



Ann Appl Sport Sci InPress(InPress): e1636.

e-ISSN: 2322-4479; p-ISSN: 2476-4981

**ORIGINAL ARTICLE**

A Qualitative Comparative Study on Teaching Responsibilities and Training Models of Physical Education Educators in Indonesia and Australia

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Submitted July 01, 2025;
Accepted August 21, 2025.

**KEYWORDS**

*Physical Education,
Teaching Responsibilities,
Indonesia,
Australia.*

ABSTRACT

Background. In Indonesia, physical education (PE) teachers are trained in a single-subject model emphasizing deep specialisation in PE. While this model fosters subject-specific expertise and supports the preservation of cultural practices, it may limit teacher flexibility in interdisciplinary teaching contexts. In contrast, Australia adopts a dual-subject model that requires PE teachers to qualify in an additional subject, such as English or Mathematics. This approach enhances employability and adaptability, particularly in rural or underserved schools, but may dilute professional identity and reduce the depth of PE-specific training. **Objectives.** This comparative study investigates how national policies in Indonesia and Australia shape the teaching responsibilities of PE educators, focusing on curriculum design, teacher preparation, and alignment with labour market demands. **Methods.** Data were collected through focus group discussions (FGDs) with curriculum developers, PE teachers, program alumni, and employer representatives in both countries. **Results.** Using thematic analysis of FGDs involving 20 stakeholders (10 from Indonesia, 10 from Australia), findings suggest that integrating specialisation with interdisciplinary competencies could improve adaptability while retaining PE expertise. **Conclusion.** This study contributes to comparative education research by providing insights into how teaching responsibilities impact curriculum implementation, professional identity, and workforce responsiveness in PE teacher training programs across different national contexts.

INTRODUCTION

Comparative studies in education are powerful tools for understanding how different countries' structures, implement, and prioritize their educational systems (1). These studies highlight effective practices, reveal common challenges, and offer insights into the transferability of

educational innovations across diverse cultural and economic contexts (2, 3). Through comparative analysis, educators and policymakers can identify best practices that might be adapted to local needs, contributing to improved teaching methodologies and learning

outcomes. Physical education (PE) is particularly impactful within comparative education studies due to its dual focus on physical health and personal development (4). The role of PE in fostering lifelong physical activity, mental well-being, and social skills is well-documented, making it essential to examine how PE programs are structured and delivered across different contexts (5, 6). Public health policies and cultural attitudes toward physical activity often influence PE curricula, resulting in significant variations in how countries prioritize, resource, and assess PE education (7, 8). As both developed and developing countries face challenges in promoting physical activity among youth, comparing PE programs can uncover strategies that enhance the effectiveness of PE teaching and contribute to broader health and social outcomes (9, 10).

Existing comparative studies on PE reveal important insights into curriculum content, pedagogy, and policy frameworks across countries. For example, Baena-Morales et al. (9) examined the implementation of sustainable development goals (SDGs) in PE curricula across Europe, highlighting disparities in how countries integrate health education and sustainability themes. Similarly, Gugusheff et al. (11) compared PE participation rates in New South Wales, Australia, and New Zealand, noting that socioeconomic factors and access to resources significantly influenced student engagement in physical activities. Another study by Martins et al. (12) analysed PE participation among adolescents across 54 countries, finding that low-income countries often face challenges maintaining adequate PE programs due to limited resources and infrastructure. These studies underscore the impact of economic and policy contexts on PE delivery and reveal gaps in resources and instructional quality, especially in lower-income regions. However, while much comparative research has focused on curriculum content and student participation, few have examined the structural implications of teaching-responsibility models for PE educators' professional identity and workforce readiness. Recent national evidence from Indonesia indicates that interdisciplinary PE remains largely under-implemented despite policy aspirations, with limited analysis of how the single-subject mandate shapes professional identity and career flexibility for PE educators (13). In Australia,

emerging work documents the increasing use of non-specialists and outsourcing in Health and Physical Education (HPE) due to staffing shortages. However, these studies stop short of analysing how the dual-subject requirement influences teacher identity and alignment with labour-market needs (14, 15). To our knowledge, this is the first study to compare how mandated teaching-responsibility configurations—single-subject versus dual-subject—shape PE teacher preparation, professional identity, and employability across two national systems, drawing on multi-stakeholder insights from curriculum developers, educators, alumni, and employers.

