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Developing the Kanga's Escape Learning Model with Box Modifications for Upper Grade Students

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Keywords

Kanga es cape; Teaching model; Physical Education

Abstract

This study aimed to develop and evaluate the feasibility, practicality, and effectiveness of the Kanga Es Cape learning model, a Kids Athletics-based jumping game using modified box media, for upper-grade elementary school students. This research employed a Research and Development (R&D) approach using the ADDIE model, consisting of Analysis, Design, Development, Implementation, and Evaluation. Product validation involved one game expert and two Physical Education practitioners. Small-group trials were conducted with 14 students from SDN Pakintelan 03, while large-group trials involved 30 students from SDN Pakintelan 02 and SDN Pakintelan 03. Data were collected through questionnaires, observations, interviews, and pretest-posttest assessments. Expert validation results indicated that the product was categorized as feasible and highly usable. Small-group and large-group trials also showed high practicality ratings. Effectiveness testing demonstrated significant improvements in students' learning outcomes, with mean cognitive scores increasing from 32.20 to 68.97, affective scores from 31.07 to 64.47, and psychomotor scores from 35.83 to 63.33 ($p < 0.001$). Therefore, the Kanga Es Cape learning model is feasible, practical, and effective for supporting active participation and movement skill development in elementary school physical education learning.

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INTRODUCTION

Physical Education, Sports, and Health is one of the subjects taught at all levels of compulsory education, from elementary school through high school (Arisandi & Neldi, 2023). In a seminar paper on the principles and philosophy of physical education) it is stated: Physical Education, Sports, and Health is essentially an educational process that utilizes physical activity to bring about holistic changes in an individual's quality of life (physically, mentally, and emotionally). Physical Education, Sports, and Health treats children as a whole, a complete being, rather than viewing them as individuals with separate physical and mental qualities (Suhairi et al., 2021). Thus, Physical Education becomes an integral part of shaping a younger generation that is not only academically intelligent but also physically strong, mentally healthy, and capable of contributing meaningfully to their social lives.

Physical education is not merely a part of human life that is important for sports alone; it also serves to enhance one's physical fitness and overall physical condition. However, in practice, many problems still arise during the teaching and learning process, one of which is the emergence of laziness among students when it comes to engaging in physical activities. This situation calls for a more varied and student-centered approach to learning (Mo et al., 2024).

One of the games created by sports experts to stimulate children or motivate them to move resembles actual athletics training (Pertiwi et al., 2025). For children aged 8-14, Kids Athletics serves as an alternative approach to early athletic training. This is intended to help children develop a positive attitude toward athletic training, which has often been perceived as strenuous, requiring extra effort, and boring. Additionally, Kids Athletics incorporates elements of challenge, including friendly competition with peers or opponents (S. Review et al., 2024). Consequently, this program can be played in open fields, and for schools without spacious grounds, it can be adapted to take place virtually anywhere. Kids Athletics is a game that incorporates the basic movements of running, jumping, and throwing. Furthermore, Kids Athletics can be used to enhance the physical fitness of young children, as the game includes elements of endurance, strength, speed, agility, and coordination (Abhaydev & Bhukara, 2021). However, in practice, Kids Athletics that adhere to World Athletics guidelines are often overlooked; many educators focus solely on performance, neglecting the most fundamental aspect: building and providing movement experiences for children. The world of children, who naturally prefer to learn through play, has transformed into a boring and exhausting activity due to performance demands and inadequate facilities. Consequently, children lose interest in participating in training or learning due to flawed teaching patterns and methods from the very beginning. The importance of integrating Kids Athletics into the physical education learning process (Priyono, 2025).

In line with the demands of the Merdeka Curriculum, PE learning is expected to be active, creative, and student-centered. However, implementation in elementary schools still faces several challenges. Learning activities are often monotonous and teacher-centered, while limited facilities and infrastructure restrict opportunities for students to engage actively in movement activities. These conditions may reduce student participation and hinder the development of motor skills.

