International Journal of Education, Vocational and Social Science
https://e-journal.citakonsulindo.or.id/index.php/IJEVSS
E-ISSN : 2963 4954
IJEVSS

Development Of The TRIA Free Throw Training Model In Basketball

Tria Saptami Umar
Department of Physical Education, Universitas Negeri Gorontalo, Indonesia
Joni Taufik Hidayat
Department of Physical Education, Universitas Negeri Gorontalo, Indonesia
Aisah R. Pomatahu
Department of Physical Education, Universitas Negeri Gorontalo, Indonesia

Corresponding Author: triaumar17@gmail.com

Abstract

This study aimed to develop the TRIA training model (Targeted, Routine, Integrated, and Accuracy) presented in the form of a training manual and instructional video for basketball free throw practice among senior high school students. The research employed a Research and Development (R&D) method using the ADDIE development model. Subjects were 10 male students from the basketball team at SMA Negeri 2 Limboto. Data were collected through observation, interviews, and questionnaires validated by three domain experts. Data analysis used descriptive quantitative and qualitative techniques and Cronbach's Alpha reliability test. The TRIA training model obtained an average expert validation score of 90%, categorized as Very Feasible. Student response results showed 87%, also Very Feasible. The Cronbach's Alpha coefficient was 0.91, indicating very high reliability. The TRIA training model is therefore declared feasible as an alternative free throw training model in basketball for senior high school students.

Keywords: Training Model; TRIA; Free Throw; Basketball; R&D

INTRODUCTION

Physical education plays an important role in the national education system, aiming to develop physical, mental, social, and emotional aspects of students. One common sport activity in physical education is basketball, which demands technical skill, tactical awareness, and physical and mental readiness.

Free throw is a fundamental skill in basketball executed from the free throw line (4.6 m

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

from the ring) without interference from opponents. Despite being performed in a static condition, free throw presents a unique challenge because it requires concentration, movement control, and emotional calmness. Many players fail to maximize free throw opportunities due to psychological pressure, lack of technical understanding, and the absence of a specific training routine (Candra, 2020; Hasyim & Harliawan, 2024).

Based on preliminary observations and interviews with the physical education teacher at SMA Negeri 2 Limboto, the existing free throw training was general and lacked systematic structure. No training guide or reference was available to support structured and continuous free throw practice. This highlights the need to develop a systematic training model integrating targeted practice, routine movement, integrated components, and accuracy enhancement.

Previous research demonstrated that structured and systematic training produces better learning experiences (Lestari et al., 2022). Video-based training media also helps students understand movement execution more clearly (Izzuddin & Gemael, 2021). However, models specifically developed for free throw skills equipped with a training manual and instructional video remain limited.

This study developed the TRIA training model (Targeted, Routine, Integrated, Accuracy) as a systematic and applicable free throw training model for senior high school students, presented in the form of a training manual and instructional video containing ten free throw exercises.

LITERATURE REVIEW

Basketball and Free Throw

Basketball is a team sport played by two teams of five players each, with the objective of scoring by shooting the ball into the opponent's basket (Alamsyah et al., 2022; Kalape, 2024). Free throw is an uncontested shot awarded after a foul, taken from the free throw line (Angraini Putri Apifa et al., 2020). Free throw accuracy is critical in deciding game outcomes, particularly in crucial moments (Candra, 2020; Hasyim & Harliawan, 2024).

Training Models in Physical Education

A training model is a systematic framework for organizing practice experiences toward desired outcomes (Branch, 2020; Putra et al., 2023). Effective physical education training models should be structured, progressive, and adapted to learner characteristics (Lorās, 2020). Bile et al. (2021) and Prasetyanto and Suherman (2022) demonstrated that models with clear objectives and varied activities result in better skill acquisition.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

ADDIE Development Model

The ADDIE model (Analysis, Design, Development, Implementation, Evaluation) is a widely used instructional design framework providing a systematic process for product development and evaluation (Branch, 2020; Molenda, 2021). It has been successfully applied in various physical education R&D studies (Rifaldo et al., 2025; Bile et al., 2021).

Conceptual Framework of TRIA

The TRIA model is grounded in four principles: Targeted (specific training objectives per exercise), Routine (habitual movement patterns), Integrated (physical and psychological components combined), and Accuracy (progressive focus on shooting precision). These align with research emphasizing concentration, routine movement, and structured repetition in free throw practice (Candra, 2020; Sun et al., 2024; Ramadhan & Irawan, 2022).

