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Short Paper

The Reward Mechanism and Career Development of Physical Education Teachers in Higher Education in Liaoning Province: Basis for a Developmental Framework

Shuai Yang
College of Arts, Sciences, and Education, Graduate School of Education,
Trinity University of Asia, Philippines
shuaiyang@tua.edu.ph
ORCID: 0009-0002-7067-8311
(corresponding author)

Hazel Yahweh L. Arce
Human Kinetics Department, Trinity University of Asia, Philippines
hylarce@tua.edu.ph
ORCID: 0009-0003-8352-4685

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Abstract

Physical education teachers in higher education require structured career support and equitable incentive systems to sustain professional motivation and organizational commitment. This study assessed the level of career development initiatives and incentive mechanisms experienced by 189 physical education (PE) teachers from four universities in Liaoning Province, China, and examined the significant relationship between these two constructs. Career development was measured through three dimensions: self-efficacy, outcome expectations, and personal goals. Incentive mechanisms were assessed through four categories: material reward, social reward, work reward, and personal reward. A descriptive-correlational research design was employed using a researcher-developed and validated five-point Likert-scale questionnaire. Reliability was confirmed through Cronbach's Alpha, yielding an overall coefficient of 0.919 for career development initiatives and 0.965 for incentive mechanisms, both indicating excellent internal consistency. Results

showed that career development initiatives were strongly perceived across all dimensions, with self-efficacy obtaining a mean of 4.45, outcome expectations 4.47, and personal goals 4.38, yielding an overall mean of 4.43 (Strongly Agree). Incentive mechanisms were similarly well-regarded, with material reward at 4.11 (Available), and social reward (4.42), work reward (4.51), and personal reward (4.51) all rated as Always Available, for an overall mean of 4.39. A significant and positive relationship was found between career development initiatives and incentive mechanisms in terms of self-efficacy ($r = 0.705$, $p < .001$). These findings suggest that stronger self-efficacy is associated with greater engagement with institutional reward structures. Areas such as personal goal-setting and consistent provision of material rewards need further improvement. Based on the findings, a Developmental Framework is proposed to guide higher education institutions in designing career programs and balanced incentive systems that foster professional growth among PE teachers.

Keywords – career development initiatives, incentive mechanisms, physical education teachers, developmental framework, work commitment

INTRODUCTION

Physical education teachers in higher education play a significant role not only in promoting physical wellness but also in advancing institutional goals through their professional expertise and commitment. Central to their effectiveness is the presence of a clear and structured career development pathway that fosters ongoing skill enhancement, strengthens motivation, and supports personal and professional growth. According to Gao and Gao (2022), structured career paths offer direction for performance expectations, retention, and long-term engagement. In the context of physical education, such pathways must be regularly evaluated and aligned with both institutional priorities and the evolving aspirations of educators.

Sustained institutional support through continuous training and leadership development promotes a culture of lifelong learning. Yet, despite these ideals, gaps remain in fully optimizing teachers' self-efficacy, outcome expectations, and personal goal-setting, which are essential dimensions of career development. Furthermore, while incentive mechanisms such as rewards and recognition are integral to teacher motivation, many physical education instructors encounter inconsistencies in how these systems are applied or understood. There is a need to assess how well current incentive mechanisms are associated with teachers' motivations and professional aspirations (Jin, 2023; Guo & Palao-ay, 2023).

As the integration of educational technology becomes more prominent in physical education pedagogy, ranging from digital fitness platforms to virtual instruction, teachers must be equipped with the skills and confidence to adapt. These demands point to the importance of both career development programs and performance-based rewards that sustain engagement and innovation. Given these considerations, this study assesses the

level of career development initiatives and incentive mechanisms experienced by physical education teachers, examines the relationship between these two domains, and proposes a Developmental Framework for improving professional development systems.

Specifically, this study seeks to answer the following questions:

1. What is the assessment of the physical education teacher respondents on the career development initiatives they experienced in terms of self-efficacy, outcome expectations, and personal goals?
2. What is the assessment of the respondents on the incentive mechanisms for physical education teachers in terms of material reward, social reward, work reward, and personal reward?
3. Is there a significant relationship between career development initiatives and incentive mechanisms of physical education teachers?
4. Based on the results of the study, what developmental framework can be developed?

