

Designing an Effective Coaching Skills Training Model for Sport Coaches: An Integrative Review and Conceptual Framework

Hooria. Heybatzadeh¹, Mahdi. Naderi Nasab^{1*},
Seyyed Abbas. Biniiaz¹

1. Department of Physical Education and Sport Sciences, Qa.C., Islamic Azad University, Qazvin, Iran

*Corresponding Author's Email:
mehdynaderinasab@iaui.ac.ir

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ABSTRACT

Effective sport coaching depends on more than technical knowledge. Contemporary evidence shows that coaches influence athlete learning, motivation, well-being, safety, retention, and performance through an integrated set of professional, interpersonal, intrapersonal, ethical, and context-sensitive skills. However, coach education programs are frequently delivered as short, content-heavy courses that do not adequately translate knowledge into observable coaching behavior. This integrative review synthesizes evidence from coaching effectiveness theory, international coaching frameworks, self-determination theory, coach-athlete relationship research, coach education studies, feedback research, reflective practice, and safeguarding-oriented coaching to design a practical model for training effective skills among sport coaches. The proposed Effective Coaching Skills Training Model (ECSTM) is organized into five interdependent domains: professional-pedagogical competence, interpersonal communication and relationship building, motivational and psychosocial support, intrapersonal reflection and self-regulation, and ethical-safeguarding and digital practice. The model also specifies training mechanisms, including needs assessment, modular blended learning, deliberate practice, role play, video feedback, mentoring, peer learning, reflective portfolios, and multilevel evaluation. The review argues that effective coach education should be longitudinal, context-sensitive, behavior-focused, and evaluated through coach outcomes, athlete outcomes, and implementation sustainability. The proposed model provides a theoretically grounded and practice-oriented framework that can be tested through Delphi validation, pilot implementation, structural modeling, and longitudinal intervention studies.

Keywords: coaching effectiveness; coach education; sport coaches; professional skills; coach-athlete relationship; reflective practice; training model

Introduction

Sport coaches occupy a central position in athlete development. Their decisions shape training quality, motivational climate, interpersonal trust, safety, performance standards, and the long-term meaning that athletes attach to sport participation. The traditional assumption that coaching expertise is mainly a function of sport-specific technical knowledge is no longer sufficient. Current coaching science conceptualizes effective coaching as an integrated practice that combines professional knowledge, interpersonal knowledge, intrapersonal knowledge, athlete outcomes, and contextual responsiveness (1).

This broader understanding has direct implications for coach education. Many coach education systems still emphasize certification, rules, tactics, and general theory, but the daily effectiveness of a coach is often determined by skills that are enacted under pressure: giving feedback without humiliation, designing meaningful practice tasks, adjusting instruction to athlete age and ability, listening to athletes, managing conflict, creating autonomy-supportive environments, safeguarding vulnerable participants, and reflecting critically on one's own behavior. Such skills are not reliably developed through lecture-only programs. They require practice, feedback, mentoring, reflection, and assessment of actual coaching behavior.

International policy frameworks have moved in the same direction. The International Sport Coaching Framework emphasizes athlete-centered coaching, coach education and development, systemic improvement, research, and cooperation across sport organizations (2). Similarly, quality coaching frameworks highlight that a coach should promote positive sport experiences rather than merely deliver performance outcomes (3). These frameworks suggest that effective coach education should connect knowledge, behavior, athlete experience, and context.

Empirical evidence also supports the need for theory-based and behavior-oriented coach education. A systematic review of interpersonal coach education interventions found that effects on athlete outcomes were mixed and that theory-based rather than merely theory-inspired programs were needed (4). More recent meta-analytic evidence indicates that coach education program interventions can improve coaching effectiveness, with positive effects on both coach outcomes and athlete outcomes, although effects vary by design quality, delivery format, scalability, and sustainability (5). Therefore, the central issue is not whether coaches should be trained, but how training should be designed to produce durable changes in coaching behavior and athlete experience.

