



Empowering instructors through HRM practices to implement digital marketing strategies for promoting student engagement in university physical activities

Capacitación de instructores mediante prácticas de gestión de recursos humanos para implementar estrategias de marketing digital que promuevan la participación estudiantil en actividades físicas universitarias

Authors

Amirhossein Golzarizamir ¹
Yaser Madani ²

¹ Islamic Azad University,
Hamedan, Iran
²-Phd of management,
Independent Researcher

Corresponding author:
Amirhossein Golzarizamir
amirhosseinglzar@gmail.com

Received: 11-11-25
Accepted: 10-02-26

How to cite in APA

Golzarizamir, A., & Madani, Y. (2026). Capacitación de instructores mediante prácticas de gestión de recursos humanos para implementar estrategias de marketing digital que promuevan la participación estudiantil en actividades físicas universitarias. *Retos*, 82, 800-821. <https://doi.org/10.47197/retos.v82.118091>

Abstract

Introduction: Promoting student engagement in physical activities is a key objective of higher education. Although digital marketing is an important tool for encouraging participation, limited research has examined how Human Resource Management (HRM) practices and instructor-led digital marketing jointly influence student engagement, particularly in the Iranian higher education context.

Objective: This study investigates how strategic HRM practices enhance the implementation of digital marketing strategies and, in turn, promote student engagement in physical activities. It also examines the mediating role of digital marketing in the relationship between HRM and student engagement.

Methodology: A quantitative, cross-sectional study was conducted in 2025 using data from 265 participants (55 instructors and 210 students) at Islamic Azad University in Tehran. Structural Equation Modeling (SEM) was used to test the proposed relationships. Previous sports participation, gender, and field of study were included as control variables.

Results: Strategic HRM practices significantly improved digital marketing implementation ($\beta = 0.571$, $p < .001$), while digital marketing positively predicted student engagement ($\beta = 0.402$, $p < .001$). Digital marketing also significantly mediated the relationship between HRM and student engagement. The model explained 52.5% of the variance in student engagement ($R^2 = .525$). Previous sports participation, gender, and field of study were also significantly associated with engagement.

Conclusions: Strategic HRM strengthens instructors' capacity to implement effective digital marketing, directly and indirectly increasing student participation in physical activities. These findings highlight HRM as a key institutional resource for improving digital engagement and fostering a more active and engaged university community.

Keywords

Human resource management, digital marketing strategies, university physical activity, instructor empowerment, student engagement, structural equation mod.

Resumen

Introducción: Promover el compromiso de los estudiantes con las actividades físicas es un objetivo clave de la educación superior. Aunque el marketing digital es una herramienta importante para fomentar la participación, existe escasa evidencia sobre cómo las prácticas de Gestión de Recursos Humanos (GRH) y el marketing digital liderado por instructores influyen en el compromiso estudiantil, especialmente en el contexto iraní.

Objetivo: Analizar cómo las prácticas estratégicas de GRH fortalecen la implementación del marketing digital y favorecen el compromiso estudiantil, evaluando el papel mediador del marketing digital en la relación entre la GRH y el compromiso.

Metodología: Se realizó un estudio cuantitativo transversal en 2025 con 265 participantes (55 instructores y 210 estudiantes) de la Universidad Azad de Teherán. Los datos se analizaron mediante Modelado de Ecuaciones Estructurales (MEE). Se controlaron la práctica deportiva previa, el género y el campo de estudio.

Resultados: Las prácticas estratégicas de GRH mejoraron significativamente la implementación del marketing digital ($\beta = 0.571$, $p < .001$), mientras que el marketing digital predijo positivamente el compromiso estudiantil ($\beta = 0.402$, $p < .001$). Además, medió significativamente la relación entre la GRH y el compromiso. El modelo explicó el 52.5 % de la varianza del compromiso estudiantil ($R^2 = .525$). Las variables de control también mostraron asociaciones significativas.

Conclusiones: La GRH estratégica fortalece la capacidad de los instructores para implementar un marketing digital eficaz, incrementando directa e indirectamente la participación estudiantil en actividades físicas y contribuyendo a una comunidad universitaria más activa y comprometida.

Palabras clave

Gestión de recursos humanos, estrategias de marketing digital, actividad física universitaria, empoderamiento de instructores, compromiso estudiantil, modelado de ecuaciones estructurales.

Introduction

In the rapidly evolving landscape of higher education, empowering instructors through strategic Human Resource Management (HRM) practices is critical for the successful implementation of digital marketing strategies aimed at enhancing student engagement in university Educational, Research and physical activity programs (MagicBox, 2025; Obwatho & Thuo, 2015). This transformation is not merely about adopting new technologies but fundamentally shifting institutional approaches to talent development and program promotion (Wymbs, 2011). Today it has become clear that effective HRM moves beyond traditional administrative functions to become a strategic partner in cultivating a digitally adept and motivated faculty, ensuring that universities remain competitive and relevant in an increasingly digital world (Hancock et al., 2022). By leveraging HRM to empower instructors, universities can unlock significant potential for innovation in teaching, student outreach, and overall institutional effectiveness. Hence, achieving high-quality education depends on a deep understanding and purposeful application of HRM principles within the education system. HRM in education goes far beyond routine administration — it serves as a strategic driver that influences the entire learning process. Through effective recruitment, continuous training, and professional growth opportunities, HRM empowers educators to adapt and respond to the constantly changing needs of modern education (Permatasari & Tandiayuk, 2023).

Research consistently demonstrates that effective HRM practices significantly enhance student engagement and organizational performance in higher education settings. Specifically, well-implemented HRM initiatives, such as comprehensive professional training, strategic resource allocation, and the intentional creation of a supportive learning atmosphere, have been demonstrably shown to significantly improve student involvement (Mehta, Kumar & Castaño, 2022; Dalimunthe et al, 2024). Crucially, effective HRM policies actively contribute to enhanced student involvement by intentionally fostering such conducive environments (Sami'un, 2024). Furthermore, the strategic focus of HRM on staff development, fair practices, and inclusive policies is vital, as these elements collectively ensure that students receive the essential support and equitable opportunities necessary to excel in their academic and physical activity pursuits (University of Minnesota, 2016). Digital integration also proves crucial, as González et al. (2024) showed that digital HRM systems foster mentorship cultures and facilitate benchmarking in Cuban universities, while Rohayati (2024) emphasized the strategic importance of integrating digital competencies into HRM frameworks for operational optimization and innovation. This approach is imperative for institutions aiming to maintain competitiveness and relevance in the digital age. Complementary to internal practices, marketing strategies play a vital role in promoting physical activity programs, and Reyes (2025) demonstrated that culturally grounded digital marketing approaches, including TikTok-style videos and Instagram reels, significantly outperform traditional promotional methods. Collectively, These researches indicates that combining effective HRM practices with digital competencies and culturally appropriate marketing strategies creates more engaging and sustainable university programs.

An essential and often non-negotiable component of holistic education is physical activity, given its capacity to simultaneously promote physical health, mental wellness, cognitive function, and social interaction. Specifically within university settings, physical education (PE) programs are instrumental in not only enhancing students' physical fitness but also in cultivating resilience and potentially maintaining their cultural identity among young adults. In these educational spaces, the promotion of physical activity can be strategically reframed from a mere necessity into a culturally relevant and powerful lifestyle choice through the application of social marketing. This approach purposefully influences behaviors for the ultimate benefit of the public and communities, offering a dynamic methodology for increasing participation (Kotler & Lee, 2008).

The promotion of physical activity within universities transcends mere fitness; it should be systematically conceptualized as a multi-dimensional driver of key student development outcomes. A robust body of evidence delineates a clear causal pathway whereby sustained participation in structured physical activities yields significant benefits across four interrelated domains: (1) Physical Health: Regular engagement reduces the risk of chronic diseases, improves cardiovascular and muscular-skeletal health, and enhances overall physical fitness, which forms the foundation for daily academic stamina and long-



term well-being (WHO,2022). (2) Mental Well-being: Physical activity acts as a potent non-pharmacological intervention for mental health, effectively alleviating symptoms of stress, anxiety, and depression prevalent in student populations, while concurrently boosting self-esteem and emotional regulation (Kandola et al., 2020). (3) Cognitive Function: Neuroscientific and educational research consistently demonstrates that physical exercise stimulates neurogenesis, improves blood flow to the brain, and enhances critical executive functions such as memory, attention, concentration, and information processing speed, thereby directly supporting academic performance and learning efficiency (Nyvoll Aadland et al., 2017). (4) Socialization and Community Building: University sports and group activities provide a vital platform for social interaction, fostering teamwork, leadership skills, communication, and a sense of belonging and institutional identity, which are crucial for mitigating student isolation and building a cohesive campus community (Eime et al., 2013). Therefore, student engagement in university physical activity programs is not an end in itself but a critical proximal variable that systematically mediates the attainment of these broader health, cognitive, and social outcomes, which are ultimate markers of a holistic and successful educational experience.

