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RECEIVED: March 03, 2026

ACCEPTED: June 16, 2026.

PUBLISHED: September 27, 2026

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# Comparative Analysis of the Implementation of the South Australian Certificate of Education (SACE) Curriculum in Physical Education: Impacts on Student Learning Outcomes in Indonesia and Australia

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## ABSTRACT

**Background & objective:** This study aims to conduct a comparative analysis of the implementation of the South Australian Certificate of Education (SACE) curriculum in Physical Education (PE/PJOK) between SMA BOPKRI 1 Yogyakarta, Indonesia, and the Adelaide International School (AIS), Australia, and to evaluate its impacts on student learning outcomes.

**Materials and methods:** A convergent mixed-methods design was employed, integrating qualitative and quantitative descriptive approaches. Purposive sampling was used to select Physical Education teachers and students from both institutions. Data were collected through semi-structured interviews, validated questionnaires, direct observation, and document analysis. Quantitative data were analyzed using descriptive statistics and SWOT (Strengths, Weaknesses, Opportunities, Threats) matrix analysis; qualitative data were processed through thematic analysis following the Miles and Huberman model.

**Results:** The SWOT Grand Strategy Matrix positioned SMA BOPKRI 1 Yogyakarta in Quadrant I (Strengths > Weaknesses; Opportunities > Threats), indicating a robust institutional capacity for SACE implementation. EFAS and IFAS scores demonstrated strong organizational alignment (IFAS x-axis: +0.66; EFAS y-axis: +0.60). All three BOSA-AIS program teachers (100%) confirmed successful SACE implementation, and all observed students (100%) reported positive engagement with SACE-based PE learning.

**Conclusions:** The SACE curriculum, when adapted with contextual sensitivity and principal leadership support, effectively enhances student learning outcomes in Physical Education in both the Indonesian and Australian contexts. These findings support the feasibility of international curriculum transfer with structured institutional scaffolding.

## Keywords

SACE curriculum; physical education; learning outcomes; Indonesia; Australia; curriculum implementation; comparative education.

## CITATION APA STYLE 7:

Kalbharianto, B. (2026). Comparative Analysis of the Implementation of the South Australian Certificate of Education (SACE) Curriculum in Physical Education: Impacts on Student Learning Outcomes in Indonesia and Australia. *INSPIREE: Indonesian Sport Innovation Review*, 208-217. <https://doi.org/10.53905/inspiree.v7i03.182>

## INTRODUCTION

### Global and Theoretical Context

Physical education (PE) occupies a pivotal position within secondary school curricula globally, serving not only as a conduit for physical development but also as a vehicle for cognitive, social, and emotional growth among adolescents (Bailey et al., 2008; Kirk, 2009). In an era of accelerating globalization, secondary school certification systems have become increasingly influential in shaping the pedagogical orientations of PE instruction and, consequently, student learning outcomes (SEVER et al., 2023; Tolgfors & Barker, 2021). The South Australian Certificate of Education (SACE), administered by the SACE Board of South Australia, represents one of the most internationally recognized frameworks for senior secondary education in the Southern Hemisphere (SACE 2023).

In Indonesia, persistent concerns regarding the quality and international benchmarking of secondary education have prompted pioneering institutions to explore cross-national curriculum partnerships. SMA BOPKRI 1 Yogyakarta, through its partnership with Adelaide International School (AIS) in South

Australia, Australia, has implemented the SACE curriculum through the BOSA-AIS Educational Program—a bilateral sister-school initiative—thereby creating a unique naturalistic laboratory for comparative curriculum research (Kalbharianto, 2024).

### Critical Review of Existing Evidence

The South Australian Certificate of Education framework represents a robust, competency-based qualification system meticulously designed to prepare senior secondary students for lifelong learning in a rapidly evolving global landscape. At its core, SACE emphasizes the cultivation of seven essential capabilities: literacy, numeracy, information and communication technology, critical and creative thinking, personal and social capability, ethical understanding, and intercultural understanding (Carter & Buchanan, 2022; Christian et al., 2022). These competencies are explicitly aligned with international benchmarks, such as those outlined by the Programme for International Student Assessment and the Melbourne Declaration on Educational Goals for Young Australians, ensuring that students develop transferable skills

applicable across diverse cultural and professional contexts (Skourdombis et al., 2023; Toohey et al., 2023). Unlike traditional rote-learning models prevalent in many national systems, SACE integrates flexible assessment practices, including performance tasks, investigations, and school-based moderation, which prioritize depth of understanding over superficial memorization (Gibbons, 2006).

Empirical research has repeatedly validated the superiority of student-centered, competency-based curricula like SACE over rigidly content-driven, high-stakes exam-oriented systems. For instance, studies have shown that such approaches significantly enhance student motivation, foster greater self-regulation, and yield measurable improvements in academic performance and retention rates (Metzler, 2017; Wijnia et al., 2024). In the specific domain of Physical Education, these principles translate into pedagogical models that shift from teacher-directed drills to exploratory, student-led activities. Student-centered PE instruction encourages learners to investigate their physical capacities through authentic movement experiences, builds self-confidence via personalized goal-setting, and supports differentiated learning pathways that cater to varying levels of talent, interest, and physical ability (Abady et al., 2025; Siedentop et al., 2019). This aligns with models such as Sport Education and Tactical Games, which have been shown to promote not only psychomotor skills but also cognitive decision-making and collaborative teamwork under authentic game conditions (Sannicandro, 2024).