This study addresses the identified research gap by examining how differing teaching-responsibility configurations—specifically, single-subject and dual-subject requirements—shape PE educators' preparation, professional identity, and labour market alignment in Indonesia and Australia. This inquiry is particularly relevant in light of ongoing PE-specific challenges, including the decline in specialised PE expertise in certain contexts and the growing demand for interdisciplinary teaching capacity. In this study, "teaching responsibilities" refers to the number and types of subjects assigned to PE teachers. In Indonesia, PE teachers are tasked exclusively with teaching physical education, fostering deep, discipline-specific expertise. In contrast, Australia's dual-subject model requires PE teachers to qualify in an additional subject alongside PE, promoting versatility but potentially diluting specialist identity. These policy-driven differences significantly affect curriculum design, teacher preparedness, and workforce adaptability. Drawing on multi-stakeholder perspectives from curriculum developers, PE teachers, program alumni, and labour market representatives through focus group discussions (FGDs), this research offers a novel comparative analysis that not only identifies the strengths and limitations of each model but also provides actionable recommendations for curriculum and policy reforms aimed at balancing specialisation with adaptability in PE teacher education. This study is policy-relevant because its findings can inform national and institutional reforms in teacher training to address workforce adaptability and quality of PE instruction. This study uniquely includes perspectives from curriculum

developers, teachers, alumni, and labour market representatives, offering a rare multi-stakeholder comparison that links teaching responsibilities to professional identity and workforce readiness.

MATERIALS AND METHODS

Research Design. This study adopts a qualitative, comparative education approach to explore how curriculum policies, teaching responsibilities, and labour market alignment shape PE teacher training in Indonesia and Australia. The qualitative method allows an in-depth understanding of stakeholder perspectives and system-level influences on teacher education. The comparative lens critically examines national contexts, highlighting structural and policy-driven differences in curriculum and teacher preparation.

Data Collection Methods. Focus group discussions (FGDs) were the primary data collection method, chosen for their strength in capturing diverse, context-specific insights through collective dialogue. FGDs facilitated reflection, debate, and shared meaning-making among participants. This method has been widely validated across disciplines, including education, health, and public policy, for its ability to explore complex, real-world issues. FGDs were chosen over interviews to encourage interaction and shared reflection among participants, which helps uncover collective perspectives. Four FGDs were conducted in total—two in Indonesia and two in Australia.

Purposive sampling was used to recruit key stakeholders: curriculum developers, experienced PE teachers, program alumni, and employers of PE graduates. Indonesian participants were from Universitas Pendidikan Indonesia, and Australian participants were from the University of Sydney, ensuring a rich, cross-national dataset. The Indonesian participants included six males aged between 19 and 50 years, while the Australian participants comprised three females and seven males aged between 27 and 50. Discussions were conducted in-person and online, lasting 90–120 minutes, and guided by a trained facilitator using a semi-structured interview guide. Thematic analysis followed Braun and Clarke's (16) six-step framework and was executed manually without using qualitative analysis software. While triangulation was limited to focus group discussions, this was a deliberate methodological choice to enable rich, dialogic interaction among

participants; future research could extend the design with complementary surveys or observational methods. An appendix containing sample FGD questions is provided to enhance reproducibility and transparency.

Development of the Interview Guide. The guide addressed four core themes, including 1) Policy Influence: How national/institutional policies shape PE curricula, including single- vs dual-subject models; 2) Teaching Responsibilities: Impacts of training on workload, professional identity, and job satisfaction; 3) Labour Market Alignment: Preparedness of graduates to meet workforce needs and adapt to employment demands; and 4) Challenges and Best Practices: Systemic barriers and actionable recommendations for improvement.

Data Analysis. Data were analysed using Braun and Clarke's (16) six-step thematic analysis. Transcripts were read repeatedly, coded manually, and organized into key themes such as "policy-driven curriculum adaptation" and "employment flexibility." Themes were then compared across national contexts and stakeholder groups within the comparative framework, and findings were situated within existing literature.

Trustworthiness and Ethical Considerations. Ethical approval was obtained from Universitas Pendidikan Indonesia and the University of Sydney. Participants provided informed consent, and confidentiality was maintained through anonymized transcripts and secure data handling.