It must be noted, however, that participation in sports and other physical activities is not uniform across different programs within the university ecosystem. A key observation is that while faculty engagement remains minimal, students often perceive these events as mandatory or simply routine. This underscores a critical need for strategic interventions that move beyond mere availability to foster genuine interest. Research consistently indicates that cultural sensitivity, relevance to the local context, and fostering active community participation are essential components for the successful execution of health and physical activity marketing initiatives (Eisenberg et al., 2014; Garcia & Francisco, 2022; Tan & Ramos, 2024). Consequently, bridging the gap between program provision and authentic student and faculty interest requires a nuanced, context-aware, and strategically marketed approach.

However, despite the acknowledged strategic imperative of integrating HRM, instructor empowerment, and digital marketing, a significant research lacuna remains: only a small number of studies have explicitly examined the synergistic relationship between empowering instructors through HRM practices and their capacity to effectively implement digital marketing strategies for promoting student engagement in university physical activity programs. This knowledge gap is particularly pronounced within the Iranian context, where limited scholarly attention has been directed toward institutional efforts concerning the implementation of digital HR and its subsequent impact on program promotion and student participation. Reflecting this scarcity, minimal literature exists to guide universities in the transition toward digitally adept, instructor-led promotion of physical activity. Therefore, this article aims to bridge this critical gap by providing scientific evidence concerning the mechanisms through which HRM practices and instructor empowerment facilitate the implementation of digital marketing strategies at Islamic Azad Universit (A.U) in Iran, ultimately measuring the impact on student engagement in physical activity programs. So, this study, by focusing on "student engagement," inherently targets the essential behavioral gateway through which these systemic benefits are realized.

Following this introduction, the remainder of this paper is structured as follows: the next section reviews the relevant theoretical literature, followed by the methodology, the presentation of results, and finally, a discussion of the findings and their implications.

Literature Review

The intricate relationship between HRM practices and instructor empowerment in educational settings is underpinned by robust theoretical frameworks that illuminate how organizational structures and individual psychology interact to foster proactive and innovative faculty. These theories provide a conceptual roadmap for universities seeking to integrate digital marketing effectively.

Human Resource Management (HRM)

Human Resource Management (HRM) fundamentally encompasses the set of integrated processes and practices designed to effectively manage people within an organization, directly influencing employee performance, attitudes, and behavior at work (Aslam et al., 2013). While traditionally defined as the administrative process of acquiring, training, appraising, and compensating employees (Dessler., 2017), a contemporary and broader perspective views HRM as a crucial strategic driver and achieving competitive success (Patterson ,2023).



HRM operates as an integrated set of systems focused on the effective deployment and development of human capital. This includes comprehensive activities undertaken to attract, develop, and maintain a high-performing workforce, ensuring managers find and nurture the right talent to contribute significantly to organizational success (Mijatović et al., 2020).

Kanter's Structural Empowerment Theory

Rosabeth Moss Kanter's (1993) theory of structural empowerment identifies key organizational conditions that enable employees to be powerful and effective. In educational contexts, this means providing instructors with access to four crucial elements: opportunities for growth and advancement, information necessary for decision-making, support from colleagues and leadership, and resources such as funding, equipment, and time (Hasani & Sheikhesmaeili, 2016; Malik et al., 2024). When these structural conditions are met, instructors are empowered to mobilize resources, exert influence, and implement innovative strategies like digital marketing for physical activity promotion (Malik et al., 2024). Without these structures, instructors may feel like "compliance officers" rather than valued professionals.

Psychological Empowerment as a Mediator

Complementing structural empowerment, the concept of psychological empowerment—comprising meaning, competence, self-determination, and impact—serves as a critical mediating factor (Lu et al., 2025). Meaning reflects the alignment of an instructor's work with their personal values and beliefs, which is often high in education. Competence refers to an instructor's belief in their ability to perform tasks effectively, which is directly influenced by training and development programs. Self-determination grants instructors autonomy in choosing teaching methods and adapting content to student needs, such as in digital marketing implementation. Finally, impact is the perceived influence instructors have on educational outcomes and institutional goals (Angel, 2025). HRM practices that foster these psychological states are crucial for motivating instructors to adopt and excel in digital marketing effort (Permatasari & Tandiyuk, 2023).

Ability-Motivation-Opportunity (AMO) Framework

The Ability-Motivation-Opportunity (AMO) framework provides another lens through which to understand HRM's role in empowering instructors. This framework posits that employee performance and engagement are enhanced when HRM practices address three core components: Ability (A) – equipping employees with the necessary skills and knowledge through training and development; Motivation (M) – fostering a desire to perform through incentives, recognition, and empowerment; and Opportunity (O) – creating an environment that allows employees to utilize their abilities and motivation, such as providing resources and decision-making authority (Permatasari & Tandiyuk, 2023; Elevated Achievement Group, 2025). Applied to digital marketing in universities, the AMO framework suggests that comprehensive training builds digital marketing abilities, empowerment fosters motivation, and a supportive institutional environment provides opportunities for instructors to apply these skills to engage students in physical activity programs (Riinawati & Noor, 2024).

Key HRM Practices for Empowering Instructors in Digital Marketing

Empowering university instructors to effectively utilize digital marketing strategies for enhancing student engagement requires the implementation of strategic Human Resource Management (HRM) practices. These practices are fundamental to addressing the evolving demands of the digital education era, with a focus on talent development, motivational support, and a responsive organizational culture (Riinawati & Noor, 2024; Ford, 2025). The following outlines the core pillars of this strategic approach.

Continuous and Targeted Professional Development

A cornerstone of instructor empowerment is investment in comprehensive and ongoing professional development programs specifically designed to enhance digital competencies (Riinawati & Noor, 2024; Permatasari & Tandiyuk, 2023). Such programs must transcend basic digital literacy, offering specialized training in key digital marketing techniques, including social media management, content creation, search engine optimization (SEO), email marketing, and data analytics (Ebrahimipour et al., 2021; Kraugusteeliana et al., 2024). To ensure relevance and impact, these initiatives should be delivered through tailored workshops, certification courses, and mentorship schemes, potentially leveraging AI-

driven adaptive learning platforms to cater to individual instructor needs and current trends (Permatasari & Tandiyuk, 2023). These efforts not only build essential technical competence but also significantly boost instructors' confidence and self-efficacy in leveraging digital tools (Selim & Chirayuri, 2015).

Cultivating a Collaborative and Supportive Culture

Fostering a collaborative organizational culture that encourages knowledge sharing and innovation among educational staff is pivotal (Riinawati Noor, 2024; Angel, 2025). HRM can play a critical role by facilitating peer-learning opportunities—such as lesson study cycles and peer observation programs—that formally recognize and leverage the expertise of experienced instructors (Angel, 2025). Furthermore, establishing cross-functional teams that bring together instructors, marketing specialists, and IT support staff fosters a shared understanding of goals and ensures that digital marketing initiatives are aligned with broader institutional objectives (Riinawati Noor, 2024; Malik et al., 2024). This integrated environment is instrumental in overcoming resistance to change and promoting a collective sense of ownership over the digital transformation process (Hancock et al., 2022; Ford, 2025).

Ensuring Robust Technical Support and Resource Allocation

Genuine empowerment requires providing robust technical infrastructure and reliable resource allocation (Riinawati Noor, 2024; Aggarwal, 2023). This entails ensuring stable internet access, up-to-date hardware and software, and readily available IT assistance to allow instructors to navigate technological challenges with confidence (Aggarwal, 2023). Additionally, universities should provide user-friendly digital platforms for communication, content management, and data analysis to streamline the implementation of marketing strategies. Crucially, allocating adequate resources, including dedicated time for training and implementation, is essential to prevent these digital marketing efforts from becoming an unsustainable burden on already busy faculty members (Aggarwal, 2023; Angel, 2025).

Visionary Leadership and Strategic Policy Integration

Visionary leadership that provides clear direction and active support for digital innovation is essential (Riinawati Noor, 2024; Malik et al., 2024). University leaders and HR executives must act as strategic champions for instructor empowerment and digital marketing, ensuring that institutional policies and budgetary allocations actively facilitate and sustain technology adoption across the institution. Aligning HR strategic plans with the university's overarching digital transformation goals ensures that faculty development efforts directly contribute to institutional success (Hancock et al., 2022). This top-level commitment is key to integrating digital marketing not as a peripheral activity, but as a core component of educational outreach and student engagement (Panait & Leonte, 2023, 139).

