Journal Sport Area
http://journal.uir.ac.id/index.php/JSP
Vol. 11. No. 1. April, (2026)

A sportification model of the traditional Singkongan game: Development and content validation of Singkoball

Dhiya Ulhaq Oksa Pratama[1abcde,*], Panita Khampoosa[2de], & Gustiana Mega Anggita[1abd]

Universitas Negeri Semarang, Indonesia[1]
Srinakharinwirot University, Thailand[2]

Received 09 February 2025; Accepted 24 April 2026; Published 29 April 2026
Ed 2026; *11*(1): 144-154

ABSTRACT

Background: The lack of standardised rules and safety measures in traditional games limits their utility for structured physical activity and fitness promotion. In particular, the traditional Singkongan game, which involves wooden sticks, presents safety risks and diminishes its suitability for modern fitness contexts. **Objectives:** This study aimed to develop and examine the content validity of Singkoball as a sportified model of the traditional Singkongan game. **Methods:** A research and development design was employed, focusing on product development and expert validation. Four experts (two sports specialists, one linguist, and one graphic design expert) evaluated the product using structured validation instruments. Data were analysed using percentage-based validity criteria and inter-rater agreement. **Results:** The developed product demonstrated high content validity, with valid scores of 98.96% (sports experts), 88.90% (language experts), and 88.60% (design experts), resulting in an overall score of 92.15%. These findings indicate a high level of agreement regarding the clarity, safety, and usability of the developed model. **Conclusion:** Singkoball demonstrates robust content validity and feasibility as a culture-based model. However, its impact on motor skill development and engagement among children and adolescents has yet to be empirically established and requires rigorous field-based evaluation.

Keywords: Traditional games; sportification; physical literacy; content validity; game-based learning

https://doi.org/10.25299/sportarea.2026.vol11(1).27276

Dhiya Ulhaq Oksa Pratama, Department of Sport Science, Faculty of Sport Science, Universitas Negeri Semarang, Semarang, Indonesia
oksapratama1@students.unnes.ac.id

How to Cite: Pratama, D. U. O., Khampoosa, P., Anggita, G. M. (2026). A sportification model of the traditional Singkongan game: Development and content validation of Singkoball. *Journal Sport Area*, *11*(1), 144-154. https://doi.org/10.25299/sportarea.2026.vol11(1).27276

Authors' Contribution: a – Study Design; b – Data Collection; c – Statistical Analysis; d – Manuscript Preparation; e – Funds Collection

INTRODUCTION

Traditional games have been increasingly recognised as valuable pedagogical tools in physical literacy due to their potential to promote physical activity, motor skill development, and socio-emotional learning (Hananingsih et al., 2024; Miratunnisah, 2024). Previous studies have demonstrated that traditional games contribute to the improvement of gross motor skills, coordination, and teamwork among school-aged children (Abdullah & Amri, 2021; Cheong & Hussain, 2024). In addition, these games play an important role in preserving cultural heritage while fostering engagement in active learning environments (Faozi et al., 2024; Saura & Zimmermann, 2021).

However, despite their pedagogical benefits, many traditional games face challenges in being integrated into formal physical literacy contexts. One major limitation is the lack of standardised rules, safety protocols, and structured instructional frameworks (Jueming, 2022; Nur & Wijaya, 2021). Previous studies have highlighted that safety concerns and inconsistent gameplay structures reduce the validity of traditional games in school environments, particularly when risk management and environment alignment are required (Anggita et al., 2023; H P N, 2023). Furthermore, without standardisation, traditional games are difficult to assess, replicate, and implement systematically in literacy settings.

Although previous research has extensively examined the benefits of traditional games in promoting physical activity and motor development, most studies have focused on general implementation rather than systematic transformation (Abdullah & Amri, 2021; Cheong & Hussain, 2024)**.** Limited attention has been given to the process of converting traditional games into structured sport models that meet literacy standards in terms of safety, consistency, and instructional design. In particular, there is a lack of empirical work addressing how specific traditional games can be adapted through sportification approaches to become applicable within formal physical literacy (Svendsen et al., 2020; Coroiu et al., 2020). This gap is especially evident in the case of Singkongan, which remains largely undocumented in academic literature.

To address this gap, the concept of sportification offers a relevant framework for transforming traditional games into structured and pedagogically meaningful activities. Sportification involves modifying rules, equipment, and gameplay elements to align with modern literacy and safety standards while preserving cultural identity (Nur & Wijaya, 2021; Jiang, 2025). This approach is also consistent with the principles of game-based learning and physical literacy, which emphasise engagement, contextual relevance, and holistic skill development in physical literacy (Kastampolidou & Andronikos, 2023; Kimmons & Jensen, 2023). Therefore, this study aims to develop and validate Singkoball as a sportified adaptation of the traditional Singkongan game, providing a safe, standardised, and culturally grounded model for literacy practice.