The present article addresses this issue by proposing an integrative model for training effective skills among sport coaches. The model is designed for use by universities, sport federations, coaching education centers, clubs, and continuing professional development programs. It is not limited to one sport, but it requires contextual adaptation according to athlete age, competition level, cultural setting, safety risks, and institutional resources. The article has three aims: first, to synthesize the main evidence streams relevant to effective coaching skills; second, to identify core domains that should be included in coach skill training; and third, to propose a structured model for designing, implementing, and evaluating effective coaching skills education.

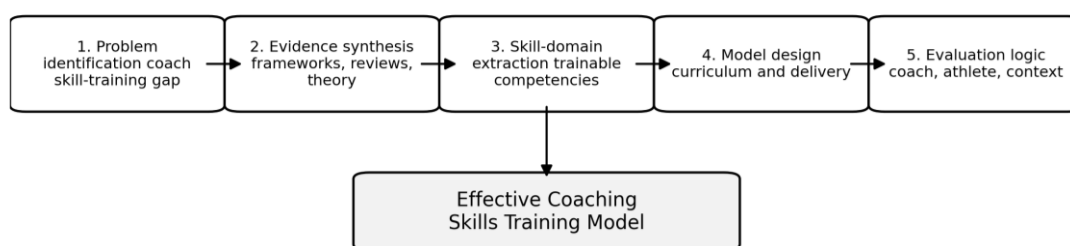
Methodological Approach

This article uses an integrative review and conceptual model-building approach. Integrative reviews are suitable when a field contains theoretical models, empirical studies, policy frameworks, and practice-oriented evidence that must be synthesized into a coherent framework (6, 7). Because the purpose of the present article is model design rather than estimation of a pooled effect size, a meta-analysis was not appropriate. The article also draws on design-oriented reasoning: a model is treated as a research-informed artifact that should respond to a practical problem, specify its components, and offer a pathway for future evaluation (8).

The evidence base was organized around six streams: coaching effectiveness theory, international coaching frameworks, interpersonal and motivational coaching research, coach education intervention studies, reflective practice and professional learning, and athlete welfare and safeguarding. Priority was given to peer-reviewed articles, systematic reviews, meta-analyses, and authoritative coaching frameworks. Conceptual sources were included when they provided widely used theoretical foundations, such as self-determination theory, the coach-athlete relationship model, and integrative definitions of coaching effectiveness.

The synthesis followed five steps. First, the practical problem was defined as the gap between formal coach education and observable effective coaching skills. Second, recurring skill domains were identified across the literature. Third, the domains

were translated into trainable competencies and behavioral indicators. Fourth, training mechanisms were selected according to their potential to support behavior change, reflection, and transfer to practice. Fifth, an evaluation logic was developed to assess coach learning, coach behavior, athlete experience, and implementation sustainability. The process is summarized in Figure 1.



Evidence is translated into skill domains, training mechanisms, and an evaluation framework.

Figure 1. Integrative review and model-development process.

Evidence Synthesis

Coaching Effectiveness as an Integrated Construct

A useful model of coach education must begin with a defensible definition of effectiveness. Côté and Gilbert (2009) define coaching effectiveness as the consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection, and character in specific coaching contexts (1). This definition is important because it avoids two common reductions: defining coaching effectiveness only by competitive results, or defining it only by coach personality. Instead, effectiveness is understood as a situated professional practice that connects coach knowledge, athlete development, and context.

The distinction between professional, interpersonal, and intrapersonal knowledge is especially useful for training design. Professional knowledge includes sport-specific techniques, tactics, physical preparation, practice design, and pedagogy. Interpersonal knowledge includes communication, relationship building, feedback, motivation, leadership, and conflict management. Intrapersonal knowledge includes reflection, self-awareness, emotional regulation, learning orientation, and ethical judgment. A coach may be technically knowledgeable but ineffective if interpersonal and intrapersonal skills are weak. Therefore, the proposed model treats these forms of knowledge as interdependent rather than optional.