Performance Management and Recognition Systems

The performance management system should formally acknowledge and reward instructor engagement and impact in the realm of digital marketing. This can be achieved by incorporating digital marketing contributions into annual appraisals and offering tangible incentives for successful campaigns or innovative digital pedagogy (Hancock et al., 2022). Recognizing and celebrating achievements in this domain not only motivates instructors but also reinforces the institutional value placed on these efforts, thereby fostering a sustainable culture of ownership and excellence (Elevated Achievement Group, 2025).

Digital Marketing Strategies for Physical Activity Programs

To foster healthier lifestyles and enhance the student experience, universities are increasingly adopting a suite of interactive and targeted digital marketing strategies designed to promote engagement in physical activity programs (Rodríguez -Correa et al., 2019). These approaches can be categorized into several key domains.

Social Media Campaigns and Community Building

Social media platforms like Instagram, TikTok, and YouTube are indispensable for reaching students (Buja et al., 2024). Universities leverage these channels to run targeted campaigns, share engaging content, and build virtual communities around fitness initiatives. Research confirms that social media interventions, especially those that foster social group creation, are effective in boosting participation in



physical activity. Platforms that are most popular among young adults, such as YouTube (85%), Instagram (72%), and Snapchat (69%), are particularly effective for reaching university students (Rodríguez-Correa et al., 2019; Buja et al., 2024).

Content Marketing and Digital Storytelling

Capturing student interest relies on disseminating high-quality, relevant content. This includes educational blogs, videos, and infographics that highlight the benefits of physical activity (Aggarwal, 2023; Digital Marketing in the Fitness, 2024). Digital storytelling is a particularly powerful technique, promoting perceived engagement and collaboration by narrating student successes and the positive impact on well-being (Spanjaard et al., 2022).

Personalized and Mobile-First Approaches

The ubiquity of smartphones makes mobile-first strategies highly effective. These include motivational text messages, dedicated activity-tracking apps, and ensuring all content is mobile-responsive. Personalized communications, based on individual preferences, prove more successful in driving behavior change than generic messages (Buja et al., 2024). Further personalization is achieved by integrating wearable fitness trackers, which provide instant feedback and help tailor programs to individual needs, improving outcomes (Anthony, 2024).

Multi-Channel Integration and SEO

A comprehensive strategy integrates multiple channels—university websites, email campaigns, SEO, and paid advertising—to ensure consistent messaging and maximum reach. Optimizing website content with relevant keywords is critical for making programs easily discoverable through search engines (Yudina et al., 2022), while email newsletters and targeted ads help maintain communication with specific student demographics (Correa et al., 2019).

Gamification and Interactive Experiences

Incorporating gamification elements like points, badges, and leaderboards can significantly boost engagement by making participation more enjoyable and competitive (Aggarwal, 2023). Furthermore, interactive digital tools, including virtual experiments and augmented reality, can transform physical education, making it more engaging and personalized for students (Aggarwal, 2023, Anthony, 2024).

Policy and Regulatory Framework for Digital Marketing and HRM Integration

The effective integration of digital marketing strategies and Human Resource Management (HRM) practices within universities operates within a critical framework of policy and regulatory requirements. Key considerations of privacy, ethics, and inclusivity are not merely administrative hurdles but fundamental to maintaining institutional integrity and trust within the academic community (Hancock et al., 2022; Hugar & Battase, 2024).

Data Privacy and Security Governance

The pervasive use of student data for personalized marketing necessitates rigorous adherence to data protection laws, such as the General Data Protection Regulation (GDPR) and comparable local statutes. Institutional compliance must be demonstrated through explicit consent mechanisms, transparent data usage policies, and robust cybersecurity protocols to prevent breaches (Singh, 2025). Furthermore, establishing clear guidelines for data retention and sharing, coupled with mandatory training for personnel handling sensitive information, is essential for mitigating risk and upholding ethical standards (Hancock et al., 2022; School Company, 2025).

Ethical Imperatives in Digital Engagement

Ethical conduct in digital marketing demands authenticity, respect for privacy, and the avoidance of manipulative tactics. This requires marketing communications to be accurate in representing programs and transparent in their intent (Lira & Magalhães, 2018). The advent of Artificial Intelligence introduces complex ethical challenges, including potential algorithmic bias in targeting and heightened privacy concerns from sophisticated data tracking (University of Minnesota, 2025). Consequently, universities must develop forward-looking AI governance policies that incorporate safeguards to ensure ethical deployment, thereby protecting the institution's reputation and fostering stakeholder trust (Zekan et al., 2025).



Inclusivity and Accessibility in Digital Outreach

Policies must ensure that both digital marketing content and HRM practices actively promote diversity, equity, and inclusion (Bai, 2022). Marketing campaigns should be designed to resonate with a diverse student body, encompassing varied cultural backgrounds, abilities, and gender identities, informed by culturally responsive frameworks. This commitment extends to guaranteeing digital accessibility—such as providing alt text and captions—making information universally available and ensuring legal compliance (University of Maryland, 2024). From an HRM perspective, fostering an inclusive environment involves promoting diversity in hiring, providing unconscious bias training, and empowering all faculty to contribute effectively to digital transformation (Alrubail, 2015).

Strategic HRM Compliance and Institutional Governance

HRM functions must navigate a complex landscape of employment law, faculty rights, and internal governance structures (Hancock et al., 2022; Hugar et al., 2024). Compliance in areas such as recruitment, compensation, and performance management is foundational. However, the traditionally decentralized nature of academic institutions often limits HR to an administrative and compliance role, constraining its strategic potential (Reginaldo, 2024). Strengthening HR's strategic position through clear policy development, regular audits, and proactive talent development is therefore crucial. A robust and compliant HRM framework is indispensable for providing instructors with the clear guidance and support needed to navigate digital marketing initiatives responsibly and effectively (Hancock et al., 2022, School Company, 2025).

Synthesis of Prior Research

Prior research decisively establishes that digital marketing strategies are highly effective in promoting sports participation, primarily by leveraging digital media to influence sports cognition and enhance engagement metrics across social platforms. Within the educational context, digital technologies are deemed essential for expanding university sports outreach and improving service quality, with digital skills identified as a critical determinant of students' overall capacity for full engagement in campus activities, including physical pursuits.

Simultaneously, empirical evidence emphasizes that the human element remains foundational. Research confirms that empowering coaches and teachers through supportive environments is strongly predictive of cultivating greater autonomous motivation and ensuring sustained participation in student sports. Specifically, autonomy-supportive coaching styles and holistic organizational approaches—which integrate all stakeholders—are necessary to translate initial interest (often sparked digitally) into consistent activity. Despite this dual importance, a significant research lacuna persists: there is a scarcity of studies explicitly examining the synergistic relationship between HRM practices empowering instructors and their capacity to effectively implement digital marketing strategies for promoting student engagement in university physical activity programs.

Table 1 provides a concise summary of the most recent and relevant studies available on these topics.

Table 1. Summary of Key Case Study Findings on Digital Marketing and Instructor Empowerment

Study Focus		Key Findings	Methodology/Context	Impact Metrics
A. DIGITAL MARKETING EFFECTIVENESS				
Zhong et al. 2025	Digital Media & Student Sports Participation	Digital media use positively associated with students' sports participation, with sports cognition as significant mediator	Survey of college students examining digital media usage patterns.	Positive correlation between digital engagement and sports participation
Salari, Dehgan. 2025	Digital Advertising Campaign Effectiveness	Digital advertising campaigns effectively increase engagement and loyalty of sports fans on social media platforms	Analysis of five major sports fan engagement campaigns	Improved fan engagement and loyalty metrics
Biloš, Galić, 2016	Digital Marketing and University Sports	Digital marketing plays crucial role in university sport promotion and audience engagement.	Case study of higher education institutions in Croatia.	Enhanced service quality and market expansion in sports industry
Yiapanas, 2025	Effective Digital Marketing Strategies in Esports	Digital marketing significantly impacts audience engagement, consumer behavior, and brand growth in esports.	Examination of esports marketing strategies.	Increased audience engagement and brand growth and marketing strategies effectiveness