METHOD

Research Design

This study employs a research and development (R&D) approach. However, it is important to note that this research focuses specifically on the initial phase of development, centring on content validation through expert judgement. This stage is crucial to ensure that the conceptual model of Singkoball meets the pedagogical and safety standards before proceeding to field testing.

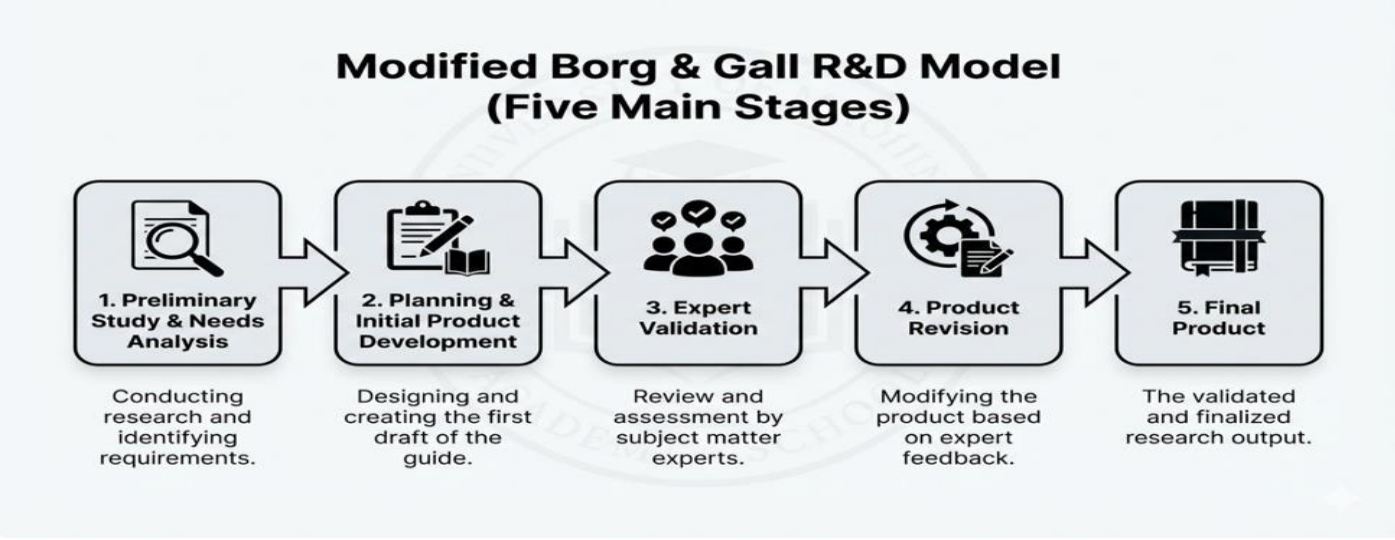

Figure 1. Borg and Gall Model

Development Procedures

The research process was broken down into five primary steps: (i) Preliminary Study and Needs Analysis, (ii) Planning and Drafting of Initial Product, (iii) Expert Validation, (iv) Product Revision, and (v) Final Product. Product validation involves four experts selected based on their academic and practical expertise. The validators consist of two sports experts tasked with assessing the substance of the game and movement techniques, one language expert to review the readability of the script, and one graphic design expert to evaluate the visual aesthetics of the Singkoball Guidebook.

Participants and Validators

Data were collected from four purposively selected experts: two sports specialists to evaluate the game's mechanics and safety, one linguist to assess the clarity of the rules, and one graphic design expert to evaluate the visual instructional media. Instead, the initial product was exclusively evaluated by their professional qualifications:

Table 1. Validator Profiles

No	Validator Institution	Expertise	Area Expertise	Years Experience
1	Universitas Negeri Semarang	Traditional Sport Academics	National	16 Years
2	Committee for Indonesian Folk Games and Traditional Games of Central Java	Traditonal Sport Practicioners	Province	10 Years
3	Universitas Negeri Semarang	Language & Linguistic	National	11 Years
4	Universitas Negeri Semarang	Graphic Design	National	14 Years

Sports material experts are divided into two groups: academics and practitioners of traditional games. The instrument consists of 10 assessment items covering three main aspects. First, the quality of material aspect emphasises the accuracy of biomechanical movement and a logical training system to ensure improvement in motor skills (Cheong & Hussain, 2024). (i) This assessment also prioritises safety and injury prevention aspects of modified equipment, (ii) The Values & Philosophy aspect assesses the integration of traditional cultural values and sportsmanship as an effort to build child-to-adolescent character, (iii) The aspect of Visual Presentation of Movement to ensure synchronisation between the explanatory text and technical images (Hananingsih et al., 2024).

There are 9 parts to the language expert instrument, and they all have to do with how clear and easy to understand the language is. These parts are meant to make sure that the language style used is interactive and appropriate for the cognitive growth of teens. Other things that were looked at were how well the guidebook followed grammatical rules (PUEBI/EYD), how accurate the sentence structure was, and how consistent the technical sports terms were used throughout.

