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Instrument for Assessing Physical Literacy Skills Competence in Primary School Tasikmalaya, Indonesia

Instrumento De Evaluación De La Competencia En Literacia Física En La Escuela Primaria De Tasikmalaya, Indonesia

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Abstract. This study aimed to design, develop, and assess the validity of a Physical Literacy (PL) instrument designed for primary school students in Tasikmalaya, Indonesia. Children aged 8 and 12 were the sample for this development research design. The instrument's validity was evaluated using alpha coefficient analysis, and the results were quite good. All items had alpha coefficients close to or equal to 1.00, indicating the proposed evaluation instrument has good validity. As it allows them to classify students according to their ability levels and conduct more effective physical education evaluations, physical education teachers and classroom teachers require PL assessment. Physical education curriculum planning concentrates more on Physical Literacy; each student needs to be improved to be more straightforward with this tool. Therefore, this evaluation tool is beneficial for teachers in obtaining a track record of individual and collective student progress in Physical Education learning. The results from this study show that the instrument created is reliable and successfully collected PL data in Tasikmalaya City, located in Indonesia. Since we can ensure that coaching efforts can concentrate on the specific needs of each student by using the PL assessment instrument, we will achieve more significant results in primary school students' PL.
Keywords: Physical Literacy, Assessment, Primary school, Skill competence

Resumen. Este estudio tenía como objetivo diseñar, desarrollar y evaluar la validez de un instrumento de alfabetización física (Physical Literacy, PL) diseñado para estudiantes de primaria en Tasikmalaya, Indonesia. Los niños de 8 y 12 años fueron la muestra para este diseño de investigación de desarrollo. La validez del instrumento se evaluó mediante el análisis del coeficiente alfa, y los resultados fueron bastante buenos. Todos los ítems tuvieron coeficientes alfa cercanos o iguales a 1,00, lo que indica que el instrumento de evaluación propuesto tiene una buena validez. Dado que les permite clasificar a los alumnos según sus niveles de capacidad y realizar evaluaciones de educación física más eficaces, los profesores de educación física y los profesores de aula necesitan la evaluación de PL. La planificación curricular de la educación física se concentra más en la alfabetización física; es necesario mejorar a cada alumno para que sea más sencillo con este instrumento. Por lo tanto, esta herramienta de evaluación es beneficiosa para los profesores a la hora de obtener un registro del progreso individual y colectivo de los alumnos en el aprendizaje de la Educación Física. Los resultados de este estudio muestran que el instrumento creado es fiable y ha recogido con éxito datos de PL en la ciudad de Tasikmalaya, situada en Indonesia. Dado que podemos asegurar que los esfuerzos de los entrenadores pueden concentrarse en las necesidades específicas de cada estudiante mediante el uso del instrumento de evaluación de la PL, conseguiremos resultados más significativos en la PL de los estudiantes de primaria.
Palabras clave: Literacia física, Evaluación, Escuela primaria, Competencia en habilidades

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Introduction

Physical Literacy (PL) refers to an individual's motivation, confidence, physical skills, knowledge, and understanding to engage in physical activities throughout their lifetime(IPLA, 2019). Although Physical Literacy is acknowledged as a fundamental principle and goal of excellent physical education (Goss et al., 2022; UNESCO, 2015), there is a lack of empirical evidence that establishes a link between PL and health and well-being outcomes, the factors that affect PL, or its defining elements (Cairney et al., 2019). One possible explanation for this is the difficulty in properly defining the concept, ongoing debates over the appropriateness of assessments, and a lack of trustworthy measurements (Barnett et al., 2019; Edwards et al., 2018; Robinson & Randall, 2017). However, others argue that conducting a precise assessment of children's PL can improve the overall quality, expected results, and prominence of both PL and physical education (PE). Consequently, this can result in youngsters who are more physically skilled and involved (M. Tremblay & Lloyd, 2010; M. S. Tremblay, Costas-Bradstreet, et al., 2018).