Based on preliminary observations conducted at SDN Pakintelan 02 and SDN Pakintelan 03, several challenges were identified in the implementation of PE learning for upper-grade students. Learning activities were still dominated by conventional movement tasks with limited variation in game-based activities, resulting in some students showing low enthusiasm and participation during lessons. These findings are consistent with previous studies indicating that less varied learning activities can reduce student engagement and active participation in physical education classes (Wawan et al., 2024). In addition, the availability of learning equipment and facilities was still limited, making it difficult for teachers to provide diverse and meaningful movement experiences for students (Hidayat et al., 2021). rom the motor development perspective, several students demonstrated weaknesses in balance, movement coordination, agility, and self-confidence when performing physical activities. These findings align with research showing that elementary school students often experience variations in balance and coordination abilities that require appropriate learning

interventions. Therefore, an innovative and enjoyable learning model is needed to increase student participation while supporting the development of fundamental movement skills in accordance with the characteristics of elementary school learners.

To address these challenges, an innovative learning model called Kanga Es Cape was developed. The model combines jumping, balance, agility, and coordination activities within a game-based learning environment. The use of modified boxes allows activities to be adjusted to students' abilities, improves safety, and provides an alternative solution for schools with limited facilities. The use of the "kanga es cape" learning model with box modifications aims not only to improve students' motor skills but also to foster learning motivation, cooperation, sportsmanship, and self-confidence. Through a play-based learning approach, students are expected to engage in learning with joy and without pressure, thereby ensuring that the objectives of physical education are optimally achieved (Wijayanto, 2023). This model is a form of educational game activity designed to train movement coordination, speed, agility, and teamwork through a series of challenges or obstacles packaged in the form of a game (Kristin, 2016). Based on the above discussion, the development of the "kanga es cape" learning model with box modifications is deemed necessary to be implemented and further studied as an alternative solution to enhance the motor skills of upper-grade students at SDN Pakintelan 02 and SDN Pakintelan 03. It is hoped that this learning model will contribute positively to the quality of physical education instruction in elementary schools and serve as a reference for teachers in developing innovative and contextual learning (Priyambada, 2025). The use of box-based media as a learning tool has also proven to attract students' interest and improve their basic skills, as it provides an interactive and enjoyable learning experience. However, the development of learning models that specifically integrate games/physical activities, modified equipment (boxes), and the learning needs of upper-grade students into a comprehensive, unified design remains limited.

Previous studies have demonstrated that game-based learning models and modified equipment can improve students' motor skills, participation, and learning motivation in physical education settings (Rejeki et al., 2024). However, studies that specifically integrate Kids Athletics principles with modified box media into a structured learning model for upper-grade elementary school students remain limited. In addition, the need for learning models that are adaptable to school facility constraints while maintaining active and enjoyable student participation has not been fully addressed. Therefore, the development of the Kanga Es Cape learning model is considered important as an innovative alternative that combines elements of jumping, balance, agility, and coordination through game-based activities. Based on these considerations, this study aims to develop and evaluate the feasibility of the Kanga Es Cape learning model with box modifications for upper-grade elementary school students at SDN Pakintelan 02 and SDN Pakintelan 03.

METHODS

This study is a type of development research. The participants consisted of students in Grades V and VI aged approximately 10-12 years, including both male and female students. These age groups were selected because they are within the target range for the implementation of Kids Athletics-based learning activities and possess the developmental readiness required for the Kanga Es Cape learning model. Development research is a type of research aimed at developing and producing a product (Sibarani, 2022). The product of this study is the development of the Kanga Es Cape Learning Model with Box Modifications as an alternative model for physical education instruction in elementary schools. The media development design in this study was adapted from the ADDIE development model, which consists of five stages: Analyze, Design, Development, Implementation, and Evaluation. The steps of the development research can be explained through the diagram below:

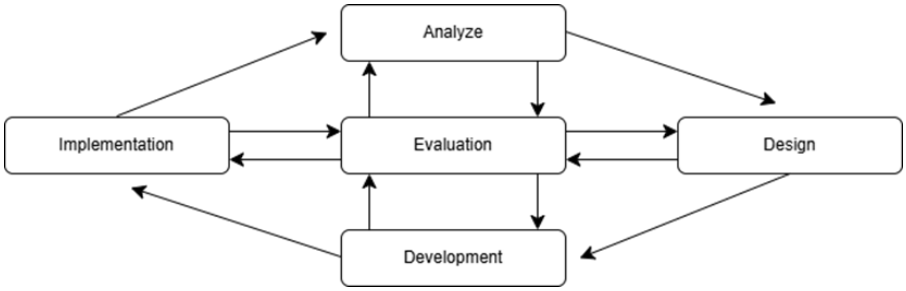

Figure 1. Development Procedures
Source: (Arifin et al., 2018)

