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Assessing early childhood physical literacy score in Indonesia: exploring the correlation between teacher perception, active teacher involvement, and school status

Evaluación del puntaje de alfabetización física en la primera infancia en Indonesia: exploración de la correlación entre la percepción de los docentes, su participación activa y el estatus escolar

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Abstract. This study aims to determine the relationship between teachers' perspectives, active teacher involvement and school status in relation to children's physical literacy in Indonesia. This research is a correlational study with a quantitative approach. The sample was taken by purposive sampling. The sample includes 100 teachers from 100 schools accredited A, B, and C. The physical literacy instrument for early childhood uses the Pre-PLAY which consists of three domains, namely physical competence, coordinated movement and motivation and enjoyment. Data analysis in this study is descriptive analysis using linear analysis in the form of validity and reliability tests. The results showed that there is a significant positive relationship between teachers' perception and their involvement with early childhood physical literacy, with significance values of 0.001 and 0.000, meanwhile, there is no significant relationship between school accreditation status and early childhood physical literacy, with a significance value of 0.096. It can be concluded that physical literacy is important to be applied to support the development of young children. Teachers play a fundamental role in implementing the concept of physical literacy in children a teacher's understanding of physical literacy is crucial because it can help children become more active, and their active engagement in applying this concept is equally important as it can enhance physical activity.
Keywords: Literacy, Physical, Perception, Involvement, School Status

Resumen. Este estudio tiene como objetivo determinar la relación entre las perspectivas de los docentes, la participación activa de los maestros y el estado de la escuela en relación con la alfabetización física de los niños en Indonesia. Este estudio es un estudio correlacional con un enfoque cuantitativo. The sample includes 100 teachers from 100 schools accredited A, B, and C. The physical literacy instrument for early childhood uses the Pre-PLAY which consists of three domains, namely physical competence, coordinated movement and motivation and enjoyment. El análisis de datos en este estudio es un análisis descriptivo utilizando análisis lineal en forma de pruebas de validez y confiabilidad. Los resultados mostraron que existe una relación significativa y positiva entre la percepción de los docentes y su participación en la alfabetización física en la primera infancia, con valores de significancia de 0.001 y 0.000, mientras que no hay una relación significativa entre el estado de acreditación de la escuela y la alfabetización física en la primera infancia, con un valor de significancia de 0.096. Se puede concluir que la alfabetización física es importante para aplicarse en el apoyo al desarrollo de los niños pequeños. Los maestros desempeñan un papel fundamental en la implementación del concepto de alfabetización física en los niños; la comprensión de los maestros sobre la alfabetización física es crucial, ya que puede ayudar a que los niños sean más activos, y su participación activa en la aplicación de este concepto es igualmente importante, ya que puede mejorar la actividad física.
Palabras clave: Analfabetismo, Físico, Percepción, Participación, Estado escolar

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Introduction

Solutions in the future to overcome global problems related to the low interest of individuals in physical activity (P. Rigby et al., 2020). Physical literacy is estimated to affect an individual's level of physical activity in terms of physical fitness, motor skills, and enhancing individual abilities (Irmansyah et al., 2021). Literacy is important, including for early childhood (Dieu & Zhou, 2021). The concept of physical literacy has gathered prominence within the last two decades (Young et al., 2020). In addition, physical literacy in early childhood is also important. The International Physical Literacy Association defines Physical literacy as an individual's motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for involvement in lifelong physical activity (Goss et al., 2022), though it has various interpretations internationally (Keegan et al., 2019). Previous research highlighted four meta-themes that characterize physical literacy namely, Physical Development, Psychosocial Development, Cognitive development, and integrated development (Bailey et al., 2023). Data by the Central Bureau of Statistics in 2021 the Census showed that the percentage of early childhood attending PAUD reached (Christianti et al., 2022) 27.68% while for children in kindergarten is still the most popular type of PAUD at 71.73%, followed by BKB / Integrated Posyandu at 19.59%, and RA at 6.14%. In addition, research previously explained that, Indonesian preschool children have low motor competence, so the right program is needed to improve their motor competence (Syafruddin et al., 2020). Although physical literacy is recommended for all ages, childhood is identified as a critical phase for the development of attributes that contribute to lifelong physical activity (Belanger et al., 2018; Hulteen et al., 2020).