RESULTS

The results of this study reveal significant insights into how single-subject and dual-subject teaching policies in Indonesia and Australia influence curriculum implementation, teacher preparedness, and alignment with labour market needs. These findings are explored through curriculum development, teaching responsibilities, professional identity, and labour market demands, providing a nuanced understanding of the strengths and challenges associated with these contrasting approaches.

Curriculum design in both Indonesia and Australia reflects broader educational policies and societal priorities. Indonesia's policy emphasizes a single-subject physical education (PE) approach, which fosters specialized

expertise. The curriculum prioritizes physical health, sports, and fitness, allowing teachers to deepen their understanding of PE-specific pedagogies such as motor learning, physical fitness assessment, and traditional games. This focus aligns with Indonesia's cultural commitment to preserving local sports traditions,

creating a curriculum that enhances pedagogical expertise and reinforces cultural identity (17). For instance, as shown in Table 1, including cultural integration and practical fieldwork ensures that teachers are well-versed in local sports practices, which are critical to the nation's educational objectives.

Table 1. Key features of indonesia's PE curriculum.

Curriculum Component
Core PE Courses
Cultural Integration
Practical Fieldwork
Interdisciplinary Integration

While this specialized approach enhances the depth of PE knowledge and preserves cultural values, it comes with challenges. The lack of interdisciplinary integration limits teachers' adaptability, particularly in modern school environments that require flexible, multi-disciplinary approaches.

In contrast, Australia's dual-subject curriculum emphasizes versatility, preparing teachers to teach PE and an additional subject

such as English, Mathematics, or Science. This approach integrates interdisciplinary coursework, which equips teachers with broader competencies and prepares them for diverse educational settings. As outlined in Table 2, Australia's curriculum incorporates health and wellness education, technology integration, and field experience, making it adaptable to the demands of modern education systems, particularly in rural and underserved areas.

Table 2. Key features of australia's PE curriculum.

Curriculum Component
Dual-Subject Focus
Health and Wellness Integration
Technology in PE
Field Experience

Although this dual-subject model creates a more versatile teaching workforce, it can dilute the depth of training in PE-specific pedagogies. Many teachers reported challenges in maintaining their expertise and identity as PE specialists, particularly when juggling responsibilities across two distinct subject areas.

The results highlight how teaching responsibilities shape PE teachers' professional identity in distinct ways. In Indonesia, the single-subject model fosters a focused professional identity centred exclusively around physical education. Teachers in this system reported feeling a strong sense of pride and purpose in their roles, largely due to their specialized training and the alignment of their work with national cultural values.

In contrast, Australia's dual-subject policy often creates role conflict for teachers, who must balance competing responsibilities across

two subject areas. While some educators appreciated the flexibility and employability offered by this model, others reported challenges in maintaining a strong professional identity as PE specialists. These findings suggest that the distribution of teaching responsibilities can significantly influence teachers' sense of professional purpose and engagement.

Labor market feedback from both countries highlights the practical implications of these contrasting training models. In Indonesia, employers emphasized the value of highly specialized PE teachers who can deliver focused physical education programs, especially in traditional school settings. However, as shown in Table 3, this narrow focus may limit graduates' opportunities in interdisciplinary roles or non-traditional

educational contexts, where versatility is increasingly valued.

Table 3. Comparison of study programs in Indonesia and Australia.

Study Programs in Indonesia		Study Programs in Australia	
1.	Bachelor of Physical Education, Health and Recreation	1.	Bachelor of Arts
2.	Bachelor of Elementary School Physical Education	2.	Bachelor of Arts/Bachelor of Advanced Studies
3.	Bachelor of Sports Science	3.	Bachelor of Arts/Bachelor of Advanced Studies (International and Global Studies)
4.	Bachelor of Sports Coaching Education	4.	Bachelor of Arts/Bachelor of Advanced Studies (Languages)
5.	Bachelor of Sports Physical Coaching	5.	Bachelor of Arts/Bachelor of Advanced Studies (Media and Communications)
6.	Bachelor of Nursing	6.	Bachelor of Arts/Bachelor of Laws
7.	Bachelor of Nutrition	7.	Bachelor of Arts/Doctor of Medicine
		8.	Bachelor of Arts/Master of Nursing
		9.	Bachelor of Economics
		10.	Bachelor of Economics/Bachelor of Advanced Studies
		11.	Bachelor of Economics/Bachelor of Laws
		12.	Bachelor of Education (Early Childhood)
		13.	Bachelor of Education (Health and Physical Education)
		14.	Bachelor of Education (Primary)
		15.	Bachelor of Education (Secondary)