The steps outlined above constitute the ADDIE model, which the researcher implemented to carry out the research phases. In this development process, the researcher conducted the initial phase (observation) to identify the problem, followed by product design, the creation of a prototype, field testing, and evaluation to identify the challenges and potential of the Kanga Es Cape learning model based on field testing and expert assessment. Data were collected using observation sheets, interview guides, and questionnaires. Observation sheets were used during the analysis and implementation stages to identify learning conditions, student participation, and motor skill performance. Interviews were conducted with PE teachers to obtain information regarding learning needs, learning constraints, and the feasibility of implementing the developed model.

The questionnaire instrument was developed to assess cognitive, affective, and psychomotor aspects related to the implementation of the Kanga Es Cape learning model. Cognitive indicators included students' understanding of game rules and movement procedures. Affective indicators included participation, enthusiasm, cooperation, discipline, and self-confidence. Psychomotor indicators included balance, coordination, agility, and movement execution during activities.

Research subjects in this study consisted of upper-grade elementary school students from SDN Pakintelan 02 and SDN Pakintelan 03, Gunungpati District, Semarang City. The small-group trial involved 14 students from SDN Pakintelan 03, while the large-group trial involved 30 students from SDN Pakintelan 02 and SDN Pakintelan 03. The participants were students in Grades V and VI, aged approximately 10-12 years, consisting of both male and female students.

The research subjects were selected using a purposive sampling technique. This technique was chosen because the participants met specific criteria relevant to the objectives of the study, namely students who actively participated in PE learning and were within the age range appropriate for Kids Athletics-based activities. SDN Pakintelan 02 and SDN Pakintelan 03 were selected as research sites based on preliminary observations indicating several learning challenges, including limited variation in PE learning activities, suboptimal student participation, and limited learning facilities and equipment. These conditions made both schools appropriate settings for testing the feasibility of the developed Kanga Es Cape learning model.

Figure 2. Kanga Es Cape's Learning Model
Source: author

This learning model can be implemented in the form of a team game. Each team consists of eight players who take turns completing a series of courses using two different tracks: one without obstacles and one with obstacles such as goals or Kanga Es Cape boxes. The initial setup includes two players on the starting side and two players on the opposite side to ensure a smooth rotation. then the game begins with the first runner starting from a standing position, running approximately 40 meters on the obstacle-free course, and then handing the relay bracelet to the second runner behind the marker flag; the second runner continues through the obstacle-filled course until reaching the end of the course and hands the bracelet to the collector before the next runner continues the same pattern; runner exchanges alternate between the obstacle-free track and the obstacle-filled track so that every team member experiences both track conditions, while the last runner to complete the obstacle course determines the team's final time; the total elapsed time is recorded from the moment the first runner starts until the last runner completes the course; the handoff and reception of the relay bracelet must be performed with the right hand to ensure technical consistency and safety; and rankings are determined based on the fastest time, so the team with the fastest completion is declared the winner, with the possibility of multiple teams starting simultaneously depending on the organizers' readiness and track capacity.

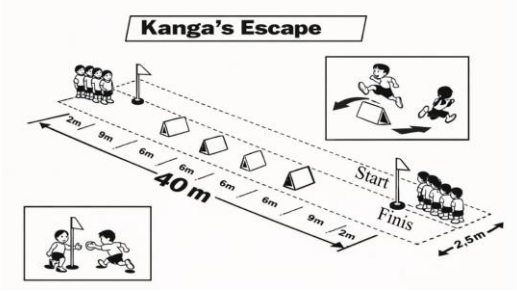

Figure 3. Kanga Es Cape'S Track

Learning modification is a form of creativity that can be employed to adapt various game-based learning models by applying diverse teaching techniques and models. The "Kanga es cape" learning model can be tailored to students' needs. In this development study, the final product was determined based on the results of data analysis obtained during the validation process and field trials involving the target participants (Skills et al., 2023). Data collection in this study employed observation sheets, interview guides, and questionnaires. Observation sheets were used to identify learning conditions, student participation, and motor skill performance during implementation. Interviews were conducted with PE teachers to obtain information regarding learning needs, constraints, and the feasibility of the developed model. Questionnaires were administered to experts and students to evaluate the feasibility and practicality of the Kanga Es Cape learning model. The data obtained in this study were both qualitative and quantitative. Qualitative data were obtained from questionnaires containing critiques and suggestions from physical education experts and game experts as input for improving the product under study. Quantitative data were obtained from questionnaires administered to experts and students.

