in physical activity (George et al., 2016). A physically literate child will be able to move competently and confidently in various activities in various environments through mastery of basic movement skills (Canadian Paediatric Society, 2008). Canadian Physical Literacy Assessment (CALP), physical literacy is carried out by children aged 8-12 years, with the goal is to improve children's physical literacy learning. CALP has been in development since 2006 and was built as a "living passport". The point is to follow the kids following the procedure process-oriented assessment (P E Longmuir, 2013). One of the components of physical literacy that has been described earlier is related to the aspects of knowledge contained in the cognitive component. Aspects of knowledge are considered unsuitable for early development because children have not been able to demonstrate their knowledge of the importance of physical activity (Cairney et al., 2018). While the affective component in children, in addition to motivation, pleasure is another important factor associated with participation in physical activity. Children often cite pleasure as the most important reason why they want to get involved (Visek et al., 2015). While the affective component in children, in addition to motivation, pleasure is

another important factor associated with participation in physical activity. Children often cite pleasure as the most important reason why they want to get involved.

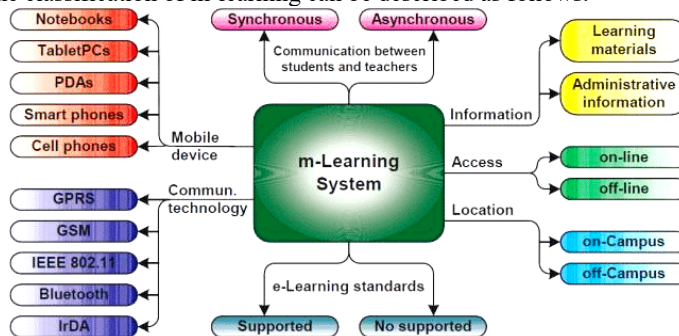
**Mobile Learning**

In essence, mobile learning is a new paradigm in learning. This learning model appears to respond to the development of the world of information and communication technology which is moving very rapidly lately. It is undeniable that currently, mobile communication devices are one of the devices that are closely related to the daily lives of learning actors such as teachers and students. Mobile Learning is part of electronic learning (e-Learning) so that, by itself, it is also part of distance learning (d-Learning) (Tamimuddin H, 2007).



**Figure 1. m-Learning Form Scheme**

According to the classification of m-learning can be described as follows.



**Figure 2. Classification of m-Learning System**

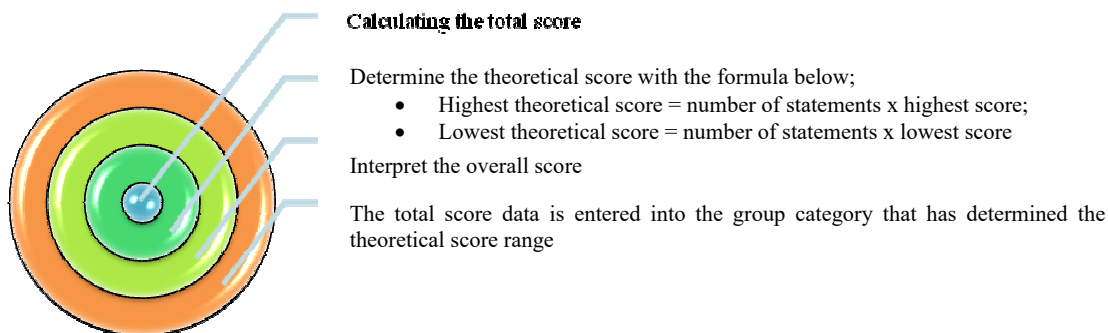
According to Quinn (2000), mobile learning is defined as... “the intersection of mobile computing and e-learning: accessible resources wherever you are, strong search capabilities, rich interaction, powerful support for effective learning, and performance-based assessment. E- Learning independent of location in time or spaces”. Simply put, mobile learning provides learning materials that can be accessed by students at any time and given an interesting visualisation of the material. In addition, mobile learning as a facility or service that provides electronic information in general to learners and educational content that helps the achievement of knowledge regardless of location and time (Darmawan, 2013), Mobile learning can be used by educators to communicate learning materials flexibly anywhere and anytime (Kim et al., 2013). Meanwhile Cabanban, (2013), defines M-Learning as part of e-learning that provides content related to education and learning support materials through wireless communication devices. Mobile learning is a learning model that involves mobile devices so that students can access learning materials, learning instructions and learning applications without being limited by space and time, wherever and whenever they are. The characteristics of mobile learning, namely: 1) is part of e-learning, utilizing electronic and digital ICT; 2) accessible anywhere and anytime; 3) provide knowledge sharing and visualization facilities that are attractive and interactive knowledge; and 4) not all teaching and learning materials are suitable for using m-Learning given the limited file size (Quinn, 2000). Applications that can be used for mobile learning, including MOMO (Mobile Moodle), MLE (Mobile Learning Environment), Learning Mobile Author, Desire2Learn 2GO, and Ready Go, Morning and Math learning applications through mobile phones namely Mathematic Mobile Learning (MML). This software application is able to combine learning content such as text, audio and video so that it becomes more interactive. These students simply use mobile phones, follow learning/activities through video streaming or video-calling, download learning applications that have been provided in the form of Java applications, download recordings of learning activities in the form of MP3 or 3GP, follow replays through WAP, and other learning activities. The devices included in m-learning can be seen in the picture below.



