

Content Validity of Fun Relay Learning Model and Observation of Cognitive, Affective, Psychomotor Aspects of Elementary School Students

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Abstract Elementary school physical education is essential for developing socialist, moral, mental, and physically fit aspects. However, the use of learning models, one of which is athletic learning, particularly relay running, is inefficient. One of the causes is that the teacher's level of inventiveness is insufficient, which reduces pupils' eagerness to participate in learning. As a result, a fresh entertaining learning paradigm for pupils is required. The development process, on the other hand, is inextricably linked to validation and testing. The objective of this research was to verify the content's validity and to check out the relay fun learning model from cognitive, affective and psychomotor aspects. The development of a quantitative and qualitative approach was used as the research method. The study included two academics, three teachers, and twelve students. Observation, interviews, and Delphi techniques were all used to obtain data. The Aiken formula and percentages were used to analyse the data, which was aided by the Excel application. The content validity ranged from 0.75 to 1.00, with the average value of cognitive aspects being 91.8%, affective

aspects being 93.8%, and psychomotor aspects being 91.0%. The study indicated that the relay fun game model has significant validity on a quantitative level, while on a qualitative level, all of the experts gave positive comments and suggestions. Students responded positively to the cognitive, affective and psychomotor aspects, with an overall average score in the very good categories. This demonstrates that students understand learning models, teamwork, confidence, and honesty, as well as the ability to practise effective and precise technical movements.

Keywords Fun Relay Learning Model, Elementary School Students, Cognitive, Affective, Psychomotor

1. Introduction

Physical education in elementary schools has evolved into a process aimed at educating and changing students' behaviour [1], [2]. Physical education in elementary

schools is critical for improving socialism and life quality [3]. Students will build morality, values, and mental and physical aspects through elementary school physical education [4]. According to studies, the process of learning activities, particularly physical education in elementary schools, is not ideal [5]. The presence of teachers who carry out teaching and learning activities that are not diversified or monotonous is one of the determining factors. As a result, students are disinterested in participating in teaching and learning activities. These inadequacies will affect primary school students' physical fitness.

This has the potential to prevent students from developing in terms of cognitive, emotional, and psychomotor abilities [6], [7]. Various learning models are required to enhance students' cognitive, affective, and psychomotor aspects and to provide an effective and efficient learning environment [8], [9]. As a result of the process, teachers have the chance to create learning models that allow students to be creative to the greatest extent possible [10], [11].

The numerous proposals are in agreement with the curriculum, which states that relay running is one of the numbers in athletics taught in elementary schools [12], [13]. According to competency criteria, students must practise many forms of motion in adapted activities and sports that promote qualities such as sportsmanship, collaboration, self-confidence, honesty, and fighting spirit [14], [15]. It was discovered in the field with multiple physical education teachers that the teacher had not utilised relay learning optimally. This is due to the teacher's lack of innovation in modifying the learning model. Because of this lack of innovation, learning becomes usual, and students lose interest in participating in relay learning. According to observations, students prefer learning models with game components. Thus, a game-based approach to convey learning model modification is required. As a material for rationalizing the problem, the results of the needs analysis in the form of interviews are presented in Table 1 as follows.

Table 1. Needs analysis through interviews with physical education teachers

No	Question Items	Answer
1	Has this school ever taught relay running material?	Although it has been used, in practice it cannot be finished until the session is ended.
2	In one week, how many meetings are held in the relay material?	Two meetings were held to conduct relay learning.
3	Is the school's infrastructure and facilities ready to enable the running of the learning relay?	Facilities, particularly batons are available. However, there are not enough of them.
4	What methods are employed in relay race learning?	Students should first learn how to pass and receive the baton before participating in groups.
5	How enthusiastic and interested are the students, in your opinion, in participating in and learning about relay running?	Overall, students are enthusiastic about doing relay learning, but when learning is not presented in a variety of ways, student engagement wanes.
6	What kind of restrictions and issues were there when teaching relay running?	The issue is that since there is not a suitable environment for learning, female students nevertheless frequently seek refuge in the shade. Furthermore, some students are still uninterested in running relay learning.
7	Have you ever modified the relay running model or done variations on the relay learning model?	I have, but it is not perfect.