Eleven questions make up the graphic design expert instrument, which evaluates four distinct areas. The process begins with the title's composition and the cover design's attractiveness. Next is the layout, which evaluates the uniformity of white space and margins to prevent the reader's eyes from becoming fatigued too soon. The readability and information content of the layout are evaluated.

Instruments

The content validity was assessed using a structured validation instrument. The instrument was developed based on the framework of product validity, covering four main constructs: (i) Pedagogical relevance, (ii) Safety and Risk Management, (iii) Technical Usability, and (iv) Linguistic Clarity. Each item was measured using a 4-point Likert scale (ranging from 1 = "Invalid" to 4 = "Highly Valid"). The use of this specific scale aimed to eliminate neutral responses and ensure a clear direction for product refinement (South, 2022).

Table 2. Sport Expert Validation Instrument

No	Aspect Analysis	Component		Description
1	Content Quality	1	Movement Technique Accuracy	The description of movement techniques is explained correctly and aligns with relevant sports standards.
		2	Rules Compliance	The regulations presented are consistent with established sports standards.
		3	Safety Aspects	The material adequately covers safety procedures, warm-up routines, and injury prevention measures.
		4	Training Systematics	The sequence of materials is logically and methodologically arranged.
		5	Facilities & Infrastructure Completeness	Explanations of tools, field layout, and equipment specifications are accurate.
2	Values & Philosophy	1	Cultural Values	The guidebook effectively incorporates the sport's history, philosophy, and values of cultural preservation.
		2	Sportsmanship Values	The material instills values of fair play, discipline, and competitive ethics.
3	Visual Presentation	1	Illustration/Image Clarity	Technical images/photos clearly depict movement phases.
		2	Text & Visual Alignment	Text explanations are synchronised with the presented images or field diagrams.
		3	Readability	The layout makes it easier for coaches/athletes to grasp the core material on the field.
4	Usability	1	Target Age Appropriateness	The material and game rules are feasible for the target user's age group.
		2	Applicability	The guide is realistic and practical to be implemented in the field under existing conditions.

Table 3. Linguistic Validation Expert Instrument

No	Aspect Analysis	Component		Description
1	Straightforward & Communicative	1	Information Clarity	The language used is straightforward, not convoluted, and direct to the point.
		2	Communicative Nature	The language style is inviting, interactive, and not rigid.
		3	Target Audience Appropriateness	The language difficulty level matches the cognitive development of the target users.
2	Grammatical Compliance	1	Grammatical Accuracy	Sentence structure is standard and effective.
		2	Spelling & Punctuation (PUEBI)	The use of capitalisation, punctuation, and prepositions complies with applicable Indonesian Spelling rules.
		3	Foreign Terminology Writing	Words from other languages are italicised or used correctly according to the rules.
3	Consistency & Coherence	1	Terminology Consistency	The manuscript uses technical sports terms correctly throughout.
		2	Coherence & Cohesion	The connection between sentences and paragraphs is clear, logical, and strong.
		3	Glossary	Technical terms that are hard to explain and a glossary that doesn't work well.

Table 4. Graphic Design Validation Expert Instrument

No	Aspect Analysis	Component		Description
1	Cover Design	1	Attractiveness	The cover design is eye-catching and shows the content well.
		2	Title Composition	The title of the book is easy to read, stands out from the background, and fits the tone of a sports book.
2	Layout & SIstematics	1	Layout Consistency	Margins, spacing patterns, and page numbering placement are consistent from start to finish.
		2	Balance	The ratio of text to images is not high enough to strain the eyes.
		3	Visual Navigation	Chapter numbering, headers/footers, and section markers all work well for directing users to the information they need.

No	Aspect Analysis	Component		Description
3	Typography	1	Legibility	The whole document makes appropriate use of technical sports terminology.
		2	Information Hierarchy	Paragraphs and sentences have a rational and cohesive connections.
4	Illustration & Graphics	1	Image Quality	Photo/illustration resolution is high, and the print is sharp.
		2	Function of Illustration	Images/graphics function to clarify material, especially in visualising sports movement techniques.
		3	Color Aesthetics	Color combinations are harmonious and do not disturb reading comfort.
5	Quality Product	1	Quality	The product quality is easy to read and attractive.

Data Collecton Procedures

The cumulative percentage scores for the valid criteria are displayed in **Figure 2**.

