Development of a Game-Based Football Learning Model in the Basic Football Skill Course at the Department of Sports Coaching Education Universitas Negeri Medan

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Abstract. This study develops a game-based football learning model for the Basic Football Skills course in the Department of Sports Coaching Education, Universitas Negeri Medan, addressing low student engagement and the absence of an instructional approach integrating technical and tactical elements. Employing a Research and Development (R&D) method, stages included needs analysis, model design, expert validation, small-scale trials, revisions, implementation, and evaluation. The model applies active learning and game-based principles through authentic match-like activities. Expert assessments confirmed its validity, feasibility, and effectiveness in enhancing fundamental skills such as dribbling, passing, and shooting. Implementation also improved student participation, motivation, and tactical understanding. The produced instructional manual was found practical for higher education use. This research contributes to football pedagogy by offering a contextual, skill-oriented framework that fosters both technical mastery and active engagement in the learning process.

Keywords: game-based learning, basic football skills, R&D

1 Introduction

Football, the most widely played sport worldwide, holds a significant position not only in competitive arenas but also in the realms of physical education and sports coaching. At the higher education level, football courses play a crucial role in shaping students' technical abilities, tactical understanding, and pedagogical skills—essential qualifications for aspiring coaches and trainers. International educational frameworks increasingly advocate for the inclusion of football within sports science curricula, highlighting the importance of holistic skill development that integrates physical, cognitive, and social competencies [1]. Despite its global appeal, instruction in basic football skills at universities often relies heavily on traditional drill-based methods.

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These approaches typically teach technical skills—such as dribbling, passing, and shooting—in isolation from tactical contexts, limiting students' ability to apply them effectively in real match situations [2]. Additionally, repetitive and decontextualized drills may hinder student engagement, leading to decreased motivation and participation [3]. Within the Indonesian higher education setting, particularly at Universitas Negeri Medan, observations and student feedback suggest that current practices do not sufficiently combine technical mastery with tactical application.

Game-Based Learning (GBL) presents a promising instructional alternative rooted in constructivist learning principles, which emphasize acquiring skills through realistic, problem-oriented scenarios [4]. Using small-sided games, situational challenges, and tactical constraints, GBL fosters decision-making, creativity, and teamwork—attributes critical to contemporary football performance. Previous research has shown that GBL can improve not only technical proficiency but also cognitive skills, tactical flexibility, and enjoyment of the game [5].

Nevertheless, the implementation of GBL within Indonesian university sports programs remains relatively unexplored, particularly in formal curricular settings with structured assessment of learning outcomes. While prior studies have examined GBL in school-based physical education, limited evidence exists regarding its adaptation for university-level football instruction aimed at preparing professional coaches. This research therefore seeks to address this gap by designing, validating, and testing a game-based football learning model tailored to the needs and competencies of students in the Basic Football Skills course at the Department of Sports Coaching Education, Universitas Negeri Medan..

2 Method

This study employed research and development (R&D) approach based on the model proposed by Borg and Gall [6]. The purpose of this approach was to develop and validate a game-based football learning model for the basic football skill course at the Department of Sports Coaching Education, Faculty of Sport Science, Universitas Negeri Medan, Indonesia, during the 2024/2025 academic year.

The development procedure followed several stages: needs analysis, model design, expert validation, small-group trial, revision, and field implementation. The needs analysis stage was conducted through classroom observations, interviews with lecturers and questionnaries distributed to students to identify existing problems in football learning activites.

After identifying the learning needs, a preliminary game-based learning model was designed by integrating technical skill training with small-sided games and tactical decision-making situations [7]. The prototype model was then evaluated by three football coaching experts to assesst its feasibility, clarity, and instuctional relevance.Following expert validation, the revised model was tested in a small-group trial involving 10 students to evaluate its practicality. Feedback from this stage was used to further refine the model before conducting field implementation with 32 students enrolled in the basic football skill course.

Data collection included technical skill performance tests (dribbling, passing, and shooting), observation sheets for tactical understanding, and questionnaires measuring student motivation and engagement [8]. The collected data were analyzed using descriptive statistics to determine improvements in learning outcomes after implementing the developed model.

3 Result and Discussion

3.1 Needs Analysis

The needs analysis revealed that the existing football learning process was still dominated by traditional drill-based practices focusing primarily on isolated technical skills. Although such methods helped students understand basic techniques, they did not adequately develop tactical awareness or decision-making in real game situations.

Questionnaire results indicated that most students preferred learning activities that resembled real match situations and allowed them to interact actively with teammates and opponents. These findings highlighted the need for a learning model that integrates technical training with tactical gameplay through game-based activities.

3.2 Development of the Game-Based Football Learning Model

Based on the results of the needs analysis, a preliminary game-based football learning model was developed. The model integrates fundamental football techniques with tactical decision-making through structured small-sided games.

The model includes several key component such as: (1) clearly defined learning objectives, (2) progressive game scenarios from simple to complex situations, (3) integration of technical skills within game context, and (4) evaluation instruments for technical, tactical, and affective aspects. This prototype served as the initial product of the research and was prepared for the expert validation.

3.3 Expert Validation

The prototype model was evaluated by three experts in football coaching and sports pedagogy. The validation process assessed aspects such as instructional clarity, suitability of learning activities, feasibility of implementation, and alignment with football learning objectives.

Table 1. Expert Validation Results of the Game-Based Football Learning Model

No	Assessment Aspect	Expert 1	Expert 2	Expert 3	Average Score	Category
1	Clarity of Learning Objectives	4.5	4.3	4.4	4.4	Very Valid
2	Relevance of Learning Activities	4.4	4.2	4.3	4.3	Very Valid
3	Suitability with Football Skills	4.6	4.5	4.4	4.5	Very Valid
4	Practically of Implementation	4.3	4.2	4.4	4.3	Very Valid
5	Learning Evaluation System	4.2	4.1	4.3	4.2	Valid

The evaluation results indicated that the developed model achieved a high feasibility score (average validity index of 0.86), categorized as very valid. Experts recommended minor revisions related to activity sequencing and the adjustment of game constraints to better match students' skill levels.