There is strong evidence that students who exercise regularly have a lower chance of developing chronic diseases like diabetes and heart disease (Jyotsna et al., 2023; Palazzuoli & Iacoviello, 2023; Renke et al., 2022) a higher quality of life and overall better health. Meanwhile, in the measurement of multiple intelligences and naturalism, the results stated that there was no significant difference in the level of multiple intelligences (musical, verbal-linguistic, intrapersonal, visual-spatial, interpersonal, physical-kinesthetic, logical-mathematical) based on students' gender, but there was a significant difference in the level of naturalist intelligence in primary school students' PE learning based on students' gender (Gani et al., 2024).

Notwithstanding this, according to Tremblay et al. (2018), 81% of the world's youth do not get the necessary 60 minutes

of moderate-vigorous physical activity (Keays & Allison, 1995; Lonsdale et al., 2013; Population, 2018) per day. When considering how to encourage physical exercise, researchers are increasingly favoring the comprehensive concept of Physical Literacy. Margaret Whitehead reintroduced and championed PL as a construct in the 21st century (Cairney et al., 2019). PL is quickly gaining popularity and is seen as an essential part of physical activity and health promotion policies and Research on Physical Literacy in Indonesia is still focused on understanding the idea, assessing its validity, and determining its reliability using current assessments like the Canadian Assessment of Physical Literacy and the Chinese Assessment of Physical Literacy (Permana et al., 2023).

Following the search, one can find various Physical Literacy assessments, such as the Canadian Assessment of Physical Literacy (CAPL)(Longmuir et al., 2018), The Physical Literacy Assessment for Youth (Kreillaars, 2014)), and the Passport for Life assessment (Nutr et al., 2023). A person's level of Physical Literacy can be gauged using any of these instruments. However, as mentioned in this dissertation proposal, Physical Literacy tools are currently needed for use with elementary school students. These assessments are administered to children between the ages of preschool and primary school, as mentioned in (Barnett et al., 2019; Blanchard et al., 2020; Permana & Alfadh, 2021). The next step is for the researcher to design and administer the instrument to Tasikmalayan elementary school students.

Physical Literacy (PL) focuses on four main areas: Evaluation Emotional (Self-assurance and inspiration) One definition of motivation is the desire and assurance to make physical exercise a regular part of one's life. That is why it is important for evaluation tools to show how engaged people are. Confidence is defined as having faith in one's own talents and abilities. Furthermore, Whitehead (Durden-Myers et al., 2018; Higgs & Ph, 2010)) highlights the importance of being able to communicate oneself fluently through non-verbal means and to interact with people in an aware and empathic manner.

(1) Behavioral (involvement in daily life). Physical Literacy's purpose is to promote lifelong physical activity, and assessment tools should reflect that. Attaining Physical Literacy is an individual process that depends on strengths, passions, and circumstances. It is a lifelong quest for regular physical exercise. Physical Literacy does not have a defined endpoint or set of standards. This involvement is intended to encompass "a range of personally meaningful and challenging activities," as the consensus statement implies.

(2) Mental (Information processing). The capacity to recognize and articulate critical attributes that impact movement, comprehend the positive effects of an active lifestyle on health, and value suitable safety features linked to physical activity in different contexts and environments are all parts of what is meant by "knowledge and understanding" according to the consensus statement.

(3) Physical ability The consensus statement defines physical competence as the capability to manage a variety of movement intensities and durations and the ability to learn and practice specific patterns of movement.

Models for evaluating Physical Literacy. According to a recent worldwide study on Physical Literacy, Canada has outpaced all other countries in terms of improvement in this area (Green et al., 2018) Several Canadian public organizations involved in sports and physical education have the honor of endorsing and recognizing three separate Physical Literacy evaluation tools. Two literacy examinations developed by Canadian School Communities (CS4L)—the Physical Literacy Assessment for Youth (PLAY) and the Canadian Passport for Life—are available to these groups. My affiliation with the CAPL paradigm brings me from the Healthy Active Living and Obesity Research Group (HALO).