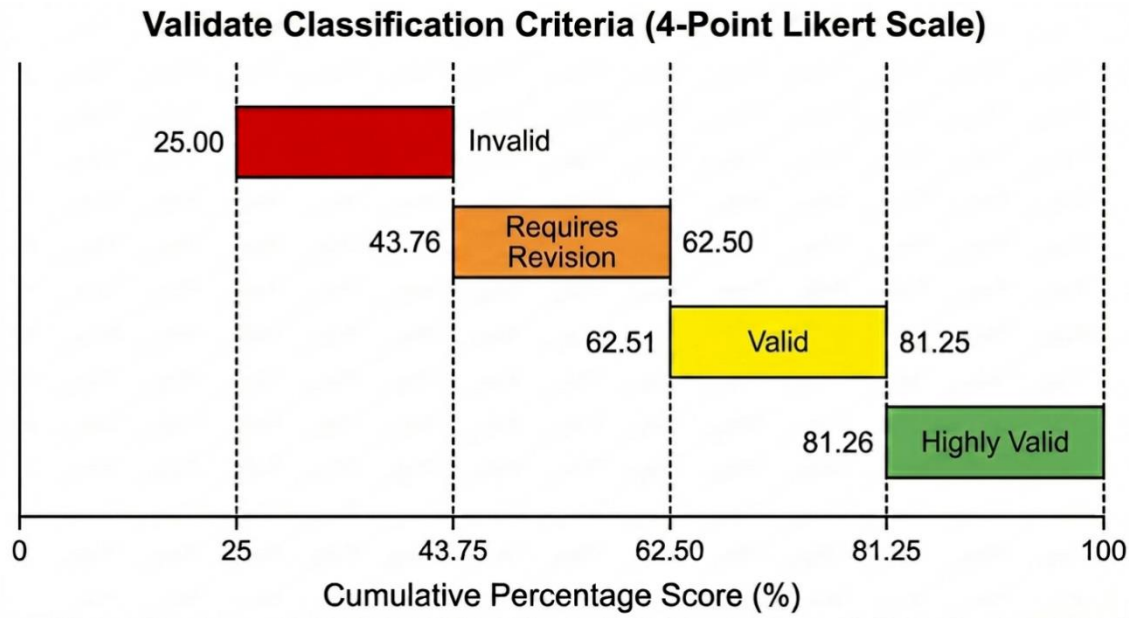

Figure 2. Validate Classification Criteria

This research used a combination of quantitative descriptive analysis as its data analysis method. The quantitative and descriptive analysis technique is employed to process data, suggestions, and inputs received from the expert validation sheets and validator response questionnaires, and convert them to percentages for interpretation to determine the valid category of the SingkoBall game model development product (South, 2022).

Data Analysis

The calculation process was carried out by adding all the scores given by the validators, then dividing by the ideal score (4 multiplied by the number of questions). The result of this division was then multiplied by 100 per cent to obtain the percentage value of product's validity. Given that the validation of sports material involved two validators, the determination of material valid was based on the average of the final percentages obtained from the first and second validators (Fernández Batalla et al., 2022). To ensure methodological rigour and move beyond simplistic percentage-based analysis, the content validity of the Singkoball model was quantitatively evaluated using the Content Validity Ratio (CVR) and the Content Validity Index (CVI) (Fernández Batalla et al., 2022). Furthermore, to ensure the reliability of the instrument, an inter-rater agreement analysis was conducted specifically for the sports experts. The Percentage of Agreement method

was employed to measure the consistency of the evaluations between the two experts (Fernández Batalla et al., 2022).

Ethical Considerations

This study was conducted in accordance with the formal administrative and ethical guidelines of the Faculty of Sports Science, Universitas Negeri Semarang. Institutional permission for the research and expert validation process was formally granted under the reference numbers B/4418/UN37.1.6/KM.07/2026. The validation process also begins with obtaining informed consent from all expert validators, which includes information on the research objectives, assessment procedures, and participants' rights, to ensure their involvement is completely voluntary and free of any coercion.