B. COACH AND TEACHER EMPOWERMENT

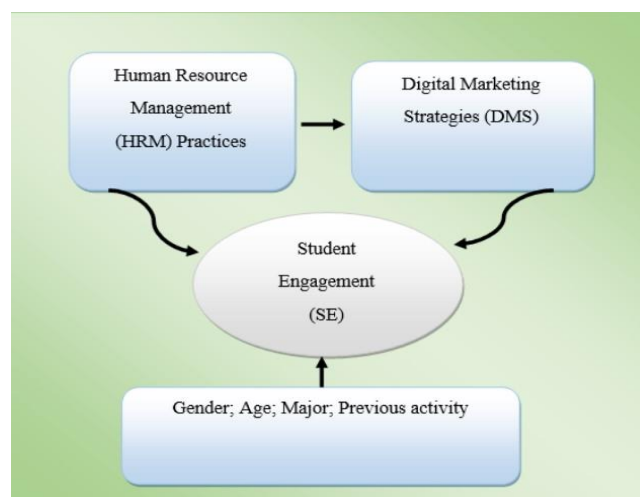
Williams, & Binks, 2025	External Sports Coaches Impact	Employing external sports coaches improved pupil participation numbers both within and outside PE curriculum.	Multiple case study evaluating school sport programs.	Measurable increase in student participation rates and managers played a key role in increasing successful partnerships.
Zhang et al., 2024	Autonomy-Supportive Coaching Style	Autonomy-supportive coaching style positively influences youth athlete development through psychological resilience.	Study on coaching styles and athlete development	Enhanced psychological resilience and dispositional outcomes
Duda, Appleton, 2020	Empowering Environments in Sports	Empowering environments predict greater autonomous motivation and link to more positive engagement in sport.	Research on motivational environments in sports	Empowering coaching practices positively influenced on enhanced psychological resilience and dispositional outcomes
Anderson-Butcher et al. 2024	Coach Training and Life Skills Development	Coaches are critical to promoting positive sport experiences and athlete life skill development.	Post-study on coach training participation.	Improved athlete life skills and positive sport experiences
Thompson et al, 2022	Sports-Friendly School Model	Holistic approach involving student-athletes, coaches and teachers creates sustainable sports participation culture.	UK case study of sports-friendly school features	Comprehensive athlete development and sustained participation
Kwan et al. (2022)	Past Physical Activity & Behavioral Continuity	Physical activity behavior shows significant continuity from adolescence into early adulthood. Past engagement is a strong, habit-based predictor of future activity levels.	Longitudinal cohort study tracking adolescents into early adulthood.	Habit Strength: Provides strong empirical support for using past behavior as a key control variable, confirming its predictive power over time.
Yin et al. (2023)	Gender & Cultural Influences	Identifies persistent gender differences in sports participation motivations and barriers, influenced by distinct socio-cultural norms in different countries.	Cross-cultural comparative survey of university students in China and the United States.	Targeted Intervention: Highlights the need for gender-sensitive and culturally adapted program design and marketing to address different motivations and barriers.
Beauchamp et al. (2024)	Psychological vs. Demographic Predictors	Among university students, psychological determinants (e.g., motivation, self-regulation) are stronger predictors of physical activity than demographic variables like age.	Survey study testing a psychological model (Multi-Process Action Control) on undergraduate students.	Model Specificity: Supports the rationale for focusing on psychological and institutional mediators (like HRM & DMS) over broad demographic factors like age in homogeneous student samples.

Method

Research Design

This study employed a quantitative, cross-sectional correlational design to examine the impact of Human Resource Management (HRM) practices on student engagement in university physical activity programs, with digital marketing strategies serving as a mediating variable. The study aims to test the hypothesized relationships through Structural Equation Modeling (SEM), enabling an assessment of both direct and indirect effects within the proposed conceptual framework (Fig 1).

Figure 1. Conceptual Model



Therefore, according this conceptual model we proposes the following hypotheses to examine the relationships between Human Resource Management (HRM) Practices, Digital Marketing Strategies, and Student Engagement in University Physical Activity Programs.

H1. Human Resource Management (HRM) Practices have a positive and significant effect on Digital Marketing Strategies used to promote university physical activity programs.
→ (Theoretical base: AMO framework; HRM enhances instructors' digital ability and motivation.)

H2. Digital Marketing Strategies have a positive and significant effect on Student Engagement in university physical activity programs.

→ (Theoretical base: Social Marketing Theory and Technology Acceptance Model.)

H3. Human Resource Management (HRM) Practices have a positive and significant direct effect on Student Engagement in university physical activity programs.
→ (Beyond mediation, HRM may influence student participation through instructor support and organizational climate.)

H4. Control Variables — including Gender, Age, Major, and Previous Physical Activity — have significant effects on Student Engagement in university physical activity programs.
→ (These variables are expected to influence motivation and participation intensity.)

H5 (Mediation Hypothesis). Digital Marketing Strategies significantly mediate the relationship between Human Resource Management (HRM) Practices and Student Engagement in university physical activity programs.

→ (HRM enhances instructors' digital competence, which in turn promotes greater student engagement.)

Population and Sampling

The target population comprised instructors and students participating in university physical activity programs at selected campuses of Islamic Azad University in Tehran. Instructors were included to assess HRM-related constructs, whereas students represented the unit of analysis for engagement outcomes. A stratified convenience sampling technique was applied to ensure proportional representation of students across different faculties (e.g., Humanities, Engineering, Sports Science). Based on SEM sample-size requirements (Kline, 2016), a minimum of 200 responses was targeted, with an ideal range of 250–280 to ensure statistical robustness and model stability. The final sample consisted of 265 participants, including 55 instructors and 210 students from various branches of Islamic Azad University in Tehran. Consideration of Data Structure and Analytical Approach: Although data were collected from two groups (instructors and students), this study employed a single-level Structural Equation Modeling (SEM) approach, given the sample size and its focus on testing direct and mediation relationships at the

individual level. This means that the potential hierarchical or clustered structure of the data (e.g., students nested within specific instructors' classes) was not directly accounted for in the present model. This choice can be considered a methodological limitation, as it overlooks the potential dependency of responses among students who share the experience of being taught by the same instructor. Future studies with larger samples may utilize multilevel modeling to disentangle individual-level and group-level effects.

Instruments and Measures

Data were collected using a structured questionnaire consisting of four sections:

1. Demographic Variables – gender, age, field of study, and previous physical activity experience.
2. Human Resource Management Practices (HRM): This construct was measured using a multidimensional scale adapted from Delaney & Huselid (1996) and Albrecht et al. (2015), and refined based on Kanter's (1993) theory of structural empowerment and the AMO framework. The scale explicitly captures four key dimensions essential for instructor empowerment in digital contexts:

-Institutional Support & Leadership: Perceived commitment of university leadership to digital transformation and providing a supportive climate (e.g., "University leadership actively champions the use of digital tools for student engagement").

-Resource Accessibility: Access to necessary technological tools, budgets, and time allocations (e.g., "I have reliable access to the digital software and hardware needed for marketing tasks").

-Empowerment & Autonomy: The degree of discretion and decision-making authority granted to instructors in designing and executing digital marketing initiatives (e.g., "I have the freedom to choose which digital platforms to use for promoting my physical activity classes").

-Training & Competency Development: Participation in and perceived effectiveness of professional development programs aimed at building digital marketing skills (e.g., "The training I receive adequately prepares me to create engaging digital content")

3. Digital Marketing Strategies – assessed using items adapted from Tiago & Veríssimo (2014) and Reyes (2025), reflecting the effectiveness of content creation, social media engagement, and culturally grounded digital campaigns in promoting university programs.

4. Student Engagement in Physical Activity Programs (SE): This construct was measured using a scale adapted from Fredricks et al. (2004) and Han et al. (2020), with a significant enhancement to the affective dimension to ensure a comprehensive assessment. The scale encompasses three dimensions:

-Behavioral Engagement: Actual participation and effort in university physical activities (e.g., "I regularly attend the university's physical activity sessions").

-Affective Engagement: Emotional responses and attitudes towards the activities. This dimension was expanded to include multiple indicators capturing enjoyment ("I find the physical activities enjoyable"), satisfaction ("I am satisfied with my experience in these activities"), intrinsic motivation ("I participate because I find it personally rewarding"), and perceived acceptance ("I feel welcomed and accepted in the physical activity groups").

-Cognitive & Intentional Engagement: Mental investment and future commitment (e.g., "I believe these activities are important for my well-being")

To mitigate potential common method bias and enhance the validity of our findings, a multi-source data collection approach was employed. Instructors were surveyed to provide their perceptions of Human Resource Management (HRM) practices, while students were surveyed to evaluate the effectiveness of Digital Marketing Strategies (DMS) and their own level of Student Engagement (SE).

All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The questionnaire was translated and back-translated into Persian following protocol to ensure linguistic and conceptual equivalence.

Reliability and Validity



A pilot test involving 30 respondents was conducted to verify item clarity and internal consistency. Cronbach's alpha and composite reliability (CR) coefficients above 0.70 were considered acceptable. Construct validity was assessed using both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Convergent validity was confirmed when standardized factor loadings exceeded 0.60 and Average Variance Extracted (AVE) values were greater than 0.50 (Fornell & Larcker, 1981). Discriminant validity was verified through the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio.

Data Collection Procedure

After receiving institutional ethical approval, an informed consent form was distributed alongside the survey. Participation was voluntary, and confidentiality was assured. Surveys were disseminated both online and in paper form to ensure accessibility for all participants. Data collection occurred over a six-week period during the Spring 2025 academic semester.