Based on Table 1 related to needs analysis in the form of interviews, students are less interested in learning relay running, even though relay running is an important lesson to teach elementary school students. Then, if students continue to prefer game-based learning, it is required to change learning in the form of games through relay running. In addition, research from Fenanlampir, Lynch, Rohman, and Peters [16]–[19], conducted research on the team game tournament (TGT) method, improving effective learning, introducing students to basic muscle understanding and the effectiveness of athletic learning models. Although these studies conducted research related to how to improve teaching more effectively. However, these studies only focused on one of the cognitive aspects of students, identifying student interest and motivation, and understanding the importance of physical activity, while important aspects such as affective, psychomotor, and model development specifically in relay running learning have received less attention in previous studies. Based on present challenges and facts, the authors have created athletic learning in relay numbers through games known as "relay fun." The development research method, on the other hand, cannot be separated from the stages of model content validity and testing. The most significant aspect is content validity, which is a fundamental effort carried out during the development research stage. The amount to which the model design is explicitly produced based on the assessment of material experts is referred to as validity [20]. As a result, the objectives of this study were as follows: (1) to assess the content validity of the relay fun learning model; and (2) to test the relay fun learning model to identify the cognitive, affective, and psychomotor aspects of fifth-grade elementary school students.

2. Materials and Methods

2.1. Participants and Study Design

The method of research employed in this study was development research, which tries to create or modify tools, models, and products that do not currently exist or to compile existing ones to create products that are more effective and superior to those that already exist. The development research approach was one of the answers for providing and discovering new knowledge that could be distributed and tested on needy samples [21]. In this development research, a quantitative and qualitative approach was applied

There were six stages in this study: (1) the first stage was qualitative, in which the authors conducted interviews and then analysed documents in the form of articles,

e-books, and books as rationalisation material and guidelines to develop the initial draught of the model; (2) The authors created a questionnaire and a relay model based on previous document analysis in the previous stage; (3) In the third stage, the author used the Delphi technique or met directly with material experts to assess the relay learning model that had been created; (4) In the fourth stage, the authors quantitatively analysed expert assessments in the form of suggestions and questionnaires using the Aiken content validity approach; once the learning model is judged to have good content validity, it moves on to the next stage; (5) In the fifth stage, the authors tested the compiled relay running model then conducted observations using the aspect questionnaire assessment cognitive, affective, and psychomotor to students implementing the relay learning model; (6) in the sixth stage the writer distributes questions to students and then students filled in questions related to improving cognitive, affective and psychomotor aspects. The analysis is then performed using percentages. The participants in this study were five subject matter experts, two academics with doctoral degrees in physical education and three physical education elementary school teachers. Meanwhile, participants in the test were elementary school students totalling 12 students with the male and female gender.

2.2. Statistical Analysis

Observation in the form of interviews and questionnaires was employed to collect data. The percentage technique and Aiken analysis [22], [23] were used to analyse the data, which was aided by the Excel application. The percentage formula and the Aiken formula are as follows:

$$P = F/N \times 100\%$$

Where:

Q: percentage figures

F: frequency or answer from the subject

N: number of subjects

$$V = \sum s / [n(c-1)]$$

$$S = r - lo$$

Lo = lowest validity rating score (eg 1)

C = the highest validity rating score (eg 5)

R = the number given by the appraiser

3. Results

3.1. Quantitative and Qualitative Analysis Results

The results of the quantitative and qualitative analysis can be seen in Tables 2 and 3 as follows:

Table 2. Quantitative analysis findings based on the Aiken formula

No	Question	Assessor					S= r- lo					Σ	n*(c- 1)	V=S/(n*(c-1))
		1	2	3	4	5	1	2	3	4	5			
1	Basic competency suitability	4	4	5	5	4	3	3	4	4	3	17	20	0.85
2	Clarity of game procedures	3	5	5	4	4	2	4	4	3	3	16	20	0.80
3	Appropriateness of the equipment used	5	5	5	5	5	4	4	4	4	4	20	20	1.00
4	Suitability of the model with the characteristics of students	4	5	5	5	5	3	4	4	4	4	19	20	0.95
5	Encouraging the development of students' cognitive aspects	5	4	5	5	5	4	3	5	5	3	20	20	1.00
6	Encouraging the development of affective aspects of students	4	4	4	4	4	3	3	3	3	3	15	20	0.75
7	Encouraging the development of psychomotor aspects of students	5	5	5	5	5	4	4	4	4	4	20	20	1.00
8	Encouraging the development of students' physical fitness	5	5	5	5	5	4	4	4	4	4	20	20	1.00
9	Increase student interest in a learning relay race	4	5	4	5	5	3	4	3	4	4	18	20	0.90
10	Model security to be applied in relay learning	5	5	5	5	5	4	4	4	4	4	20	20	1.00