The questionnaire instrument used a Guttman scale with dichotomous response options consisting of "Yes" (1) and "No" (0). The instrument was designed to measure cognitive, affective, and psychomotor aspects related to the implementation of the developed learning model.

Table 1. cognitive-affective-psychomotor aspect indicators

Aspect	Indicator	Example Assessment Focus
Cognitive	Understanding game rules	Students understand the rules of the Kanga Es Cape game
Cognitive	Understanding movement procedures	Students understand the sequence of activities correctly
Cognitive	Understanding game objectives	Students understand the purpose and benefits of the learning activity
Affective	Participation	Students actively participate during learning activities
Affective	Cooperation	Students cooperate effectively with team members
Affective	Self-confidence	Students demonstrate confidence when performing movements
Psychomotor	Movement execution	Students perform jumping and movement tasks according to instructions
Psychomotor	Balance	Students maintain body stability during activities
Psychomotor	Coordination	Students coordinate body movements effectively
Psychomotor	Agility	Students perform movements quickly and accurately

The data analysis technique used in the quantitative phase of this study employed descriptive statistics in the form of percentages. This study utilized the percentage formula (in Arifah, Sukirman, and Sujalwo 2019) which is as follows:

$$P = \frac{f}{N} X\ 100\%$$

Information:

P = The percentage score sought
f = Score obtained by the validator
N = Maximum score

From the results of the percentages obtained, it is then classified to obtain data conclusions.

Table 2. Percentage Percentage Classification

Presentation	Classification	Meaning
76-100%	Good	Very Usable
51-75%	Sufficient	Usable
26-50%	Not Good	Repairable
0-25%	Not Good	Not Usable

Source: Sugiyono (in Arif Rachman, Yochanan 2024)

RESULTS AND DISCUSSION

Referring to Suharsimi Arikunto's opinion (in Idfi, 2019) regarding the number of small and large group trial subjects, this study carried out a trial on the upper grade students of SDN Pakintelan 02 and Pakintelan 03 to assess the model novation, effectiveness, and learning impact, through small group and large group stages. The assessment is focused on student response, learning implementation, improvement of motor skills such as agility, balance, coordination, and courage, as well as evaluation of PE teachers related to the feasibility of the learning model. The product is declared feasible if it is safe to use, easy to apply, does not pose a risk of injury, and is able to create active, fun, and meaningful learning. The results of the development products developed are in the form of a Kanga es cape learning model with

a modified box for high-class students. The description of this learning model is a model designed based on game activities that combines elements of jumping, balance, agility, and movement coordination. To support the effectiveness of its implementation, modifications were made to learning media in the form of the use of boxes as auxiliary tools.

This media product has been set to be disassembled to be arranged. The results of the research are expected not only to be a solution to the problems at SDN Pakintelan, but also to be a reference for other elementary schools in developing effective game models and according to the needs of learning basic techniques. In line with the opinion (Adank et al., 2024), learning media designed with motivational aspects in mind can increase players' enjoyment, focus, and interest during the learning process, especially in early childhood who easily feel bored while learning (He & Wei, 2025). The Guidelines for the Development of the Kanga es cape learning model with box modifications for upper class students can be accessed via the following link: https://bit.ly/produk-kanga-es-cape

Expert validation was conducted prior to field testing to evaluate the feasibility of the developed product. The validation process focused on content suitability, learning implementation, safety, practicality, and the potential effectiveness of the learning model for elementary school students. The product validation process involved three validators consisting of one game expert and two PE practitioners. The game expert was Mr. Fery Darmanto, S.Pd., M.Pd., while the PE practitioner validators were Mr. Maulana Sjarief, S.Pd. from SDN Pakintelan 02 and Mrs. Kusmiyati, S.Pd. from SDN Pakintelan 03. The validators assessed the product based on learning model innovation, implementation of active learning, student engagement, learning impact, usability, and safety aspects. The following is a table of expert validator results:

