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Development of a Heading Technique Training Model in Futsal Games for PJKR Students of the 2024 Class of Tadulako University, Palu

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ABSTRACT

This study aims to develop a heading technique training model in futsal games for students of the Physical Education, Health, and Recreation (PJKR) Study Program, Class of 2024, Tadulako University. The research method used is Research and Development (R&D) with the Borg and Gall model which includes ten stages, starting from needs analysis, problems, data collection, product design, design validation, expert validation, small-scale trials, large-scale trials, to final product refinement. The research subjects consisted of 10 students in the small-scale trial and 30 students in the large-scale trial selected using purposive sampling. The data collection technique used a rating scale questionnaire, while data analysis was carried out with descriptive percentage analysis. The validation results from two futsal experts and one learning expert showed an average value of 60% with the "used" category. The small-scale trial obtained a percentage of 84% and the large-scale trial 80%, both of which are in the category of suitable for use. The research results show that the developed heading technique training model is simple, easy to implement, and effective in improving students' understanding and heading skills in futsal. This training model is expected to serve as an alternative reference for futsal lecturers and coaches in supporting a more structured and effective futsal learning process in higher education.

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INTRODUCTION

The development of sports, particularly futsal, has experienced significant progress. This is evident in the variety of events held at regional, national, and even international levels (Dhae et al., 2023). In addition to clubs, futsal is also very popular among students from elementary, middle, and high schools to universities in Indonesia. Many students participate in this sport for relaxation, training, and competition. Therefore, students who enjoy futsal can develop their interests and talents through this activity. Futsal is also a favorite ball game among teenagers. The numerous competitions held by universities or specific student groups motivate students to participate (Novriansyah et al., 2023).

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Futsal is a ball game played by two teams, each consisting of five players, with the goal of getting the ball into the opponent's goal. Futsal is similar to soccer, with the differences being the size of the field, the number of players, the rules of the game, and the weight of the ball.(Herlambang et al., 2022)Futsal is also a sport that demands speed, technique, and strategy. Futsal is similar to soccer, but the rules of the game are different.(Taufik et al., 2022)One crucial yet often overlooked technical aspect of futsal training is heading ability. Heading is not only crucial in both defensive and offensive situations, but also plays a role in quick game transitions. However, this skill hasn't received adequate attention in futsal training programs, especially among university students.Developing heading exercises is crucial for improving the heading technique of futsal players. In their research, Atiq and Budiyanto (2021) developed a play-based heading technique training model that has proven effective in improving heading ability in young athletes.

Futsal in Indonesia is currently experiencing significant growth. However, until now, futsal has been seen as a purely recreational sport and has not yet become a professional sport. This is a major concern for the National Futsal Board (BFN) and the Indonesian Football Association (PSSI), who are working together to make this sport accessible to all and professional.(Badaru, 2017).

According to Ginting et al. (2019), heading is a basic futsal technique that players must master to improve overall team performance. Good heading skills can help players control the ball, redirect attacks, and create scoring opportunities. Training focused on heading techniques can improve coordination, timing, and strength in the neck and upper body muscles.Heading is a fundamental skill essential for controlling the ball in the air, passing to teammates, and scoring goals. According to Luxbacher (2002, in Ginting, Syafrial, & Defliyanto, 2019), heading is a technique performed using the forehead, as this is the safest and most effective way to direct the ball. Players often make the mistake of closing their eyes or using the wrong part of their head when heading, resulting in uncontrolled ball movement.

Ishak H. Pardosi (2008, in Ginting et al., 2019) added that a good header is executed by opening the eyes and pulling the head back before heading to generate maximum power. There are even variations of heading, such as the diving header, which is performed by dropping the body forward. Therefore, heading technique requires regular practice to hone balance, timing, and accuracy in reading the ball's direction.

Developing a futsal training model, particularly in heading techniques, is crucial for improving player skills, particularly in the context of fast-paced and dynamic play. Futsal is a sport that emphasizes high technique, coordination, and effective ball control in limited space. Although futsal is better known as a ground-based game, heading techniques still play a role in certain situations, such as during dead balls, crosses, or when defending against aerial attacks. Although heading is more commonly known in soccer, this technique is also relevant in futsal, especially in dead ball situations or crosses. Research by Daduk et al. (2021) shows that developing a heading training model can improve students' skills in sepak takraw. This demonstrates the potential for developing heading training models in other sports, including futsal.

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Developing a futsal heading skills training model for the 2024 Physical Education and Training (PJKR) students of Tadulako University, Palu, requires a structured approach and a focus on basic technical aspects and supportive physical conditions. Observations conducted on 25 2024 Physical Education and Training (PJKR) students of Tadulako University, Palu, revealed several important findings related to the development of a futsal heading skills training model. Most students (72%) admitted to having difficulty in performing proper heading, particularly in terms of body position and correct forehead usage.In addition, students' physical condition also needs to be improved, especially upper body strength and body coordination when jumping for heading.