Physical literacy occurs because it is influenced by several factors, one of which is the teacher's perspective on early childhood physical literacy. This is in line with the theory of self-determination that in this theory examines related to internal and external factors that motivate children. The role of a teacher according to this theory plays an important role in involving early childhood in physical literacy activities towards development in children (Chen, 2015). In the preoperational stage, children begin to understand the world with signs and symbols as in egocentric thinking

dominates with irreversible thinking (Yafie et al., 2020). Previous research explains that it is important for teachers to understand concepts to help their students develop physical literacy (Stoddart & Humbert, 2021).

Teachers have a critical role in ensuring children develop skills and attributes that support physical literacy and ensure continued involvement in physical activity (Essiet et al., 2022). The role of a teacher according to this theory plays an important role in involving early childhood in physical literacy activities on child development. In public health theory, it is broadly understood that school-level interventions to improve physical literacy in young children are closely related to teacher involvement, which can significantly impact the effectiveness of interventions, especially within the school environment (Carl et al., 2022). In addition, (Yafie et al., 2020; YongKang & QianQian, 2022), the research results support the educational assessment theory that physical literacy in children of this age could help in developing effective assessment methods to measure the influence of teacher perception factors and child involvement.

The research conducted by Bukvić, Ćirović, and Nikolić (2021) indicates that participation in structured physical activities can support early childhood development stages, positively influencing motor skill development in children (Bukvić et al., 2021). Previous research used a mixed methods approach, where researchers collected quantitative data and then conducted qualitative analysis related to physical literacy from the perspective of teachers in children (Putri & Syahri, 2022) The research focus in that study is related to the variables of teacher and instructor roles on children's physical literacy abilities and skills. Furthermore, previous research has explained that this study focuses on physical literacy for children and adolescents, encompassing physical, psychological, social, and cognitive domains, thus addressing various perspectives (Barnett et al., 2023). The study conducted by Barnett et al (2023) indicates that participation in structured physical activities can support early childhood development stages and positively influence motor skill development in children (Barnett et al., 2023).

Based on these previous studies, the novelty of this research focuses on literacy in children in relation to the relationship between perspective on teachers, active involvement of teachers, and school status on early childhood physical literacy (Peng & Kievit, 2020). Research related to the study of the value of physical literacy in early childhood in Indonesia because it has significant relevance and impact to determine the relationship of the value of physical literacy in early childhood in Indonesia in relation to the relationship between perspective and active involvement of teachers and school status (Tran et al., 2020). This study aims to determine the relationship between perspective and active involvement of teachers and school status in relation to physical literacy in children in Indonesia.

Methods and material

This research is a correlational study with a quantitative approach. The sample for this study was taken through purposive sampling, consisting of kindergarten teachers and students The sample includes 100 teachers from 100 accredited schools (A, B, and C) and 100 classes with a total of 1860 students Physical literacy assessment will be based on the average scores of the classes taught by the sampled teachers Data will be collected using physical literacy instruments (for students), teacher perceptions, and the Teacher Involvement Role instrument (for teachers) Data analysis technique will involve descriptive and correlational statistics

Pre-PLAY is a physical literacy measuring tool for preschool children (Cairney et al., 2018). Physical Literacy Assessment consists of three domains: physical competence, coordinated movement, and motivation and enjoyment The aspect of knowledge is not included in Pre-PLAY as it is considered inappropriate for early childhood development stages Pre-PLAY measurement tools can also predict the level of physical activity (PA) given the relationship between the two, where physical literacy serves as the foundation for physical activity (Cairney et al., 2018). Assessment of physical literacy in preschool children is found in (Table 1).

For the assessment of teacher perception, observation of knowledge assessment using a Likert scale of 1-5 adapted to the instruments in this study is conducted As for the assessment of movement competence, the observer will select the child's skill level from the following rating scale options: That is, children do not display skills with a score of 1; children display skills with instructions with a score of 2; children display skills without instructions with a score of 3; children display other skills with a score of 4; and children display creative skills with a score of 5 Meanwhile, the assessment of coordinated movement abilities also uses a rating scale to describe the level of achievement of children: always (A) with a score of 5, often (O) with a score of 4, sometimes (S) with a score of 3, rarely (R) with a score of 2, and never (N) with a score of 1 The level of motivation and enjoyment is assessed using the following rating scale options: strongly disagree (SD) with a score of 1, disagree (D) with a score of 2, unsure (U) with a score of 3, agree (A) with a score of 4, and strongly agree (SA) with a score of 5. The instrument used to observe the impact of school status related to facilities and infrastructure support at schools is assessed through observation by an observer and adjusted to this research. The validity and reliability values can be seen in (Table 2).