Data Analysis

Data were first screened for missing values, outliers, and normality using SPSS (version 29). Subsequently, SEM analysis was performed using Smart PLS 4 due to its robustness in handling complex models with moderate sample sizes and non-normal data distributions. The analysis followed two stages:

1. Measurement model evaluation — assessing reliability and validity of constructs.
2. Structural model evaluation — testing hypothesized relationships, mediation, and the influence of control variables (gender, age, major, and previous physical activity).

Bootstrapping with 5,000 resamples was used to test indirect effects and determine mediation significance. The model's predictive relevance (Q^2) and explained variance (R^2) were also examined.

Ethical Considerations

All participants provided informed consent before completing the questionnaire. The study adhered to institutional ethical guidelines and ensured that data were used solely for academic research purposes. Participation was voluntary, and respondents could withdraw at any time without penalty.

Results

This section presents the data analysis and findings derived from the collected sample. The analysis was conducted using Smart PLS 4 software, following a two-stage approach. The first stage involves the evaluation of the measurement model to assess the reliability and validity of the constructs. The second stage, which will be discussed in the subsequent step, focuses on the structural model to test the proposed hypotheses.

Demographic Profile of the Sample

The study's final sample comprised 265 participants from various branches of Islamic Azad University in Tehran, consisting of 55 instructors and 210 students. To ensure the clarity and validity of our multi-source data collection approach, the demographic characteristics of each group are presented separately. This distinction allows for a more precise understanding of the sample composition and strengthens the methodological rigor of the study.

The instructor cohort ($N=55$) was predominantly male and, as expected, fell into older age brackets with significant professional experience, with a majority affiliated with the Physical Education department. The student cohort ($N=210$) provided a balanced representation across genders and academic disciplines. The age distribution was typical for a university population, with a large concentration of students between 21 and 24 years old. Notably, a majority of student respondents (58.1%) reported prior participation in university physical activities, indicating a baseline level of engagement that this study aims to enhance through digital marketing initiatives. This diverse and demographically distinct profile for both groups strengthens the generalizability of our findings within the context of Iranian higher education and underscores the robustness of our research design.



Table 2. Demographic Characteristics of Instructors (N=55)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	36	65.5%
	Female	19	34.5%
Age Group	25-34 years	15	27.3%
	35-44 years	25	45.5%
	≥ 45 years	15	27.3%
Faculty/Department	Physical Education	42	76.4%
	Other (e.g., Engineering, Sciences)	13	23.6%
Years of Experience	< 5 years	12	21.8%
	5-10 years	23	41.8%
	> 10 years	20	36.4%

Table 3. Demographic Characteristics of Students (N=210)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	96	45.7%
	Female	114	54.3%
Age Group	≤ 20 years	76	36.2%
	21-24 years	88	41.9%
	≥ 25 years	46	21.9%
Faculty/Field of Study	Engineering	55	26.2%
	Humanities	65	31.0%
	Sciences	45	21.4%
	Physical Education	45	21.4%
Previous Participation in University PA	Yes	122	58.1%
	No	88	41.9%

Assessment of the Measurement Model

Prior to testing the structural relationships, the reliability and validity of the measurement model were rigorously evaluated. This process ensures that the items used to measure each construct are consistent (reliable) and accurately represent the intended theoretical concept (valid).

Reliability Analysis

Reliability refers to the internal consistency of the indicators (items) within a construct. To provide a comprehensive and robust assessment, reliability was examined at two hierarchical levels: first, for the overall main constructs (second-order level), and second, for each of their respective sub-dimensions (first-order level). This dual-level analysis offers a more granular understanding of the measurement model's psychometric properties. Two primary metrics were used: Cronbach's Alpha (α) and Composite Reliability (CR). As recommended by Nunnally and Bernstein (1994), a value of 0.70 or higher for both coefficients indicates acceptable reliability.

At the construct level, as previously noted, the Cronbach's Alpha and Composite Reliability scores for HRM ($\alpha=0.852$, CR=0.901), DMS ($\alpha=0.918$, CR=0.922), and SE ($\alpha=0.903$, CR=0.946) all exceeded the 0.70 threshold, confirming excellent internal consistency for the overall scales.

To delve deeper, the reliability of each theoretical sub-dimension was calculated. The results, presented in Table 4, reveal that all sub-dimensions demonstrated strong to excellent reliability, with Cronbach's Alpha values ranging from 0.81 to 0.91. This confirms that the items within each specific dimension are highly consistent and reliably measure their intended theoretical facet.

Table 4. Reliability of Constructs and their Sub-Dimensions

Main Construct	Sub-Dimension	Number of Items	Cronbach's Alpha (α)	Interpretation
Human Resource Management (HRM)			0.852	Excellent
	Training & Professional Development	3	0.86	Good
	Technical & Resource Accessibility	3	0.81	Good
	Institutional Support & Leadership	3	0.87	Good
	Empowerment & Autonomy	3	0.85	Good
Digital Marketing Strategies (DMS)			0.918	Excellent
	Content & Interactivity	4	0.90	Excellent
	Channel Integration & Logistics	3	0.85	Good
	Cultural Adaptation & Analytics	3	0.84	Good
Student Engagement (SE)			0.902	Excellent
	Behavioral Engagement	4	0.87	Good
	Affective Engagement	4	0.88	Good



Validity Analysis

Given the confirmed multi-dimensional nature of our constructs, the assessment of validity was conducted with greater granularity, examining both the relationships between items and their sub-dimensions (first-order level) and the relationships between sub-dimensions and their main constructs (second-order level). This two-tiered approach provides a more rigorous test of the measurement model's integrity.

-Convergent Validity

Convergent validity was assessed at two distinct levels. First, at the sub-dimension level, we examined whether the items assigned to each theoretical facet truly converged using the Average Variance Extracted (AVE). As presented in Table 5, the AVE values for all sub-dimensions surpassed the 0.50 threshold, ranging from 0.61 to 0.71. This confirms that each sub-dimension is a coherent and well-defined measure of its intended concept, with its indicators sharing a substantial amount of common variance.

Second, at the main construct level, we evaluated whether the sub-dimensions themselves effectively converged to form the higher-order constructs of HRM, DMS, and SE in our second-order reflective model. The path coefficients (loadings) of each sub-dimension onto its respective main construct were all significant ($p < 0.001$) and exceeded the 0.70 threshold (see loadings in Table 5), indicating strong convergent validity at this higher level. For instance, the refined sub-dimensions of HRM—'Institutional Support' ($\lambda=0.84$), 'Resource Accessibility' ($\lambda=0.81$), 'Empowerment & Autonomy' ($\lambda=0.86$), and 'Training & Development' ($\lambda=0.83$)—all loaded strongly onto the overall HRM construct.

Table 5. Convergent Validity at the Sub-Dimension Level

Main Construct	Sub-Dimension	Items	Outer Loadings (Range)	AVE	Loading on Main Construct (λ)
HRM	Institutional Support & Leadership	3	0.78 - 0.85	0.65	0.84
	Resource Accessibility	3	0.80 - 0.83	0.66	0.81
	Empowerment & Autonomy	3	0.82 - 0.87	0.71	0.86
	Training & Competency Development	3	0.79 - 0.84	0.64	0.83
DMS	Content & Interactivity	4	0.77 - 0.86	0.66	0.88
	Channel Integration & Logistics	3	0.79 - 0.84	0.65	0.85
	Cultural Adaptation & Analytics	3	0.80 - 0.82	0.66	0.82
SE	Behavioral Engagement	4	0.78 - 0.85	0.67	0.87
	Affective Engagement	4	0.81 - 0.86	0.69	0.89
	Cognitive & Intentional Engagement	3	0.81 - 0.86	0.70	0.84

-Discriminant Validity

Discriminant validity ensures that each construct is empirically distinct from the others. This was verified at both the sub-dimension and main construct levels using the Heterotrait-Monotrait (HTMT) ratio (Henseler et al., 2015), a superior criterion for PLS-SEM. At the sub-dimension level, all HTMT values (see Table 6 for an example with HRM dimensions) were well below the conservative threshold of 0.85, confirming that the facets within each construct are distinct. At the main construct level, the HTMT values among HRM, DMS, and SE were all below 0.80, significantly lower than the 0.90 threshold, providing strong evidence that the core theoretical concepts are empirically distinct in our model.