RESULTS AND DISCUSSION

Results

Product Development and Visual Model

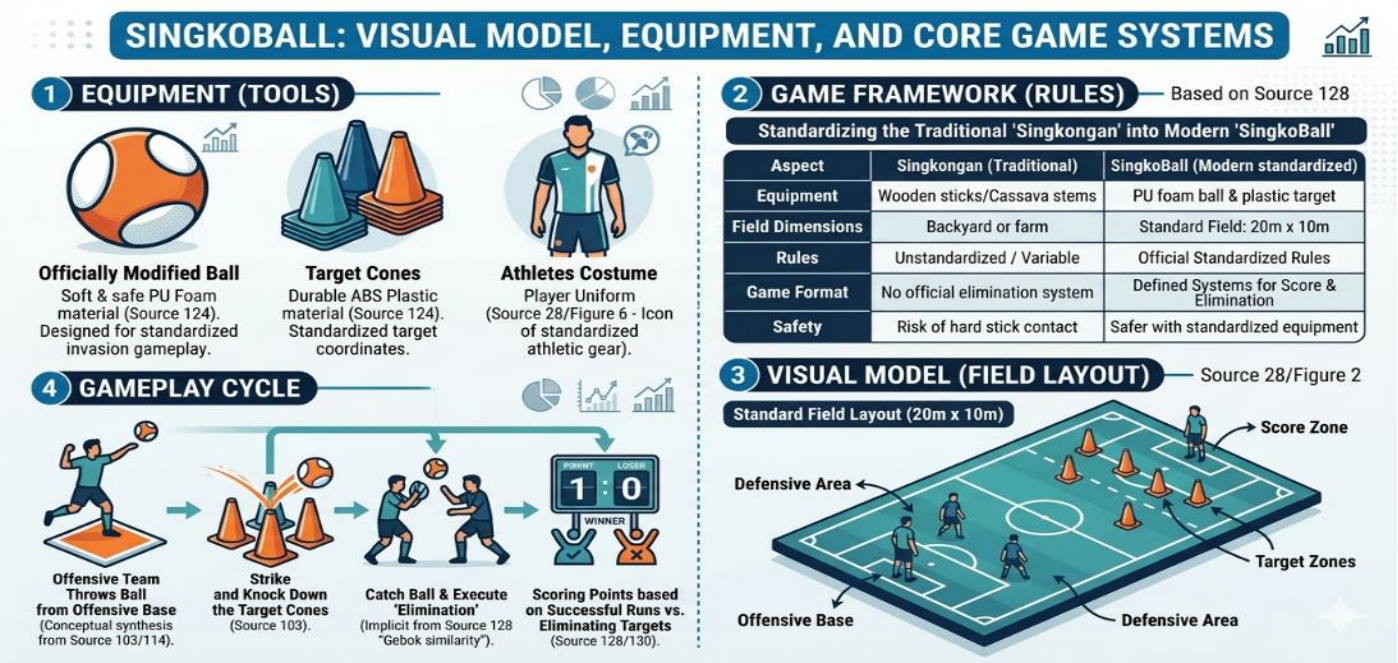

Figure 3. Product Description Infographic

The initial product developed in this study is the Singkoball Guidebook, which standardises the traditional Singkongan game into a structured physical material. To ensure the product's reproducibility and standardisation, a comprehensive visual model was developed. **Figure 3** illustrates the visual model detailing the official equipment (PU foam ball and plastic targets), the standardised field dimensions (20 m x 10 m), and the fundamental rules and gameplay cycle. This visualisation transforms abstract traditional concepts into safe, measurable, and highly ergonomic instructional tools.

Content Validation Results

Table 5. Results of Validation Expert

No	Academician Sport Score	Practicioner Sport Score	Linguistic Score (Pre-Revision)	Linguistic Score (Post-Revision)	Graphic Design (Pre-Revision)	Graphic Design (Post-Revision)
1	4	3	4	4	4	4
2	4	4	3	3	4	4
3	4	4	4	3	2	3
4	4	4	3	3	2	3

No	Academician Sport Score	Practicioner Sport Score	Linguistic Score (Pre-Revision)	Linguistic Score (Post-Revision)	Graphic Design (Pre-Revision)	Graphic Design (Post-Revision)
5	4	4	3	4	2	4
6	4	4	2	4	2	3
7	4	4	3	4	3	4
8	4	4	4	4	3	4
9	4	4	2	3	2	3
10	4	4			3	4
11	4	4			2	3
12	4	4				
Actual Score	**48 (100%)**	**47 (97,9%)**	**27 (75%)**	**32 (88,9%)**	**27 (61,36%)**	**39 (88,6%)**

The development of Singkoball underwent a rigorous validation process involving sports, linguistic, and design experts. **Table 6** summarises the quantitative validation indices, moving beyond simple percentages to establish statistical significance through CVI and CVR.

Table 6. Summary of Content Validity Indices (Post-Revision)

Expert Domain	Number of Items	S-CVI	CVR (Mean
Sport	12	1.00	1.00
Linguistic	9	1.00	1.00
Graphic Design	11	1.00	1.00
Overall Model	**32**	**1.00**	**1.00**

The synthesis of expert evaluations indicates a robust consensus regarding the sportified model of Singkoball. With an overall S-CVI of 1.00 and a high degree of inter-rater agreement, the model demonstrates strong content validity, particularly in its safety protocols and pedagogical alignment. The high scores in the material domain suggest that the transformation from wooden sticks to standardised equipment effectively mitigates previous risk concerns while maintaining the game's cultural essence.