Coach-Athlete Relationship and Motivational Climate

The coach-athlete relationship is a major mechanism through which coaching affects athlete outcomes. Jowett (2017) argues that coaching effectiveness places the coach-athlete relationship at its center, because the quality of this relationship affects trust, communication, satisfaction, motivation, and performance (9). Relationship quality is commonly discussed through dimensions such as closeness, commitment, complementarity, and co-orientation. These dimensions are not abstract ideals; they can be converted into practical coaching skills such as active listening, mutual goal setting, respectful correction, role clarity, and conflict repair.

Motivational theory further explains why interpersonal coaching style matters. Self-determination theory proposes that autonomy, competence, and relatedness are basic psychological needs that support high-quality motivation and well-being (10, 11). In sport, autonomy-supportive coaching is associated with more self-determined motivation when athletes experience

greater autonomy, competence, and relatedness (12, 13). A coach education model should therefore teach coaches how to provide structure without controlling behavior, challenge without intimidation, and feedback without undermining dignity.

Motivational climate research also indicates that the way coaches define success affects athlete experience. Task-involving climates emphasize effort, learning, improvement, cooperation, and mastery, whereas ego-involving climates emphasize comparison, status, punishment for mistakes, and unequal recognition. Training coaches to create mastery-oriented climates can improve athlete engagement, psychological safety, and persistence. These skills are especially relevant for youth and developmental sport, but they also matter in performance contexts because high standards can be combined with autonomy support, respect, and emotional safety.

Feedback, Communication, and Pedagogical Skill

Feedback is one of the most visible forms of coaching behavior. Effective feedback is specific, timely, behavior-focused, understandable, and connected to the athlete's next action. Hattie and Timperley (2007) emphasized that feedback is powerful when it helps learners understand where they are going, how they are going, and what they should do next (14). In sport coaching, this means that feedback should not be reduced to praise or criticism. It should help athletes perceive relevant information, regulate effort, adapt technique, and understand tactical intentions.

Communication is broader than verbal instruction. It includes questioning, listening, nonverbal behavior, emotional tone, timing, and the coach's response to mistakes. Qualitative research on coach-athlete communication shows that athletes perceive communication as important in moments that involve feedback, encouragement, conflict, confidence, role expectations, and emotional support (15). Therefore, coach education should include realistic communication practice, not only theoretical content. Role play, scenario-based learning, video analysis, and peer feedback are useful because they allow coaches to rehearse difficult conversations before they occur in real sport environments.

Reflective Practice and Continuous Professional Learning

Effective coaching requires continuous learning because sport environments are complex and unstable. Reflective practice helps coaches examine their decisions, assumptions, interactions, and emotional reactions. Research on reflective coaching indicates that structured reflection can help coaches move beyond routine experience toward more deliberate learning (16, 17). However, reflection must be more than general self-report. It should be linked to evidence from practice, such as session plans, video clips, athlete feedback, observation notes, and reflective portfolios.

Coach learning can be formal, non-formal, and informal. Formal learning includes certification programs and university courses. Non-formal learning includes workshops, mentoring, short courses, and targeted professional development. Informal learning includes experience, observation, peer exchange, and self-directed learning. A strong training model should combine these modes rather than assuming that formal courses alone are sufficient. The proposed model therefore uses blended learning, mentorship, peer learning, and reflective portfolios to support transfer from knowledge to practice.

Ethics, Safeguarding, Inclusion, and Digital Competence

Modern coach education must include ethical and safeguarding skills. Coaches have authority over athletes' bodies, time, roles, selection opportunities, and emotions. Misuse of this authority can produce harm, including humiliation, exclusion, overtraining, neglect of injury, discrimination, and psychological distress. Effective coaching is therefore inseparable from athlete welfare. Ethical coaching requires informed boundaries, respect, confidentiality, safe reporting pathways, injury awareness, anti-harassment behavior, and attention to age, gender, disability, culture, and power relations.