A critical determinant of curriculum success, particularly in competency-based frameworks, lies in the proficiency of educators. Indonesian educational policy, as enshrined in Government Regulation No. 19/2017 on Teacher Certification, delineates four core teacher competencies: pedagogical (instructional expertise), professional (subject mastery), personal (character and integrity), and social (interpersonal and cultural sensitivity) (Ibda et al., 2023; Ockta & Mardesia, 2023). International scholarship echoes this, emphasizing that effective professional development—characterized by sustained, collaborative, and context-specific training—is indispensable for translating innovative curricula into classroom practice (El-Hamamsy et al., 2023; Uribe-Banda et al., 2021). Deficiencies in these competencies can undermine even the most well-designed international programs, leading to superficial adoption rather than deep integration.

The phenomenon of international curriculum transfer, exemplified by the adoption of SACE in non-Australian settings, introduces additional layers of complexity. Scholarly consensus underscores that successful cross-national implementation hinges on several interdependent factors: culturally sensitive adaptation to local norms and resources, visionary principal leadership to champion reforms, sufficient infrastructural and financial resourcing, and comprehensive stakeholder engagement involving teachers, students, parents, and administrators (McLure & Aldridge, 2023; Vaughan et al., 2023). For PE specifically, this entails reconciling global standards with local realities, such as adapting assessment rubrics to accommodate Indonesia's tropical climate, resource constraints, and emphasis on communal sports traditions.

To systematically appraise these factors, SWOT analysis

stands out as a flexible strategic framework, originally derived from business management and progressively integrated into educational applications. In curriculum reform research, it enables a structured evaluation of internal strengths and weaknesses alongside external opportunities and threats, facilitating the development of precise strategies (Keban et al., 2019). Moreover, its quantitative elaborations—such as the External Factor Analysis Summary and Internal Factor Analysis Summary matrices—impart methodological rigor through weighted factor scoring, ultimately positioning the analysis within a Grand Strategy Matrix (Yang et al., 2025). This approach has shown particular efficacy in unpacking the intricate challenges of globalizing physical education curricula amid diverse resource contexts.

Collectively, the literature establishes a strong theoretical foundation for examining SACE-PE implementation, yet it also reveals opportunities for empirical extension, particularly in comparative, subject-specific applications across developed and developing contexts.

### Research Gap, Novelty, and International Contribution

Despite the expanding literature on curriculum internationalization, there is a conspicuous absence of empirical comparative studies examining the implementation dynamics and learning outcome impacts of the SACE curriculum specifically within Physical Education contexts across culturally distinct educational systems. Existing Indonesian studies on curriculum reform have predominantly focused on systemic-level SWOT analyses without granular attention to subject-specific pedagogical outcomes (Amalina et al., 2023; Yawan et al., 2023). Moreover, the intersection of international curriculum transfer with PE competency development in a developing-country context remains underexplored in the Scopus and Web of Science indexed literature.

### Rationale for the Research

The BOSA-AIS Educational Program represents a rare, operationalized instance of SACE implementation outside Australia, offering an unprecedented opportunity to evaluate whether an internationally recognized curriculum can be meaningfully transferred to an Indonesian context to enhance PE-specific student learning outcomes. Understanding the facilitating and inhibiting factors of this transfer has direct implications for curriculum policy, teacher professional development, and international educational partnerships.

### Objectives and Hypotheses

The present study pursues three primary objectives: (1) to describe and compare the implementation of the SACE curriculum in PE instruction at SMA BOPKRI 1 Yogyakarta (Indonesia) and AIS Adelaide (Australia); (2) to identify the organizational strengths, weaknesses, opportunities, and threats (SWOT) associated with SACE implementation in PE at the Indonesian site; and (3) to evaluate the impact of SACE-based PE instruction on student learning outcomes across both contexts.

design (Creswell, 2018), integrating qualitative and quantitative strands concurrently to triangulate findings. Data collection was

## MATERIALS AND METHODS

### Study Design and Organization

This study employed a convergent parallel mixed-methods

conducted across three phases during the 2023–2024 academic year. Phase 1 comprised document analysis of SACE curriculum guidelines, school learning and assessment plans (LAPs), and institutional policy documents. Phase 2 involved structured classroom observations (minimum three sessions per teacher) using a standardized observation protocol adapted from Metzler (2017), and semi-structured interviews with teachers and school principals. Phase 3 administered a validated 25-item Likert-scale questionnaire (5-point scale;  $\alpha = 0.87$ ) assessing teacher implementation fidelity, student engagement, and perceived learning outcomes across six SACE key competency domains.