**Figure 3. m-Learning Devices**

**Material & Methods**

This study uses a survey method. Research with descriptive methods aims to explain a situation or event (Morrisan, 2012). While in this study aims to describe the needs of mobile learning for teachers in PAUD. Data collection using questionnaires containing the implementation of physical activities, use of mobile phones, and so on. The determination of samples was done by simple random sampling techniques of 52 ECE. The data analysis technique used is descriptive quantitative. Descriptive analysis was carried out with the aim of describing and communicating raw data in the form of frequency distribution tables and presenting data in graphical form. From the results of processing the raw data, it can be seen the value of each mean, median, mode, standard deviation, and theoretical range of each variable. For more details, see the following steps:

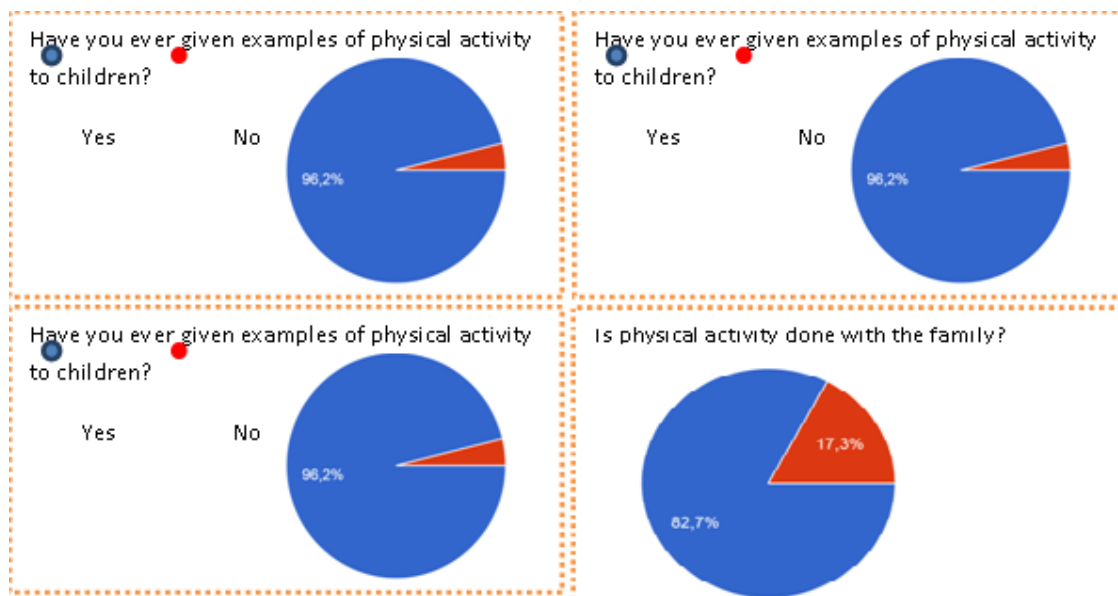


**Figure 4. Quantitative Descriptive Research Steps**

**Results and Discussion**

**Results**

Based on the calculation of the questionnaire distribution data from 52 teachers regarding the application of the child's physical literacy development model, the results obtained from the research that almost all teachers (96%) gave examples of physical activity to children. Physical activity exhibited with moderate intensity that is fun and varies according to the child's development. In addition, 50% of teachers use mobile phones in learning at school. Furthermore, parents also support physical activity at home as much as (90%) then parents also do physical activity in the family (80%). More details, the results of the study can be seen in the table below.



