วารสารศาสตร์การศึกษาและการพัฒนามนุษย์
ปีที่ 10 ฉบับที่ 1 เดือน มกราคม – มิถุนายน 2569

Journal of Education and Human Development Sciences
Vol. 10 No. 1 January –June 2026

ISSN 2985-1017 (Online)

Hybrid Learning Model for Active Learning Enhancement of Athletically Talented Students at Bangkok Christian College

Thaworn Intaraamorn[1,*], Wichai Srisud[2] , Vasavis Punnasukhirom[3] and Kanit Kheovichai[4]

(Received Date Oct 5th, 2025, Revised Date : Jan 27th, 2026, Accepted Date : : Feb 8th, 2026)

Abstract

This research aimed to develop a hybrid learning model to promote active learning among student-athletes at Bangkok Christian College. The study had two main objectives: (1) to investigate the current conditions and needs related to hybrid learning based on the concept of active learning, and (2) to develop a hybrid learning model grounded in active learning principles suitable for student-athletes. The sample included 16 teachers and 24 purposively selected student-athletes in Grades 7–8. The research instruments included (1) a questionnaire assessing the current conditions and needs for hybrid learning based on active learning concepts, and (2) an expert evaluation form assessing the appropriateness of the developed hybrid learning model. Data were analyzed using mean and standard deviation.

The results revealed that (1) the current learning environment and needs indicated that student-athletes require participatory, hands-on learning experiences that integrate digital platforms for both on-site and online learning simultaneously; and (2) the hybrid learning model based on active learning principles was rated as highly appropriate ($\overline{X}$ = 4.42, S.D. = 0.23). The Hybrid Learning Model for Promoting Active Learning among Student-Athletes (HALM-SA) effectively integrates online and on-site learning modalities, which supports continuous engagement despite demanding training and competition schedules, demonstrating its suitability and adaptability for student-athletes.

Keyword : Education for Student-Athletes, Instructional Design

[1] Faculty of Education/Nakhon Pathom Rajabhat University Email: thawornmds@gmail.com

[2] Bangkok Christian College/ Email: wichai.sr@bcc1852.com

[3] Bangkok Christian College/ Email: vasavis.pu@bcc1852.com

[4] Faculty of Education/Silpakorn University Email: kheovichai_k@su.ac.th

* Corresponding author Email: thawornmds@gmail.com

ISSN 2985-1017 (Online)

Introduction

Student-athletes have increasingly been acknowledged as a distinct group of learners whose academic experiences are significantly shaped by the intensive demands of sports training and competition. These dual responsibilities have been shown to disrupt attendance patterns, limit participation in classroom activities, and pose challenges to maintaining academic performance (English et al., 2022). As schools strive to adopt equitable and inclusive educational practices, attention has been directed toward ensuring that student-athletes are provided with sufficient academic support to balance their athletic and academic roles. The need for instructional structures that accommodate the realities of student-athletes' schedules has therefore been emphasized as a growing educational concern.

In response to these challenges, hybrid or blended learning approaches have been widely introduced as flexible instructional models capable of supporting learners who face constraints related to time and place. Hybrid learning has been described as a pedagogical design that combines online and on-site instruction to offer diversified pathways for engagement (Bonk & Graham, 2006). By integrating synchronous and asynchronous learning opportunities, hybrid environments have been found to promote continuity of instruction even when students are unable to attend classes regularly. Digital platforms—including video-based resources, interactive applications, and learning management systems—have been shown to enhance learners' ability to review content independently and remain connected to instructional processes (Hrastinski, 2019). These characteristics make hybrid learning particularly suitable for student-athletes, whose training commitments often interfere with fixed classroom schedules.