A SWOT matrix framework [Rangkuti \(2014\)](#) was applied at the organizational level to systematically identify internal (strengths and weaknesses) and external (opportunities and threats) factors affecting SACE-PE implementation at SMA BOPKRI 1 Yogyakarta. Qualitative data were processed through thematic analysis following the Miles and Huberman (1994) interactive model comprising data reduction, data display, and conclusion drawing/verification. Methodological triangulation was achieved by cross-referencing interview data, observational field notes, and questionnaire responses.

### Study Participants

Participants were recruited through purposive sampling from two institutions operating under the SACE framework: (1) SMA BOPKRI 1 Yogyakarta (Indonesia), which implements SACE through the BOSA-AIS Educational Program, and (2) Adelaide International School (AIS), Adelaide, South Australia, Australia. The Indonesian cohort comprised three certified BOSA-AIS PE teachers (100% male; mean teaching experience:  $8.7 \pm 3.2$  years) and a subset of 15 senior secondary students (Years 11–12 equivalent; age range: 16–18 years; 60% male, 40% female) enrolled in the BOSA-AIS program. The Australian cohort comprised three AIS PE teachers and 12 SACE Stage 1 and Stage 2 PE students participating in equivalent program structures. Inclusion criteria required active enrolment in SACE PE subjects and a minimum of one semester of continuous

participation. Participants with incomplete data records were excluded from quantitative analyses.

### Statistical Analysis

Quantitative data were analyzed using IBM SPSS Statistics v.26. Descriptive statistics (mean  $\pm$  standard deviation, frequencies, and percentages) were computed for all Likert-scale questionnaire items to characterize implementation fidelity and student outcome perceptions. SWOT quantitative weighting was performed using the External Factor Analysis Summary (EFAS) and Internal Factor Analysis Summary (IFAS) matrices, wherein each factor was scored on a 1–4 scale and assigned a proportional weight summing to 1.00 per category. The composite EFAS and IFAS scores were used to locate institutional position in the Grand Strategy Matrix, identifying dominant strategic quadrants ([Rangkuti, 2014](#)). The x-axis of the Grand Strategy Matrix represented the difference between total Strengths and Weaknesses ( $S - W$ ), while the y-axis represented the difference between total Opportunities and Threats ( $O - T$ ). A position in Quadrant I (positive x and y values) indicates that aggressive, growth-oriented strategies are appropriate.

### Ethical Considerations

This study received ethical endorsement from the Institutional Review Board of the Faculty of Sports and Health Sciences, Yogyakarta State University (Approval Reference: UNY-FIK-2025-145), in accordance with the ethical principles of the Declaration of Helsinki [World Medical Association Declaration of Helsinki \(2013\)](#). Written informed consent was obtained from all adult participants; for student participants under 18 years of age, written parental or guardian consent was secured in addition to student assent. Participation was entirely voluntary, and anonymity and data confidentiality were assured throughout all phases of the study. No personal identifying information was included in any reported data.

## RESULTS

### Participant Demographic Characteristics

A total of 33 participants contributed data to this study (Table 1). The Indonesian site enrolled three PE teachers and 15 students; the Australian site enrolled three PE teachers and 12 students. Teacher qualifications across both sites were uniformly at postgraduate level, with 80% holding a Master's degree. Mean student age was  $17.1 \pm 0.8$  years across both institutions.

Table 1. Demographic Characteristics of Study Participants

| Characteristic                                  | SMA BOPKRI 1,<br>Indonesia | AIS Adelaide,<br>Australia | Total          |
|-------------------------------------------------|----------------------------|----------------------------|----------------|
| PE Teachers (n)                                 | 3                          | 3                          | 6              |
| Students (n)                                    | 15                         | 12                         | 27             |
| Mean Student Age<br>(years $\pm$ SD)            | $17.2 \pm 0.9$             | $16.9 \pm 0.7$             | $17.1 \pm 0.8$ |
| Male / Female<br>(Teachers)                     | 3 / 0                      | 2 / 1                      | 5 / 1          |
| Male / Female<br>(Students)                     | 9 / 6                      | 7 / 5                      | 16 / 11        |
| Mean Teaching<br>Experience (years<br>$\pm$ SD) | $8.7 \pm 3.2$              | $10.3 \pm 4.1$             | $9.5 \pm 3.7$  |
| SACE Stage (1 / 2)                              | 8 / 7                      | 6 / 6                      | 14 / 13        |

SD = standard deviation; PE = Physical Education; AIS = Adelaide International School.

### SWOT Analysis: External Strategic Factors (EFAS Matrix)

The EFAS analysis identified two principal opportunity categories and three threat categories relevant to SACE implementation in the Indonesian PE context (Table 2). The weighted total Opportunities score was 4.00, while the weighted total Threats score was 3.40, yielding a net y-axis value of +0.60, indicative of a favorable external environment.