LITERATURE REVIEW

Career Development Path

Academic career progression refers to the professional advancement of individuals in higher educational environments through research, teaching, and administrative roles (Zacher, Rudolph, Todorovic, & Ammann, 2019). Career development encompasses the ability to perform effectively depending on personal opportunities, motivation, professional skills, and general knowledge (Pshembayeva et al., 2022). Key dimensions in the literature include career orientations, emotional intelligence, motivation, self-esteem, and communication skills (Urquijo et al., 2021). Organizations must establish full-fledged career development processes to attract and retain high performers (Japor, 2021). A supportive institutional culture that values continuous professional learning is associated with greater teacher job satisfaction and organizational commitment (Belay et al., 2022; Cayupe et al., 2023).

Incentive Mechanisms

Competitive salaries and bonuses are significantly associated with job satisfaction and productivity among physical education teachers (Gazali et al., 2024; Lv, 2024). Recognition for competencies and successful student engagement serves as an essential complement to material rewards (Jariono et al., 2022). A multi-faceted reward structure is necessary to sustain long-term teacher engagement, and motivation is further reinforced when incentive systems are aligned with individual career goals and are perceived as fair and consistent (Heryanto, 2024).

Self-Efficacy

Self-efficacy, the belief in one's capacity to execute behaviors needed to achieve outcomes, is a critical determinant of teacher performance and career engagement (Lent et al., 1994; Agiasotelis et al., 2024). Teachers with high self-efficacy adopt more innovative teaching behaviors, apply student-centered instructional practices more effectively, and

maintain more positive professional attitudes (Chen et al., 2022). According to Sun and Yang (2023), teachers with high self-efficacy and strong outcome expectations are more resilient and engaged in their work, as they believe their efforts will yield meaningful results. Professional development is also associated with enhanced teacher self-efficacy, which subsequently improves teaching practices and long-term engagement (Zhou et al., 2023).

Outcome Expectations

Teachers play an important role in students' career planning by providing career-related guidance, facilitating skill development, and collaborating with institutional partners (Zhang et al., 2018; Joho et al., 2024). Teacher support has been associated with students' career outcome expectations and career decision self-efficacy (Wong et al., 2022). Research shows that teacher support for career-related matters has indirect effects on students' career decision self-efficacy through career adaptability (Parola et al., 2024). Aligning professional development outcomes with teachers' expected career trajectories is significantly associated with their motivation and retention in the profession (Dodd et al., 2021; Pham et al., 2024).

Achievement of Personal Goals

Professional development is essential for the educational success of both teachers and students (Kelchtermans, 2022). High-quality professional development enhances student learning and is associated with teacher resilience, ability to manage job-related challenges, and retention (Booth et al., 2021). Teachers' experiences and developmental needs shift across career stages, and programs must be responsive to these differences (Klusmann et al., 2022; Freeman, 2023). As Jiang et al. (2024) emphasized, the effectiveness of personal goals is shaped by available support systems and contextual opportunities, suggesting that institutional backing is necessary to translate teachers' personal objectives into concrete professional outcomes.

Material, Social, Work, and Personal Rewards

Material rewards, including competitive salaries and bonuses, are foundational to physical education teacher job satisfaction and productivity (Gazali et al., 2024; Lv, 2024). Social rewards, including peer recognition, public acknowledgment, and collegial engagement, build a sense of community that reinforces motivation (Aceves et al., 2024). Research among vocational high school teachers found that both intrinsic motivation and external rewards are significantly associated with teachers' affective commitment to their profession (Heryanto, 2024). Work rewards encompassing professional growth opportunities and flexible scheduling contribute directly to career advancement (Baxter et al., 2021). Personal rewards tied to individual accomplishments, autonomy, and intrinsic fulfillment are significantly associated with educators' long-term commitment, and equitable reward systems strengthen teacher wellbeing and organizational engagement (Lipponen et al., 2022).

Synthesis

The reviewed literature confirms that career development initiatives and incentive mechanisms are interconnected factors in educator professional engagement. Self-efficacy, outcome expectations, and personal goals all relate to professional growth, while a combination of material and non-material incentives motivates engagement with continuous professional development. Although existing studies have examined general education teachers and motivation broadly, research specifically addressing physical education teachers in Chinese higher education is limited (Ponciano Núñez et al., 2023; Guo & Palao-ay, 2023). This study fills that gap by empirically evaluating these variables among PE teachers in Liaoning Province and proposing a Developmental Framework for professional development.