Digital competence is also increasingly relevant. Coaches use video analysis, wearable data, online communication, training apps, and remote monitoring. These tools can improve feedback and individualization, but they also raise risks related to privacy, surveillance, data interpretation, and unequal access. A contemporary model of effective coaching skills should therefore include digital literacy: the ability to use technology to support learning and welfare without replacing human judgment or violating athlete rights.

Table 1. Evidence streams informing the proposed coaching skills training model

Evidence stream	Central contribution	Implication for model design
Coaching effectiveness theory	Coaching is defined through coach knowledge, athlete outcomes, and context.	Professional, interpersonal, and intrapersonal knowledge must all be trained.
International coaching frameworks	Coach education should be athlete-centered, systematic, and linked to quality standards.	Training programs should align curriculum, practice, evaluation, and federation needs.
Self-determination theory	Autonomy, competence, and relatedness support high-quality motivation.	Coaches need skills for autonomy-supportive structure, meaningful choice, and competence feedback.
Coach-athlete relationship research	Relationship quality influences trust, satisfaction, motivation, and performance.	Relationship-building should be an explicit training domain, not an assumed personality trait.
Coach education intervention evidence	Interventions can improve coach and athlete outcomes, but effects vary by design and sustainability.	Programs should be theory-based, behavior-focused, and longitudinal.
Reflective practice literature	Experience becomes learning only when it is examined and connected to evidence.	Coach training should include portfolios, mentoring, video review, and structured reflection.
Safeguarding and inclusion	Coaches affect athlete welfare, safety, belonging, and retention.	Ethics, safeguarding, diversity, and athlete voice should be embedded across all modules.

Proposed Effective Coaching Skills Training Model

The proposed Effective Coaching Skills Training Model (ECSTM) is built on the assumption that coaching skills become effective only when they are aligned with athlete needs, sport context, coach self-awareness, and organizational support. The model has five core domains and three implementation layers. The five domains are professional-pedagogical competence, interpersonal communication and relationship building, motivational and psychosocial support, intrapersonal reflection and self-regulation, and ethical-safeguarding and digital practice. The three implementation layers are context diagnosis, training delivery, and multilevel evaluation.

The model is deliberately behavior-focused. Each domain is translated into observable indicators and trainable activities. For example, communication is not treated as a general value; it is operationalized through listening, questioning, role clarity, feedback, conflict management, and emotionally appropriate correction. Similarly, reflection is not treated as a private mental activity; it is operationalized through reflective logs, video review, mentor dialogue, and action planning. This structure allows the model to be used both as a curriculum framework and as an evaluation tool.

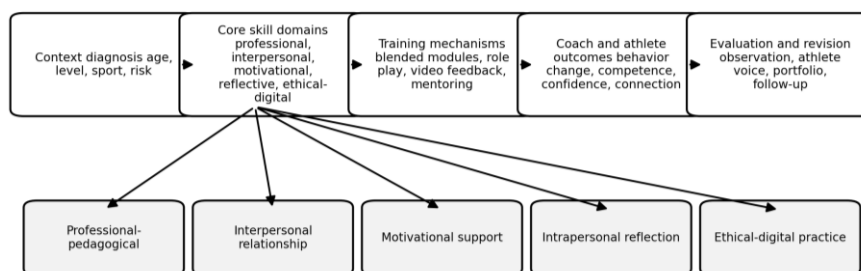


Figure 2. Proposed Effective Coaching Skills Training Model.