Table 3. Expert Validator Result

Rated Aspect	1st Validator	2nd Validator	3rd Validator	Score is Obtained	Maximum score	%
Learning model innovation (Rosa et al., n.d.)	12	12	11	35	36	97%
Implementation of active learning (A. S. Review, 2023)	11	11	11	33	36	92%
Student engagement (Pahlawan & Tambusai, 2023)	12	12	12	36	36	100%
Learning impact (Metode et al., 2023)	11	12	11	34	36	94%
Total Value	46	47	47	138	144	96%
Mean	11,5	11,7	11,7	34,5	36	96%

A validity test of 36 items that measured students' knowledge, attitudes, and skills related to the kanga es cape learning model was carried out. The results of the validity test showed that 10 items (28%) were valid, while 26 items (72%) were invalid. Therefore, invalid items need to be revised by clarifying the focus of the question and linking it directly to the implementation of the kanga es cape learning model.

Percentage of valid items:

$$P = \frac{10}{26} \times 100\%$$
$$P = 0{,}28 \times 100$$
$$P = 28\%$$

Percentage of invalid item:

$$P = \frac{26}{36} \times 100\%$$
$$P = 0{,}72 \times 100$$
$$P = 72\%$$

After conducting a validity test and obtaining an item that meets the criteria, the next step is to conduct a reliability test to determine the level of internal consistency of the instrument. The reliability test in this study uses the Kuder-Richardson formula 20 (KR-20) and is only carried out on items that are declared valid in all aspects.

Overall, 10 of the 36 items tested met the validity criteria. The reliability calculation for these 10 items shows a KR-20 coefficient of 0.9548. This value is in the very high category (r_{11} > 0.70), so the instrument is considered reliable and has excellent internal consistency. This shows that each item in the instrument is able to provide consistent measurement results in measuring cognitive, affective, and psychomotor aspects. Therefore, this instrument is suitable for use as a data collection tool in research because it has a high level of consistency in measuring the variables studied.

Good or acceptable reliability coefficient values are generally above 0.70. For instruments with dichotomous data, such as scores of 1 and 0, reliability testing can use the Kuder-Richardson formula of 20 (KR-20), which has a similar function to Alpha Cronbach in measuring the internal consistency of an instrument. A reliability value above 0.70 indicates that the instrument has a good level of consistency and is trustworthy, while a value below this limit indicates the need for revision or improvement of the instrument item. Some studies state that a reliability coefficient between 0.70 and 0.80 is considered good, while a value above 0.80 indicates high or excellent reliability (Method & Setyaedhi, 2024).

Based on the calculations of this research instrument, the reliability coefficient of KR-20 is 0.9548. This value is above the minimum threshold of 0.70, so it is categorized as very high reliability. Therefore, this research instrument is considered to have excellent internal consistency and is suitable for use as a data collection tool.

Overall, the reliability test results showed that all instrument items were able to provide consistent measurement results across cognitive, affective, and psychomotor aspects. Therefore, this instrument can be used to support the accuracy of research data in measuring the variables being studied and ensure that the data obtained has a high level of reliability.

Small Group Product Trials

The normality test was conducted using the Shapiro-Wilk test because the sample size was less than 50 respondents (n = 14). This test aims to find out whether the pretest and posttest data on each aspect are normally distributed. The use of Shapiro-Wilk on small samples is supported by research in the journal Mathematics which states that the Shapiro-Wilk test has a better level of statistical power than other normality tests for small sample sizes (Mishra et al., 2019).

Table 4 Normality Test Result

Cognitive aspect data	z	Asymp. Sig. (2-tailed)	Information
Posttest - Pretest	-3,397	<0,001	significant
Affective aspect data	z	Asymp. Sig. (2-tailed)	Information
Posttest - Pretest	-3,236	0,001	significant
Psychomotor aspect data	z	Asymp. Sig. (2-tailed)	Information
Posttest - Pretest	-3,500	<0,001	significant

Based on the results of the normality test using Shapiro-Wilk, a significance value of less than 0.05 was obtained so that the data was not distributed normally. Therefore, the analysis was continued using the non-parametric Wilcoxon Signed Rank Test. The results of the Wilcoxon Signed Rank Test obtained a Z value of -3.397 with an Asymp value. Sig. (2-tailed) is < 0.001. Since the significance value is less than 0.05, it can be concluded that there is a significant difference between the cognitive pretest and posttest scores. Thus, the treatment provided has an influence on the improvement of participants' cognitive abilities.