METHODOLOGY

Research Design

This study employed a descriptive-correlational research design to characterize and determine associations between career development initiatives and incentive mechanisms as experienced by physical education teachers in higher education institutions. A quantitative approach was employed using a researcher-developed survey questionnaire as the primary data collection tool (Creswell & Creswell, 2018).

Population and Sampling

The study included 189 physical education teacher respondents from four universities in Liaoning Province, China: Liaoning Normal University (n = 50), Anshan Normal University (n = 50), Liaoning University of International Business and Economics (n = 31), and Dalian University (n = 58). Total enumeration was utilized, allowing the researcher to survey the entire target population of PE teachers currently employed in these institutions. Eligible participants were required to have at least two years of service and to be between 21 and 55 years old.

Table 1. Distribution of Respondents by School/University

School/University	Population (n)	Sample (n)
Liaoning Normal University	50	50
Anshan Normal University	50	50
Liaoning Univ. of International Business and Economics	31	31
Dalian University	58	58
Total	189	189

Research Instrument

A structured survey questionnaire was developed to assess two main components: career development initiatives and incentive mechanisms. Career development was

measured through three indicators: self-efficacy, outcome expectations, and personal goals. Incentive mechanisms were assessed using four categories: material rewards, social rewards, work rewards, and personal rewards. All items were rated using a five-point Likert scale. The instrument was validated by three experts, including one Filipino academic and the researcher's adviser.

Reliability was established through Cronbach's Alpha Reliability Test via a pilot study involving 15 physical education teachers not included in the main study. For the career development initiatives variable, the overall Cronbach's Alpha was 0.919 (excellent), with per-dimension values as follows: self-efficacy (a = 0.710), outcome expectations (a = 0.954), and personal goals (a = 0.812). For the incentive mechanisms variable, the overall Cronbach's Alpha was 0.965 (excellent), with per-dimension values as follows: material reward (a = 0.818), social reward (a = 0.932), work reward (a = 0.899), and personal reward (a = 0.926). All values exceeded the 0.70 threshold, confirming the instrument's reliability and internal consistency.

Data Gathering Procedure

Data collection began following ethics board approval and coordination with each participating institution. All surveys were administered voluntarily, anonymously, and confidentially. Respondents were given consent forms before participation, ensuring that all ethical standards were upheld throughout the research process.

Statistical Treatment

The following statistical tools were employed:

1. Frequency counts and percentage distributions described the respondents' demographic profile.
2. Weighted mean and standard deviation assessed the level of career development initiatives and incentive mechanisms.
3. One-way ANOVA determined significant differences in perceptions when respondents were grouped by age, years of service, and educational attainment.
4. Independent samples T-test determined significant differences when respondents were grouped by sex.
5. Pearson correlation examined the significant relationship between career development initiatives and incentive mechanisms.
6. Cronbach's Alpha ensured the reliability and internal consistency of the research instrument.

RESULTS

Career Development Initiatives

Table 2 presents the assessment of the respondents on the career development initiatives they experienced. Table 2 shows that career development initiatives were rated as Strongly Agree across all three dimensions, with an overall mean of 4.43. Self-efficacy obtained a mean of 4.45 (Strongly Agree), with engagement in professional development

activities rated highest (M = 4.75) and preparedness for leadership roles rated lowest (M = 3.78, Agree). Outcome expectations registered the highest dimension mean of 4.47 (Strongly Agree), with incorporating new teaching methods rated highest (M = 4.73) and the perceived effect of leadership training on management skills rated lowest (M = 4.49). Personal goals obtained the lowest dimension mean of 4.38 (Strongly Agree), with seeking new research to update teaching methods rated highest (M = 4.66) and mentoring new teachers within the department rated lowest (M = 3.96, Agree).

Table 2. Assessment on Career Development Initiatives

Indicator	Mean	Verbal Interpretation
Self-Efficacy	4.45	Strongly Agree
Outcome Expectation	4.47	Strongly Agree
Personal Goals	4.38	Strongly Agree
Overall Mean	4.43	Strongly Agree

Note. *Scale: 4.21-5.00 = Strongly Agree; 3.41-4.20 = Agree; 2.61-3.40 = Moderately Agree; 1.81-2.60 = Less Agree; 1.00-1.80 = Disagree*

Incentive Mechanisms

Table 3 presents the assessment of the respondents on the incentive mechanisms for physical education teachers. Table 3 shows that incentive mechanisms obtained an overall mean of 4.39 (Always Available). Material rewards received the lowest mean of 4.11 (Available), with compensation reflecting career performance rated highest (M = 4.53) and vacation packages for career program completion rated lowest (M = 3.31, Sometimes Available). Social rewards (M = 4.42), work rewards (M = 4.51), and personal rewards (M = 4.51) were all rated as Always Available.