Table 3. The results of the qualitative analysis in the form of comments and suggestions from material experts

Comment
The model developed corresponds to the fundamental competencies in elementary school physical education subjects. The props utilised are suitable and safe. The concept has been designed in such a way that students will feel excited to participate in enjoyable games-based relay running practice learning. The development of a fun relay running model can inspire students to always move, and by moving, students can build psychomotor aspects and physical fitness. The model developed is, of course, safe to use because the equipment utilised is a simple and portable tool.
Suggestion
As a physical education learning strategy, the relay fun learning model can be used. However, the area for receiving and administering the baton must be revised, and the division of student groups must be adjusted to the relay running guidelines. Procedures and delivery must also be defined, and a technology-based model must be developed in the future.

Based on Table 2 related to the results of quantitative analysis using the aiken formula, the fun relay learning model has good content validity. This is demonstrated by the 10-item questions, for which 5 material experts provide scores ranging from 0.75 to 1.00. Then based on Table 3 related to qualitative analysis in the form of suggestions and comments from 5 material experts, it can be concluded that in the reception and relay section, group division and implementation procedures need to be revised. The results of the learning model along with revisions will be presented in the next description.

3.2. Results of the Fun Relay Game Model

A relay fun learning model has been developed based on qualitative analysis in the form of interviews, document analysis, material expert suggestions, and

quantitative analysis. The author created the Relay Fun learning approach. This game-based learning strategy seeks to expose students to relay running learning and assist students to comprehend basic relay running skills. Furthermore, this enjoyable relay learning model intends to encourage students to participate actively, pleasantly, and enthusiastically in physical education learning activities. The first stage in learning relay fun is for students to line up in four lines and then be taught the basic method of giving and receiving sticks, both upsweep and downsweep. Students are placed into groups of four students at stage one and beyond once they have mastered both approaches. For a more complete explanation, see the explanation below:

Figure 1 is the procedure and stages of basic techniques for giving and receiving sticks in learning to run relays. The procedures that have been prepared are as follows:

Rules and guidelines for conducting learning: At this stage, students are taught the fundamentals of passing and receiving sticks in an upsweep and down sweep type relay race.

Stage (1) There are 10 teams, each consisting of 4 students.

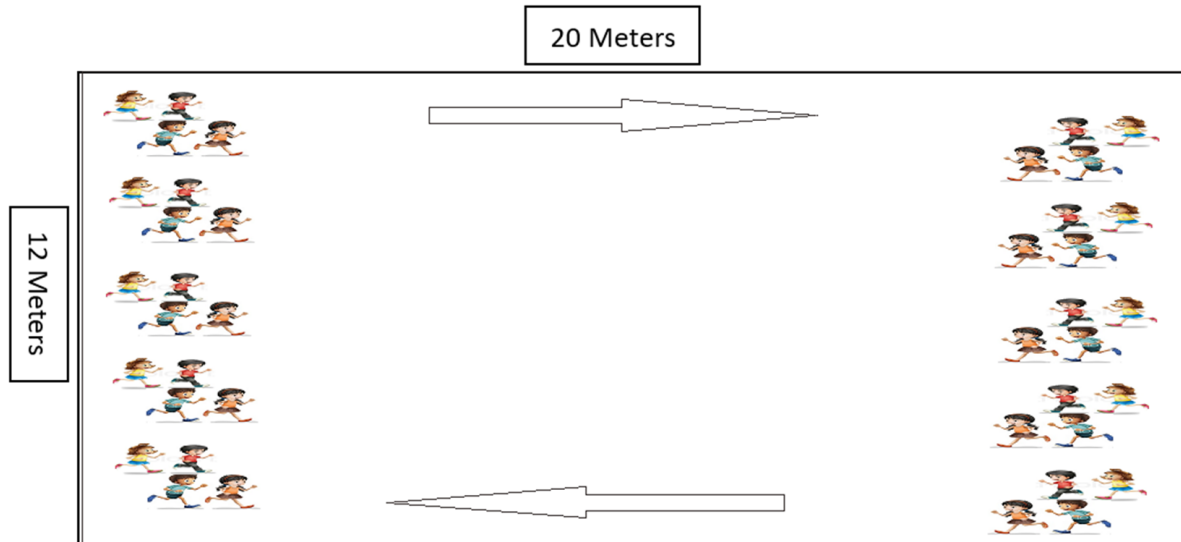
Stage (2) Each team carries and holds 1 baton in the back row.