Furthermore, for the affective aspect, from the results of the normality test using Shapiro-Wilk, the significance value of the pretest was 0.002 and the posttest was <0.001. Since both significance values are smaller than 0.05, it can be concluded that the pretest and posttest data of the affective aspects of the small group are not normally distributed. Therefore, the analysis was continued using the non-parametric Wilcoxon Signed Ranks Test.The results of the Wilcoxon Signed Ranks Test were obtained with a Z value of -3.236 with an Asymp value. Sig. (2-tailed) is 0.001. Because the significance value is less than 0.05, it can be concluded that there is a significant difference between the results of the pretest and posttest of the affective aspects of the small group. Thus, the applied learning model is effective in improving the affective aspects of students.

Then from the psychomotor aspect, using the Shapiro-Wilk normality test, the significance value of the pretest and posttest of the psychomotor subgroup was 0.039. Because the significance value is less than 0.05, the data is declared not to be normally distributed. Therefore, the analysis was continued using the Wilcoxon Signed Rank non-parametric test. Based on the results of the Wilcoxon Signed Ranks Test, a Z value of -3,500 with an Asymp value was obtained. Sig. (2-tailed) of <0.001. Because the significance value is less than 0.05, it can be concluded that there is a significant difference between the results of the pretest and posttest of the psychomotor aspects of the small group. Thus, the application of the learning model used is effective in improving the psychomotor abilities of students.

Paired t-tests were carried out to find out if there was a significant difference between pretest and posttest scores after the use of *Kanga es cape learning media*.

Table 5. Result T-Test

Aspect	t count	Sig. (2-tailed)	Information
Cognitive	-243,555	<,001	Significant
Affective	-8,454	<,001	Significant
Psychomotor	-9,539	<,001	significant

Based on the results of the t-test, all aspects showed a significance value of 0.000 (< 0.05). This means that there is a significant difference between pretest and posttest scores in cognitive, affective, and psychomotor aspects. Thus, the application of *the Kanga es cape learning model* has a significant influence on improving students' abilities in small groups. In the affective aspect, a t-value of -8.454 was obtained with a significance value of < 0.001. This shows that there is a significant difference between the results of the pretest and posttest on the affective aspect. In the psychomotor aspect, a t-value of -9.539 was obtained with a significance value of < 0.001. Because the significance value is also smaller than 0.05, there is a significant difference between the pretest and posttest results on the psychomotor aspect.

The N-Gain test is performed to determine the level of improvement in learning outcomes after treatment. The N-Gain formula is:

$$N - Gain = \frac{Posttest - Pretest}{Skor\ Maksimal - Pretest}$$

N-Gain interpretation criteria:

a. g ≥ 0,70 → High
b. 0,30 ≤ g < 0,70 → Medium
c. g < 0,30 → Low

Table 6. Calculation Result N-Gain

Aspect	N	Minimum	Maximum	Mean	Std. Deviation
Cognitive	14	0,33	0,34	0,3343	0,00514
Affective	14	0,00	0,67	0,3593	0,15901
Psychomotor	14	0,00	0,50	0,2500	0,09806

Based on the results of descriptive statistics, a sample of 14 respondents was obtained. The minimum score is 33 and the maximum is 34 with an average (mean) of 33.43. The standard deviation of 0.51 indicates that the data has a low spread so that the values between respondents are relatively homogeneous. In the affective aspect, the minimum value is 0 and the maximum is 67 with an average (mean) of 35.93. The standard deviation of 15.90 indicates that the data has a large enough spread, so the values between respondents tend to vary. Furthermore, based on the results of descriptive statistics, a sample of 14 respondents was obtained on the psychomotor aspect. The minimum value is 0 and the maximum is 50 with an average (mean) of 25.00. The standard deviation of 9.81 indicates that the data has a moderate spread, so the scores between respondents are quite varied but not too far from the average.