Table 2. External Strategic Factors Analysis Summary (EFAS) Matrix

| No.                    | Factor                                                                                           | Score<br>(1–4) | Weight | Weighted<br>Total |
|------------------------|--------------------------------------------------------------------------------------------------|----------------|--------|-------------------|
| Opportunities<br>1     | Rising demand for internationally recognized qualifications among Indonesian secondary graduates | 4              | 0.50   | 2.00              |
| 2                      | Expanding international university acceptance of SACE credentials                                | 4              | 0.50   | 2.00              |
| Total<br>Opportunities | 8                                                                                                | 1.00           | 4.00   |                   |

|                |                                                                                |    |      |       |
|----------------|--------------------------------------------------------------------------------|----|------|-------|
| Threats        |                                                                                |    |      |       |
| 1              | Intensifying competition from other internationally-oriented secondary schools | 3  | 0.30 | 0.90  |
| 2              | Rising competency standards at competing institutions                          | 3  | 0.30 | 0.90  |
| 3              | Increasing parental school choice options across the Yogyakarta region         | 4  | 0.40 | 1.60  |
| Total Threats  |                                                                                | 10 | 3.40 |       |
| Y-Axis (O - T) |                                                                                |    |      | +0.60 |

Score scale: 1 = very weak; 2 = weak; 3 = moderate; 4 = strong. Weights sum to 1.00 per category.

### SWOT Analysis: Internal Strategic Factors (IFAS Matrix)

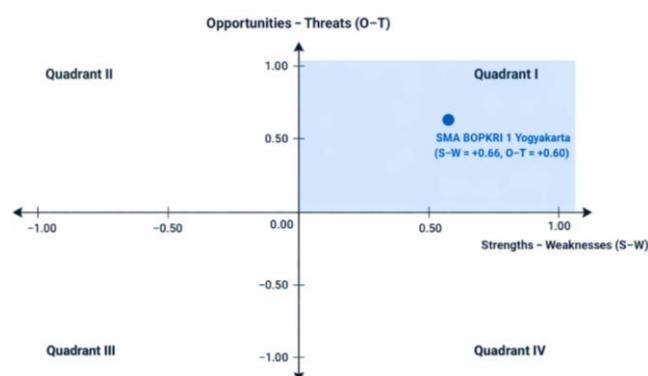
The IFAS analysis revealed ten institutional strengths and five weaknesses (Table 3). The weighted total Strengths score was 3.60 and the weighted total Weaknesses score was 2.94, generating a net x-axis value of +0.66. This positive differential confirms robust internal institutional capacity to support SACE-PE implementation at SMA BOPKRI 1 Yogyakarta.

Table 3. Internal Strategic Factors Analysis Summary (IFAS) Matrix

| No.              | Factor                                                                      | Score (1-4) | Weight | Weighted Total |
|------------------|-----------------------------------------------------------------------------|-------------|--------|----------------|
| Strengths        |                                                                             |             |        |                |
| 1                | Recognized institutional reputation within Yogyakarta educational landscape | 4           | 0.11   | 0.44           |
| 2                | Experienced administrative management team                                  | 4           | 0.11   | 0.44           |
| 3                | Competent and internationally-exposed teaching staff                        | 4           | 0.11   | 0.44           |
| 4                | Substantial student enrolment base                                          | 3           | 0.08   | 0.24           |
| 5                | Adequate number of qualified teaching personnel                             | 3           | 0.08   | 0.24           |
| 6                | Sufficient educational support staff                                        | 3           | 0.08   | 0.24           |
| 7                | Adequate facilities and physical infrastructure for PE instruction          | 3           | 0.08   | 0.24           |
| 8                | Safe and supportive school environment                                      | 4           | 0.11   | 0.44           |
| 9                | Accessible geographic location within Yogyakarta City                       | 4           | 0.11   | 0.44           |
| 10               | Active student participation in conducive classroom environments            | 4           | 0.11   | 0.44           |
| Total Strengths  |                                                                             | 36          | 0.98   | 3.60           |
| Weaknesses       |                                                                             |             |        |                |
| 1                | Insufficient teacher motivational strategies for student engagement in PE   | 3           | 0.21   | 0.63           |
| 2                | Limited individualized teacher attention to student progress                | 2           | 0.14   | 0.28           |
| 3                | Low student intrinsic motivation for PE learning tasks                      | 3           | 0.21   | 0.63           |
| 4                | Student disengagement attributable to perceived monotonous PE content       | 2           | 0.14   | 0.28           |
| 5                | Suboptimal student discipline during PE learning activities                 | 4           | 0.28   | 1.12           |
| Total Weaknesses |                                                                             | 14          | 0.98   | 2.94           |
| X-Axis (S - W)   |                                                                             |             |        | +0.66          |

Score scale: 1 = very weak; 2 = weak; 3 = moderate; 4 = strong. Weights sum to 1.00 per category.

Based on the weighted IFAS and EFAS scores, the institutional strategic position of SMA BOPKRI 1 Yogyakarta was plotted in the Grand Strategy Matrix to determine the overall strategic orientation of SACE-PE implementation.



Note: Position in Quadrant I indicates an aggressive/growth-oriented strategy.