Beyond flexibility, the improvement of learning quality has been strongly associated with the implementation of active learning strategies. Active learning has been defined as an instructional approach that emphasizes engagement through participation, inquiry, collaboration, and reflection. Substantial evidence has demonstrated that active learning leads to deeper cognitive processing, stronger retention, and improved academic achievement compared to passive lecture-based instruction (Prince, 2004). A large-scale meta-analysis further concluded that active learning significantly reduces failure rates and produces higher learning outcomes across STEM and non-STEM disciplines (Freeman et al., 2014). In the context of student-athletes, who frequently must rely on self-directed study to compensate for absences, the structured use of active learning strategies may help mitigate learning gaps and enhance academic resilience.

Although both hybrid learning and active learning have been extensively studied, limited research has been conducted to integrate these two approaches into a unified instructional model tailored to student-athletes in the Thai school context. Existing studies often treat hybrid learning as a technological solution while addressing active learning as a separate pedagogical method. As a result, little attention has been given to the development of models that synthesize the structural flexibility of hybrid formats with the engagement-oriented nature of active learning. This gap reflects the broader

ISSN 2985-1017 (Online)

observation that instructional designs have not always been responsive to the specialized needs of subpopulations such as student-athletes, who require both accessible content and meaningful learning experiences (UNESCO, 2021). The absence of contextualized models designed specifically for this group suggests a clear need for research that addresses these challenges systematically.

To respond to this gap, the present study was undertaken with two primary aims. The first was to investigate the current state and needs of student-athletes regarding hybrid learning that supports active engagement within Bangkok Christian College. This investigation involved identifying their learning constraints, digital learning preferences, and expectations for instructional support. The second aim was to design and develop a hybrid learning model that fosters active learning and aligns with the specific learning behaviors and time constraints experienced by student-athletes. By integrating hybrid learning structures with pedagogically grounded active learning strategies, the model aimed to provide a feasible and contextually appropriate instructional framework for improving learning opportunities for student-athletes.

Through these efforts, the study sought to contribute to the advancement of hybrid pedagogies in specialized educational contexts and to support the development of instructional models that are inclusive, flexible, and capable of enhancing learning outcomes for student-athletes.

Objectives

1. To investigate the current state and needs for a hybrid learning that enhances active learning among students with exceptional athletic abilities at Bangkok Christian College.

2. To design and present a hybrid learning model that fosters active learning among students with exceptional athletic abilities at Bangkok Christian College.

Scope of research

1. Population

The population of this study comprised teachers and students with exceptional athletic abilities at Bangkok Christian College during the 2024 academic year. This population was characterized by individuals who were required to balance academic coursework with rigorous athletic training and competitive commitments.

2. Sample

The sample for this study included 16 teachers and 24 student-athletes from Grades 7–8 during the 2024 academic year. The selection was carried out through purposive sampling to ensure that the participants represented those directly involved in teaching and learning within the athletic excellence program. Teachers were selected based on their direct instructional responsibilities for student-athletes, while student participants were chosen because they were enrolled in the school's specialized sports track and regularly faced limitations in attending full on-site classes.

ISSN 2985-1017 (Online)

In addition, five experts in instructional design, educational technology, or physical education were purposively selected to evaluate the appropriateness of the developed hybrid learning model.

3. Variables

Independent Variable: The hybrid learning model designed to promote active learning among student-athletes.

Dependent Variable: Learning outcomes across the eight core subject areas for student-athletes.

4. Content Scope

The study focused on constructing a hybrid learning model grounded in active learning principles. The model was structured around four central content components: the model's guiding principles, learning objectives, a five-stage instructional process based on the 5Es learning cycle (Engage, Explore, Explain, Elaborate, Evaluate), and assessment and evaluation procedures aligned with authentic learning practices.

5. Timeframe Scope

Data collection was conducted during Semester 2 of Academic Year 2024, a period during which student-athletes were actively engaged in regular training and competitions. This timeframe provided an appropriate context for examining learning needs and developing a flexible hybrid learning model.

Methodology

1. Research Design

This study employed a descriptive research design combined with a model-construction approach. The research process proceeded in two phases aligned with the study objectives.

Phase 1: Needs Assessment

Survey research was used to investigate the current learning conditions, challenges, and needs of student-athletes regarding hybrid learning and active learning. The data obtained in this phase served as the foundation for designing the hybrid learning model.