The validity and reliability of these Physical Literacy evaluation tools for PE instructors was demonstrated by the three groups who developed them. You can utilize CAPL and Passport for Life as tests in and of themselves. Though PLAY does not contain any direct recommendations or ideas (Lundvall, 2015; Mandigo et al., 2009), CS4L representatives have showcased PLAY as a resource for PE instructors during professional development sessions at state and national PE conferences. After analyzing the current state of affairs, this study aims to develop a Physical Literacy tool for use in elementary schools, with a focus on Tasikmalaya City Elementary School's upper-grade students (grades 4,5 and 6). As of now, elementary schools in Tasikmalaya City do not use the components of intrinsic motivation, self-confidence (affective), and cognitive understanding of information (cognitive) when assessing students' Physical Literacy (Fathiyati et al., 2022). This assessment tool was developed with a focus on the needs and development of students in upper-grade elementary schools. Conducting a validation test of the test form, validity, and reliability with the objectivity of the results of the concept test and field test allowed us to assess the viability of this tool and ensure its effective and efficient deployment.

Materials and Methods

A research and development approach was utilized in this project to construct an assessment instrument for Physical Literacy (Freitas et al., 2023). Creating and testing a valid and reliable Physical Literacy assessment instrument for 8–12-year-olds in Tasikmalaya City, Indonesia, was the primary goal of this research. Participants were chosen using a purposive strategy from a pool of elementary school pupils ranging in age from eight to twelve. Kids are chosen based on their level of participation in everyday sports, extracurricular activities, and sports lessons.

For this study, these students were the subjects of research and development. Using a phased research process, this study

designed a product for field trials. Before conducting a large-scale study with 28 primary school students in Pasirtamiang Tasikmalaya, Indonesia consisting of 18 males and 10 females.

This research has been submitted to the health research ethics committee of Semarang State University and stated that this research has fulfilled the principles stated in the Standars and operational Guidance for ethical review of health related research with human participants from WHO.

Before conducting a large-scale study with 28 elementary school students in Pasirtamiang Tasikmalaya, Indonesia consisting of 18 males and 10 females. small-scale trial with 8 students as initial data in Table 1, researchers need to record the age, weight, height, and body mass index (BMI) of the 28 students. this aims to ensure the body mass index of each student so that there is not too much sample heterogeneity. The alpha coefficient focuses more on the internal consistency of each variable. The test variables tested were: (1) Sit up (2) Tiams (3) Pacer. Validation was done by checking the similarity of characteristics between the measured variables. Good internal consistency will make the measuring instrument more accurate and reliable. Alpha coefficient analysis using SPSS IBM 26 with stages (1) preparing data, (2) entering test variables into the SPSS statistical analysis programme, (3) loading the scale, (4) calculating the alpha coefficient, (5) evaluating the reliability of the scale.

Based on references found in Scopus-indexed articles, the researcher sought out comparable and related assessment tools. We set out to identify the most effective Physical Literacy evaluation instruments currently available. Scientists in the area of physical education reached out to sports science professors, sports practitioners, senior sports instructors, and senior class teachers in order to design a Physical Literacy evaluation tool for elementary school pupils ranging in age from eight to twelve. Results will be compiled after a round of validity testing by specialists at various levels. After consulting with experts and working together, we will create a rough outline of the evaluation. Testing the instrument will involve both small- and large-scale trials, wi th data collected using questionnaires and feedback forms. For the purpose of developing a standardized Physical Literacy test, the collected data will be used to choose questions. Hence, we propose a Physical Literacy test that PE and general education instructors might administer to students in grades 8–12.

Several of the papers that were reviewed have student Physical Literacy evaluation instruments that were developed through research and development processes. The Canadian Assessment Physical Literacy—Second Edition (CAPL-2), developed by Blanchard and Longmuir (2020;2017), is an age- and gender-specific standardized test that has been shown to produce reliable and valid results for students. Candidates for this exam might be students in grades 8 through 12. Following the guidelines laid out by the CAPL-2 test (Dania et al., 2020), which is a Physical Literacy assessment tool that prioritizes validated content and constructs, as well as model-item fit checks. In 2020, researchers in China will create a new tool called the Chinese Assessment and Evaluation of Physical Literacy (CAEPL). This tool will lay out the CAEPL's theoretical model and use research and development to quantify the weight of each domain of the certificate (Li et al., 2020). Next, Mota (2023) studied 521 Portuguese students from grades 10–12 in Lisbon, Portugal, to determine the construct validity of Physical Literacy assessments for adolescents. The investigators utilized a combination of Multiple Confirmatory Factor Analysis (CFA) and Confirmatory Composite Analysis (CCA) models.