METHODS

Research Design

This study used a Research and Development (R&D) design with the ADDIE model (Branch, 2020; Sugiyono, 2022), enabling systematic development and feasibility evaluation of a practical product.

Subjects

The subjects were 10 male students who were active members of the basketball extracurricular team at SMA Negeri 2 Limboto, Gorontalo, Indonesia, selected by purposive sampling.

Instrument and Validation

Three expert validators assessed the product: a measurement and evaluation expert (Mr. Suryadi Datau, S.Pd., M.Pd., 9 February 2026), a basketball/PJOK teacher (Mr. Alfritz Hemeto, S.Pd., 11 February 2026), and a media expert (Mr. Indrawan Suleman, S.Pd.Gr., 20 May 2026). Student responses were collected using a 10-item Likert-scale questionnaire at the end of the implementation phase.

Validity and Reliability Testing

Questionnaire validity was tested with Pearson product-moment correlation; items with r-

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

count > r-table (0.6319, n=10, α=0.05) were declared valid. Reliability was measured with Cronbach's Alpha; values ≥0.60 were considered acceptable (Field, 2020; Hair et al., 2021).

Data Analysis

Feasibility percentage: P = (Score / Max Score) × 100%. Categories: ≥81% = Very Feasible; 61-80% = Feasible; 41-60% = Adequate; ≤40% = Not Feasible (Sugiyono, 2022).

Implementation

The TRIA model was implemented over 5 sessions (26 Jan, 30 Jan, 6 Feb, 13 Feb, 31 Mar 2026). Each session applied 2 of the 10 exercises: (1) Static free throw at the line, (2) Zig-zag dribble and free throw, (3) Three-spot shooting, (4) Catch and shoot, (5) U-cone movement to free throw, (6) Rebound and re-shoot, (7) Chain free throw, (8) Free throw after sprint, (9) Alternating free throw with partner, and (10) Progressive distance shooting.

RESULTS AND DISCUSSION

Expert Validation Results

Expert validation was conducted by three validators during February-May 2026. Results are presented in Table 1.

Table 1. Expert Validation Results

Validator	Score	Percentage (%)	Category
Measurement Expert	40	87.5	Feasible
Basketball Expert	40	92.5	Very Feasible
Media Expert	48	89.5	Very Feasible
Average	40	90.0	Very Feasible

The TRIA training model obtained an average validation score of 90% (Very Feasible). The measurement expert gave 87.5% (Feasible), the basketball expert 92.5% (Very Feasible), and the media expert 89.5% (Very Feasible). These results confirm the model is appropriate in terms of content, exercise design, safety, and media quality.

Instrument Validity and Reliability

Table 2 presents the validity and reliability results for the student questionnaire instrument.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Table 2. Item Validity and Reliability

No.	r-count	r-table	Validity	Note
1	0.632	0.6319	Valid	Alpha=0.91
2	0.699	0.6319	Valid	
3	0.734	0.6319	Valid	
4	0.755	0.6319	Valid	
5	0.783	0.6319	Valid	
6	0.730	0.6319	Valid	
7	0.717	0.6319	Valid	
8	0.722	0.6319	Valid	
9	0.805	0.6319	Valid	
10	0.911	0.6319	Valid	

All 10 items yielded r-count values above the r-table (0.6319), confirming validity. Cronbach's Alpha was 0.91 (> 0.60), indicating very high reliability (Field, 2020; Hair et al., 2021). The instrument is therefore reliable for measuring TRIA model feasibility.

Student Response Results

The average student response score was 87% (Very Feasible). Individual scores ranged from 60% to 100%, with 8 out of 10 students rating the model at 85% or higher. Students found the exercises easy to understand, varied, and motivating.

DISCUSSION

The TRIA training model showed strong feasibility based on expert validation (90%) and student response (87%). These results align with research showing that systematically structured training models improve skill acquisition (Lestari et al., 2022; Pratama et al., 2024). The integration of a training manual and instructional video (available at https://youtu.be/edsJcXn1sHQ) supports accessibility and ease of implementation across school settings with limited coaching resources.