Phase 2: Model Development and Expert Evaluation

Findings from Phase 1 were synthesized with relevant theoretical concepts to construct the HALM-SA. The draft model underwent a two-stage expert evaluation process, supplemented by a focus group discussion, to ensure its clarity, appropriateness, and structural coherence.

2. Participants

Phase 1: Needs Assessment

Teacher Participants: A total of 16 teachers participated in the needs assessment phase. These teachers were purposively selected based on their direct instructional responsibilities for student-athletes in various subject areas. Their involvement provided instructional perspectives on challenges

ISSN 2985-1017 (Online)

related to lesson delivery, scheduling conflicts, and pedagogical adjustments required to support learners who frequently miss on-site classes due to sports commitments.

Inclusion Criteria for Teacher Participants

1. Teachers who were responsible for delivering instruction to student-athletes enrolled in the athletic excellence program.

2. Teachers who had direct teaching experience with students in Grades 7–8 during the 2024 academic year.

3. Teachers who had encountered instructional challenges arising from student-athletes' irregular attendance, reduced in-class participation, or time conflicts due to training and competitions.

4. Teachers who had at least one academic semester of experience working with student-athletes in core or supplementary subject areas.

5. Teachers who were willing to provide insights regarding instructional needs, digital learning practices, and adaptations required for hybrid learning environments.

Student Participants: Twenty-four student-athletes enrolled in Grades 7–8 during the 2024 academic year were selected using purposive sampling. Participants were chosen to represent learners whose academic engagement was directly influenced by ongoing athletic training and competition schedules, resulting in irregular attendance and varied learning experiences.

Inclusion criteria included:

1. Students who were formally registered in the school's athletic excellence or sports development program, requiring regular participation in structured training activities.

2. Students who were actively enrolled in lower secondary education (Grades 7–8) during the 2024 academic year.

3. Students whose participation in competitive sports created recurring constraints on classroom attendance, lesson continuity, or participation in on-site learning activities.

Phase 2: Model Development and Expert Evaluation

Expert Participants: Expert participation consisted of two stages.

In Expert Review Round 1, five experts examined the initial instruments and the preliminary model to assess content validity.

In the subsequent Focus Group and Expert Review Round 2, nine specialists contributed to refining the model and later provided a second formal evaluation of the revised version. All experts across both stages were selected using the same inclusion criteria.

Inclusion criteria for expert participants were as follows:

1. Professional experience in instructional design, pedagogy, or educational innovation.

2. Familiarity with digital learning platforms and hybrid or blended instruction.

ISSN 2985-1017 (Online)

3. Background or substantive experience in physical education, sports training, or athlete-oriented education.

3. Research Instruments

3.1 Needs Assessment Questionnaire: Two sets of questionnaires were used:

3.1.1 Student questionnaire: A combination of Likert-scale items and open-ended questions to gather data on learning conditions, challenges, and expectations regarding hybrid learning.

3.1.2 Teacher questionnaire: Eight open-ended questions designed to identify instructional challenges and support needs when teaching student-athletes.

3.2 Model Appropriateness Evaluation Form: A 5-point Likert-scale form was used by experts to evaluate the revised model in terms of clarity, appropriateness, feasibility, and internal consistency. Open-ended items allowed experts to provide additional recommendations.

3.4 Instrument Quality

Content Validity (Expert Review Round 1): All instruments were examined by five experts for content relevance and accuracy. The Index of Item-Objective Congruence (IOC) was calculated for each item, yielding values between 0.67 and 1.00, which met the acceptable threshold for content validity.

Focus Group Review (9 Experts): A focus group involving nine specialists was conducted to obtain in-depth feedback on the structure, instructional flow, digital platform integration, and assessment alignment of the draft model. Revisions were made in accordance with the suggestions received.

Expert Evaluation Round 2: After revisions were completed, the improved version of the model was evaluated again by experts using the model appropriateness form. This round confirmed the enhanced clarity, structural coherence, and feasibility of the model.