The data analysis in this study is descriptive analysis using linear analysis, specifically validity and reliability tests. the data is then analyzed using SPSS 26 software The data processing and analysis are adjusted to the research instrument for a thorough examination Hypothesis testing in this study employs the chi-square test.

Table 1.
Items of the preschool physical literacy assessment

Domain		Items
Movement competencies	1.	Sending upper body (using body only/no equipment; e.g., arms/hands/head):
	2.	Sending lower body (using body only/no equipment; e.g., legs/feet):
	3.	Sending with equipment (e.g., bat, stick):
	4.	Receiving upper body (using body only; e.g. catching with hands/arms):
	5.	Receiving lower body (using body only; e.g. stopping an object with feet):
	6.	Receiving with equipment (e.g., glove, stick):
	7.	Transporting upright (run/hop/jump/skip):
	8.	Transporting prone (rolling/tumbling):
	9.	Body control stationary (e.g., maintaining balance while putting on shoes):
	10.	Body control moving (e.g., is able to maintain balance when moving to catch a ball):
Coordinated movements	11.	Uses a variety of moving vehicles (e.g., tricycle; pedal car; scooter) outside during play.
	12.	Uses playground equipment (e.g., climbing apparatus; slide).
	13.	Can move inside the classroom without bumping into objects or people who are NOT moving.
	14.	Can move inside the classroom without bumping into moving objects or people
Motivation and enjoyment	15.	When given the choice, this child will usually choose active games/play that use movement competencies (e.g., jumping, throwing, kicking, etc.) instead of more sedentary activities (e.g., playing in the sandbox, building blocks, coloring).
	16.	When participating in active games and play that use a variety of different movement competencies, the child often seems confident in his/her abilities.
	17.	When the opportunity to participate in new active games and play that use a variety of movement competencies, the child seems cautious/hesitant.
	18.	When participating in active games and play that use a variety of different movement competencies, the child seems to enjoy the experiences.
Overall physical literacy	19.	Overall, when thinking about this child's physical literacy (combined movement skills, coordinated action, motivation, and enjoyment), how would you rate this child compared to other children the same age?

Table 2.
Validity and Reliability

Physical Literacy	Validity Score (r)	Reliability (Cronbach Alpha)	Keterangan
Competence of Movement	0.653-0.867	0.897	Valid & reliabel
Coordinated Movement	0.798-0.917		
Motivation and Enjoyment	0.682-0.884		
Physical Literacy in general	0.740-0.856		
Teacher Perception			
Knowledge	0.789-0.885	0.908	Valid & reliabel
Attitude	0.711-0.885		
Teaching Practices	0.769-0.856		
Active Teacher Involvement			
Stage Manager	0.740-0.853	0.911	Valid & reliabel
Observer & recorder	0.769-0.914		
Facilitator	0.798-0.901		
Role Model	0.827-0.918		
Motivator	0.821-0.943		
Play Partner	0.827-0.972		

Based on Table 5, it is found that the correlation value or r obtained is greater than the table r value with N=30 and df=28, which is 03610 This means that all items in the test are valid for reliability testing, a Cronbach Alpha value > 060 was obtained, indicating that all items in the test are reliable for use as an instrument in physical literacy research for young children.

Result

Based on the data analysis from the research, the following are the results of the univariate test.
Based on the data analysis above, it can be observed that the highest percentage for the variable physical literacy is 46% with a moderate category, the highest percentage for the variable teacher perception is 47% with a good category, the highest percentage for the variable Active teacher Involvement is 43% with a moderate category, while the highest percentage for the variable Accreditation Status of the School is in schools accredited with an A grade, with a percentage of 54%.

Table 3.
Univariate Analysis

Variable	Score	Category	n	%	Mean	Std.Deviation
Physical Literacy	69-95	Good	25	25%	55.5	12.23
	44-68	Currently	46	46%		
	19-43	Low	29	29%		
Total			100	100%		
Teacher Perception	36-50	Good	47	47%	30.72	9.76
	23-35	Currently	39	39%		
	10-22	Low	14	14%		
Total			100	100%		
Active Teacher Involvement	44-60	Good	38	38%	38.42	10.87
	28-43	Currently	43	43%		
	12-27	Low	19	19%		
Total			100	100%		
Accreditation Status of the School	A	Excellent	54	54%		
	B	Good	32	32%		
	C	Good Enough	14	14%		
Total			100	100%		

Table 4.
The relationship between Teacher Perception and Early Childhood Physical Literacy