Table 7. Cumulative Score of Sport Experts

No	Validator	Actual Score (Percentage %)	Reliability Number of Agreements
1	Academician	48 (100%)	12
2	Practitioner	47 (97,9%)	11
	Cumulative Score	**95 (98,96%)**	**91,6%**

Table 8. Recapitulation of The Guidebook Assessment

Validator	Actual Score	Maximum Score	Percentage (%)	Category
Sport Expertise	95	96	98,96%	Highly Valid
Linguistic Expertise	32 (Revision)	36	88,9%	Highly Valid
Graphic Design Expertise	39 (Revision)	44	88,6%	Highly Valid
Mean (Total)	**166**	**176**	**92,15%**	**Highly Valid**

Expert Feedback and Revisions

Beyond numerical ratings, the experts provided critical insights into the instructional design of Singkoball. The sports experts emphasised that the standardisation of rules is not merely a formal requirement but a necessary framework for physical literacy. This aligns with the sportification concept, where structured gameplay facilitates better motor skill assessment compared to traditional, unregulated play.

Following up on the linguistics of the scores, the researchers made substantial revisions by: (i) correcting the spelling of foreign terms to conform to the rules, (ii) rechecking spelling and punctuation errors, and (iii) adding a glossary page to explain technical terms. The guidebook demonstrated strong readability and grammatical accuracy. The in-depth analysis of the expert's qualitative notes emphasised the importance of audience-appropriate terminology. Since the primary users are physical literacy child to adolescent, complex academic jargon regarding game regulations was simplified into clear, instructional sentences. This linguistic

refinement ensures that the rules and gameplay instructions are straightforward, avoiding multi-interpretations during actual gameplay.

Analysis of the graphic design of the scores shows that the appeal of the cover, colour harmony, and visual navigation of the product scored a maximum of 4. This shows that the product has been able to package the traditional game content with a modern look that attracts the interest of children to adolescents in reading. However, the validator proposes some minor adjustments to optimise the final product. The validator suggests increasing the line spacing to at least 1.5 and adjusting the font size of the main text to optimise the composition of the white space. These optimisation procedures are important to ensure that technical information is read clearly without straining the eyes, especially when the guide is used as a direct reference in field activities.

Discussion

The expert validation process established that Singkoball possesses strong content validity as a sportified model of a traditional game. The high consensus among sports, linguistic, and design experts—evidenced by the perfect CVI and CVR scores (1.00)—indicates that the transition from the traditional Singkongan to the structured Singkoball is conceptually sound. This change, in line with the modernisation of competition rules and structures, is a key factor for resolving obstacles to traditional sports culture inheritance among the younger generation (Jiang, 2025).

The presence of Singkoball offers a new and exciting alternative physical activity for children to adolescents, which is essential in encouraging children to adolescents to participate. Offering a range of additional activities in physical literacy is positively related to student satisfaction and intensity of physical activity (Coroiu et al., 2020; Oldervik & Lagestad, 2021). In addition, the change from wooden sticks to safe foam ensures that the game can be played at different societal infrastructures without compromising its essential nature. This flexibility of the infrastructure is essential, as availability of facilities has often been a major contributor to community participation in sports (Bado, 2022).

The primary reason for the high expert agreement lies in the successful mitigation of safety risks while maintaining cultural identity. By replacing hazardous wooden sticks with standardised, safe equipment, the model addresses the long-standing barrier to integrating traditional games into formal physical literacy (Jueming, 2022)**.** The experts identified that the standardisation of rules does not merely simplify the game but provides a necessary framework for consistent assessment and replication in societal settings (Urbainak-Brekke & Solbraa, 2021). Therefore, this standardisation serves as a strategic intervention for cultural sport preservation, ensuring its relevance for the younger generation.

Theoretically, this study contributes to the literature on sportification and sport pedagogy. The transformation of Singkongan into Singkoball aligns with game-based learning (GBL) principles, where structured play is used to stimulate strategic thinking and engagement (Hartt et al., 2020; Bado, 2022). Game-based learning emphasises the use of structured play to enhance cognitive engagement, strategic thinking, and teamwork (Coroiu et al., 2020; Hananingsih et al., 2024; Julianti et al., 2025). By codifying the rules and introducing a systematic scoring and elimination system, Singkoball provides a structured pedagogical framework that theoretically stimulates these literacy values. Bridging traditional folk games with modern sport structures fosters physical literacy by connecting cultural heritage with active, structured movement (Fauzi et al., 2024; Nur & Wijaya, 2021). Offering such novel variations in physical literacy is theoretically linked to enhanced student satisfaction and participation motivation (Svendsen et al., 2020; Oldervik & Lagestad, 2021).

From the point of view of instructional design and guidebook development, linguistic changes aimed at improving the clarity of terms used and the inclusion of a glossary have significantly enhanced the instructional value of the guidebook. A communicative guidebook not only acts as a rule book but also as an instrument for self-learning for teachers and trainers. The standardisation of rules and safety guidelines through a structured manual is a critical step in the sportification process, ensuring that the game can be formally adopted within societal environment (Jiang, 2025; Jueming, 2022). This is highly applicable when a simple guidebook design with ease of understanding is crucial to support teacher learning that is closely linked

to fieldwork (Kimmons & Jensen, 2023). The use of simple yet standardised terms in the guidebook helps to avoid ambiguity in understanding the game mechanics, thereby facilitating smoother implementation and mitigating perceived risks in physical literacy settings (H P N, 2023).