4. Data Collection Procedures

Data collection was conducted in two phases:

Phase 1: Online questionnaires were administered to student-athletes and teachers. Responses were compiled and analyzed to identify learning needs, challenges, and preferences for hybrid learning.

Phase 2: Data from Phase 1 and relevant literature were synthesized to construct the HALM-SA. The draft model was reviewed by experts in two evaluation rounds, with focus group input incorporated between rounds, and revisions were made accordingly.

5. Data Analysis

Phase 1 Current State and Needs: Quantitative data were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Qualitative data from open-ended responses were analyzed through content analysis.

ISSN 2985-1017 (Online)

Phase 2 Model Design and Expert Evaluation: Model design was based on data synthesis from Phase 1. Expert evaluation ratings were analyzed using mean and standard deviation. IOC values were used to confirm item-level alignment with the intended components of the model.

Result

The analysis of the current state and learning needs of student-athletes revealed that learners at Bangkok Christian College encountered distinctive academic constraints stemming from intensive sports training and competitive commitments. These demands reduced their ability to participate consistently in on-site classes, engage in group-based activities, and interact regularly with teachers. As a result, both student-athletes and teachers expressed a clear need for a hybrid learning approach that provides flexible scheduling, continuous communication, and uninterrupted access to digital learning resources.

Teachers reported that existing instructional practices relied primarily on traditional face-to-face lectures, with only limited use of online or asynchronous learning components. Digital tools were used informally, primarily as supplementary communication channels, but were not embedded within a structured pedagogical framework that supported ongoing engagement or active learning. Students further emphasized the need for visually rich, easily accessible learning materials and indicated a preference for platforms that allow repeated review of content—such as video-based lessons, discussion boards, and online practice modules.

The needs assessment additionally revealed that student-athletes preferred interactive, hands-on learning experiences rather than passive lecture-based instruction. Many expressed interest in project-based tasks, gamified learning activities, and reflective exercises, all of which have been broadly recognized in educational research for promoting motivation, participation, and the development of higher-order thinking skills. Taken together, these findings highlighted the necessity of designing a hybrid learning model that supports flexible engagement, leverages digital platforms, and aligns with learner-centered instructional principles appropriate for student-athletes with demanding and irregular schedules.

In response to these needs, a hybrid learning model designed to foster active learning among student-athletes—referred to as the HALM-SA—was developed. The model integrates hybrid instructional modalities with core principles of active learning and is organized into five interconnected phases: Planning, Learning Activities, Monitoring & Coaching, Assessment & Feedback, and Reflection. Each phase is intended to facilitate experiential, participatory, and flexible learning tailored to the unique constraints faced by student-athletes.

To ensure the model’s clarity, feasibility, and theoretical alignment, expert evaluation was conducted with five specialists in instructional design, digital learning, and physical education. Using a five-point rating scale and open-ended feedback, these experts assessed the structural coherence of the model, the usability of its implementation manual, and the appropriateness of the digital tools

ISSN 2985-1017 (Online)

integrated into the instructional design. Evaluation results indicated consistently high levels of appropriateness across all components, confirming that the HALM-SA exhibits strong internal consistency, practical relevance, and readiness for potential implementation within authentic educational settings as shown in Figure 1 Hybrid Learning Model for Promoting Active Learning among Student-Athletes at Bangkok Christian College.