Variable	Category	Physical Literacy						Total	Value Pearson Chi-Square	Sig
		Good		Currently		Low				
		n	%	n	%	n	%			
Teacher Perception	Good	17	68%	26	57%	4	14%	47	12.827	0.001
	Currently	8	32%	16	35%	15	52%	39		
	Low	0	0%	4	9%	10	34%	17		
Total		25	100%	46	100%	29	100%	100		

Based on the data analysis above, it is known that there is a positive relationship between Teacher Perception and Early Childhood Physical Literacy with a significance value of 0,001. Physical literacy is necessary to support a child's development, and it requires the role of a teacher. Physical literacy is related to teachers' perception of the direct connection between the efficiency and effectiveness of the

teaching and learning process by both teachers and students in this case (Friskawati & Dwijantie, 2022). Teachers must be able to be the main driving force for physical literacy in children (Doherty et al., 2019). In previous research, it was mentioned that there are differences in physical literacy perceptions across various demographic indicators, such as age, teaching experience, and the educational background and teaching location of the teachers. Teachers of young children perceive physical literacy as beneficial for holistic child development (Friskawati & Dwijantie, 2022). Developing the ability to apply knowledge through physical activities that are appropriate for children of this age is one of the roles of a teacher (Starrett et al., 2022). Furthermore, Olesov et al (2020) argue that young teachers tend to have good creativity, especially in their ability to access appropriate learning resources for children, including physical literacy in children (Olesov et al., 2020).

Table 5.
The relationship between Active Teacher Involvement and Early Childhood Physical Literacy

Variable	Category	Physical Literacy						Total	Value Pearson Chi-Square	Sig
		Good		Currently		Low				
		n	%	n	%	n	%			
Active Teacher Involvement	Good	20	80%	18	39%	0	0%	38	18.246	0.000
	Currently	5	20%	25	54%	13	45%	43		
	Low	0	0%	3	7%	16	55%	19		
Total		25	100%	46	100%	29	100%	100		

Table 6.
The relationship between School Accreditation Status and Early Childhood Physical Literacy

Variable	Category	Physical Literacy						Total	Value Pearson Chi-Square	Sig
		Good		Currently		Low				
		n	%	n	%	n	%			
Accreditation status of the school	A	14	56%	30	65%	10	34%	54	2.246	0.096
	B	8	32%	13	28%	11	38%	32		
	C	3	12%	3	7%	8	28%	14		
Total		25	100%	46	100%	29	100%	100		

Based on the data analysis above, it is known that there is a positive relationship between Active Teacher Involvement and Early Childhood Physical Literacy with a significance value of 0,000. The active role of teachers in developing physical literacy includes facilitating a learning environment to encourage children to enjoy physical activities, especially through various enjoyable physical challenges (Librianty et al., 2021). Proportional support and teacher involvement are crucial in fostering children's interest in learning and physical activity (Morrison et al., 2023). Furthermore, Felin Fochesatto et al (2023) state that a teacher's involvement in accompanying children during play can influence the type of play experience and how children incorporate newly acquired knowledge (Felin Fochesatto et al., 2023). Dogan Altun (2018) added that a teacher's involvement while accompanying children in play serves as an observer, translator supporter, facilitator, game leader, conflict manager, and dual role player (Dogan Altun, 2018). The teacher also acts as a manager and facilitator who organizes and provides play materials, designs play areas, establishes rules, and decides on physical activities involving children (Librianty et al., 2021).

Based on the data analysis above, it is known that there is no positive correlation between School Accreditation Status and Early Childhood Physical Literacy, with a significance value of 0,096. Based on the results of research conducted, it shows that there is no relationship between school accreditation status and early childhood physical literacy. Furthermore, research by (Trial et al., 2021) outlined a cluster randomized controlled trial that focused on skill acquisition methods that promote physical literacy in early childhood physical education (Barbosa et al., 2020). Based on the research results showing that there is no relationship between school accreditation status and physical literacy in early childhood (de Oliveira et al., 2020). The recommendations from this research include that future research should focus on longitudinal studies to further school accreditation status and the development of physical literacy in young children.

Discussion

Based on the research results above, it is known that there is a positive and significant relationship between teachers' perception and active teacher involvement with physical literacy in young children, while there is no relationship between school accreditation status and physical literacy in young children.