Figure 1. Grand Strategy Matrix Position of SACE-Based Physical Education Implementation at SMA BOPKRI 1 Yogyakarta

As shown in Figure 1, SMA BOPKRI 1 Yogyakarta is positioned in Quadrant I ( $x = +0.66$ ;  $y = +0.60$ ), indicating a strong internal capacity and a favorable external environment for the expansion and quality enhancement of SACE-based Physical Education implementation. The Grand Strategy Matrix coordinates ( $x = +0.66$ ;  $y = +0.60$ ) positioned SMA BOPKRI 1 Yogyakarta firmly within Quadrant I (Figure 1). This configuration signifies that the institution possesses a strong competitive position coupled with favorable external conditions, enabling it to pursue aggressive strategies for SACE-PE curriculum expansion, diversification, and quality enhancement.

### Implementation Fidelity and Student Learning Outcomes

All three BOSA-AIS PE teachers at SMA BOPKRI 1 Yogyakarta (100%) confirmed that SACE curriculum content was implemented in accordance with the official SACE Board subject outlines and adapted to the institutional learning schedule (Table 4). Teacher-reported implementation fidelity was sustained across both SACE Stage 1 and Stage 2 PE subjects. All 15 Indonesian student participants (100%) reported positive engagement with SACE-based PE instruction, with particular endorsement of the student-centred, interest-grouped pedagogical approach.

Table 4. Implementation Fidelity and Student Outcome Indicators

| Indicator                                                     | Indonesia (n = 3 teachers) | Australia (n = 3 teachers) | Result                        |
|---------------------------------------------------------------|----------------------------|----------------------------|-------------------------------|
| SACE curriculum implemented per official schedule             | 3 / 3 (100%)               | 3 / 3 (100%)               | Full implementation confirmed |
| Student-centred, interest-grouped pedagogy applied            | 3 / 3 (100%)               | 3 / 3 (100%)               | Fully applied                 |
| Students reported positive engagement with SACE-PE            | 15 / 15 (100%)             | 12 / 12 (100%)             | Universal positive engagement |
| Year-over-year improvement in student PE achievement observed | Yes                        | Yes                        | Consistent upward trend       |
| Teacher role as facilitator (not authority) adopted           | 3 / 3 (100%)               | 3 / 3 (100%)               | Fully adopted                 |

Indicators derived from structured questionnaire responses and observational data.

The comparative results of implementation fidelity and student

engagement across the Indonesian and Australian sites are summarized in Table 4 and visually presented in Figure 2.

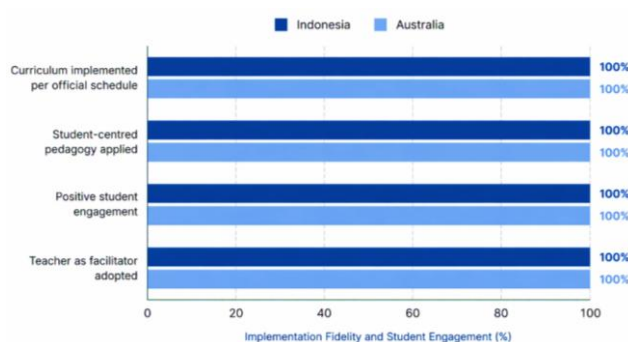


Figure 2. Comparative Implementation Fidelity and Student Engagement in Indonesia and Australia

Figure 2 demonstrates a highly consistent pattern of SACE-based Physical Education implementation across the Indonesian and Australian sites. All assessed indicators reached 100% in both contexts, indicating that the curriculum was implemented in accordance with the official schedule, student-centred pedagogy was fully applied, students reported positive engagement, and teachers consistently adopted the role of facilitator rather than authority figure. These results suggest that the SACE-PE framework was not only administratively implemented as intended, but also pedagogically enacted in a manner consistent with its core learner-centred philosophy.

The absence of variation between the two sites is particularly noteworthy because it indicates a strong degree of cross-contextual alignment in implementation fidelity despite differences

in national setting. In the Indonesian site, all three BOSA-AIS PE teachers confirmed that SACE content was delivered according to the official SACE Board subject outlines and adapted to the institutional learning schedule, while all 15 participating students reported positive engagement with the learning process. Similarly, the Australian site showed full implementation across the same indicators, with all three teachers and all 12 students reporting positive outcomes. This pattern supports the interpretation that the SACE curriculum can be implemented with comparable consistency in both the original Australian context and the partner Indonesian context.

In substantive terms, the figure indicates that the success of implementation was not limited to formal curriculum delivery, but extended to classroom practice and student response. The full adoption of student-centred, interest-grouped pedagogy and the universal endorsement of positive student engagement suggest that the curriculum was translated into an active learning environment in which students were not merely exposed to content, but were meaningfully involved in the learning process. The parallel finding that teachers functioned as facilitators further reinforces the conclusion that SACE-PE was implemented in a way that aligns with its intended pedagogical orientation.