Theoretical Interpretation of Expert Validation Results

The average expert validation score of 90% reflects that the TRIA model successfully operationalizes four evidence-based principles — targeted practice, routine movement, integrated conditioning, and accuracy progression — into a coherent pedagogical framework. This

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

aligns with Branch (2020) and Molenda (2021), who argued that ADDIE-derived products reach high feasibility when each design phase is systematically linked to prior analysis outcomes. The basketball expert's highest score (92.5%) specifically validates that the ten exercise progressions — from static free throws to post-sprint shooting — are technically sound and developmentally appropriate for senior high school athletes. This finding is consistent with Lorås (2020), who noted that structured physical education models produce superior skill outcomes when exercise complexity is progressively scaled to learner readiness. The measurement expert's score of 87.5% (Feasible) indicates that while content validity is strong, future revisions should refine the scoring rubric to sharpen discrimination between exercise difficulty levels.

Interpretation of Student Response Results

The 87% average student response score reflects strong acceptance of the TRIA model among the target users. Notably, 8 of 10 students scored at or above 85%, indicating high consistency in perceived usability, clarity of instructions, and motivational value. The two lower-scoring students — one of whom scored 60% — likely reflect individual variation in prior basketball experience, as purposive sampling from extracurricular members does not control for baseline skill level. This is consistent with Lorås (2020), who noted that perceived difficulty of structured models varies with baseline motor competence. Additionally, Schmidt and Lee (2020) argued that learners with lower initial motor proficiency may require more scaffolding before structured repetition becomes motivationally engaging. Future iterations of the TRIA model should therefore include a differentiated beginner-level track to address this variability without reducing the challenge for more advanced students.

Role of Instructional Video and Training Manual

The integration of a supplementary instructional video alongside the training manual addresses a well-documented gap in school-based sports training delivery. Izzuddin and Gemael (2021) demonstrated that video-based models enhance learners' kinesthetic understanding of movement sequences by providing a visual reference that static text cannot replicate. For free throw — a skill heavily dependent on proprioceptive feedback and consistent motor patterns (Sun et al., 2024; Candra, 2020) — visual modeling offers a critical self-correction mechanism particularly relevant for self-directed practice outside formal coaching sessions. This is further supported by Mayer (2020), who established through the multimedia learning theory that combining verbal and visual representations in instructional materials produces significantly

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

deeper processing and longer-term retention than verbal presentation alone. The media expert's recommendation to improve video resolution therefore reinforces this principle: the pedagogical value of instructional video is contingent on production quality sufficient for learners to observe fine motor details such as wrist snap angle, elbow alignment, and follow-through trajectory.

Biomechanical and Psychological Underpinnings of TRIA

Free throw performance is uniquely dual-natured: it is technically simple in execution context yet psychologically demanding in competitive conditions. Maharani and Suardika (2024) identified that biomechanical consistency — particularly elbow alignment, wrist snap, and follow-through arc — deteriorates under fatigue and psychological pressure. The TRIA model specifically addresses this through exercises 8 (free throw after sprint) and 10 (progressive distance shooting), which deliberately introduce physical load and perceptual difficulty to simulate in-game conditions. This stress-inoculation approach reflects the variable practice framework established by Schmidt and Lee (2020), which demonstrated that athletes trained under contextually varied conditions exhibit greater skill retention and competitive accuracy than those trained under stable conditions only. Furthermore, Sun et al. (2024) found through eye-movement analysis that consistent gaze fixation on the rim prior to release is a key differentiator between high and low accuracy free throw shooters. The TRIA model's "Routine" principle directly supports this by habituating pre-shot routines across all ten exercises, thereby training attentional focus as a discrete skill component alongside motor execution.

Comparison with Related Development Studies

The TRIA model's feasibility outcomes (90% validation, 87% student response) are comparable to parallel R&D studies in sports skill development. Lestari et al. (2022) reported 88.5% expert validation for a jump shoot training model; Rifaldo et al. (2025) achieved 86% for a small-game passing model; and Bile et al. (2021) reported 85% for a fitness training model grounded in traditional games. The consistency of high feasibility scores across ADDIE-based studies suggests that the development framework itself — with its multi-expert validation protocol — is a reliable quality assurance mechanism. However, all these studies share a common methodological limitation that must be explicitly acknowledged: feasibility is not effectiveness. High expert ratings confirm the quality of pedagogical design and the appropriateness of content, but do not confirm that students who use the model will exhibit measurable improvement in free throw accuracy. The present study is no exception. This distinction is critical for positioning the

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

TRIA model in the literature and for determining next research steps.