DISCUSSION

This study's findings shed light on how contrasting policies in Indonesia and Australia shape the design, implementation, and outcomes of PE teacher training programs. The discussion addresses the implications of these differences through the lens of curriculum design, professional identity, labour market alignment, and broader policy objectives, situating them within existing comparative education literature.

Curriculum Design and Policy Alignment.

The differences in curriculum design between Indonesia and Australia reflect their distinct national educational policies and socio-cultural priorities. Indonesia's single-subject curriculum emphasizes specialization, equipping teachers with deep expertise in PE-specific pedagogies. This alignment with cultural values, particularly the emphasis on preserving traditional games and sports, underscores the role of education as a tool for cultural transmission (17). Curriculum design reflects broader national priorities, but stakeholder perspectives reveal tensions between depth and breadth. An Indonesian curriculum developer emphasised the value of cultural integration, stating that "integrating cultural games into PE lessons not only preserves our heritage but also motivates students to participate more actively." Conversely, an Australian participant recognised the benefits and trade-offs of their dual-subject preparation: "The dual-subject training gives teachers flexibility, but it

sometimes means they cannot dedicate as much time to mastering PE-specific pedagogies." By concentrating on core PE courses, cultural integration, and practical fieldwork, the curriculum ensures that teachers are highly skilled in their discipline and prepared to promote health and fitness in schools.

However, this focus on specialization comes with limitations. The lack of interdisciplinary integration may restrict teachers' adaptability in dynamic educational contexts, where cross-disciplinary collaboration and hybrid pedagogical approaches are increasingly valued. This challenge resonates with prior research, highlighting the growing need for educators who can bridge disciplinary boundaries to address complex educational challenges (2, 5). For Indonesia, incorporating complementary skills—such as technology integration or elements of health education—could enhance teachers' adaptability without compromising their specialized expertise.

Australia's dual-subject model, in contrast, prioritizes versatility, aiming to prepare teachers who can meet the diverse needs of schools, particularly in rural and underserved areas. This policy reflects a pragmatic response to labour market demands, where multi-subject teachers are highly valued for their ability to address staffing shortages (18, 19). The curriculum broadens teachers' competencies by integrating interdisciplinary content and emphasizing health

and wellness, enabling them to navigate complex classroom environments. Including technology in PE further equips teachers to adapt to digital learning trends, which are increasingly prevalent in education.

However, the breadth of Australia's dual-subject curriculum raises concerns about the depth of PE-specific training. Teachers may struggle to balance competing demands, leading to a dilution of their expertise in physical education. This finding aligns with studies that caution against overburdening teachers with multi-disciplinary responsibilities, as it can compromise their effectiveness in any subject area (20, 21). Strengthening PE-specific components within the dual-subject framework could address this issue, ensuring that teachers retain a strong disciplinary foundation while benefiting from the versatility of a broader skill set.

Professional Identity and Teaching Responsibilities. Professional identity development is deeply influenced by the teaching responsibilities imposed by each model. In Indonesia, the single-subject curriculum fosters a cohesive professional identity centred around physical education. Teachers report a strong sense of purpose and pride in their specialization, which enhances their engagement and effectiveness. This alignment with their professional goals reflects broader research on the importance of clear subject focus in reinforcing teachers' sense of purpose (7, 22).

However, the specialized identity developed through Indonesia's single-subject model may limit teachers' ability to navigate interdisciplinary roles, particularly in urban schools where collaborative teaching is increasingly emphasized. Encouraging professional development opportunities that expand teachers' interdisciplinary skills could mitigate this limitation, enabling them to adapt to changing educational demands while maintaining their core identity.

On the other hand, Australian PE teachers experience more complex and, at times, fragmented professional identities due to the dual-subject requirement. Balancing the responsibilities of two disciplines can lead to role conflict, with teachers feeling less connected to PE as they divide their focus between subjects. This tension is particularly pronounced when PE is perceived as secondary to academic subjects, a

sentiment echoed in studies on multi-disciplinary teaching roles (19, 23). Addressing this challenge requires structural adjustments, such as increased teacher support through mentoring, professional development, and workload management strategies that prioritize PE instruction.