Table 2. Core domains and behavioral indicators of effective coaching skills

Domain	Trainable skill set	Observable indicators
Professional-pedagogical competence	Designing practice, sequencing tasks, technical-tactical instruction, adaptation to age and level, injury-aware planning	Session plan quality; clarity of learning goals; progression of drills; appropriate challenge; safe load management
Interpersonal communication and relationship building	Listening, questioning, feedback, empathy, role clarity, conflict management, trust building	Athletes understand expectations; feedback is specific; corrections are respectful; conflicts are addressed early
Motivational and psychosocial support	Autonomy support, mastery climate, confidence building, psychological safety, emotion-sensitive coaching	Coach provides meaningful choice; praises effort and learning; avoids public humiliation; supports confidence after errors
Intrapersonal reflection and self-regulation	Self-awareness, emotional control, reflective practice, learning orientation, stress management	Coach identifies personal triggers; uses reflective logs; adjusts behavior after feedback; seeks mentoring
Ethical, safeguarding, inclusive, and digital practice	Boundaries, fairness, anti-harassment behavior, inclusion, injury reporting, privacy, responsible technology use	Clear reporting procedures; equitable attention; informed use of data; respect for athlete dignity and confidentiality

Curriculum Structure

The curriculum should be delivered as a sequence of modules rather than as a single workshop. Short courses can raise awareness, but durable behavior change requires repeated practice, feedback, mentoring, and follow-up. The proposed curriculum begins with diagnostic assessment and proceeds through modules that target communication, motivation, practice design, relationship quality, ethical decision-making, reflective practice, and evaluation. Each module should include three components: conceptual input, coached practice, and transfer assignment in the coach's real environment.

The model is suitable for blended delivery. Online components can provide readings, video demonstrations, quizzes, and reflective prompts. Face-to-face or synchronous components can be used for role play, video feedback, practice design, peer observation, and mentor discussion. This combination is consistent with evidence that contemporary coach education benefits from flexible delivery while still requiring social interaction and contextualized feedback.

Table 3. Proposed modular curriculum for effective coaching skills training

Module	Learning objective	Suggested learning activities
1. Diagnostic entry assessment	Coaches identify strengths, weaknesses, sport context, athlete group, and learning goals.	Self-assessment, mentor interview, athlete feedback, observed session
2. Athlete-centered coaching foundations	Coaches understand coaching effectiveness, athlete development, welfare, and context.	Case analysis, guided reading, group discussion
3. Communication and feedback skills	Coaches practice clear instruction, questioning, correction, listening, and conflict-sensitive communication.	Role play, micro-coaching, video feedback, peer observation
4. Motivational climate and autonomy support	Coaches learn to support autonomy, competence, relatedness, mastery, and confidence.	Scenario practice, language audit, session redesign
5. Practice design and pedagogy	Coaches design progressive, representative, safe, and purposeful learning tasks.	Session plan development, task constraints design, mentor review
6. Relationship quality and team culture	Coaches build trust, role clarity, respect, belonging, and team norms.	Team culture mapping, communication protocols, conflict simulation
7. Ethics, safeguarding, and inclusion	Coaches learn boundaries, anti-harassment behavior, injury awareness, diversity, and reporting pathways.	Case-based ethics, safeguarding checklist, inclusive coaching scenarios
8. Reflective and evidence-informed practice	Coaches use reflection, feedback, data, and mentoring to improve practice.	Reflective portfolio, video-stimulated recall, action plan
9. Digital and data-informed coaching	Coaches use technology responsibly for feedback, monitoring, and communication.	Video analysis task, privacy checklist, data interpretation exercise
10. Final integration and evaluation	Coaches demonstrate integrated coaching behavior in real or simulated practice.	Observed coaching assessment, athlete voice, mentor report, development plan

Training Mechanisms

The effectiveness of the model depends on training mechanisms. First, needs assessment ensures that the program is not generic. Coaches working with children, elite athletes, para-athletes, or recreational participants face different demands. Second, deliberate practice allows coaches to rehearse specific behaviors, such as giving corrective feedback, using open questions, or responding to athlete anxiety. Third, video feedback makes coaching behavior visible and reduces reliance on memory. Fourth, mentoring supports interpretation and transfer. Fifth, reflective portfolios document learning over time.