The total assessment of the Kanga es cape learning model with box modifications for upper-class students according to student respondents of 91% is categorized as "Good" which can be interpreted that the product is worthy of being tested to the next stage. Here's a table of small group trials:

Table 7. Small Group Trials

Sample	Rated Aspect			Score is Obtained	Maximum Score	%	Cate-gory
	Cognitive	Affective	Psychomotor				
Total Value	63	65	64	192	210	91%	Good
Mean	9	9,2	9,1	27,3	30	91%	Good
Presentation	90%	92%	91%	91%			

Large Group Product Trials

Table 8 Descriptive Statistics of Pretest and Posttest Scores

Aspect	Pretest Mean	Posttest Mean	Improvement
Cognitive	32.20	68.97	36.77
Affective	31.07	64.47	33.40
Psychomotor	35.83	63.33	27.50

Table 8 shows that the mean posttest scores were higher than the mean pretest scores across all measured aspects. These findings indicate that students demonstrated better performance after participating in the Kanga Es Cape learning activities. The increase was observed in cognitive, affective, and psychomotor domains.

The normality test was carried out using the Shapiro-Wilk test because the sample size was less than 50 respondents. This test is recommended for small to medium samples because it has a better level of statistical power in detecting normal distribution deviations.

Table 9. Normality Test Result

Cognitive aspects data	z	Asymp. Sig. (2-tailed)	Information
Posttest - Pretest	-4,71	<0,001	Significant (p < 0,05)
Affective aspect data	z	Asymp. Sig (2-tailed).	Information
Posttest - Pretest	-4,852	<0,001	Significant (p < 0,05)
Psychomotor Aspects data	z	Asymp. Sig. (2-tailed)	Information
Posttest - Pretest	-5,260	<0,001	Significant (p < 0,05)

Descriptive statistical analysis showed that the mean cognitive score increased from 32.20 in the pretest to 68.97 in the posttest, indicating an improvement of 36.77 points after the implementation of the Kanga Es Cape learning model. Furthermore, the Wilcoxon Signed Rank Test revealed a significant difference between pretest and posttest scores ($Z = -4.710$, $p < 0.001$), indicating that the developed learning model significantly improved students' cognitive outcomes.

The mean affective score increased from 31.07 in the pretest to 64.47 in the posttest, representing an improvement of 33.40 points. The Wilcoxon Signed Rank Test also showed a significant difference between pretest and posttest scores (Z = -4.852, p < 0.001), indicating a significant improvement in students' affective aspects following the implementation of the learning model.

The mean psychomotor score increased from 35.83 in the pretest to 63.33 in the posttest, representing an improvement of 27.50 points. The Wilcoxon Signed Rank Test showed a significant difference between pretest and posttest scores (Z = -5.260, p < 0.001), indicating that the Kanga Es Cape learning model significantly improved students' psychomotor performance.

Paired t-tests were carried out to find out if there was a significant difference between pretest and posttest scores after the use of *Kanga es cape learning media.*

Table 10 Result T-Test

Aspect	t count	Sig. (2-tailed)	Information
Cognitive	-11.000	<0,001	Significant
Affective	-20,763	<0,001	Significant
Psychomotor	-19,746	<0,001	Significant

Based on the results of paired t-tests on cognitive, affective, and psychomotor aspects, a significance value of Sig. (2-tailed) < 0.001 was obtained in all aspects. In the cognitive aspect, the t-value is -11,000 with and Sig. < 0.001. In the affective aspect, the t-value is -20.763 with and Sig. < 0.001. Meanwhile, in the psychomotor aspect, the t-value was -19.746 with a Sig. < 0.001. Since the overall significance value is less than 0.05, it can be concluded that there is a significant difference between the pretest and posttest scores in all three aspects. Thus, *Kanga es cape* products have a significant influence on improving cognitive, affective, and psychomotor aspects in large groups.

The N-Gain test is performed to determine the level of improvement in learning outcomes after treatment.