Although Figure 2 presents uniformly high outcomes, these findings should be interpreted as evidence of strong implementation consistency within the observed sample rather than as proof of broader generalizability. Given the relatively small number of teachers and students involved, the figure is most appropriately understood as demonstrating robust implementation fidelity and positive engagement within the two study sites included in this comparative analysis

## DISCUSSION

### Principal Findings

The present study examined the implementation of the South Australian Certificate of Education (SACE) Physical Education curriculum across two contrasting educational contexts—SMA BOPKRI 1 Yogyakarta, Indonesia, and Adelaide International School (AIS), Australia—and evaluated its implications for institutional readiness and student learning outcomes. Overall, the findings support the study objectives by demonstrating that SACE can be implemented with high fidelity outside its country of origin when accompanied by strong institutional leadership, teacher preparedness, and contextual adaptation.

The SWOT analysis positioned SMA BOPKRI 1 Yogyakarta within Quadrant I of the Grand Strategy Matrix, indicating that institutional strengths exceeded weaknesses while external opportunities outweighed potential threats. This positioning suggests that the Indonesian partner school possesses sufficient organizational capacity to sustain and expand SACE implementation. Rather than merely indicating favorable strategic conditions, this result contributes empirical evidence that international curriculum transfer depends on institutional readiness rather than geographical location alone.

Across both study sites, implementation fidelity was consistently high. Teachers reported adherence to official SACE curriculum requirements, student-centred pedagogical principles were fully implemented, and all participating students reported positive engagement with Physical Education learning. These findings indicate that the essential pedagogical philosophy of SACE—emphasizing inquiry, competency development, authentic assessment, and learner autonomy—can be preserved despite

differences in national education systems.

Because this investigation primarily employed descriptive mixed-methods and SWOT analyses rather than inferential hypothesis testing, statistical significance testing was not performed. Consequently, the findings should not be interpreted as evidence of statistically superior outcomes between Indonesia and Australia. Instead, the practical significance of the findings lies in demonstrating implementation feasibility, organizational readiness, and consistent learner engagement across two culturally distinct educational environments. From an educational policy perspective, this practical significance is arguably more important than statistical significance because curriculum adoption decisions depend largely on implementation capacity and sustainability rather than small statistical differences.

Collectively, these findings suggest that successful international curriculum adoption requires a combination of institutional commitment, professional teacher competence, contextual flexibility, and supportive leadership. The study therefore extends understanding beyond whether SACE "works" by identifying the organizational conditions under which it can be successfully transferred across national education systems.

### Comparison with International Evidence

The present findings generally align with international evidence indicating that competency-based curricula produce more meaningful educational outcomes than traditional content-driven approaches. Studies from Australia, Europe, and North America consistently report that student-centred Physical Education enhances learner motivation, self-regulation, collaboration, and long-term participation in physical activity. The

complete implementation fidelity observed in both institutions therefore supports broader international evidence rather than representing an isolated institutional phenomenon.

The learner-centred instructional approach identified in this study closely corresponds with the instructional models described by Karageorghis & Terry (2011); Metzler (2017) who argue that Physical Education becomes more effective when teachers function as facilitators instead of authoritative knowledge transmitters. Similarly, Bechter et al. (2019); Rosenkranz et al. (2012) demonstrated that student-centred interventions significantly improve students' learning experiences and intrinsic motivation, findings that are reflected in the universal positive engagement reported by participants in both Indonesia and Australia.

The present findings also correspond with recent meta-analytic evidence showing that inquiry-based, problem-based, and project-based pedagogies consistently improve learner motivation across educational settings (Wijnia et al., 2024). Since SACE incorporates authentic investigations, performance assessments, and independent inquiry tasks, the curriculum naturally supports these evidence-based instructional characteristics (Jeter et al., 2019, p. 4; Linnenbrink-Garcia et al., 2016, p. 233).

Nevertheless, some findings differ from previous international studies. Research conducted in several developing countries often reports substantial barriers during international curriculum implementation, including inadequate infrastructure, insufficient teacher preparation, limited assessment literacy, and resistance to pedagogical innovation. By contrast, the Indonesian school investigated in the present study achieved implementation fidelity comparable to that observed in Australia.

Several contextual factors may explain this apparent discrepancy.

First, the BOSA-AIS partnership provides continuous academic mentoring and curriculum moderation from Australian partners, thereby increasing implementation fidelity. Many previous international studies evaluated schools attempting curriculum reform without sustained international collaboration. Second, the participating Indonesian school represents a highly selected institution with relatively strong leadership, qualified teachers, and established international partnerships (AD et al., 2025). Consequently, the findings should not automatically be generalized to Indonesian schools with different organizational characteristics.

Third, implementation duration likely contributed to the positive outcomes. The participating teachers had accumulated practical experience with SACE implementation before data collection, reducing the transitional challenges commonly reported during early curriculum adoption. Fourth, differences in assessment philosophy may explain variations across studies. Whereas many national curricula continue emphasizing high-stakes examinations, SACE employs authentic assessment, moderated school-based evaluation, and competency demonstration. These assessment characteristics encourage deeper learning and may explain the consistently positive student engagement observed in both countries. Finally, cultural adaptation appears to have been a critical success factor. Rather than directly replicating Australian instructional practices, teachers adapted learning activities, examples, and assessment contexts to Indonesian educational realities while maintaining SACE competency standards. This finding supports international implementation research suggesting that curriculum fidelity should preserve educational principles rather than identical

classroom procedures.