Labor Market Needs and Workforce Adaptability. The labour market implications of these policies further underscore their strengths and weaknesses. In Indonesia, the single-subject model aligns with the demand for specialized PE teachers, particularly in traditional school settings that value cultural preservation. Employers appreciate graduates' deep expertise in their roles, particularly in delivering focused and culturally relevant PE programs (17). However, this specialization may limit graduates' employability in interdisciplinary roles or non-traditional educational settings, where broader competencies are increasingly valued.

Australia's dual-subject model addresses these labour market demands more directly, producing versatile educators who can adapt to multiple roles. This adaptability is particularly beneficial in rural areas, where schools rely on multi-subject teachers to fill staffing gaps (18). However, the trade-off between versatility and specialization raises questions about the long-term implications for the quality of PE instruction. Employers have expressed concerns about the reduced depth of training, emphasizing the need for policies that balance flexibility with disciplinary expertise (3, 19).

Beyond national contexts, the interplay between teaching-responsibility models and labour market dynamics reflects broader global trends in teacher education. Internationally, there is increasing recognition that subject specialists must also be prepared to operate across disciplines to respond to diverse educational needs, technological advancements, and policy shifts (24, 25). At the same time, global reports caution that excessive breadth without sufficient disciplinary grounding risks undermining instructional quality and professional identity (26). The comparative findings from Indonesia and Australia illustrate these tensions vividly, highlighting the need for tailored reforms that align with each country's cultural and policy priorities while maintaining coherence with global movements toward adaptable yet highly competent teaching workforces.

We compare our findings with recent studies such as Baena-Morales and González-Víllora (27), which emphasise the importance of aligning PE curricula with sustainable development goals, and Casey et al. (24), who stress that teacher adaptability is critical in addressing diverse school contexts. Our findings on role conflict among dual-subject teachers echo results from Philpot et al. (28), who found that juggling multiple disciplines can reduce focus and self-efficacy in PE instruction. Similarly, our results regarding the risk of disciplinary dilution in dual-subject contexts are consistent with Kirk (26) and Welch et al. (29), who argue that strong specialist identity is essential for sustained PE quality.

We identify two key mechanisms:

- Role conflict – balancing two distinct subject responsibilities can fragment professional focus, reducing perceived confidence in PE delivery (28, 30).
- Identity anchoring – single-subject models reinforce a cohesive specialist identity, which may strengthen teaching quality but limit adaptability to interdisciplinary demands (26).

We explicitly acknowledge that our sample was drawn from two universities with a modest number of participants, which may limit generalisability. The exclusive use of FGDs, while rich in dialogic data, does not capture individual-level nuances that could be revealed through surveys or classroom observations. These limitations are now stated to guide interpretation and future research design.

Broader Implications for Policy and Curriculum Development. The contrasting approaches in Indonesia and Australia offer valuable lessons for policymakers and curriculum developers. Indonesia could benefit from a hybrid model that integrates interdisciplinary skills into the single-subject framework, enhancing teacher adaptability without compromising specialization. For example, incorporating elements of health education, technology use, or collaborative teaching into the PE curriculum could address the labour market's demand for versatile educators while retaining the cultural and pedagogical strengths of the current model.

In Australia, strengthening the PE-specific components of the dual-subject curriculum could help mitigate the challenges associated with role conflict and diluted expertise.

Providing targeted professional development opportunities, increasing the proportion of PE-focused coursework, and creating pathways for teachers to specialize further in physical education could support a stronger professional identity among PE teachers. These adjustments would ensure that the dual-subject model continues to meet labour market demands without undermining the quality of PE instruction. We have strengthened the Discussion section by adding policy translation and a detailed outline of a hybrid curriculum model informed by participant feedback and current literature. Specifically, we describe a hybrid PE teacher education program that allocates approximately 70% of coursework to PE-specific modules (e.g., motor learning, fitness assessment, cultural sports integration) and 30% to interdisciplinary areas such as health education, ICT integration, and collaborative teaching methods. This model directly addresses Indonesian participants' concerns about adaptability ("...harder when schools expect us to teach other subjects") and Australian participants' concerns about disciplinary dilution ("...sometimes they feel less confident in their PE lessons"). It also aligns with international recommendations for teacher adaptability and lifelong learning (27, 31).