The expert validation results as presented in Table 1 shows that the developed learning model obtained an average score of 4.34, which falls into the "very valid" category. This indicates that the model is feasible and appropriate to be implemented with minor revisions. Experts provided several suggestions related to improving the sequence of learning activities, clarifying the rules used in modified games, and refining the evaluation instruments used to assess student performance.

3.4 Product Revision Based on Expert Suggestions

Based on the expert feedback, several revisions were made to improve the developed learning model. These revisions were intended to refine the learning procedures, clarify activity instructions, and ensure that the learning activities were appropriate for students' skill levels. The revisions made to the model are summarized in Table 2.

Table 2. Expert Validation Results of the Game-Based Football Learning Model

No	Expert Suggestions	Revisions Made
1	Clarity of learning objectives for each session	Learning objectives were rewritten to be more specific and measurable
2	Adjust the sequence of learning activities	Activities were reorganized from simple to more complex game situations
3	Improve clarity of small-sided game rules	Detailed instructions and examples were added
4	Improve evaluation instruments	Additional indicators for tactical understanding and engagement were included
5	Adjust the level of game difficulty	Game constraints were modified according to student ability

After incorporating these revisions, the improved model was considered ready to be tested in the small-group trial stage.

3.5 Small-Group Trial

A small-group trial was conducted to evaluate the practicality of the revised learning model. This stage involved 10 students enrolled in the Basic Football Skill course. During the trial, students participated in several learning sessions implementing the game-based football learning model. Observations focused on student participation, clarity of instructions, and suitability of the learning activities.

The results of the small-group trial are presented in Table 3.

Table 3. Small-Group Trial Evaluation Results

No	Evaluation Aspect	Average Score	Category
1	Clarity of Learning instructions	4.30	Very Good
2	Suitability of learning activities	4.25	Very Good
3	Student participation	4.40	Very Good
4	Ease of implementation	4.20	Good
5	Student engagement	4.35	Very Good

The results indicate that the developed model achieved an average score of 4.30, which falls into the very good category, indicating that the model is practical and feasible for implementation in football learning activities.

3.6 Field Implementation

Following the small-group trial, the final version of the learning model was implemented in a larger group involving 32 students. The implementation was conducted over eight learning sessions, during which students engaged in structured game-based activities integrating technical practice and tactical decision-making. The results of the field implementation are presented in Table 4.

Table 4. Improvement of Student Learning Outcomes

No	Variable	Improvement (%)
1	Dribbling Skill	25.2
2	Passing Accuracy	53.9
3	Shooting Accuracy	62.1
4	Tactical Understanding	52.4
5	Motivation	45.3
6	Engagement	47.7

The results indicate substantial improvements in students' football skills. The highest improvement was observed in shooting accuracy (62.1%), followed by passing accuracy (53.9%) and tactical understanding (52.4%). Motivation and engagement also increased significantly, indicating that the game-based learning environment encourages active participation and enhances students' learning experiences.

Table 5. Criteria for Validity Level

Score Range	Validity Category
4.21 – 5.00	Very Valid
3.41 – 4.20	Valid
2.61 – 3.40	Fair
1.81 – 2.60	Less Valid

The validity level of the developed learning model as shown in Table 5 was determined based on the average score obtained from expert evaluations using a five-point Likert scale. The criteria for determining the validity category were adapted from the classification proposed by Sugiyono, which is commonly used in research and development studies in education [9].

3.7 Final Product of the Developed Model

The final product of this research is a game-based football learning model designed for the Basic Football Skill course at the Department of Sports Coaching Education, Universitas Negeri Medan. The model integrates technical skill training with tactical decision-making through modified small-sided games.

Figure 1. Final Game-Based Football Learning Model Framework

The developed model integrates technical skill training with tactical decision making through small-sided games. The learning process consists of several stages, including: (1) warm-up activities and ball familiarization, (2) introduction of technical skills (dribbling, passing, and shooting), (3) implementation of modified small-sided games, (4) tactical decision-making during gameplay, (5) reflection and feedback from the instructor, (6) reinforcement practice based on game situations, and (7) evaluation of student performance.

4 Conclusion

This study aimed to develop a game-based football learning model for the Basic Football Skill course at the Department of Sports Coaching Education, Universitas Negeri Medan. The development process followed the Research and Development (R&D) framework proposed by Borg and Gall, which included stages of needs analysis, model design, expert validation, product revision, small-group trials, and field implementation.

The results of the expert validation indicated that the developed model achieved a very valid category, suggesting that the learning model is feasible for implementation in football learning activities. The small-group trial results also demonstrated that the model is practical and easy to implement, with high levels of student participation and engagement.

Furthermore, the field implementation results showed significant improvements in students' football learning outcomes. The most notable improvement was observed in shooting accuracy (62.1%), followed by passing accuracy (53.9%), tactical understanding (52.4%), and dribbling performance (25.2%). In addition, student motivation and engagement increased by 45.3% and

47.7%, indicating that the game-based learning environment promotes active participation and enhances the overall learning experience.

Based on these findings, it can be concluded that the developed game-based football learning model is valid, practical, and effective for improving students' technical skills, tactical understanding, motivation, and engagement in football learning. Therefore, this model can be recommended as an alternative instructional approach for football learning in sports coaching education programs.

Future research may explore the application of this model in different educational contexts or investigate its long-term impact on student performance and learning outcomes.

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