A key feature of the model is the combination of internal and external feedback. Coaches need self-reflection, but self-reflection alone may preserve blind spots. They also need athlete feedback, mentor observation, peer discussion, and when possible, objective indicators such as attendance, retention, injury reporting, and training-plan adherence. The model therefore treats evaluation as a learning mechanism, not merely as a final judgment.

Table 4. Training mechanisms and implementation tools

Mechanism	Function in the model	Practical tools
Needs assessment	Identifies coach baseline and context-specific priorities.	Self-assessment, athlete/parent input, mentor interview, observation rubric
Deliberate practice	Turns knowledge into repeatable coaching behavior.	Micro-coaching, role play, scenario rehearsal, feedback cycles
Video feedback	Makes communication, positioning, tone, and instruction visible.	Recorded session analysis, self-coding, mentor-guided review
Mentoring	Supports interpretation, transfer, and professional identity development.	Monthly mentor meetings, action plans, field observation
Peer learning	Allows coaches to compare practice, normalize challenges, and exchange solutions.	Learning communities, peer observation, case discussions
Reflective portfolio	Documents growth and links experience to evidence.	Reflection logs, session plans, feedback summaries, development targets
Athlete voice	Checks whether coach behavior is experienced as intended.	Short anonymous surveys, focus groups, listening sessions
Longitudinal follow-up	Prevents short-term training effects from disappearing.	Three- and six-month follow-up, repeated observation, refresher modules

Evaluation Framework

Evaluation should move beyond satisfaction with training. A coach may enjoy a workshop without changing coaching behavior. The ECSTM therefore proposes multilevel evaluation: reaction, learning, behavior, athlete experience, organizational implementation, and sustainability. Reaction measures whether the program is acceptable. Learning measures knowledge and skill acquisition. Behavior measures whether coaches actually change their practice. Athlete experience measures whether coaching is perceived as supportive, clear, safe, and motivating. Organizational implementation measures whether the club or federation supports the new practices. Sustainability measures whether improvements remain after the program ends.

The strongest evaluation design would combine quantitative and qualitative evidence. Quantitative tools may include validated questionnaires, observation checklists, retention rates, attendance, and injury reporting. Qualitative tools may include interviews, reflective portfolios, mentor reports, and open-ended athlete feedback. Because athletes are nested within teams and coaches, future empirical studies should use multilevel designs when sample size permits. This would help avoid treating dependent athlete observations as independent.

Table 5. Evaluation framework for the proposed model

Evaluation level	Main question	Possible indicators
Reaction	Acceptability and perceived relevance of training	Module evaluation forms, attendance, completion rate
Learning	Knowledge, skill understanding, and confidence	Pre-post knowledge tests, skill scenarios, self-efficacy scales
Coach behavior	Observed changes in communication, feedback, practice design, and safeguarding behavior	Systematic observation, video coding, mentor rubric
Athlete experience	Perceived autonomy support, competence support, relationship quality, safety, and belonging	Athlete questionnaires, short interviews, anonymous feedback
Organizational implementation	Support from club, federation, or university structures	Policy review, mentor availability, time allocation, safeguarding procedures
Sustainability	Maintenance of behavior change and continued professional learning	Three- and six-month follow-up, portfolio review, repeated observations

Discussion

The proposed model contributes to coach education by translating broad theories of coaching effectiveness into a practical training architecture. Its central argument is that effective coaching skills are multidimensional and trainable. Technical knowledge remains necessary, but it is insufficient without interpersonal skill, motivational skill, reflective capacity, and ethical judgment. This position is consistent with the integrative definition of coaching effectiveness and with international coaching frameworks that emphasize athlete-centered, context-sensitive, and developmentally appropriate coaching (1, 2).