Table 3. Assessment of Incentive Mechanisms for Physical Education Teachers

Indicator	Mean	Verbal Interpretation
Material Reward	4.11	Available
Social Reward	4.42	Always Available
Work Reward	4.51	Always Available
Personal Reward	4.51	Always Available
Overall Mean	4.39	Always Available

Note. *Scale: 4.21-5.00 = Always Available; 3.41-4.20 = Available; 2.61-3.40 = Sometimes Available; 1.81-2.60 = Rarely Available; 1.00-1.80 = Not Available*

Relationship Between Career Development Initiatives and Incentive Mechanisms

Table 4 presents the Pearson correlation results between career development initiatives and incentive mechanisms. Table 4 shows that a significant and positive relationship was found between self-efficacy and incentive mechanisms ($r = 0.705$, $p < .001$).

This indicates that higher self-efficacy among physical education teachers is associated with greater engagement with institutional incentive systems.

Table 4. Pearson Correlation Between Career Development Initiatives and Incentive Mechanisms

Variable	Pearson r	p-value	Interpretation
Self-Efficacy and Incentive Mechanisms	0.705	< .001	Significant Positive Relationship

Note. **Correlation is significant at the 0.05 level (two-tailed).*

DISCUSSION

Career Development Initiatives

The strong overall rating for career development initiatives (M = 4.43, Strongly Agree) suggests that physical education teachers in Liaoning Province universities perceive their institutions as generally supportive of professional development. The high rating for self-efficacy (M = 4.45) is consistent with findings by Agiasotelis et al. (2024) and Sun and Yang (2023), who reported that teachers with strong self-efficacy are more likely to engage in professional growth activities and adapt to institutional demands. However, the comparatively lower rating for leadership readiness (M = 3.78) within the self-efficacy dimension suggests that while teachers are active learners, they may not yet feel adequately prepared for administrative responsibilities. This gap aligns with Japor (2021), who noted that organizational career development often lacks formal leadership preparation pathways.

The highest rating was recorded for outcome expectations (M = 4.47), indicating that teachers strongly anticipate positive professional results from their development activities. This finding is supported by Dodd, Hanson, and Hooley (2021) and Pham et al. (2024), who emphasized that aligning career development programs with expected outcomes strengthens teacher motivation. Personal goals recorded the lowest overall mean (M = 4.38), particularly in the area of peer mentorship (M = 3.96). As Jiang et al. (2024) argued, the realization of personal professional goals depends significantly on institutional backing and structured opportunities, which may not yet be uniformly available across the four universities studied.

Incentive Mechanisms

The overall rating for incentive mechanisms (M = 4.39, Always Available) reflects a generally positive perception of institutional reward systems among PE teachers. The consistently high ratings for social (M = 4.42), work (M = 4.51), and personal rewards (M = 4.51) are consistent with findings by Ansori et al. (2024), who found that intrinsic motivators and social recognition are strongly associated with teachers' affective commitment. These non-material incentives appear to be well-established in the studied institutions, suggesting that institutional culture supports collegial recognition and professional autonomy.

The comparatively lower rating for material rewards (M = 4.11, Available) is a noteworthy finding. While still above the midpoint of the scale, the lower score for vacation packages (M = 3.31) suggests inconsistency in financial incentive provision. This is consistent with Wang and Sutthisai (2024), who noted that material reward systems in higher education often suffer from inequitable application. The pattern also supports Mallah (2019), who observed that material incentives play a secondary but still important role when core professional needs are already met.

Relationship Between Career Development Initiatives and Incentive Mechanisms

The significant positive relationship between self-efficacy and incentive mechanisms ($r = 0.705$, $p < .001$) suggests that teachers with greater belief in their professional capabilities are more likely to actively engage with and benefit from the institutional reward systems available to them. This finding is consistent with Lent, Brown, and Hackett (1994), whose Social Cognitive Career Theory posits that self-efficacy beliefs are central to how individuals pursue and respond to career-related opportunities. When teachers believe they can succeed, they are more likely to seek out and utilize professional incentives, reinforcing a cycle of engagement and development.