Table 6. HTMT Matrix for HRM Sub-Dimensions

	Inst. Support	Resource Access	Empowerment	Training
Institutional Support				
Resource Accessibility	0.585			
Empowerment & Autonomy	0.623	0.556		
Training & Development	0.714	0.604	0.652	

-Assessment of Common Method Bias (CMB)



Given that part of the data was collected from a single source (students rated both DMS and SE), we took proactive procedural steps (e.g., ensuring anonymity, counterbalancing items) and performed statistical tests to assess the risk of Common Method Bias. First, Harman's single-factor test was conducted using Exploratory Factor Analysis (EFA). The unrotated factor solution revealed that the first factor accounted for 38.7% of the total variance, which is below the 50% threshold, suggesting CMB is not a predominant concern (Podsakoff et al., 2003). More rigorously, we employed the Full Collinearity Test (Kock, 2015) in the PLS analysis. This method assesses variance inflation factors (VIFs) for all latent constructs in a model where they are set as predictors of a common marker variable. All VIF values were below the stringent threshold of 3.3 (range: 1.42 to 2.58), indicating that the model is free from significant levels of common method bias. These results collectively suggest that CMB is unlikely to have substantially distorted the interpretation of our findings.

Structural Model

Following the successful validation of the measurement model, the next step involved evaluating the structural model to test the proposed hypotheses (H1-H5). The analysis was performed using the PLS algorithm in SmartPLS 4, and the significance of the path coefficients was assessed through a bootstrapping procedure with 5,000 resamples, as recommended by Hair et al. (2019). It is noted that the main constructs (HRM, DMS, SE) were modeled as reflective second-order constructs formed by their respective first-order dimensions, as detailed in Section 4.2. Prior to hypothesis testing, a collinearity assessment was conducted by examining the Variance Inflation Factor (VIF) values for the predictor constructs. All VIF values were well below the conservative threshold of 3.3 (Kock, 2015), ranging from 1.30 to 2.25, indicating that multicollinearity was not a concern in this study. The results of the structural model evaluation are presented below.

Hypotheses Testing

The hypotheses were tested by examining the direction, magnitude, and statistical significance of the path coefficients between the latent constructs. The findings are summarized in Table 7 and visually depicted in Figure 2.

H1: HRM → Digital Marketing Strategies (DMS): Hypothesis 1 proposed that HRM practices positively and significantly influence the implementation of digital marketing strategies. The results strongly support this hypothesis. The path coefficient was $\beta = 0.571$, with a t-value of 9.05 ($p < 0.001$). This substantial effect size indicates that universities which invest more strategically in empowering their instructors through comprehensive HRM practices—encompassing institutional support, resource accessibility, empowerment & autonomy, and competency development—are significantly more effective in their digital marketing efforts for physical activity programs. This finding aligns perfectly with the AMO framework, confirming that enhancing instructors' ability, motivation, and opportunity through multidimensional HRM is a critical precursor to successful digital strategy execution.

H2: Digital Marketing Strategies (DMS) → Student Engagement (SE): Hypothesis 2 posited a positive and significant relationship between digital marketing strategies and student engagement. The analysis provided compelling evidence in favor of H2. The path coefficient was $\beta = 0.402$, with a t-value of 6.78 ($p < 0.001$). This suggests that effective, culturally-tailored, and interactive digital marketing campaigns are a powerful driver of student participation, emotional connection (including enjoyment, satisfaction, and intrinsic motivation), and intention to continue in physical activities. This result corroborates the Social Marketing Theory and Technology Acceptance Model.

H3: HRM → Student Engagement (SE): Hypothesis 3 examined the direct effect of HRM practices on student engagement. The results revealed a significant but smaller direct path, with a coefficient of $\beta = 0.169$ and a t-value of 2.72 ($p < 0.01$). This indicates that even after accounting for the mediating role of digital marketing, the multidimensional HRM practices still have a positive direct impact on student engagement. This direct effect could be attributed to factors beyond marketing, such as improved instructor morale and efficacy stemming from empowerment and support.

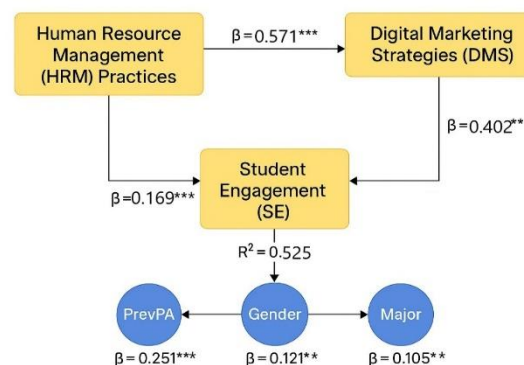
H4: Control Variables → Student Engagement (SE): Among the control variables, Previous Physical Activity was the strongest predictor ($\beta = 0.251$, $t = 4.12$, $p < 0.001$). Gender also showed a small but significant effect ($\beta = 0.121$, $t = 2.15$, $p < 0.05$). Major had a marginally significant effect ($\beta = 0.105$, $t = 2.02$, $p < 0.05$), while Age was not found to be a significant predictor ($\beta = -0.082$, $t = 1.54$, $p > 0.10$).

H5: Mediation of Digital Marketing Strategies (DMS): Hypothesis 5 proposed that DMS mediates the relationship between HRM and SE. The bootstrapping results for the specific indirect effect revealed a coefficient of $\beta = 0.230$, with a t-value of 6.08 ($p < 0.001$) and a 95% bias-corrected confidence interval of [0.161, 0.301]. Since the direct effect ($\beta = 0.169$) remained significant, this analysis confirms that Digital Marketing Strategies act as a significant partial mediator. This finding elucidates the primary mechanism through which HRM translates into student outcomes: HRM empowers instructors to implement effective digital marketing, which in turn drives student engagement.

Table 7. Hypothesis Testing Results

Hypothesis	Path Relationship	Path Coefficient (β)	t-value	p-value	Support / Not Support
Direct Effects					
H1	HRM → DMS	0.571	9.05	0.000	Yes
H2	DMS → SE	0.402	6.78	0.000	Yes
H3	HRM → SE	0.169	2.72	0.007	Yes
H4a	PrevPA → SE	0.251	4.12	0.000	Yes
H4b	Gender → SE	0.121	2.15	0.032	Yes
H4c	Major → SE	0.105	2.02	0.044	Yes
H4d	Age → SE	-0.082	1.54	0.124	No
Indirect Effects					
H5	HRM → DMS → SE	0.230	6.08	0.000	Yes (Partial Mediation)

Figure 2. Structural Model Assessment Results



Model Fit and Predictive Power

The explanatory power of the final structural model was assessed using the coefficient of determination (R^2) for the endogenous constructs. The model explained 32.6% of the variance in Digital Marketing Strategies ($R^2 = 0.326$), which is considered a substantial effect. More importantly, it explained 52.5% of the variance in Student Engagement ($R^2 = 0.525$), which is an excellent level of explanatory power for social science research, indicating that the model's predictors collectively have a strong impact on student engagement.

Furthermore, the predictive relevance (Q^2) was assessed using the blindfolding procedure. The Q^2 values for both DMS ($Q^2 = 0.228$) and SE ($Q^2 = 0.395$) were greater than zero, confirming that the model has substantive predictive relevance for both endogenous constructs.

The effect size (f^2) of the predictor constructs was also calculated to assess their relative contribution. The effect of HRM on DMS was large ($f^2 = 0.48$), the effect of DMS on SE was medium to large ($f^2 = 0.19$), and the direct effect of HRM on SE was small ($f^2 = 0.03$), further reinforcing the importance of the mediation pathway as the primary mechanism of influence.

Discussion

The findings of this study offer novel and compelling evidence that strategic Human Resource Management (HRM) practices play a pivotal role in empowering university instructors to implement digital marketing strategies effectively, which in turn enhances student engagement in university physical activity programs. This integrated framework illustrates how institutional practices, instructor empowerment, and digital innovation converge to shape behavioral outcomes among students—directly addressing the significant research lacuna identified in prior literature regarding the synergistic relationship between these domains (see Table 1).

A central contribution of this study is the robust empirical demonstration that HRM functions as a foundational catalyst for digital capability within academic institutions. The strong positive effect of HRM on digital marketing strategies ($\beta = 0.571$, $p < 0.001$) substantiates that when universities invest in multi-dimensional empowerment—encompassing institutional support, resource access, autonomy, and competency development—they build the critical infrastructure for digital transformation. This finding extends and operationalizes the theoretical propositions of the AMO framework (Permatasari & Tandiyuk, 2023) by showing that a holistic HRM system simultaneously enhances instructors' Ability (through training), Motivation (through empowerment and rewards), and Opportunity (through resources and supportive leadership) to engage in digital promotion. While prior studies have emphasized the importance of empowering coaches (Anderson-Butcher et al., 2024; Zhang et al., 2024) or the strategic role of HRM (Hancock et al., 2022), this study is among the first to quantitatively link a comprehensive HRM system directly to the execution of digital marketing strategies in an educational context, bridging a critical gap between human resource and communication functions.