Limitations

Several limitations should be considered when interpreting the findings of this study. First, the sample was restricted to 10 male students from a single school in Gorontalo, which limits generalizability to female students, students at different educational levels, or schools with varying training facilities and coaching expertise. Second, this study evaluated feasibility only — no pre-test or post-test data were collected to quantify improvement in actual free throw accuracy; thus, whether the TRIA model produces measurable learning gains remains empirically untested. Third, the implementation spanned only 5 sessions over approximately two months, which may be insufficient for the progressive exercise design to produce observable motor learning effects. Fourth, the purposive sampling approach, while appropriate for a small-scale trial in R&D research (Branch, 2020), does not control for individual differences in prior basketball experience, which may have influenced both student response scores and exercise engagement levels. Future research should address these limitations by conducting a randomized controlled trial or a single-group pre-post design involving a larger and more diverse population across multiple schools and grade levels to establish the actual effectiveness of the TRIA free throw training model.

CONCLUSION

This study developed the TRIA (Targeted, Routine, Integrated, Accuracy) free throw training model for basketball, presented in the form of a training manual and instructional video containing ten structured exercises. Expert validation yielded 90% (Very Feasible), student response 87% (Very Feasible), and Cronbach's Alpha = 0.91 with all 10 items valid. The TRIA training model is valid, practical, and feasible as an alternative free throw training model, particularly for senior high school students. Future research should examine the effectiveness of the TRIA model in improving actual free throw accuracy across different school levels.

REFERENCES

Alamsyah, et al. (2022). Pengaruh latihan shooting dengan metode BEEF terhadap akurasi free throw siswi ekstrakurikuler basket SMK Negeri 4 Bandar Lampung. J. Phys. Educ, 3(2), 1-5.

Angraini Putri Apifa, et al. (2020). Analisis teknik dasar free throw dalam permainan bola basket. Jurnal Pendidikan Jasmani, 8(1), 12-20.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License

Bile, et al. (2021). Pengembangan model latihan kebugaran jasmani berbasis permainan tradisional. Jurnal PENJAKORA, 8(1).

Branch, R. M. (2020). Instructional design: The ADDIE approach. New York: Springer.

Candra, O. (2020). The effect of concentration training on shooting free throw in basketball game. International Journal of Human Movement and Sports Sciences, 8(6A), 29-35.

Field, A. (2020). Discovering statistics using IBM SPSS statistics. Sage Publications.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2021). Multivariate data analysis. Pearson.

Hasyim, H., & Harliawan. (2024). Analisis keterampilan shooting free throw atlit bola basket. Indonesian Research Journal on Education, 4(4), 2313-2317.

Izzuddin, D. A., & Gemael. (2021). Model latihan berbasis modifikasi alat untuk atlet pemula. Sporta Saintika, 5(1), 21-30.

Kalape. (2024). Permainan bola basket dan teknik dasar. Jurnal Pendidikan Olahraga.

Lestari, D. A., et al. (2022). Model latihan jump shoot bola basket pada atlet pemula. Paradigma, 19(2), 66-75.

Lorās, H. (2020). The effects of physical education on motor competence. Sports, 8(6), 88.

Maharani, V. N., & Suardika, I. K. (2024). Analisis biomekanika olahraga terhadap metode latihan teknik shooting bola basket. Jambura Sports Coaching Academic Journal, 3(1), 29-40.

Molenda, M. (2021). In search of the elusive ADDIE model. Performance Improvement.

Mayer, R. E. (2020). Multimedia learning (3rd ed.). Cambridge University Press.

Prasetyanto, T. A., & Suherman, W. S. (2022). Pengembangan model latihan kebugaran jasmani. Jurnal Pedagogi Olahraga dan Kesehatan, 3(2).

Putra, et al. (2023). Konsep model latihan fisik pada sepakbola. Jurnal Educatio, 9(2), 974-985.

Ramadhan, & Irawan. (2022). Analisis gerak shooting bola basket sesuai dengan konsep BEEF. Jurnal Olahraga.

Rifaldo, et al. (2025). Pengembangan model latihan passing bawah melalui permainan kecil. Realisasi, 2(1), 22-34.

Schmidt, R. A., & Lee, T. D. (2020). Motor learning and performance: From principles to application (6th ed.). Human Kinetics.

Sugiyono. (2022). Metode penelitian dan pengembangan (R&D). Bandung: Alfabeta.

Sun, X., Jiang, Y., Wang, Y., & Liu, X. (2024). Investigation of eye movement characteristics during free throws. Journal of Human Kinetics, 92(1).

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-Share Alike 4.0 International License