The moderate strength of the correlation ($r = 0.705$) indicates that while self-efficacy is an important factor, it does not fully account for engagement with incentive mechanisms. Other factors, such as institutional culture, equitable resource distribution, mentorship opportunities, and workload conditions, likely mediate or moderate this relationship. This interpretation is supported by Bingang and Hu (2024) and Gao, Zhuang, Li, and Wang (2024), who found that contextual and structural factors within higher education institutions significantly shape teachers' responses to reward systems. The findings collectively affirm the theoretical foundation of this study, as the alignment between career development initiatives and incentive mechanisms creates a mutually reinforcing system for professional growth.

CONCLUSIONS AND RECOMMENDATIONS

The study found that career development initiatives were strongly perceived by physical education teachers across all three dimensions, with an overall mean of 4.43 (Strongly Agree). Outcome expectations obtained the highest dimension mean (M = 4.47), followed by self-efficacy (M = 4.45) and personal goals (M = 4.38). While engagement in professional development activities was highly rated, leadership readiness and peer mentorship were comparatively lower, identifying these as priority areas for institutional improvement. Incentive mechanisms were also positively rated overall (M = 4.39, Always Available), with work and personal rewards consistently recognized as always available. Material rewards, however, were rated as merely available (M = 4.11), with inconsistency in financial incentive provision identified as an area requiring attention.

A significant and positive relationship was found between self-efficacy and incentive mechanisms ($r = 0.705$, $p < .001$), confirming that teachers who believe in their professional capabilities are more likely to engage with available institutional reward structures. This

finding supports the theoretical propositions of Lent et al. (1994) and Hossain and Urme (2022), affirming that career development initiatives and incentive mechanisms are interconnected constructs that mutually reinforce professional commitment. Based on these findings, a Developmental Framework integrating structured career development programs with balanced material and non-material incentives is proposed to strengthen professional growth and institutional retention of physical education teachers in higher education.

In view of the findings, higher education administrators and policymakers are encouraged to design professional training programs that strengthen teachers' outcome expectations, self-efficacy, and personal goal-setting through continuous professional development workshops, mentoring programs, and performance feedback systems. Career development programs should be adapted to different career stages (early, mid, and late career) to ensure that all PE teachers receive targeted and equitable support. Financial incentives should be reviewed for consistency and equity across PE teaching positions, complemented by non-monetary rewards aligned with individual teacher preferences and career aspirations. Furthermore, the proposed Developmental Framework should be institutionalized as a formal policy document, with a monitoring and evaluation mechanism to ensure sustained impact on teacher commitment, motivation, and retention. Future research should extend this study to other provinces in China and employ mixed methods to capture both the quantitative patterns and the lived experiences of PE teachers regarding career development and incentive systems.

LIMITATIONS

This study is subject to several limitations that should be considered when interpreting its findings. First, the sample was drawn exclusively from four universities in Liaoning Province, China, which limits the generalizability of the findings to PE teachers in other provinces or institutional contexts. Second, the cross-sectional nature of the research design captures perceptions at a single point in time, which may not fully reflect changes in career development experiences or incentive systems over time. Third, the use of a self-report questionnaire introduces the potential for response bias, as participants may provide socially desirable answers rather than their true perceptions. Fourth, while the Pearson correlation analysis established a significant relationship between self-efficacy and incentive mechanisms, this study does not establish causal relationships between the variables. Future studies using longitudinal designs, larger and more diverse samples, and qualitative methods are recommended to address these limitations and provide a more complete understanding of the factors associated with PE teacher professional development.

PROPOSED DEVELOPMENTAL FRAMEWORK

Based on the study's findings, a Developmental Framework for Physical Education Teachers in Higher Education was proposed. The framework is anchored in Lent, Brown, and Hackett's (1994) Social Cognitive Career Theory and Hossain and Urme's (2022) Corporate Reward Programs model and is organized around four interconnected components.