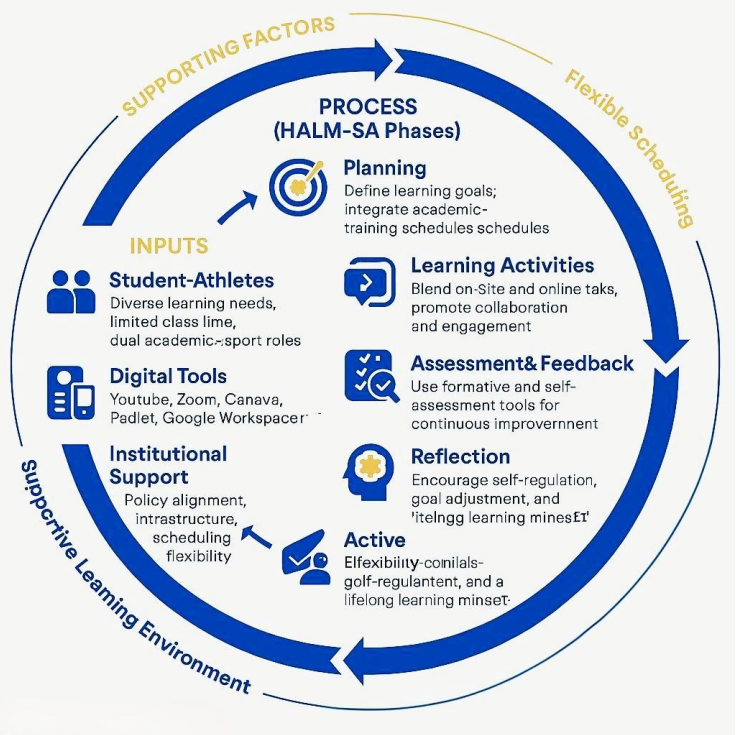

Figure 1 Hybrid Learning Model for Promoting Active Learning among Student-Athletes at Bangkok Christian College

ISSN 2985-1017 (Online)

Table 1 The results of the expert evaluation of the draft Hybrid Learning Model for Promoting Active Learning among Student-Athletes at Bangkok Christian College

Evaluation Item	$\bar{X}$	S.D.	Level of Suitability
1. Background of the Model			
1.1 The background clearly identifies the problem.	4.46	0.52	High
1.2 The background clearly defines the development direction.	4.39	0.63	High
Subtotal	4.43	0.58	High
2. Principles of the Model			
2.1 Principles align with the theoretical framework.	4.74	0.41	Highest
2.2 Principles are accurate and applicable.	4.70	0.65	Highest
2.3 Principles can be effectively implemented.	4.48	0.58	High
Subtotal	4.64	0.55	Highest
3. Objectives of the Model			
3.1 Objectives align with the principles.	4.73	0.66	Highest
3.2 Objectives address key issues in model development.	4.56	0.61	High
3.3 Objectives reflect expected learner outcomes.	4.78	0.44	Highest
Subtotal	4.69	0.57	Highest
4. Learning Activities			
4.1 Activities promote active learning.	4.08	0.67	High
4.2 Activity procedures are appropriate for active learning.	4.12	0.59	High
4.3 Activities align with theoretical principles.	4.05	0.63	High
4.4 Activities correspond with objectives.	4.07	0.66	High
4.5 Activity process (5 phases)			
1) Planning	4.11	0.55	High
2) Learning Activities	4.19	0.62	High
3) Monitoring & Coaching	4.06	0.58	High
4) Assessment & Feedback	3.95	0.44	High
5) Reflection	3.93	0.46	High
4.6 Learning activities are appropriate.	4.08	0.49	High
Subtotal	4.08	0.56	High
5. Content			
5.1 Content covers subject requirements.	4.09	0.65	High
5.2 Content aligns with principles and objectives.	4.17	0.58	High
5.3 Content is appropriate and beneficial to learners.	4.41	0.51	High
5.4 Language is coherent and understandable.	4.26	0.64	High

ISSN 2985-1017 (Online)

Evaluation Item	$\bar{X}$	S.D.	Level of Suitability
Subtotal	4.23	0.60	High
6. Facilitating Factors for Success			
6.1 Identified factors align with the model.	4.63	0.47	Highest
6.2 Factors sufficiently contribute to success.	4.49	0.51	High
Subtotal	4.56	0.49	High
Overall	4.42	0.23	High

Note. IOC values ranged from 0.80 to 1.00, indicating a high level of consistency and structural validity.