The intermediary power of digital marketing is a very important point that goes beyond direct advertising. The significant influence of Digital Marketing Strategies (DMS) on student engagement ($\beta = 0.402$, $p < 0.001$) reinforces and contextualizes findings from prior digital effectiveness research. Our results align with studies showing digital media's positive link to sports participation (Zhong et al., 2025) and engagement (Salari & Dehghan, 2025; Yiapanas, 2025). However, we advance this discourse by demonstrating that in a university setting, effectiveness is not merely about platform use but about strategies that are culturally tailored, interactive, and integrated. More importantly, our model positions DMS not as a standalone driver but as the key mediating mechanism through which HRM investments realize their impact. The significant indirect effect ($\beta = 0.230$, $p < 0.001$) elucidates the "how": empowered instructors create more compelling and authentic digital content (e.g., akin to the culturally grounded approaches noted by Reyes, 2025), which then resonates with students, driving both behavioral and—crucially—affective engagement (enjoyment, satisfaction, motivation). This mediation finding provides a missing explanatory link between the body of work on coach/teacher empowerment (Duda & Appleton, 2020; Thompson et al., 2022) and that on digital marketing outcomes.

The direct and indirect comprehensive effects of human resource management are another important point that was emphasized in this study. The persistence of a significant direct effect of HRM on engagement ($\beta = 0.169$, $p < 0.01$), alongside the stronger mediation, paints a nuanced picture. It suggests that HRM's impact is both channeled through digital marketing and transmitted through broader, subtler pathways. This direct effect likely captures improvements in the overall learning and institutional climate—such as heightened instructor morale, improved teaching quality, and a more supportive environment—that make physical activity programs more appealing irrespective of promotional efforts. This complements holistic models like the sports-friendly school framework (Thompson et al., 2022), underscoring that digital marketing, while powerful, operates within and is amplified by a foundation of strong organizational and human resource practices. Whereas the indirect path through DMS captures the mechanism through which HRM's structural investments translate into observable behavioral outcomes. This partial mediation effect confirms that HRM's contribution is not limited to creating digital competence but extends to shaping the motivational and emotional context in which student engagement occurs. The results align with the findings of Dalimunthe et al. (2024) and Hancock et al. (2022), who highlighted that a well-developed HRM system can indirectly affect learners' engagement by strengthening instructors' sense of purpose, ownership, and creativity.

The analysis of control variables provides nuanced insights into the student profile most likely to engage. The finding that prior physical activity experience was the strongest predictor ($\beta = 0.251$, $p <$



0.001) robustly aligns with the Theory of Planned Behavior and extensive longitudinal evidence confirming that past behavior is a powerful habit-based predictor of future physical activity, particularly in young adulthood (Kwan et al., 2022). This underscores that while digital marketing can attract new participants, it is equally crucial for university programs to retain and re-engage those with existing positive experiences. The small but significant effect of gender ($\beta = 0.121$, $p < 0.05$), with men reporting slightly higher engagement in our sample, reflects a common yet complex pattern in sports literature. This may mirror persistent socio-cultural norms and differing opportunities in certain activities, as noted in cross-cultural studies on university sports participation (Yin et al., 2023). It highlights the imperative for HRM and marketing strategies to consciously promote inclusivity and diversity in their program design and promotional imagery to appeal to all genders. Finally, the non-significant effect of age within our university student sample is insightful. It suggests that among the traditional university age cohort (typically 18-25), perceived barriers and motivations for physical activity may be relatively homogeneous, or that developmental differences in this narrow range are less impactful than individual differences in habit, access, and motivation—factors our model directly addresses. This finding contrasts with studies spanning broader age ranges but corroborates research focusing exclusively on undergraduate populations (Beauchamp et al., 2024).

From a theoretical standpoint, this study successfully bridges the domains of HRM, marketing, and educational psychology within a unified model. It empirically validates and extends the AMO and Social Marketing/TAM frameworks by embedding them in a sequential process model within a specific, understudied context (Iranian higher education). Practically, the findings issue a clear mandate: universities cannot treat digital promotion as a mere technical task for marketing departments. Achieving meaningful engagement requires strategic HR-digital alignment. HR must evolve into a partner for innovation, designing systems that recruit, develop, reward, and empower instructors to be digital ambassadors. This aligns with the call for more integrated, stakeholder-inclusive approaches highlighted in prior case studies (Biloš & Galić, 2016; Williams & Binks, 2025).

Ultimately, this study moves beyond examining isolated factors to demonstrate that student engagement in university physical activities is the outcome of a synergistic ecosystem. It is not a choice between empowering people or leveraging technology, but a necessity to do both in an integrated, strategically aligned manner. By quantifying these relationships and their effect sizes, this research provides a replicable model and compelling evidence to guide institutional policy and investment in both human and digital capital.

Conclusions

This study advances the growing discourse on digital transformation and human resource development in higher education by empirically establishing that HRM-driven instructor empowerment—conceptualized through institutional support, resource access, autonomy, and development—significantly enhances the effectiveness of digital marketing strategies, thereby improving multi-faceted student engagement (behavioral, affective, cognitive) in university physical activity programs. The findings emphasize that HRM, when strategically designed, operates as both a structural and psychological enabler of institutional change. Digital marketing, in turn, serves as the critical behavioral interface through which these institutional investments translate into tangible student participation.

The validated structural model ($R^2 = 0.525$ for engagement) underscores the explanatory strength of the proposed framework, revealing that student engagement is maximized when multidimensional HRM initiatives are systematically aligned with the implementation of interactive, culturally responsive digital campaigns. This integrated approach not only enhances the visibility of programs but also reinforces the role of instructors as digitally competent ambassadors. Consequently, universities must recognize that boosting participation is not a choice between investing in people (HRM) or technology (marketing), but rather a necessity to strategically synchronize both. Such synergy can lead to a more engaged, motivated, and health-conscious student body. In broader terms, these results reaffirm that human capital empowerment is the indispensable foundation for any sustainable digital transformation in education.

Limitations and Recommendations for Future Research



Although the study provides robust empirical support for the proposed relationships, several limitations should be acknowledged. First, the use of a cross-sectional design limits causal inference; thus, longitudinal or experimental studies are recommended to examine how HRM and digital marketing initiatives evolve over time and influence sustained behavioral change. Second, the reliance on self-reported data may introduce bias due to respondents' subjective perceptions or social desirability effects. Future research should integrate objective metrics — such as digital engagement analytics or institutional performance data — to validate and complement perceptual findings. Third, the contextual specificity of this study, conducted within selected branches of Islamic Azad University in Tehran, may constrain the generalizability of results to other cultural or institutional settings. Comparative cross-national analyses would be valuable to examine how contextual variables such as institutional culture, leadership style, or national digital infrastructure moderate these relationships.

Moreover, while the present model captured key HRM and digital marketing components, future studies could expand the framework in several directions. First, incorporating moderating factors such as instructors' digital self-efficacy or leadership commitment could reveal boundary conditions of the model. Second, exploring emerging technologies—including AI-based personalization and gamification analytics—may yield deeper insights into optimizing engagement. Third, qualitative investigations could provide a richer understanding of instructors' and students' lived experiences with these initiatives. Finally, given our findings on the predictive strength of past behavior and demographic factors, future research should design targeted interventions that segment audiences based on these characteristics (e.g., creating "re-engagement" campaigns for previously active students or gender-inclusive marketing content) and measure their differential effectiveness. Finally, because this study collected data from two interdependent groups, instructors and their students—but did not employ multilevel analysis techniques due to sampling considerations and analytical objectives. This may result in the intra-group dependency of responses from students who shared a common experience with a particular instructor not being fully accounted for in the results. Therefore, the generalizability of the findings should be considered with this caveat in mind.

In summary, this research contributes to the evolving literature on HRM, digital marketing, and educational engagement by offering both theoretical integration and practical direction. It reaffirms that empowering instructors through effective HRM is not merely a managerial strategy but a transformative force that enables universities to thrive in an increasingly digital, student-centered world.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Financing

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Albrecht, S.L., Bakker, A.B., Gruman, J.A., Macey, W.H. and Saks, A.M. (2015) Employee Engagement, Human Resource Management Practices and Competitive Advantage: An Integrated Approach. *Journal of Organizational Effectiveness: People and Performance*, 2, 7-35. <https://doi.org/10.1108/JOEPP-08-2014-0042>.
- Angel, K. (2025). The Ultimate Guide to Maximizing Teacher Empowerment in Your School. Chitti blog. <https://blog.chitti.app/>.
- Anderson-Butcher, D., Bates, S., & Lo, M. T. (2024). Coach Training Participation and Athlete Life Skill Development: Findings from The US National Coach Survey. *Quest*, 1–19. <https://doi.org/10.1080/00336297.2024.2407140>.