CONCLUSION

This comparative study highlights how Indonesia's single-subject and Australia's dual-subject models for PE teacher preparation offer distinct advantages and trade-offs. Indonesia's specialised approach supports a strong professional identity and deep disciplinary expertise but limits adaptability in contexts that require interdisciplinary teaching. Conversely, Australia's dual-subject model enhances workforce versatility and employability, particularly in underserved areas, but may dilute PE-specific identity and expertise. From a policy perspective, findings indicate that hybrid models—allocating approximately 70% of training to PE-specific content and 30% to interdisciplinary subjects—could address depth and adaptability needs. For Indonesia, this would mean incorporating targeted interdisciplinary modules into existing specialised programs, supported by professional development. For Australia, increasing PE-specific training within dual-subject pathways would be required to

maintain specialist identity while retaining versatility. These country-specific recommendations also align with global teacher education trends, emphasizing balancing subject expertise with the flexibility to respond to evolving educational, technological, and societal demands. It is important to note that this study's findings are based on a limited participant pool from two institutions and should be interpreted cautiously regarding generalisability. Future research could pilot and evaluate hybrid curriculum models across diverse contexts to assess their impact on graduate readiness, professional identity, and instructional quality.

APPLICABLE REMARKS

- This study pointed out that teacher education institutions should consider hybrid curriculum models (70% PE specialisation, 30% interdisciplinary skills) to balance professional identity with workforce adaptability.
- Policymakers may integrate interdisciplinary modules (e.g., health education, ICT, collaborative teaching) into PE programs to improve graduate employability without sacrificing disciplinary expertise.
- Employers and schools should recognise the strengths and limitations of single-subject versus dual-subject trained teachers when designing recruitment and staffing strategies.

ACKNOWLEDGMENTS

The authors would like to express their deepest gratitude to all individuals and institutions who supported the research process from inception to completion. Special appreciation is extended to the FGD participants in Indonesia, including curriculum experts, school principals, gym managers as graduate users, physical education teachers, and representatives from the Department of Education as policy stakeholders. Their insights and contributions were invaluable in shaping the depth and relevance of this study. The authors also wish to acknowledge the contributions of the FGD participants in Australia, particularly the heads of units, department chairs, and faculty leaders, whose perspectives provided important comparative insights and enriched the international dimension of this research.

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AUTHORS' CONTRIBUTIONS

Study concept and design: Dian Budiana, Cep Ubad Abdullah, Wayne Cotton. Acquisition of data: Cep Ubad Abdullah, Mulyana, Gifran Rihla Gifarka Latief. Analysis and interpretation of data: Dian Budiana, Cep Ubad Abdullah. Drafting the manuscript: Dian Budiana, Cep Ubad Abdullah, Mulyana. Critical revision of the manuscript for important intellectual content: Dian Budiana, Wayne Cotton. Statistical analysis: Cep Ubad Abdullah, Mulyana. Administrative, technical, and material support: Gifran Rihla Gifarka Latief. Study supervision: Dian Budiana, Cep Ubad Abdullah, Wayne Cotton.

CONFLICT OF INTEREST

There was no conflict of interest in relation to the study carried out.

FINANCIAL DISCLOSURE

No author has any financial interest or received any financial benefit from this research.

FUNDING/SUPPORT

This study was partly supported by a research grant under contract number 324/UN40.LP/PT.01.03/2024 from Universitas Pendidikan Indonesia.

ETHICAL CONSIDERATION

This study received ethical approval from Universitas Pendidikan Indonesia and the University of Sydney. All participants gave informed consent before taking part in the focus group discussions. Confidentiality was ensured by anonymizing participants' identities in the transcripts and securely storing all data. These measures protected participants' privacy and upheld the integrity of the research process.

ROLE OF THE SPONSOR

The sponsor had no role in the study design, data collection, data analysis, interpretation of results, manuscript preparation, or decision to submit the article for publication.

ARTIFICIAL INTELLIGENCE (AI) USE

This study was not assisted by Artificial Intelligence (AI) and AI-assisted technologies.

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