In this study, it is found that teachers who have a positive perception of physical literacy also have students with good physical literacy. This is proven by a percentage of 68% in the variable of teachers' perception towards physical literacy. Physical literacy is a complex concept (Stoddart & Humbert, 2021). A teacher needs to have a good understanding of physical literacy concepts, and they need to assist their students in developing their physical literacy (Stoddart & Humbert, 2021). Research conducted by Essiet., (2022) explains that generally teachers acknowledge the importance of the concept of physical literacy in promoting children's physical literacy development (Essiet et al., 2022) According to previous research, it has been explained that teachers' perceptions can impact the well-being of early childhood and potentially support children's physical literacy (Carroll et al., 2020; Robson et al., 2020). Previous research has explained that teachers who have a high perception (positive) towards physical literacy can effectively teach physical education (Cheng & Koh, 2021). Research by (Bremer et al., 2020) highlighted the implications of teachers' positive perceptions of physical literacy activities being very important in encouraging children's active participation in movement. A teacher plays a fundamental role in ensuring that children develop skills and attributes that support physical literacy and ensure ongoing engagement in physical activities (Essiet et al., 2022). This research fully supports that positive teacher perceptions are related to and will impact the physical literacy of young children The positive perceptions held by teachers will encourage young children to

actively participate in sustained physical activities and contribute to their growth and development.

Furthermore, another finding in this research is that teachers who actively participate have a positive impact on student literacy. This is evidenced by an 80% percentage falling into the good category. The distribution of physical literacy scores among children in the active teacher engagement group is 74.63%, while 25.37% of children fall into the limited physical literacy category. Meanwhile, children in the less active teacher engagement group account for 61%, with 93,9% having limited physical literacy. Based on this, it shows that teacher involvement is a very important factor. As mentioned by Tandon et al (2015), active teacher involvement will increase children's physical activity and reduce sedentary behavior (Tandon et al., 2015). The teacher has a role as a facilitator and promoter of an active lifestyle to further promote physical activity and reduce sedentary behavior (Abarca-Sos et al., 2015). The finding in this study is that teacher involvement has a significant influence in supporting the physical literacy development of children, where children who receive support from active teacher roles have better average physical literacy scores compared to those who receive less support and guidance. In line with the research conducted by Yafie et al (2020) explaining that when teachers are appropriately involved, providing feedback and appropriate reinforcement during play, they have the opportunity to support children's learning and development (Yafie et al., 2020). Active observation by teachers during play is crucial in addressing the challenges faced by children while playing without disrupting the nature of the play process, but rather supporting and enhancing children's development and learning (Özgünlü & Veziroğlu Çelik, 2018). This research agrees that the active role of a teacher provides support for young children's growth and development by actively observing directly, it helps children face challenges during play.

Based on the results of research conducted, it shows that there is no relationship between school accreditation status and early childhood physical literacy. Furthermore, research by (Trial et al., 2021) outlined a cluster randomized controlled trial that focused on skill acquisition methods that promote physical literacy in early childhood physical education (Barbosa et al., 2020). Based on the research results showing that there is no relationship between school accreditation status and physical literacy in early childhood (de Oliveira et al., 2020). Accreditation should have a significant impact on existing facilities (Winterbottom & Piasta, 2015). This research is supported by previous research which states that accreditation is not related to better school readiness, and the level of facility readiness does not differ between accredited and non-accredited facilities (Winterbottom & Piasta, 2015). Furthermore, it is also explained that accreditation does not necessarily equate to a higher score in facility readiness and structural quality While accreditation may be good, one must also consider process quality if they truly want to enhance facility capabilities (Winterbottom & Piasta, 2015). We emphasize that school accreditation status is a positive step to take However, the role of schools in aligning their vision and mission with the development and growth of young children needs to be standardized The teaching process carried out by teachers for children is crucial. The recommendations from this research include that future research should focus on longitudinal studies to further school accreditation status and the development of physical literacy in young children.

Conclusion

Physical literacy has a complex concept, but it is important to be applied to support the development of young children. Teachers play a fundamental role in implementing the concept of physical literacy in young children a teacher's understanding of physical literacy is crucial because it can help children be more active, and their active involvement in applying the concept is equally important as it can enhance children's physical activity and reduce sedentary behavior. Engaged teachers who provide appropriate feedback and reinforcement during play have the opportunity to support children's learning and development A teacher's concern for children's health is a driving force for educating them about the importance of nutrition and physical activity. Therefore, it is important for teachers to change their behavior in using physically active teaching methods in order to improve students' physical activity levels Early childhood educators need more practical ways to educate children about physical activity. This is truly the challenge for early childhood education institutions in the future.

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