The model also responds to limitations in conventional coach education. Programs that rely heavily on information transmission may increase awareness but not behavior change. By contrast, the ECSTM uses active learning, deliberate practice, video feedback, mentoring, and athlete voice to support transfer into real coaching contexts. This design is consistent with the conclusion that coach education interventions are more defensible when they are theory-based and when they target observable coaching behaviors rather than abstract intentions alone (4, 5).

Another contribution is the inclusion of athlete welfare and safeguarding as core coaching skills. In many systems, safeguarding is treated as a compliance issue separate from performance coaching. This separation is conceptually weak. Athletes learn and perform in relational environments. When the environment is humiliating, unsafe, or exclusionary, motivation, trust, and long-term participation are compromised. A high-quality model of coaching skills must therefore treat ethical practice, inclusion, and psychological safety as central components of effectiveness.

The model is also compatible with high-performance sport. Athlete-centered coaching should not be interpreted as low standards. Rather, it means that high standards are pursued through clear communication, appropriate challenge, autonomy-supportive structure, respect, and evidence-informed decision making. Elite settings may require more advanced modules on pressure management, team culture, data-informed training, media stress, selection communication, and interdisciplinary collaboration. The same model can be adapted by increasing complexity and sport-specific content.

Finally, the model creates a foundation for empirical validation. Future studies can use a Delphi method to test content validity with sport coaching experts, psychometric methods to refine the competency indicators, quasi-experimental designs to evaluate training effects, and structural equation modeling to test relationships among training exposure, coach behavior, athlete experience, and athlete outcomes. Longitudinal designs are particularly important because changes in coaching culture and athlete development are unlikely to occur immediately after a short course.

Practical Implications

For universities, the model can be used to structure sport management, physical education, and coaching courses around observable competencies rather than only theoretical content. Students can complete portfolios that include session plans, reflective logs, video feedback, and supervised coaching practice.

For sport federations, the model can guide certification reform. Instead of evaluating coaches only through attendance and written tests, federations can include observed coaching behavior, safeguarding competence, athlete feedback, and mentor evaluation.

For clubs and academies, the model can support continuing professional development. Clubs can use the domains as a yearly coach development plan, with monthly micro-modules and peer observation.

For researchers, the model provides a conceptual structure for developing instruments and testing causal pathways between coach education, coach behavior, athlete motivation, athlete welfare, and performance-related outcomes.

Limitations and Future Research

This article presents an integrative review and conceptual model rather than an empirical validation study. Therefore, the model should not be interpreted as proven effective until it is tested in real coaching education contexts. Although the model is grounded in established literature, its components require expert validation and field testing.

Future research should proceed in four phases. First, experts in sport coaching, sport psychology, sport pedagogy, safeguarding, and sport management should evaluate the content validity of the domains and indicators. Second, pilot studies should test feasibility, acceptability, and implementation barriers in clubs or university coach education programs. Third, controlled intervention studies should compare the model with conventional coach education. Fourth, longitudinal studies should examine whether changes in coaching behavior are sustained and whether they predict athlete motivation, retention, well-being, and performance outcomes.

Conclusion

Effective sport coaching is a multidimensional professional practice. It requires technical and pedagogical competence, interpersonal communication, motivational support, reflective self-regulation, ethical judgment, safeguarding awareness, and responsible use of technology. The proposed Effective Coaching Skills Training Model provides an integrative framework for developing these skills through context diagnosis, modular blended learning, deliberate practice, feedback, mentoring, reflection, athlete voice, and multilevel evaluation. The model is designed to help coach education move from content delivery toward behavior change and athlete-centered impact. Its next step is empirical validation through expert consensus, pilot implementation, and longitudinal evaluation.

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AI Use Statement

A generative AI tool was used to support language polishing, formatting consistency, and manuscript organization. The authors remain fully responsible for the accuracy, integrity, interpretation, and final scientific content of the manuscript.