Table 11. Calculation Result N-Gain

Aspect	N	Minimum	Maximum	Mean	Std. Deviation
Cognitive	30	0,00	1,00	0,3677	0,18307
Affective	30	0,00	0,67	0,3340	0,08811
Psychomotor	30	0,25	0,50	0,2750	0,07628

In the cognitive aspect, the minimum N-Gain value was 0.00, the maximum value was 1.00, with a mean of 0.3677 and a standard deviation of 0.18307. This mean value falls into the moderate category, as it lies within the range of $0.30 \leq g < 0.70$.

In the affective aspect, the minimum N-Gain value is 0.00, the maximum is 0.67, with a mean of 0.3340 and a standard deviation of 0.08811. This mean value also falls into the moderate category, as it lies within the range $0.30 \leq g < 0.70$.

In the psychomotor aspect, the minimum N-Gain value is 0.25, the maximum is 0.50, with a mean of 0.2750 and a standard deviation of 0.07628. This mean value falls into the low category, as it is below 0.30.

Based on the N-Gain calculations in the table above, the cognitive aspect achieved an average of 0.3677 (moderate category), the affective aspect achieved an average of 0.3340 (moderate category), and the psychomotor aspect achieved an average of 0.2750 (low category). Thus, the treatment or instruction provided was able to improve student learning outcomes in all three aspects, but the improvements were not uniform. The highest improvement was in the cognitive aspect, followed by the affective aspect, while the lowest improvement was in the psychomotor aspect.

The results of the large-group pilot survey regarding the development of the Kanga es cape learning model with box modifications for upper-grade elementary school students showed that, according to student respondents, 94% of the total assessment of the Kanga es

cape learning model was categorized as “Good.” The following table presents the large-group pilot results:

Table 12. Large Group Trials

Sample	Rated Aspect			Score is Obtained	Maximum Score	%	Category
	Cognitive	Affective	Psychomotor				
Total Value	138	144	142	424	450	94%	Good
Mean	9,2	9,6	9,4	28,2	30	94%	Good
Presentation	92%	96%	94%	94%			

After conducting small-group and large-group trials, the strengths and weaknesses of the Kanga Es Cape learning model can be summarized as follows: Product Strengths: 1) The Kanga Es Cape learning model can be used as an alternative physical education learning material with visually appealing tools and materials, thereby reducing student boredom; 2) It enhances knowledge regarding the development of learning models in the context of physical education; 3) It stimulates students’ curiosity by applying the Kanga es cape learning model in physical education lessons, and 4) The implementation of the Kanga es cape learning model remains feasible in terms of media production.

Disadvantages of the Media: 1) A limitation of the Kanga es cape learning model is that it still requires adaptation when implemented in lower-grade classes. Based on the analysis of the implementation of the Kanga es cape learning model, the findings regarding media development during the product trial can be summarized as follows: Students: 1) Students were interested in engaging in activities using the Kanga es cape learning model, 2) Students became more active in the learning material, 3) Students’ knowledge increased regarding the development of the Kanga es cape learning model in physical education. Teachers: 1) It can be used by teachers as a learning model in physical education lessons, and 2) Teachers find it easier to introduce various learning model developments to students by using the Kanga Es Cape learning model as a reference.

The use of the Kanga es cape learning model for media development knowledge still faces several obstacles. The tools used, particularly the modified boxes, must have reinforcements inside to ensure the boxes remain sturdy and do not easily bend or fold. In the future, it is hoped that the Kanga es cape learning model for media development knowledge and physical education learning materials in elementary schools can be further refined.

CONCLUSION

The development of the Kanga Es Cape learning model with modified box media for upper-grade elementary school students, using the ADDIE model, resulted in a product that met the criteria of feasibility, practicality, and effectiveness for use in physical education learning. In terms of feasibility, expert validation results indicated that the developed product was categorized as “good” and suitable for implementation in elementary school physical education activities. Regarding practicality, both small-group and large-group trials showed that the model was easy to understand, engaging, and highly usable by students, indicating its practicality in real learning situations. In terms of effectiveness, the results of the pretest-posttest analysis demonstrated significant improvements in students’ cognitive, affective, and psychomotor outcomes following the implementation of the Kanga Es Cape learning model.

These findings suggest that the Kanga Es Cape learning model can serve as an innovative and student-centered physical education learning alternative that promotes active participation and supports the development of students’ movement skills. Therefore, the model has the potential to be implemented more broadly in elementary school physical education learning, particularly in contexts requiring varied and game-based learning approaches.

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