Furthermore, the optimisation of the guidebook's linguistics and visual design is directly tied to the theories of motor learning and cognitive ergonomics. In motor learning, clear instructional cues and precise visual models are essential for learners to correctly process and execute new biomechanical movements (Cheong & Hussain, 2024). The qualitative revisions made based on expert feedback such as simplifying terminology, enlarging typography, and enhancing visual contrast in the diagrams serve to significantly reduce cognitive load (Bošnjaković et al., 2022). For physical literacy practitioners, this research provides a validated, ready-to-use guidebook that bridges the gap between traditional culture and environment requirements. The clear instructional design and standardised rules allow teachers to implement the game without the ambiguity often found in oral traditions. This provides a practical solution for teachers seeking diverse, safe, and engaging physical activities that meet modern literacy standards (Svendsen et al., 2020).

This study has several explicit methodological limitations that must be acknowledged. First, the validation process was strictly limited to content validity assessed by a small panel of four experts. While this expert judgement established a preliminary consensus, the small sample size restricts the broader generalisability of the validation indices. Second, this study relies solely on theoretical expert evaluation and lacks empirical assessments of construct validity or criterion-related validity. Third, as this research focuses exclusively on the preliminary development phase, it completely lacks empirical field testing or user evaluations involving actual physical literacy children to adolescents. Consequently, any claims regarding the practical impact of Singkoball on children to adolescents motor skill enhancement, physical intensity, or pedagogical effectiveness cannot yet be substantiated. While this study relies on percentage-based consensus, it is recognised that inter-rater reliability could be further strengthened in future studies or subsequent development phases by employing more robust statistical measures, such as Cohen’s Kappa or Intra-class Correlation (ICC). Future research must address these methodological gaps by conducting large-scale field trials to establish construct validity and empirically measure the practical outcomes of Singkoball in real-world literacy settings.

CONCLUSION

This study developed and examined the content validity of Singkoball as a sportified adaptation of the traditional Singkongan game. The findings indicate that the developed model demonstrates a high level of content validity, suggesting it is valid for use in physical literacy settings. This study contributes to the field by providing a structured and safety-orientated transformation of a traditional game into a standardised instructional model, supporting the integration of culture-based activities into formal literacy. However, this study is limited to expert-based content validation and does not evaluate the effectiveness of the model in improving student outcomes. Future research is recommended to investigate the effectiveness of Singkoball through experimental designs and to explore its impact on motor skills, physical activity, and society engagement.

ACKNOWLEDGEMENTS

Thank you to the author's closest colleagues and expert validators from each field for helping with this research.

CONFLICT OF INTEREST

All authors in this manuscript have declared no conflict of interest in this research.

REFERENCES

Abdullah, B., & Amri, S. (2021). Effects of Traditional Games on Age Equivalent Scores of Locomotor and Manipulative Skills among Early Stage School Children. *International Journal of Academic Research in Business and Social Sciences*, *8*(12), 134-145. https://doi.org/10.6007/IJARBSS/v8-i12/5001

Anggita, G. M., Ali, M. A., Mazlina, A., Mohamed, D., Pratama, A. B., Mukarromah, S. B., Rani, A., Candra, D., & Marfu, D. (2023). The Relationship between Gadget Addiction, Student's Knowledge, and Participation Level in Traditional Games. *Journal of Hunan University Natural Sciences*, *50*(2), 181-189. https://doi.org/10.55463/issn.1674-2974.50.2.19

Bado, N. (2022). Game-Based Learning Pedagogy: A Review of the Literature. *Interactive Learning Environments*, *30*(5), 936–948. https://doi.org/10.1080/10494820.2019.1683587

Bošnjaković, G., Vladić, G., Gvoka, T., & Maričić, K. (2022). Importance of Cognitive Ergonomics in Packaging Design. *Conference: 11th International Symposium on Graphic Engineering and Design* https://doi.org/10.24867/GRID-2022-p58

Cheong, J. P. G., & Hussain, B. (2024). Practicing Traditional Cultural Games Skills According to Random and Game-Based Practice Schedules Can Improve Gross Motor Skills Performance. *Frontiers in Psychology*, *15*(July), 1–9. https://doi.org/10.3389/fpsyg.2024.1405635

Coroiu, A., Moran, C., Campbell, T., Geller, A. C. (2020) Barriers and Facilitators of Adherence to Social Distancing Recommendations during COVID-19 among a Large International Sample of Adults. *PLoS ONE*, *15*(10): e0239795. https://doi.org/10.1371/journal.pone.0239795

Fauzi, R. A., Suherman, A., Susilawati, D., Saptani, E., & Rahman, A. A. (2024). The Effect of Traditional Games on Participation of Elementary School Students in Physical Education. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, *13*(2), 295-300. https://doi.org/10.15294/peshr.v13i2.4520