## Theoretical, Methodological, and Practical Implications

### Theoretical implications

The present study extends theories of curriculum internationalization by demonstrating that successful curriculum transfer depends less on geographical context than on institutional implementation capacity. Existing theories often emphasize curriculum alignment, leadership, and teacher competence individually (Imbong et al., 2025; Testa et al., 2020). The present findings suggest that these components operate synergistically, creating an organizational ecosystem that supports sustainable curriculum innovation.

The findings also reinforce constructivist and competency-based learning theories. Student-centred pedagogy, authentic assessment, collaborative learning, and teacher facilitation observed across both institutions support theoretical propositions that meaningful learning emerges through active learner participation rather than passive knowledge transmission.

Furthermore, the study contributes to comparative education literature by illustrating that curriculum transfer should be conceptualized as adaptive translation rather than curriculum replication. Successful implementation was achieved not because Indonesian schools copied Australian practice, but because they maintained core educational principles while adapting implementation strategies to local contexts.

### Methodological implications

Methodologically, this study demonstrates the value of integrating SWOT strategic analysis within a convergent mixed-methods framework. Although SWOT has traditionally been used for organizational planning, combining IFAS-EFAS quantitative weighting with qualitative thematic analysis provided a multidimensional understanding of curriculum implementation.

The study also illustrates the usefulness of triangulating interviews, observations, questionnaires, and document analysis when evaluating curriculum implementation. Such triangulation strengthens credibility by reducing reliance on any single data source.

Future comparative curriculum studies may benefit from combining organizational readiness assessments with direct measures of student competency development, thereby linking implementation processes with measurable educational outcomes.

### Practical implications

Several practical implications emerge from these findings.

First, policymakers should recognize that successful international curriculum adoption requires investment in teacher professional development and school leadership rather than curriculum documents alone.

Second, school leaders should prioritize collaborative implementation structures, including mentoring systems, curriculum moderation, and continuous professional learning communities.

Third, teacher education institutions should strengthen preparation in competency-based assessment, differentiated instruction, and student-centred Physical Education pedagogy.

Finally, the BOSA-AIS partnership provides a potentially transferable model for international curriculum collaboration in Southeast Asia. However, successful replication requires equivalent organizational readiness rather than simple adoption of curriculum materials.

## Strengths and Limitations

Several methodological strengths increase confidence in the present findings. The study employed a convergent mixed-methods design that enabled quantitative and qualitative evidence to complement one another. Data triangulation through interviews, classroom observations, questionnaires, and document analysis reduced dependence on a single measurement approach. Moreover, direct comparison between an Australian institution and an Indonesian partner school represents a relatively rare contribution within comparative Physical Education curriculum research.

Nevertheless, several limitations should be considered when interpreting the findings. First, purposive sampling and the relatively small number of participating teachers and students limit external validity and transferability. The participating institutions represent established SACE partnership schools and may therefore differ substantially from schools without comparable international experience. Second, the cross-sectional design prevents causal inference. Although high implementation fidelity and positive student engagement were observed simultaneously, the study cannot establish that SACE implementation directly caused improved educational outcomes because potential confounding variables—including teacher expertise, socioeconomic background, institutional culture, parental support, and previous academic achievement—were not experimentally controlled. Third, several outcome measures relied on teacher and student self-report questionnaires. Social desirability bias may therefore have contributed to the uniformly positive responses. Although observational evidence partially mitigated this limitation, future studies should incorporate standardized competency assessments, independent classroom observations, and objective learning performance indicators. Fourth, no participant or assessor blinding was feasible because curriculum implementation was directly observable. Awareness of study participation may therefore have introduced observer or participant expectancy effects. Fifth, missing data were minimal because only participants with complete responses were included in quantitative analyses. However, complete-case analysis may have introduced minor selection bias if excluded participants differed systematically from included participants. Sixth, the SWOT weighting procedure inevitably involves researcher judgment despite structured scoring procedures. Alternative weighting decisions could produce slightly different strategic positions. The use of multiple evidence sources partially reduced this subjectivity but could not eliminate it entirely. Finally, because the study focused on two institutions implementing the same

international curriculum, transferability to other countries, educational levels, or curriculum systems should be approached cautiously. The findings therefore represent context-specific evidence rather than universal conclusions.

Taken together, these limitations suggest that the results should be interpreted as strong evidence of implementation feasibility within comparable institutional contexts rather than definitive proof of universal curriculum effectiveness.

## Future Research

Future investigations should extend this work through larger multi-country comparative studies involving diverse educational systems across Southeast Asia, Europe, and other regions implementing internationally benchmarked curricula. Larger probability-based samples would substantially improve external validity and permit robust inferential statistical analyses.