Table 1.
Characteristics of Student Samples

Number	age (years	Weight (kg)	Height (cm)	BMI
1	12	53	155	19,51
2	12	51	158	20,5
3	8	45	150	20,3
4	8	43	148	20,19
5	9	40	156	20,34
6	9	43	153	20,52
7	8	40	153	20,39
8	8	40	151	20,44
9	10	39,4	158	20,3
10	10	38,8	150	20,75
11	11	38,2	148	20,73
12	11	37,6	156	20,4
13	9	37	153	20,41
14	9	36,4	153	20,3
15	8	35,8	151	20,19
16	12	45	158	20,34
17	12	43	150	20,52
18	11	42	148	20,39
19	11	41	156	20,44
20	10	40	153	20,3
21	9	32,2	147	20,19
22	8	31,6	146	20,34
23	8	31	147	20,52
24	10	50	150	20,39
25	10	49	148	20,44
26	11	51	156	20,3
27	11	50	153	20,75
28	9	45	149	20,73
Mean	9,8	41,8	151,9	20,4

Results

The findings of the pilot study showed that the created product was suitable for the intended use by a total of 28 samples. Students assessed on this Physical Literacy assessment tool between the ages of 8 and 12 have an easy time understanding and using the results, thanks to the expert comments and suggestions we provided. Changes to the product were implemented in the small-scale study before the larger trial. Previous to conducting the efficacy test, the results of the large-scale study were utilized to gather suggestions and comments in order to enhance the basic product design. Percentage evaluation see figure 1.

The results of the large-scale trial assessment of the developed product suggest that the results of the Physical Literacy

assessment instruments can be easily understood and implemented by testees with some suggestions. A total of 120 samples, or 22% of the total, stated that the instrument was appropriate, and 320 samples, or 78% of the total, stated that it was very appropriate. The remaining samples were given very high ratings of appropriateness. The study's Physical Literacy assessment items all have alpha coefficients near or equal to 1.00, which means they're quite valid. It is clear from these results that the measure is reliable for assessing Physical Literacy. Excellent, Good, Fair, Deficient, and Very Deficient were the categories employed in this investigation. Based on the results of the effectiveness test, participants were divided into multiple specified ability categories, and the Physical Literacy assessment tool had good validity scores. Table 2 displays the results of the validity and effectiveness tests administered to primary school pupils (ages 8 to 12).

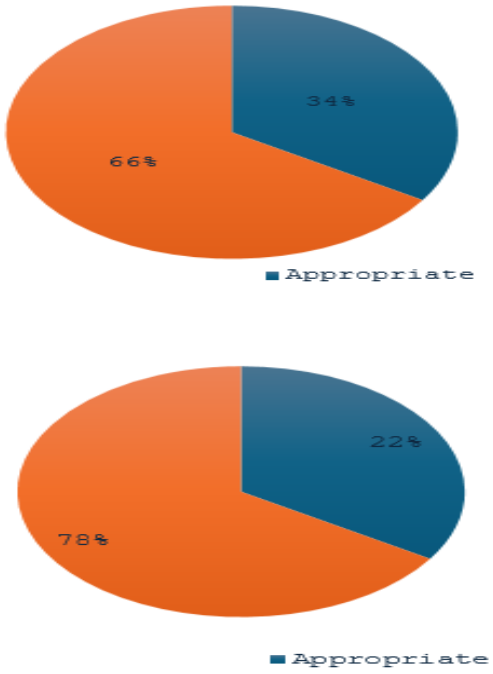

Figure 1-2. Percentage Diagram Of Small-Scale Trial Result

Table 2.
The results of testing the validity of the assessment Physical Literacy instrument and the effectiveness test