Stage (3) Each team lines up in a zig-zag shape.

Stage (4) Learning at this stage is giving and receiving batons simultaneously by performing techniques namely upsweep.

Stage (5) After students understand, they will be given lessons on how to give and receive batons along with doing the down sweep technique.

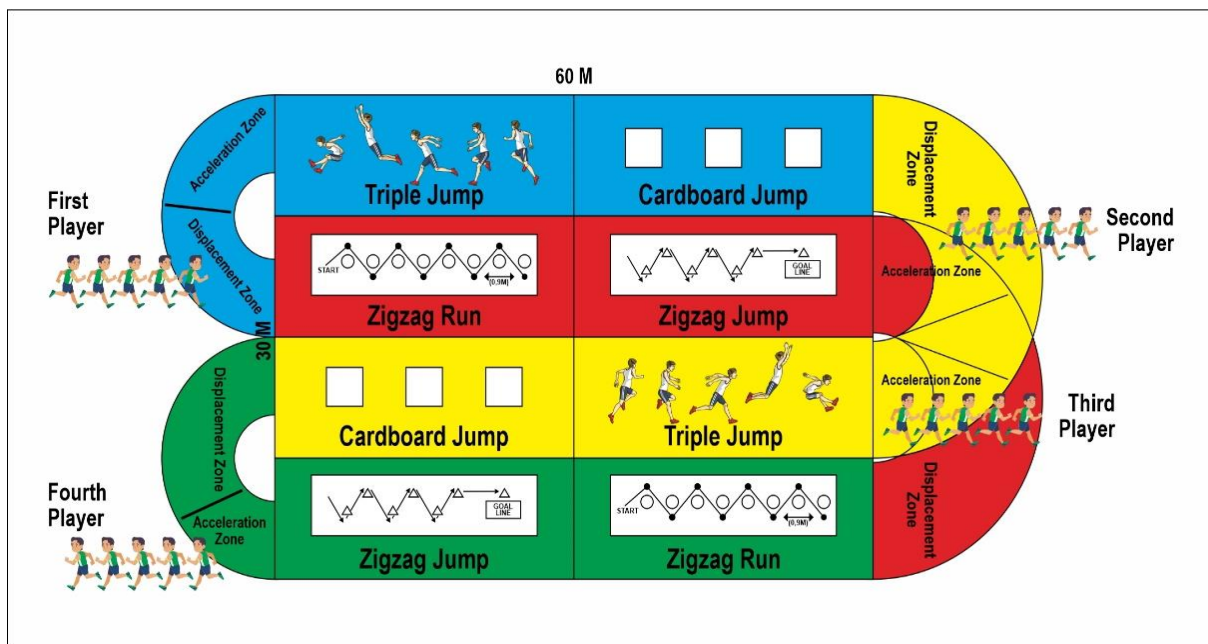
Stage (6) Learning is carried out within 10 minutes.



Source: Personal documentation

Figure 1. Stage 1 learning

Figure 2 is the procedure and stages of simulating the giving of sticks in relay learning. The procedures that have been prepared are as follows:



Source: Personal documentation

Figure 2. Stage 1 learning

Where:

-  : First track
-  : Second track
-  : Third track
-  : Fourth track

Rules and procedures in carrying out learning: This stage aims to teach the giving and receiving of the baton through a series of games.

Stage (1): A total of 40 students were used as research subjects, and they were split into two groups of 20 each. Divide this group into five teams, with four students on each team.

Stage (2): Five teams will perform a fun relay game in succession on the field. The relay fun game consists of two fields, the first of which is filled by 1 to 4 teams and the second of which is filled by 6 to 10 teams.

Stage (3): At point 1 there are 5 students (A1, B1, C1, D, and E1), in team 2 there are 5 students (A2, B2, C2, D2 and E2), at point 3 there are 5 students (A3, B3, C3, D3, and E3), at point 4 there are 5 (A4, B4, C4, and E4.) At each point, students line up according to the provisions.

Stage (4): At the beginning of the game, the baton is brought by the first student from team A where the first student on the other team then lines up in sequence. The game is carried out in turn by each team. The runners of each team run according to their trajectory.

Stage (5): After the stick is held by the last student, namely the fifth student on team E, the first game can be said to be over.

Stage (6): Followed by the second game, where the baton keeps rotating according to the rules.

Stage (7): There are four games at this stage where the series of games is considered complete when students in one team return to their starting position.