The first component, Career Development Input, focuses on strengthening teachers' self-efficacy through coaching and targeted training, clarifying career aspirations through goal-setting workshops, and supporting meaningful professional engagement through structured mentorship programs. The second component, Organizational Process, involves institutional recognition systems, transparent promotion criteria, equitable access to career development resources, and leadership training pathways suited to different career stages (Bingang & Hu, 2024; Klaniiene, Smitiene, & Vainore, 2022).

The third component, Incentive and Reward Systems, encompasses material incentives (competitive salary, performance bonuses), social rewards (peer recognition, milestone celebrations), work rewards (workshops, research grants, leadership roles), and personal rewards (autonomy in career path management, wellness support). The fourth component, Monitoring and Evaluation, provides a built-in feedback loop through periodic assessment, responsiveness to changing institutional needs, and documentation of teacher commitment and retention outcomes. By integrating these components, the Developmental Framework aims to improve teacher motivation, retention, and overall professional satisfaction, thereby strengthening the quality of physical education in higher education institutions.

Table 5. Developmental Framework for Physical Education Teachers in Higher Education

Component	Key Elements
1. Career Development Input	Coaching and training; Career visioning; Goal-setting workshops; Peer mentorship
2. Organizational Process	Recognition systems; Transparent promotion criteria; Equitable resource access; Leadership pathways
3. Incentive and Reward Systems	Material: salary, bonuses; Social: peer recognition; Work: workshops, grants; Personal: autonomy, wellness
4. Monitoring and Evaluation	Periodic impact assessment; Responsiveness to change; Commitment tracking; Retention documentation

Note. *Framework anchored on Lent, Brown, and Hackett (1994) and Hossain and Urme (2022).*

IMPLICATIONS

Practical Implications

The findings of this study carry practical implications for higher education administrators, human resource managers, and physical education department heads in Liaoning Province and similar contexts in China. Institutions are encouraged to review and strengthen their career development programs by incorporating structured mentorship, leadership preparation tracks, and career-stage-appropriate training. Additionally, the lower rating for material rewards ($M = 4.11$) signals an immediate need for institutions to audit and standardize financial incentive packages to ensure equitable distribution across all PE teaching positions. The proposed Developmental Framework provides a concrete operational guide that administrators can adapt to their institutional contexts.

Theoretical Implications

This study contributes to the theoretical literature on Social Cognitive Career Theory (Lent et al., 1994) by applying its core constructs, specifically self-efficacy, outcome expectations, and personal goals, to physical education teachers in Chinese higher education, a population that has been underrepresented in prior research. The significant positive relationship between self-efficacy and incentive mechanisms ($r = 0.705$, $p < .001$) provides empirical support for the SCCT proposition that self-efficacy beliefs are central to shaping how individuals engage with career-related environments. The study also extends Hossain and Urme's (2022) Corporate Reward Programs framework to a higher education setting, demonstrating its applicability beyond its original organizational management context.

Social Implications

At the broader societal level, the study reinforces the importance of investing in the professional well-being of physical education teachers as a strategy for strengthening higher education quality. When PE teachers are professionally fulfilled, supported, and motivated, they are better positioned to cultivate physical literacy, wellness, and discipline among students, contributing to healthier and more active communities. Equitable and responsive career development systems also promote gender-inclusive and career-stage-sensitive practices, which are important for building a diverse and resilient PE teaching workforce in Chinese higher education institutions.

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This study did not receive funding from any institution.

DECLARATIONS

Conflict of Interest

The authors declare no conflict of interest.

Informed Consent

Informed consent was obtained from all individual participants included in the study. All respondents were provided with a consent letter before participation, ensuring voluntary and anonymous participation in accordance with ethical standards.

Ethics Approval

This study was approved by the institutional ethics review committee of the researchers' affiliated university under Ethics Protocol Code: 2025-2nd-CASE-Yang-v1, approved on June 20, 2025.

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Author's Biography

Yang Shuai is a doctoral candidate in Education Management at Trinity University of Asia, Philippines. With a background in physical education instruction and administration in Chinese higher education, the author's research focuses on teacher professional development, career incentive systems, and institutional frameworks for educational quality improvement in Liaoning Province, China.

Dr. Hazel Yahweh Arce earned her Doctor of Education degree and is a faculty member in the Human Kinetics Department of Trinity University of Asia, Philippines. Her research interests include wellness, physical education, health promotion, employee well-being, and educational research. She is actively involved in teaching, research, and community engagement initiatives that promote health and wellness in educational settings.