Authors' Contributions

Hoora Heybatzadeh contributed to conceptualization, literature synthesis, model development, and initial manuscript drafting. Mahdi Naderi Nasab contributed to supervision, conceptual refinement, methodological guidance, and critical revision of the manuscript. Seyyed Abbas Biniiaz contributed to sport physiology interpretation, practical implications, and critical review of the manuscript. All authors read and approved the final manuscript.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

This article is an integrative review and conceptual framework paper. It did not involve human participants, animals, clinical data, identifiable personal information, intervention, or primary data collection. Therefore, formal ethics committee approval and informed consent were not applicable. The authors complied with principles of research integrity, transparent reporting, proper citation, and avoidance of plagiarism. All scholarly and institutional sources used in the review are publicly available and are cited in the reference list.

Transparency of Data

No empirical dataset was generated or analyzed. The article is based on published scholarly sources and publicly available coaching frameworks cited in the reference list.

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References

1. Côté J, Gilbert W. An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*. 2009;4(3):307-23. doi: 10.1260/174795409789623892.
2. Federations ICfCEAoSOI, Leeds Metropolitan University. *International sport coaching framework: Version 1.2: Human Kinetics*; 2013.
3. United States Olympic C. *Quality coaching framework: Human Kinetics*; 2017.
4. Langan E, Blake C, Lonsdale C. A systematic review of the effectiveness of interpersonal coach education programs on athlete outcomes. *Psychology of Sport and Exercise*. 2013;14(1):37-49. doi: 10.1016/j.psychsport.2012.06.007.
5. Li L, Olson HO, Tereschenko I, Wang A, McCleery J. Impact of coach education on coaching effectiveness in youth sport: A systematic review and meta-analysis. *International Journal of Sports Science & Coaching*. 2025;20(1). doi: 10.1177/17479541241283442.
6. Torraco RJ. Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*. 2005;4(3):356-67. doi: 10.1177/1534484305278283.
7. Whitemore R, Knafl K. The integrative review: Updated methodology. *Journal of Advanced Nursing*. 2005;52(5):546-53. doi: 10.1111/j.1365-2648.2005.03621.x.
8. Peffers K, Tuunanen T, Rothenberger MA, Chatterjee S. A design science research methodology for information systems research. *Journal of Management Information Systems*. 2007;24(3):45-77. doi: 10.2753/MIS0742-1222240302.

9. Jowett S. Coaching effectiveness: The coach-athlete relationship at its heart. *Current Opinion in Psychology*. 2017;16:154-8. doi: 10.1016/j.copsyc.2017.05.006.
10. Deci EL, Ryan RM. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*. 2000;11(4):227-68. doi: 10.1207/S15327965PLI1104_01.
11. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*. 2000;55(1):68-78. doi: 10.1037/0003-066X.55.1.68.
12. Amorose AJ, Anderson-Butcher D. Autonomy-supportive coaching and self-determined motivation in high school and college athletes: A test of self-determination theory. *Psychology of Sport and Exercise*. 2007;8(5):654-70. doi: 10.1016/j.psychsport.2006.11.003.
13. Mageau GA, Vallerand RJ. The coach-athlete relationship: A motivational model. *Journal of Sports Sciences*. 2003;21(11):883-904. doi: 10.1080/0264041031000140374.
14. Hattie J, Timperley H. The power of feedback. *Review of educational research*. 2007;77(1):81-112.
15. Kim Y, Park I. 'Coach really knew what I needed and understood me well as a person': Effective communication acts in coach-athlete interactions among Korean Olympic archers. *International Journal of Environmental Research and Public Health*. 2020;17(9):3101. doi: 10.3390/ijerph17093101.
16. Knowles Z, Borrie A, Telfer H. Towards the reflective sports coach: Issues of context, education and application. *Ergonomics*. 2005;48(11-14):1711-20. doi: 10.1080/00140130500101288.
17. Nash C, MacPherson AC, Collins D. Reflections on reflection: Clarifying and promoting use in experienced coaches. *Frontiers in Psychology*. 2022;13:867720. doi: 10.3389/fpsyg.2022.867720.