The game has a 5-meter acceleration zone distance and a 10-meter stick-giving zone.

Stage (8): The first and second tracks have obstacles in the form of zig-zag running with 3 cones and 3 hoop zig-zag jumps.

Stage (9): The third and fourth tracks have obstacles in the form of 3 cardboard jumps on each track and 3 jumps.

Stage (10): Each track and obstacle post is 12 meters before and after the track, and the distance between each obstacle is 6 meters in the middle.

Figure 3 is the equipment used in learning relay running. The arrangements that have been made are as follows:

Flag: as a sign to form a field

Modified baton: as a substitute for the baton

Cones: as obstacles to zig-zag movement and hopscotch

Hoop: as a zig-zag movement obstacle

Cardboard: as a jump hurdle



Source: Personal documentation

Figure 3. Equipment

3.3. Observation Results of Students' Cognitive, Affective and Psychomotor Aspects

The results of observations of cognitive, affective and psychomotor aspects of students are presented in Table 4 as follows:

Table 4. Observation results of students' cognitive, affective and psychomotor aspects

No	Question	Answer	Percentage	Category
Cognitive				
1	Can you understand the rules of learning relay fun?	Yes	100 %	Very good
2	Can this game be played in teams?	Yes	75 %	Good
3	Can you understand the correct technique for giving the baton?	Yes	100 %	Very good
4	Are there any difficulties in implementing this lesson?	No	91,6 %	Very good
5	Can you understand how many techniques of giving the baton there are?	Yes	86,1 %	Good
6	Do you warm up initially before relay learning is conducted?	Yes	94 %	Very good
7	Is learning relays risky for you?	No	94 %	Very good
8	Could you evaluate your performance after learning about this relay race?	Yes	83,3 %	Good
Affective				
1	Do you like the fun relay model?	Yes	94 %	Very good
2	Are you able to team up with friends in a fun relay game?	Yes	94 %	Very good
3	Is it necessary to follow the relay fun learning rules?	Yes	97,2 %	Very good
4	Do you have to be truthful and athletic when conducting relay fun learning?	Yes	94 %	Very good
5	Is it necessary to consider safety during relay joyful learning?	Yes	86,1 %	Good
6	Are you enthusiastic about relay fun learning?	Yes	91,6 %	Very good
7	Do you concede defeat when participating in a fun relay game?	Yes	94 %	Very good
8	Do you have a good time while playing this game?	Yes	91,6 %	Very good
9	Do you feel afraid when you pass obstacles during relay fun learning?	No	94 %	Very good
10	Are you able to respect your opponent when carrying out fun relay learning?	Yes	97,2 %	Very good
Psychomotor				
1	Are you able to imitate the movements that are exemplified?	Yes	94 %	Very good
2	Are you able to do the movement of giving the baton?	Yes	100 %	Very good
3	Are you able to do various movements in the relay fun?	Yes	86,1 %	Good
4	Are you able to do the stages in relay fun learning?	Yes	83,3 %	Good
5	Are you able to coordinate all the movements in relay fun learning?	Yes	91,6%	Very good
Average			92,27 %	Very Good

In Table 4, the author compiles questions related to cognitive aspects totaling 8 items, affective aspects 10 points and psychomotor aspects 5 points. Students were

given these questions, and they had to fill in the blanks with Yes or No answers. According to the findings on the cognitive aspects, the percentage value ranges from 75%

to 100% in the good-very good category. According to the findings on the affective aspect, the percentage value spans from 86.1% to 97.2 in the good-very good category. Based on the results that have been found on the psychomotor aspect, the percentage value of 83.3% -94% is in the good-very good category. This might be taken to mean that after receiving repeated fun learning, primary school pupils' cognitive, affective, and psychomotor abilities would improve.

4. Discussion

The objective of this study was to develop a relay fun learning model as a physical education learning medium by observing the cognitive, affective, and psychomotor aspects of fifth-grade elementary school students. According to a quantitative analysis employing content validity, the average answers of the 10 question items examined by 5 material specialists ranged from 0.75 to 100. These findings suggest that the relay fun learning model for physical education has high content validity. This is consistent with prior research indicating a validity coefficient greater than 0.78 is considered good. Another study added that the validity coefficient between 0.81 and 1.00 was classified as high [23]. As a result, the expert judgement leads to the conclusion that the relay fun model is viable and can be continued at the trial stage.