Table 1 presents the results of the expert evaluation of the HALM-SA at Bangkok Christian College. The evaluation covered six core components: background, principles, objectives, learning activities, content, and facilitating factors. The overall assessment yielded a high level of suitability ($\bar{X}$ = 4.42, S.D. = 0.23), with the Index of Item-Objective Congruence (IOC) ranging from 0.80 to 1.00, confirming the strong content validity and internal consistency of the evaluation instrument. Among the evaluated components, the three highest-rated items were: 1) the correctness and applicability of the model's principles ($\bar{X}$ = 4.69, S.D. = 0.71), 2) the alignment between the model's objectives and its guiding principles ($\bar{X}$ = 4.66, S.D. = 0.53), and 3) the adequacy of facilitating factors that support successful implementation ($\bar{X}$ = 4.58, S.D. = 0.55). Experts highlighted that the model

demonstrates a clear problem definition, logical developmental flow, and coherent objectives consistent with active learning theory. The learning process—comprising five operational phases: Planning, Learning Activities, Monitoring & Coaching, Assessment & Feedback, and Reflection—aligns with Kolb's (1984) experiential learning cycle and emphasizes student-centered engagement through practical experience. The high evaluation outcomes confirm that the HALM-SA is structurally valid and pedagogically sound, suitable for implementation and pilot testing within real educational environments.

ISSN 2985-1017 (Online)

Table 2 The results of the evaluation of the Implementation Manual for the Hybrid Learning Model

Evaluation Item	$\bar{X}$	S.D.	Level of Suitability
1. Manual Objectives			
Clarity and coverage of manual objectives	4.19	0.58	High
2. Instructions for Implementation			
Clarity of instructions for implementation	4.26	0.74	High
3. Activity Structure			
Comprehensiveness of activity structure	4.74	0.61	Highest
4. Learning Activity Plan			
4.1 Clear specification of learning objectives	4.61	0.49	Highest
4.2 Content aligned with objectives and achievable outcomes	4.64	0.52	Highest
4.3 Logical and sequential procedures	4.11	0.69	High
4.4 Clear identification of learning media and resources	4.58	0.62	Highest
4.5 Comprehensive and consistent assessment methods	4.18	0.62	High
4.6 Appropriate time allocation for activities	4.27	0.64	High
Subtotal	4.43	0.55	High
5. Assessment and Evaluation			
5.1 Methods are complete	4.09	0.65	High
5.2 Assessment aligns with intended learning outcomes	4.63	0.48	Highest
5.3 Assessment methods are applicable	4.24	0.59	High
Subtotal	4.32	0.57	High
Overall	4.34	0.11	High

Note. Experts rated the implementation manual as clear, practical, and aligned with pedagogical objectives.

Table 2 reports the results of the expert evaluation of the Implementation Manual designed to accompany the HALM-SA. The manual provides structured guidance on instructional design, learning activity sequencing, use of media, and formative assessment procedures. The experts rated the manual at a high level of suitability ($\bar{X}$ = 4.34, S.D. = 0.11), emphasizing its clarity and practicality.

The highest-rated aspects were: 1) the comprehensiveness of the activity structure ($\bar{X}$ = 4.74, S.D. = 0.75), 2) the coherence between learning content and objectives ($\bar{X}$ = 4.64, S.D. = 0.58), and 3) the clarity of media and resource utilization ($\bar{X}$ = 4.58, S.D. = 0.53). Experts noted that the manual successfully operationalizes the model into actionable practice, providing teachers with explicit steps, adaptable templates, and assessment examples aligned with active learning principles (Prince, 2004). The manual's organization fosters teaching consistency and supports educators in balancing hybrid learning dynamics between classroom-based and online environments. These findings

ISSN 2985-1017 (Online)

corroborate Bonk and Graham's (2006) assertion that hybrid models are most effective when supported by structured instructional guides that promote active engagement and continuous feedback.

Table 3 presents the results of the evaluation of digital platform tools integrated into the hybrid learning model.