Fernández Batalla, M., Monsalvo San Macario, E., González Aguña, A., Herrero Jaén, S., Gonzalo de Diego, B., Manrique Anaya, Y., Jiménez Rodríguez, M. L., Melguizo Herrera, E., & Santamaría García, J. M. (2022). Validation and Reliability of the Care Vulnerability Index: A Study by Interrater Agreement and Test-Retest Method. *Nursing open*, *9*(3), 1766-1773. https://doi.org/10.1002/nop2.1203

H P N, P. (2023). Traditional Games and the Sri Lankan Culture; Reflection of Traditional Games as a Component of Implicit Culture of Sri Lanka. *International Journal of Scientific Research and Management (IJSRM)*, *11*(08), 06–10. https://doi.org/10.18535/ijsrm/v11i08.ss02

Hananingsih, W., Isnaini, L. M. Y., & Irmansyah, J. (2024). The Role of Traditional Sports in Establishing Student Character through Physical Education, Sports, and Health Learning. *International Journal of Human Movement and Sports Sciences*, *12*(3), 538–545. https://doi.org/10.13189/saj.2024.120310

Hartt, M., Hosseini, H., & Mostafapour, M. (2020). Game On: Exploring the Effectiveness of Game-based Learning. *Planning Practice & Research*, *35*(5), 589–604. https://doi.org/10.1080/02697459.2020.1778859

Jiang, C. (2025). A Study on Factors Influencing the Inheritance Dilemma of Traditional Minority Sports Culture. *Quality in Sport 37*, 57452. https://doi.org/10.12775/QS.2025.37.57452

Jueming, H. (2022). Protection, Inheritance, and Revitalization of Traditional Crafts BT-Chinese Handicrafts. *In book: Chinese Handicrafts*. Springer Nature Singapore, 1119–1133. https://doi.org/10.1007/978-981-19-5379-8_15

Julianti, R. R., Suherman, A., Ma'mun, A., Budiana, D., & Sari, E. F. N. (2025). Traditional Games as a Tool for Improving Psychosocial Development: A Comparative Study of Structured and Progressive Learning Models. *Edu Sportivo: Indonesian Journal of Physical Education*, *6*(1), 1–14. https://doi.org/10.25299/esijope.2025.vol6(1).18538

Kastampolidou, K., & Andronikos, T. (2023). Quantum Tapsilou—A Quantum Game Inspired by the Traditional Greek Coin Tossing Game Tapsilou. *Journal Games*, *14*(6), 72. https://doi.org/10.3390/g14060072

Kimmons, R., & Jensen, B. (2023). The Open Guidebook Approach : Designs to Support Collaborative Close-to-Practice Teacher Learning. *International Council For Open and Distance Education*. *15*(1), 8–26. https://doi.org/10.55982/openpraxis.15.1.521

Miratunnisah, M. (2024). Study of Literature: The Role of Traditional Games as a Learning Media to Instill Character Education in Elementary School Students. *MANDALIKA : Journal of Social Science*, *2*(1), 13–20. https://doi.org/10.56566/mandalika.v2i1.174

Nur, M. H. A., & Wijaya, P. G. W. (2021). Revitalization of Traditional Games as a Tool for Contextual Education on Disasters (Case Study: Mount Krakatau). *IOP Conference Series: Earth and Environmental Science*, *830*(1). https://doi.org/10.1088/1755-1315/830/1/012033

Oldervik, S., & Lagestad, P. (2021). Importance of Providing Additional Choices in Relation to Pupils' Contentment, and Level of Physical Activity in Physical Education. *Frontiers in Sports and Active Living*, *3*, 599953. https://doi.org/10.3389/fspor.2021.599953

Saura, S. C., & Zimmermann, A. C. (2021). Traditional Sports and Games: Intercultural Dialog, Sustainability, and Empowerment. *Frontiers in Psychology*, *11*, 590301. https://doi.org/10.3389/fpsyg.2020.590301

South, L., Saffo, D., Vitek, O., Dunne, C. and Borkin, M.A. (2022), Effective Use of Likert Scales in Visualization Evaluations: A Systematic Review. *Computer Graphics Forum, 41*, 43-55. https://doi.org/10.1111/cgf.14521

Svendsen, M.T., Bak, C.K., Sørensen, K. (2020). Associations Of Health Literacy With Socioeconomic Position, Health Risk Behavior, And Health Status: A Large National Population-Based Survey Among Danish Adults. *BMC Public Health* 20, 565. https://doi.org/10.1186/s12889-020-08498-8

Urbaniak-Brekke, A. M., & Solbraa, T. (2019). Factors Influencing Physical Activity Level of The Inhabitants in Norway and Poland – The Case of Sports and Recreation Infrastructure. *Physical Activity Review*. *7*, 96–106. https://doi.org/10.16926/par.2019.07.12