Therefore, it is important to develop a heading training model tailored to the characteristics of futsal and the needs of students. This development is expected to improve players' heading skills in futsal, thereby enhancing overall team performance.

METHODS

The research method used in this study is research and development, which is a process or method used to validate and develop a product. Product development, in the broadest sense, involves updating an existing product (making it more practical, effective, and efficient) or creating a new product (one that has never existed before) (Sugiyono, 2019).According to Borg and Gall (Sugiyono, 2019), this research design or plan consists of 10 stages as shown in the image below.

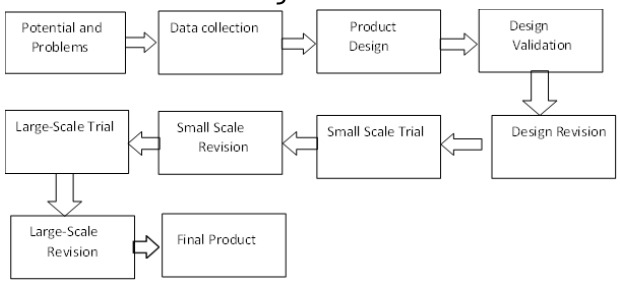

Figure 1.
Development Steps

The population in this study was all students of the Physical Education and Sports Research Program, Class of 2024, Tadulako University, who actively participated in futsal training. The sample size for this study was 30 people, selected using purposive sampling, with the criteria being students who possessed basic futsal skills and were willing to participate in the entire research process. The sampling technique used in this study was purposive sampling, which is characterized by the selection of sample members specifically based on the research objectives (Hardani et al., 2020).

Step 1 involves research and information gathering or needs analysis. Steps 2 and 3 consist of preliminary planning and development of the product form. Planning includes defining skills, stating objectives, determining course sequence, and conducting small-scale feasibility testing. Developing the initial product form includes preparing teaching materials, handbooks, and evaluation tools. Step 4 then involves preliminary field

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testing. This concludes interviews, questionnaire data collection, and school analysis. Steps 5 and 6 involve revising the main product and the main areas of testing. The main product revision uses quantitative subject data for evaluation. Operational product revision occurs in Step 7, revising the product as suggested by the results of the main field testing. Next, Steps 8 and 9 involve operational field testing and final product revision. The final step, or Step 10, involves socialization and implementation.

The population in this study was PJKR students of the class of 2024 and the small-scale sample was 10 people and the large-scale sample was 30 people. The instrument used at this stage was a value scale questionnaire. This study involved 30 large groups and 10 small groups, respectively. This study used descriptive percentage analysis to process data from experts and trials. Data analysis in this study was carried out in detail on the data from the validation assessment results with a value scale against the initial product from experts against the first and second internal design trials (expert validation). (Liloi, 2024).

The results of this data analysis serve as the basis for improving this development. The formula used to collect data from learning experts, futsal students, and students from the Department of Physical Education, Health, and Recreation, Faculty of Teacher Training and Education, Tadulako University.

Table 1.
Percentage Classification

No	%	Classification	Meaning
1	80%-100%	80%-100%	Used
2	60%-79%	60%-79%	Used
3	50%-59%	50%-59%	Replaced
4	< 50%	< 50%	Replaced

RESULTS AND DISCUSSION

Result

The results of this development research refer to the R&D (Research and Development) development model of Borg and Gall which consists of 10 research steps. To obtain data for the first and second phases of trials, the researcher used a data collection method in the form of a questionnaire for (1) the first phase of trials with 10 students, (2) the second phase of trials with 30 students, and for evaluation in the form of a questionnaire for three experts, namely two futsal sports experts and one for learning experts, the trial subject is a percentage technique. This data is an assessment of the model produced by 3 experts. The following is a recapitulation of the values of expert judgment.

Data from the results of the first phase of the trial (Small Group)

The variables that are aspects of observation regarding the development of the Heading exercise model according to the evaluation of the first stage trial (small group) are presented in table 3, as follows.

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Table 2.
Data from the results of the first phase of the trial (small group)