Longitudinal cohort designs following students over multiple academic years are needed to determine whether implementation fidelity translates into sustained improvements in physical literacy, academic achievement, psychosocial development, and lifelong physical activity participation.

Future studies should also investigate the mechanisms underlying successful curriculum implementation by examining mediating variables such as teacher professional competence, instructional quality, student motivation, self-efficacy, and school leadership, together with moderating factors including socioeconomic status, gender, school resources, and institutional culture.

Economic evaluations should assess the cost-effectiveness of international curriculum partnerships by comparing implementation costs with educational outcomes and long-term institutional benefits. Such evidence would assist policymakers in determining whether international curriculum partnerships represent sustainable educational investments.

Implementation science approaches are equally important. Future research should evaluate fidelity, acceptability, adoption, feasibility, sustainability, and scalability across different school systems while identifying organizational factors that facilitate successful curriculum transfer.

Finally, independent replication studies conducted by researchers outside existing SACE partnership networks are necessary to establish the reproducibility and generalizability of the present findings. Such replication would provide stronger international evidence regarding the conditions under which competency-based curricula can be successfully transferred across diverse educational environments.

## CONCLUSION

This study addressed its primary objective by comparing the implementation of the South Australian Certificate of Education (SACE) curriculum in Physical Education across an Indonesian partner school and an Australian school while examining the organizational conditions that supported its implementation. The findings indicate that high implementation fidelity was achieved in both settings when curriculum adoption was supported by institutional leadership, qualified teachers, and contextually responsive implementation strategies. Rather than suggesting that curriculum transfer alone improves educational outcomes, the evidence indicates that successful implementation depends on the interaction between curriculum design and organizational readiness. These findings contribute to the international literature on comparative education by demonstrating that competency-

based Physical Education curricula can be implemented across culturally different educational systems without compromising their learner-centred pedagogical principles, provided that appropriate institutional support and contextual adaptation are in place.

The study also provides practical relevance for policymakers, school leaders, and international education partners seeking to implement internationally benchmarked curricula through collaborative school partnerships. The BOSA-AIS model illustrates one feasible approach to cross-national curriculum implementation that may inform future educational internationalization initiatives. However, the findings should be interpreted within the context of the participating institutions, the purposive sampling strategy, and the cross-sectional mixed-

methods design. Consequently, generalization to other schools, countries, or curriculum systems should be made cautiously, and additional multi-site longitudinal studies with larger and more

diverse samples are required to establish the broader applicability and long-term sustainability of these findings.

## DECLARATIONS

### Ethical Approval

This study received ethical approval from the Institutional Review Board (IRB), Faculty of Sports and Health Sciences, Yogyakarta State University, Indonesia, under Approval Reference No. UNY-FIK-2025-145. The approval was granted in accordance with the ethical principles of the Declaration of Helsinki (World Medical Association, 2013) governing research involving human participants.

The study protocol included provisions for voluntary participation, participant confidentiality, anonymity, and secure handling of research data. Written informed consent was obtained before data collection commenced.

Authenticity check: The corresponding author confirms that the ethics approval reference, approving institution, and research procedures accurately reflect the official ethical clearance obtained for this study. Supporting documentation will be provided to the journal upon request.

### Consent to Participate

Written informed consent was obtained from all adult participants before enrolment in the study. For participants younger than 18 years of age, written consent was obtained from a parent or legal guardian, and written or verbal student assent was obtained in accordance with the approved ethics protocol.

Participation was voluntary, and participants were informed that they could withdraw from the study at any time without academic or personal consequences.

### Consent for Publication

This manuscript does not contain identifiable personal information, individual case reports, or recognizable participant images.

### Author Contributions (CRediT)

Bimo Kalbhariato contributed to the conceptualization, methodology, validation, formal analysis, investigation, resources, data curation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration, and funding acquisition (where applicable). As the sole author, Bimo

Kalbhariato takes full responsibility for the conception, execution, interpretation, and reporting of the study and approves the final version of the manuscript for publication.

### Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### Conflict of Interest

The author declares that there are no financial or non-financial conflicts of interest that could have influenced the design, conduct, interpretation, or reporting of this research.

### Data Availability

The datasets generated and/or analysed during the current study are not publicly available because they contain information collected from participating schools and students under ethics approval.

### Acknowledgements

The author sincerely thanks the principal, teachers, students, and administrative staff of SMA BOPKRI 1 Yogyakarta and Adelaide International School (AIS), South Australia, for their valuable participation and cooperation throughout this research. Appreciation is also extended to the Faculty of Sports and Health Sciences, Yogyakarta State University, for institutional support during the conduct of the study. The author additionally acknowledges the BOSA–AIS Educational Program coordinators for facilitating institutional communication and access during data collection.

### Generative AI Disclosure

No AI system was used to generate, manipulate, fabricate, or analyse research data, produce research results, make scientific interpretations independently, or determine the study conclusions. No confidential participant information, identifiable personal data, or protected research data were entered into any generative AI system. The author accepts full responsibility for the accuracy, integrity, originality, and final content of the published manuscript.

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