No	items	Product Trials		Test effectiveness		
		r count	alpha coefficient	mean	SD	Category
1	Height	1.000	1.000	130.5	7.92	>140=Excellent, 125-130=Good, 120-124=Fair, 115-119= Deficient, <115= Very Deficient
2	weight	1.000	1.000	39.83	9.1	>45=Excellent, 40-44=Good, 35-39=Fair, 30-34= Deficient, <30= Very Deficient
3	TIAMSA	0.601	0.867	0.27	0.03	>0.35=Excellent, 0.30-0.34=Good, 0.25-0.29=Fair, 0.20-0.24= Deficient, <0.20= Very Deficient
4	Sit Ups	0.326	0.708	18.35	4.33	>25=Excellent, 20-24=Good, 15-0.23=Fair, 10-14= Deficient, <10= Very Deficient
5	Pacer	0.611	0.920	57.35	6.25	>65=Excellent, 60-64=Good, 55-59=Fair, 50-58= Deficient, <50= Very Deficient

Discussion

The purpose of this research is to measure Physical Literacy in students ranging in age from eight to twelve. The physical competence domain's individual Physical Literacy test instruments have been the focus of pilot and large-scale evaluations of this assessment tool. Among the participants in the pilot study, 16 (or 60% of the total) agreed that they were suitable, while 12 (40% of the total) agreed. This finding suggests that most test takers easily understood and used the Physical Literacy assessment tool for kids aged 8 to 12. This provides evidence that the instrument may help evaluate the capacity to engage in Physical Literacy activities among children of this age.

After adjusting the product based on the results of the small-scale trial, the research moved on to the large-scale experiment. At this point, we surveyed people to get their thoughts on what else might need adjusting based on the results of the large-scale study. According to the results, 120 samples (22% of the total) thought it was appropriate, and 320 samples (78% of the total) thought it was very appropriate. Since the other samples also gave positive feedback, we can conclude that the Physical Literacy assessment instruments were well-designed and that test takers could easily understand and apply the recommendations made for improvement. This result demonstrates that the Physical Literacy evaluation has greatly enhanced comprehension and application due to the modifications implemented in response to earlier trials.

We hope that the development of a skill-aspect Physical Literacy evaluation can be expanded to Indonesia, where there are favorable conditions for its proliferation. This study addresses a gap in the literature and is continuing in a small town called Tasikmalaya better to evaluate the effects of PE in elementary schools. Specifically, youth in Indonesia need access to a valid and reliable evaluation tool that considers their emotional intelligence, knowledge, fitness, and behavior. Researchers in Indonesia have developed a Physical Literacy exam that is among the most cutting-edge and thorough evaluations of this topic for elementary school students. The introduction of this program has the potential to improve physical education in Indonesian elementary, middle, and high

schools as well as in colleges and universities, encourage more active lifestyles, and streamline the reform of physical education programming.

In Indonesia, there is a little city called Tasikmalaya. There is a new need for study into the promotion of health and healthy lifestyles through the development of Physical Literacy assessments. Policies at the federal, state, and local levels should support efforts to increase Physical Literacy, as pointed out by Dudley (2017). As a policy-oriented framework for Physical Literacy development in Western nations, Dudley's four pillars—competency, context, journey, and policy—are essential for promoting Physical Literacy in the domains of education, recreation, public health, and sports. Nevertheless, the suggested structure might not function because of the vastly different social and physical contexts, societal mores, and regional cultures in various nations or areas. It is vital to take into account the policy environment of the country in order to handle the practical question of how to promote OT in different countries.

Since the theoretical model and concept of Physical Literacy have been laid out, there are a few things to keep in mind for future study. One part of Physical Literacy is daily lifestyle. The results provide information that internalising an active lifestyle through project-based learning and Physical Literacy awareness can improve physical fitness (Mashud et al., 2024). Other findings suggest that enjoyment relates to the physical dimension of Physical Literacy, specifically expressed in perceived motor competence in object control, abdominal test, 1-mile run test, and body mass index (Adasme et al., 2024; Mayordomo-Pinilla et al., 2024.). One of them is the idea that sports professionals in Indonesia should agree that the concept of Physical Literacy has to be clarified. Although several experts have suggested that we should define Physical Literacy more precisely, there appears to be no consensus on how to do so in Indonesia, and different schools of thought have different ideas on what constitutes Physical Literacy. Experts in Indonesia come from many walks of life; therefore, the situation there makes sense. There needs to be more studies on Physical Literacy in Indonesia to define it better, and we'd want to see an organization advocating for Physical Literacy blossom there.