NO.	ASPECT	SCORE		score
		X	Xi	%
1.	What do you think about the exercise in picture 1 that you have done?	38	40	95%
2.	In your opinion, how did you carry out the exercise in Figure 1?	36	40	90%
3.	In your opinion, is the exercise in picture 1 that you have done useful in playing Futsal?	36	40	90%
4.	What do you think about the exercise in picture 2 that you have done?	38	40	95%
5.	In your opinion, how do you carry out the exercise in Figure 2?	30	40	75%
6.	In your opinion, is the exercise in picture 2 that you have done useful in playing Futsal?	39	40	98%
7.	What do you think about the exercise in picture 3 that you have done?	20	40	50%
8.	In your opinion, how do you carry out the exercise in Figure 3?	21	40	53%
9.	In your opinion, is the exercise in picture 3 that you have done useful in playing Futsal?	22	40	55%
10.	What do you think about the exercise in Figure 4 that you have done?	39	40	98%
11.	In your opinion, how do you carry out the exercise in Figure 4?	30	40	75%
12.	In your opinion, is the exercise in picture 4 that you have done useful in playing Futsal?	39	40	98%
13	What do you think about the exercise in Figure 5 that you have done?	36	40	90%
14	In your opinion, how do you carry out the exercise in Figure 5?	30	40	75%
15	In your opinion, is the exercise in picture 5 that you have done useful in playing futsal?	39	40	98%
16	What do you think about the exercise in figure 6 that you have done?	38	40	95%
17	What do you think about the exercise in figure 6 that you have done?	32	40	80%
18	In your opinion, is the exercise in picture 6 that you have done useful in playing Futsal?	39	40	98%
	AMOUNT	**602**	**720**	**84%**

The table above is a data analysis conducted based on the evaluation data from the first phase trial (small group) each of which is described in table 4 of the results of the first phase trial analysis that it is known that the total score (∑X is 602 and the total number of respondents (∑Xi) is 720 so that the percentage is 84%. Based on the results of the analysis of the first phase trial (Small group) the result is 84% of the criteria determined and it can be said that the development of the training model in the futsal game of PJKR students meets the criteria used60%-80% so it can be used.

Phase II trial data (Large Group)

The variables that are aspects of observation regarding the development of the Heading exercise model according to the evaluation of the phase II trial (Large Group) are presented in table 4 as follows.

Table 3.
Data from the results of the phase II trial (Large group)

NO.	ASPECT	SCORE		score
		X	Xi	%
1.	What do you think about the exercise in picture 1 that you have done?	113	120	94%
2.	In your opinion, how did you carry out the exercise in Figure 1?	107	120	89%
3.	In your opinion, is the exercise in picture 1 that you have done useful in playing Futsal?	120	120	100%
4.	What do you think about the exercise in picture 2 that you have done?	106	120	88%
5.	In your opinion, how do you carry out the exercise in Figure 2?	89	120	74%
6.	In your opinion, is the exercise in picture 2 that you have done useful in playing Futsal?	87	120	73%

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7.	What do you think about the exercise in picture 3 that you have done?	96	120	80%
8.	In your opinion, how do you carry out the exercise in Figure 3?	108	120	90%
9.	In your opinion, is the exercise in picture 3 that you have done useful in playing Futsal?	107	120	89%
10.	What do you think about the exercise in Figure 4 that you have done?	63	120	53%
11.	In your opinion, how do you carry out the exercise in Figure 4?	68	120	57%
12.	In your opinion, is the exercise in picture 4 that you have done useful in playing Futsal?	66	120	55%
13	What do you think about the exercise in Figure 5 that you have done?	99	120	83%
14	In your opinion, how do you carry out the exercise in Figure 5?	107	120	89%
15	In your opinion, is the exercise in picture 5 that you have done useful in playing Futsal?	108	120	90%
AMOUNT		**1444**	**1800**	**80%**

Based on table 5 of the data from the analysis of the phase II trial (Large Group), it is known that the total score (∑x) is 1,444 and the total number of respondents (∑xi) is 1,800 so that the percentage is 80%. Based on the analysis that has been carried out on the responses/assessments from the phase II trial, the results are 80% of the determined criteria and it can be said that the development of a basic service technique training model using the thigh for PJKR students of the 2025 class meets the criteria (60%-80%) so it can be used.

Discussion

The purpose of this study was to create a Heading training model for PJKR students of the 2024 intake. The results of expert validation, small group trials, and large group trials showed that the developed training model overall met the "use" criteria because it was in the percentage range of 60% to 80% according to the established classification. The assessment of three experts (two futsal experts and one learning expert) gave an average score of 60%. This value indicates that the developed training model met its objectives for futsal learning, material feasibility, and technical suitability.

The 84% result was achieved by a small group trial of 10 students. The results indicate that most students felt the simple exercise model was feasible. The large group trial (30 students) yielded a score of 80%. The small group trial (84%) yielded slightly lower scores. However, these scores are still considered usable.

CONCLUSION

This study produced a futsal heading technique training model that was declared feasible and usable based on expert validation, small group trials, and large group trials. Validation by two futsal experts and one learning expert showed an average score of 60%, which is included in the "usable" category. The small group trial yielded a score of 84%, while the large group trial yielded a score of 80%, both meeting the 60%–80% feasibility criteria.

These findings demonstrate that the developed training model can help PJKR students from the Class of 2024 understand and practice heading techniques more effectively. This training model is considered simple, easy to implement, and beneficial in improving heading skills in futsal. Furthermore,

This research emphasizes the importance of developing structured training models, especially since futsal is a global sport that still requires innovative training models to support the learning process and athlete development. Therefore, the developed training model can be an alternative solution to improve the quality of futsal learning in physical education settings.

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