Through comments and suggestions, quantitative findings must be clarified and elaborated utilising qualitative data based on material expert judgement. Expert (1) stated: *“The model developed is following the basic competencies in physical education subjects in elementary schools, and the game-based model is the most important organ for elementary school children because children's nature is to play. However, playing here does not negate the importance of learning activities. The developed model, in my opinion, contributes to the teacher's ability to be more creative, so that students are encouraged to carry out the material being taught.”*

This is also consistent with the judgment of expert (2) who stated: *“The relay fun model that was developed is an interesting thing for me because it can be used as a physical education learning strategy.”* In addition to being easily accessible, the equipment is also suitable for elementary school kids. Safety and comfort considerations are critical in the research and development of any learning model.” Furthermore, expert (3) noted: *“In my opinion, the model assembled is creative because it is capable of combining simple tools such as cardboard and modifying relay sticks for smooth learning.”* Furthermore, the heart of development research is developing what does not yet exist or altering what already exists to make it easier. Even yet, it is required to revise points or areas of the receiving and passing of the baton method to make it easier for students to understand.

According to expert (4): *“The development of the fun*

relay model can encourage students to continue to actively develop psychomotor aspects and physical fitness. Furthermore, there are parts of rules and guidelines that must be followed in this model to develop discipline, cooperation, and student understanding, which is related to their affective and cognitive characteristics.”

It is added by the expert (5): *“The division of student groups needs to be adjusted to the relay rules, and the procedures and delivery in this model need to be clarified more. Overall, the model developed is beneficial in physical education learning activities. In the future, as a next step, a learning model based on modern technologies will be required.”*

Based on the findings of the trial stage observations, the cognitive aspect received an average percentage value of 91.8%. As a result, the cognitive aspect falls into the very good group. The author's relay fun model is known and understood by all fifth-grade students. Furthermore, the average percentage value attained on the affective component is 93.38, placing it in the very good category. This research demonstrates that students can work with friends or teams and that they exhibit confidence, honesty, and enthusiasm when participating in the author's fun relay games. Furthermore, the psychomotor aspects receive an average percentage value of 91%, placing them in the very good category. This is shown in the capacity of students to perform movements and games well. The overall average rating for the cognitive, affective, and psychomotor aspects is 92.06%. As a result, elementary school pupils benefit from the relay fun activity, which can be employed as a physical education learning strategy.

Physical education is a process that educates and utilises physical exercise and health to generate comprehensive improvements [24]–[27]. This is seen in physical, mental, and emotional growth [28]–[30]. According to some viewpoints, physical education allows students to learn a variety of activities while developing physical, mental, social, moral, and emotional skills. Another viewpoint holds that physical education has a major influence [31]. Physical education provides a comprehensive education that includes physical, mental, emotional, moral, and social aspects [31]. Of course, physical education is the best way to develop a well-rounded individual [32].

Physical education benefits include addressing students' urge to move. That is, students can express themselves and their desire to be active through physical education. Physical education will promote healthy physical growth and intellectual development if these desires are met to a greater extent [33]. Physical education can also introduce children to their environment and self-potential by providing them with the freedom of nature and thrilling sports facilities, allowing them to more readily develop their potential in a new setting and atmosphere [34]–[36]. Because physical education serves as a foundation for essential skills, schoolchildren's growth pattern before adolescence is slow. As a result of appropriate physical

education, students will develop completely and in a planned manner [37]. Physical education as a channel for excess energy implies that this extra energy must be channelled such that it does not disrupt the child's behavioural and mental equilibrium [38]. The infant will restore his balance once this energy has been channelled [2].

5. Conclusion

Based on the findings and discussion, the authors conclude that the relay fun game model has good content validity as a physical education learning model for elementary schools. Overall, the five experts' comments and suggestions were all positive, namely that the fun relay game model can be one of the strategies for elementary school physical education learning models that contribute to physical education teachers applying it where this learning model is safe, simple, and capable of encouraging students to be active. Based on observations made during the model test, it was discovered that the students' psychomotor, cognitive, and affective skills responded positively with a portion of their overall score falling into the very good category. These findings also show that students can comprehend, cooperate well in groups, demonstrate integrity and enthusiasm, and practise good and accurate technical movements. Therefore, this research contributes to the field of teaching physical education to elementary school students, especially in relay running learning, and provides insight into the importance of developing a varied learning model so that students can be enthusiastic about learning. However, it is important to understand the limitations of this research, namely the need to test the effectiveness of using experimental methods to determine students' cognitive, affective, and psychomotor abilities. Further research is expected to refine this research to make it better.

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