Sports ethics, including good sportsmanship, have been proposed by several experts as additional components. The problem with directly measuring sportsmanship is that its definition still needs to be revised. As a result, incorporating a judgment on abstract sportsmanship would be challenging (Arif ÖZSARI, 2023; Yılmaz, 2023). In Indonesia, grading is still used as the final mark for students' Physical Literacy assessments, which could be more precise. As an example, most elementary school sports teachers never administer a pre-semester physical ability test to their kids. Consequently, educators must gather knowledge about the necessary physical requirements. Physical Literacy testing is not the primary focus at this time, but it is another place where we may make strides forward. Final grades, rather than the work that students put in throughout the year, are what matter most in Indonesia today.

Field observations reveal that primary school students require accurate and ongoing physical assessment between lessons. Whether a test is meant for assessment or evaluation, it still needs to be altered due to current conditions. Elementary schools in the Tasikmalaya metropolitan area incorporate measuring tests into physical education as a means of evaluation. One such instrument is the Indonesian Physical Fitness Test (TKJI), which is undeniably focused on physical competency. On the other hand, people sometimes need to remember to measure emotional and cognitive factors. Using this knowledge gap as a springboard, researchers set out to create a primary school Physical Literacy evaluation that would gauge students' cognitive and affective abilities in addition to their physical proficiency. Testing also helps with program evaluation and improvement, keeping track of students' learning development, and other essential tasks in education (Nurhasan, n.d.). In light of this new knowledge, it is possible to use pre-tests in physical education as a means of gauging students' initial knowledge and so enhancing their subsequent learning.

Expanding our understanding in this field, this study is the first of its kind to create a thorough examination and assessment of Physical Literacy for elementary school pupils ranging in age from eight to twelve. This study also shows how Physical Literacy research in Indonesia has progressed, which is useful for future studies. We can achieve early recognition of Physical Literacy that can be generalized nationally by inviting professionals to engage in the establishment of an Assessment and Evaluation for Physical Literacy in Tasikmalaya City, Indonesia. Nevertheless, it is important to note that this study did have certain limitations. The limitations of this study include psychology expert validators and sports teachers must be added. as well as the population of elementary school students if referring to the research (Mota et al., 2021) amounted to more than 500 students. Secondly, the Physical Literacy assessment tool could be negatively affected since, for reasons that cannot be controlled, some of the experts chosen to participate in the preliminary design validity test need additional time to complete a thorough validation. In some European countries, physical literacy is regarded as a promising concept. As a result, between 2018 and 2020, collaborations within the European Union were formed to create and promote a European standard for physical literacy (Carolo et al., 2023). Additionally, it would be beneficial to increase the sample size and ensure that it equitably represents all areas in Tasikmalaya City. This will help eliminate bias in the Physical Literacy scores, as the large-scale test only included 100 primary school pupils. The purpose of this Physical Literacy Assessment is to provide a framework for evaluating Physical Literacy skills in Tasikmalaya, Indonesia, among students aged 8 to 12. The Physical Literacy examination is introduced in this paper along with its origins, development, and implications. Researchers in Tasikmalaya City, Indonesia, can benefit from this study because it places Whitehead's concept of Physical

Literacy in its proper context, clarifies its relationship to ideas about PE in elementary schools, and provides a framework for evaluating Physical Literacy. The PACER, Sit-Ups, and Traditional Indonesian Agility and Movement Skills (TIAMS) tests are the three primary components of this Physical Literacy evaluation methodology. This Physical Literacy evaluation is still in its early stages as a theoretical model, but it does offer a valuable tool for measuring Physical Literacy among elementary school pupils. This is why, particularly for PE in elementary schools, there will be future studies focusing on its practicability, validity, dependability, and objectivity.

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