Looking at the graph above, it can be stated that judging by the effectiveness in learning, Android mobile-based smartphone technology has the potential to provide new learning and experiences because students are often directly involved in learning activities (Kim et al., 2013). Smartphone-based mobile learning usage is dominated by Android devices as much as 86.2%, iOS as much as 12.9%, Windows 0.6%, Blackberry 0.1 and as many as 0.2% of other operating systems (Šćepanović et al., 2015). To support the above process does not escape from the surrounding environment for example the family environment. Families play an important role in a child's life. Similarly, the habits of fathers and mothers in literacy activities (Inten, 2017).

Physical activity in children brings many benefits in addition to reducing the risk of obesity, vascular disease, and malignancy in later life. Bone and muscle growth can take place well. Movement skills, social interaction, and brain development are also honed while playing. Active children will learn more effectively, both inside and outside the school environment. Children will feel happy and confident, and have a good sleep pattern. Physical activity carried out from an early age will shape the child into an adult with an active lifestyle.

### Discussion

As explained above, the concept of physical literacy in which there are clear insights and behaviors apply who health protocol and seek proper and correct immunity. Why is Physical Literacy important, especially during the COVID-19 pandemic? Because it relates to the development of basic motion and sports skills.(YI et al., 2020) Children who are good at physical literacy are more confident in moving. Children can be competent in a variety of physical activities and sports activities. Therefore, in order to develop children's physical literacy, especially during the Covid-19 pandemic, an alternative solution is needed in the process by using online facilities, namely online learning through mobile learning. Moreover, the government provides online facilities through online learning media by preparing resources, media and links as stated in the guidelines for organizing learning in the 2020/2021 school year and academic year 2020/2021 during the coronavirus disease pandemic 2019 (Covid-19) (Kemendikbud, 2020). It should be noted that physical literacy can increase language development, namely expressing and communicating. language too needed to communicate the results of the assessment in physical literacy practice (Tompsett et al., 2014), Conceptual aspects that will be assessed on physical literacy are not limited to knowledge requirements, standards attainment of skills, understanding of national health guidelines, and embodied motivation for being physically active (Hylton, 2013).

Along with the development of technology that is increasingly advanced many alternative media that can be used by educators in helping their students learn, one of the technologies that is in great demand by the public is mobile learning using smartphones. Learning media can be developed on mobile devices that are easy to carry anywhere such as smartphones and tablets (Squire, 2009). Research conducted by El-Mouelhy et al., (2013) also concluded that the use of android tablets in learning is able to improve the understanding of materials in learners. Learning with this model provides great opportunities for teachers and students during the Covid-19 pandemic.

Online learning provided to early childhood can be either a video of a teacher's assignment or with other communication applications. Online learning presented should be able to provide a pleasant learning atmosphere and clear steps so as not to misconceptions (Diarini et al., 2020).

One of the basic considerations for developing mobile learning-based teaching media is the flexibility and ease of accessing information anytime and anywhere (Calimag et al., 2014). In other words, media development in the form of mobile learning can meet the criteria for learning objectives and content, conformity with student characteristics, efficiency of learning time, and easy to use by learners. Moreover Ratu et al., (2020), suggests that many potentials are posed in online-based learning or m-learning, namely the meaning of learning, ease of access and improvement of learning outcomes. Students can connect quick, and directly with text, images, voice, data, and two-way video through teacher guidance. Mobile learning cannot replace traditional classes but can be used as a complement to the learning process in classrooms and universities (Sarrab et al., 2012).

### Conclusion

Based on the results of the research and data analysis above, it can be concluded that the model of developing children's physical literacy through mobile learning is very much needed by PAUD teachers. Mobile learning is a solution in learning that prioritizes aspects of convenience, practicality and can be used anywhere and anytime. Mobile learning can be a learning innovation to be applied at all levels of education, including early childhood education (PAUD). Face-to-face learning which is replaced by technological intermediaries is expected to result in an increase in aspects of student development and become a learning solution during the Covid-19 pandemic.

### Recomendation

Mobile learning offers many benefits and advantages in streamlining learning, especially in developing early childhood physical literacy. Therefore, this learning model is highly recommended for teachers to implement virtual learning during the Covid-19 pandemic instead of face-to-face learning.

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