Evaluation Item	$\overline{X}$	S.D.	Level of Suitability
1. Engagement tools (Blooket)	4.15	0.57	High
2. Presentation and inquiry tools (YouTube, TikTok, Zoom)	4.28	0.72	High
3. Research tools (Google Search)	4.13	0.54	High
4. Collaborative problem-solving tools (Infographic)	4.26	0.69	High
5. Presentation tools (Canva, Google Docs, Slides, Sheets)	4.08	0.63	High
6. Reflection tools (Padlet)	4.17	0.56	High
Overall	4.18	0.12	High

Note. Expert evaluation confirmed that all digital tools were appropriate, user-friendly, and effectively supported active learning and engagement.

Table 3 summarizes the expert evaluation of digital platform tools integrated into the HALM-SA. Six primary tools were assessed for their pedagogical appropriateness: Blooket, YouTube/TikTok/Zoom, Google Search, Infographic, Canva/Google Workspace, and Padlet. The evaluation yielded a high level of suitability ($\overline{X}$ = 4.18, S.D. = 0.12). The top-rated digital platforms included: 1) YouTube, TikTok, and Zoom for facilitating inquiry-based exploration and interaction ($\overline{X}$ = 4.32, S.D. = 0.78), 2) Infographic tools for collaborative problem analysis ($\overline{X}$ = 4.26, S.D. = 0.70), and 3) Padlet for reflective learning and feedback ($\overline{X}$ = 4.20, S.D. = 0.64). Experts observed that the integration of these digital platforms enhances engagement, collaboration, and reflection—key

dimensions of active learning (Freeman et al., 2014). Moreover, the inclusion of gamified and collaborative tools, such as Blooket and Canva, was found to diversify instructional modalities and increase learner motivation. The findings support Hrastinski's (2019) conclusion that effective blended learning environments must combine synchronous and asynchronous tools to sustain student participation and self-regulated learning.

ISSN 2985-1017 (Online)

Conclusion and Discussion

Conclusion

This study aimed to (1) investigate the current state and needs for a hybrid learning approach that supports active learning among students with exceptional athletic abilities, and (2) design and present a hybrid learning model appropriate for this context. The findings can be concluded as follows.

For Objective 2, the HALM-SA was developed, consisting of five sequential phases: Planning, Learning Activities, Monitoring & Coaching, Assessment & Feedback, and Reflection. Expert evaluations confirmed that the model demonstrated a high level of appropriateness ($\overline{X}$ = 4.42, S.D. = 0.23), with strong coherence among its principles, objectives, content structure, and learning processes. The implementation manual was similarly rated as highly suitable ($\overline{X}$ = 4.34, S.D. = 0.11). Additionally, digital tools integrated into the model were deemed effective in supporting engagement and continuity in hybrid learning environments ($\overline{X}$ = 4.18, S.D. = 0.12).

In conclusion, the HALM-SA effectively addresses the academic challenges faced by student-athletes by providing a flexible, engaging, and pedagogically grounded hybrid framework. The model supports active learning across both online and on-site contexts and offers a practical approach for enhancing learning outcomes among students whose educational needs must be balanced with athletic commitments.

Discussion

1. Current State and Needs for Hybrid Learning

The findings indicated that student-athletes at Bangkok Christian College required a highly flexible learning environment due to demanding training schedules and frequent absences from regular classes. This need for flexibility aligns with the conclusions of previous studies showing that student-athletes benefit from academic systems that adapt to their dual roles as learners and competitors. The preference for hybrid learning expressed by students and teachers supports established perspectives that blended formats can reduce constraints related to time and place, a concept widely supported in foundational hybrid learning literature.

Students' desire for digital platforms offering asynchronous access and synchronous interaction was consistent with prior findings demonstrating that digital systems enhance learner autonomy and engagement. Their preference for hands-on and participatory learning also reflected the broader body of research indicating that experiential and active learning methods promote deeper comprehension and improved learning outcomes.

Taken together, the needs identified in this study were shown to be consistent with both the realities of student-athletes' learning environments and the theoretical principles of hybrid and active learning reported in the literature.

ISSN 2985-1017 (Online)

2. Development of the Hybrid Learning Model

The HALM-SA received high suitability ratings from experts, suggesting that its conceptual structure and instructional processes were clearly articulated and pedagogically sound. The model's coherence across its major components—background, principles, objectives, and learning activities—may account for the positive evaluations it received.

A critical strength of the model was the integration of the 5Es Learning Cycle (Engage, Explore, Explain, Elaborate, Evaluate), which has been widely acknowledged for its effectiveness in promoting active, inquiry-based learning. The sequence and logic of these phases formed a robust pedagogical foundation that supports active participation, critical thinking, and ongoing reflection. The alignment of the HALM-SA's phases—Planning, Learning Activities, Monitoring & Coaching, Assessment & Feedback, and Reflection—with the time constraints and learning behaviors of student-athletes further enhanced its practical relevance.

Overall, the expert evaluation suggested that the HALM-SA provided not only a technologically enhanced learning structure but also a comprehensive, learner-centered instructional system that responds to the unique needs of student-athletes.

3. Research Limitations

3.1 The study involved a purposive sample of 24 student-athletes from a single school and five expert evaluators. The restricted sample size and specific school context may limit the generalizability of the findings to other educational settings or student groups with different characteristics.

3.2 The model was evaluated solely through expert review to assess its appropriateness. Since it was not implemented in actual classroom conditions, the study did not generate empirical evidence on the model's effectiveness in improving learner engagement, active learning behaviors, or academic achievement. Further validation through classroom-based experimental or quasi-experimental research is required.

Recommendation

1. Implications for Practice

1.1 The hybrid learning model developed in this study may serve as a strategic framework for school administrators in formulating policies and allocating resources that support the academic needs of student-athletes.

1.2 Teachers may apply the HALM-SA learning process and integrate active learning strategies within the 5Es learning cycle (Engage, Explore, Explain, Elaborate, Evaluate) to enhance learner participation, practical engagement, and ongoing reflection.

1.3 Continuous and individualized monitoring may be implemented to support student-athletes whose irregular attendance patterns result from athletic training and competition schedules.

ISSN 2985-1017 (Online)

2. Implications for Future Research

2.1 Future studies may employ experimental or quasi-experimental research designs to determine the effectiveness of the HALM-SA in improving academic performance, active learning behaviors, and self-regulated learning.

2.2 Further research may expand the population to include student-athletes from diverse school types, grade levels, or geographical regions to strengthen the generalizability of the findings.

Acknowledgements

This research was funded by Bangkok Christian College, Bangkok, Thailand, Fiscal Year 2024

References

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability, 21*(1), 5–31. DOI: 10.1007/s11092-008-9068-5 https://link.springer.com/article/10.1007/s11092-008-9068-5

Bonk, C. J., & Graham, C. R. (Eds.). (2006). *The handbook of blended learning: Global perspectives, local designs.* Pfeiffer Publishing.

English, P., Fleischman, D., Kean, B., Stevenson, T., Broome, K., & Cury, R. (2022). Academic flexibility and support for student-athletes: An Australian perspective on university teaching staff perceptions. *Journal for the Study of Sports and Athletes in Education, 16*(1), 45-65. DOI: 10.1080/19357397.2022.2026111 https://www.tandfonline.com/doi/full/10.1080/19357397.2022.2026111

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America, 111*(23), 8410–8415. DOI: 10.1073/pnas.1319030111 *https://doi.org/10.1073/pnas.1319030111*

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines.* Jossey-Bass.

Hrastinski, S. (2019). What do we mean by blended learning? *TechTrends, 63*(5), 564–569. DOI: 10.1007/s11528-019-00375-5

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Prentice Hall.

ISSN 2985-1017 (Online)

Prince, M. J. (2004). Does active learning work? A review of the research. *Journal of Engineering Education, 93*(3), 223–231. DOI: 10.1002/j.2168-9830.2004.tb00809.x

UNESCO. (2021). *Reimagining our futures together: A new social contract for education.* UNESCO Publishing.