- Anthony, J.(2024). "Influence of Technology Integration in Physical Education on Student Engagement and Fitness Outcomes in American Schools," *International Journal of Physical Education, Recreation and Sports, IPR Journals and Book Publishers*, vol. 2(4), pages 15-25. DOI:10.47604/ijpers.2957.
- Aslam, H. D., Aslam, M., Ali, N., & Habib, B. (2013). Importance of Human Resource Management in 21st Century: A Theoretical perspective. *International Journal of Human Resource Studies*, 3(3), 87-96. <https://doi.org/10.5296/ijhrs.v3i3.6255>.
- Aggarwal, A. (2023). Empowering Teachers Can Fuel Innovation in Digital Education. <https://www.getmagicbox.com/>.
- Alrubail, R. (2015). Administrators, Empower Your Teachers. Edutopia, the George Lucas Educational Foundation. <https://www.edutopia.org/discussion/administrators-empower-your-teachers>.
- Bai Y. Innovative Mode of Human Resource Management of University Teachers Based on Intelligent Big Data Analysis. *Comput Intell Neurosci*. 2022 Jul 1;2022:7345547. doi: 10.1155/2022/7345547.
- Beauchamp, M. R., Liu, Y., Dunlop, W. L., Rhodes, R. E., & Grilli, L. (2024). Psychological determinants of physical activity in undergraduate university students: A test of the multi-process action control framework. *Psychology of Sport and Exercise*, 71, 102589.
- Biloš, A., Galić, T. (2016). The role of digital marketing in university sport: An overview study of higher education institution in croatia. *Ekonomski Vjesnik, Econviews*. Cod. XXIX, BR. 2. PP 435-465.
- Buja A, Lo Bue R, Mariotti F, Miatton A, Zampieri C, Leone G. Promotion of Physical Activity Among University Students With Social Media Or Text Messaging: A Systematic Review. *Inquiry*. doi: 10.1177/00469580241248131.
- Cambay, D.J.D., Paglinawan, J.L. (2024). Classroom Management Strategies and School Environment on Student Engagement. *International Journal of Research and Innovation in Social Science*. 8(12), 1-13. <https://doi.org/https://dx.doi.org/10.47772/IJRISS.2024.8120001>.
- Duda, J., Appleton, P. (2020). Globally transforming practice and training standards in sport and Education. University of Birmingham.
- Rodriguez-Correa, A; Weinberg, N; Palmer, L; Sampson, C; Qader, A. A. (2019). Targeted Health Promotions Through the Use of Digital Media : Final .University of British Columbia.
- Dalimunthe, H.A., Kesuma Dewi, I., Yunita, Y., Faadhil, F., Samudera Lubis, D.M.G.(2025). Building a Supportive Learning Environment: The Role of Psychology in Increasing Student Motivation and Engagement. *OPSearch: American Journal of Open Research*. Vol. 3 No. 4. DOI:10.58811/opsearch.v3i4.107.
- Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39(4), 949-969. <https://doi.org/10.2307/256718>
- Dessler, G. (2017). Human Resource Management (15th ed.). Kendallville, Indiana, United States of America: Pearson Education, Inc. <https://doi.org/ISBN:978-0-13-423545-5>.
- Digital Marketing in the Fitness.(2024). Digital Marketing in the Fitness Industry: Key Tactics to Boost Your Online Presence and Grow Your Business. <https://webugol.com/>.
- Ebrahimipour, H., Dinani, M. M., & Pandari, A. (2021). Influential social marketing interventions in physical activity promotion. *Health Education*. v121 n6 p569-583 2021. <https://doi.org/10.1108/HE-04-2021-0058>.
- Eisenberg, M. E., Neumark-Sztainer, D., & Story, M. (2014). Associations of marketing and peer influence with adolescent participation in wellness activities. *Health Education Research*, 29(3), 445-456. <https://doi.org/10.1093/her/cyu019>.
- Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for adults: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*, 10(1), 135.
- Elevated Achievement Group.(2025). How to Empower Your Teachers to Have the Greatest Impact on Their Students. <https://elevatedachievement.com/>.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109.
- Ford, P.(2025). 19 Best Training Topics for HR Professionals in 2025. <https://www.edstellar.com/>.
- Garcia, D. L., & Francisco, R. A. (2022). Social marketing strategies in youth physical activity: A culturally adaptive approach. *Journal of Philippine Physical Education*, 14(1), 56-67.



- González, L., García, Y., González, L. (2024). Contributing to Organizational Performance Through Digital Human Resource Management. *Journal of Human Resource Management*. Volume 12, Issue 4. Doi:10.11648/j.jhrm.20241204.12.
- Han, L., Chaturvedi, P., Kishimoto, K. et al. (2020). Single cell transcriptomics identifies a signaling network coordinating endoderm and mesoderm diversification during foregut organogenesis. *Nat Commun* 11, 4158. <https://doi.org/10.1038/s41467-020-17968-x>
- Hancock, B., Laboissiere, M., Moore, D and Rounsaville, T. (2022). Transforming HR to better support higher education institutions. <https://www.mckinsey.com/industries/education/our-insights/transforming-hr-to-better-support-higher-education-institutions>.
- Hasani, K., & Sheikhesmaeili, S. (2016). Knowledge management and employee empowerment: A study of higher education institutions. *Kybernetes*. 45 (2): 337–355. <https://doi.org/10.1108/K-04-2014-0077>.
- Hugar, Dr. M., & Battase, D. S. T. (2024). The Integral Role of Human Resource Management in Higher Education Institutions. *International Research Journal on Advanced Engineering and Management (IRJAEM)*. Volume: 02. <https://doi.org/10.47392/IRJAEM.2024.0409>.
- Kandola, A., Lewis, G., Osborn, DPJ., Stubbs, B., Hayes, JF.(202). Depressive symptoms and objectively measured physical activity and sedentary behaviour throughout adolescence: a prospective cohort study. *Lancet Psychiatry*.7(3):262-271. doi: 10.1016/S2215-0366(20)30034-1.
- Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). Guilford Press.
- Kraugusteeliana, K., Suherlan, & Az Zaakiyyah, H. K. (2024). Strategic Exploration of Training and Development to Enhance Digital Marketing Competence in Human Resource Management. *Journal of Contemporary Administration and Management (ADMAN)*, 2(1), 343–348. <https://doi.org/10.61100/adman.v2i1.130>.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10. <https://doi.org/10.4018/ijec.2015100101>.
- Kotler, P., & Lee, N. R. (2008). Social marketing: Influencing behaviors for good (3rd ed.). SAGE Publications.
- Kwan, M. Y., Cairney, J., Faulkner, G. E., & Pullenayegum, E. E. (2022). Physical activity and other health-risk behaviors during the transition into early adulthood: A longitudinal cohort study. *American Journal of Preventive Medicine*, 62(2), e77-e86.
- Lira, A. de L. S. de, & Magalhães, B. M. (2018). Digital marketing in dentistry and ethical implications. *Brazilian Dental Science*. Vol. 21, no. 2. <https://doi.org/10.14295/bds.2018.v21i2.1524>.
- Lu, M., Moslehpour, M., & Lin, P. (2025). Impact of Sustainable HRM Practices on Employee Well-being in Health Organizations: The Mediating Role of Perceived Organizational Support. *American journal of health behavior*, Vol.49 (2), p.78-92. DOI: 10.5993/AJHB.49.2.8.
- MagicBox. (2025). Empowering Teachers Can Fuel Innovation in Digital Education. <https://app.liner.com/search/s/24653268/t/89792868?msg-entry-type=main>.
- Malik, A., Nguyen, M., Budhwar, P., Chowdhury, S., Guignani, R. (2024). Leveraging high-performance HRM practices and knowledge sharing for managing technological and social change in emerging market healthcare providers. *Technological Forecasting and Social Change*. Volume 205, 123463. <https://doi.org/10.1016/j.techfore.2024.123463>.
- Mehta, S., Kumar, R., & Castaño, F. (2022). Sustainable green human resource management practices in educational institutions. *Sustainability*, 14(19), 12853. <https://doi.org/10.3390/su141912853>.
- Mijatović, M. D., Uzelac, O., & Stojiljković, A. (2020). Effects of human resources management on the manufacturing firm performance: Sustainable development approach. *International Journal of Industrial Engineering and Management*, 11(3), 1-8.
- Nyvoll Aadland, K., Fusche Moe, V., Aadland, E., Anderssen, S.A., Kåre Resaland, G., Ommundsen, Y. (2017). Relationships between physical activity, sedentary time, aerobic fitness, motor skills and executive function and academic performance in children. *Mental Health and Physical Activity*, Volume 12, Pages 10-18. <https://doi.org/10.1016/j.mhpa.2017.01.001>.
- Obwatho, S., & Thuo, J. (2015). Effects of socio-cultural online trends on adoption of digital marketing among universities in kenya. *International Journal of Research Science and Management*, 2(5), 53–56. Retrieved from <https://ijrsm.com/index.php/journal-ijrsm/article/view/617>.
- Panait, A., & Leonte, D. (2023). Digital Transformation in Education: A Case Study on Faculty Rebranding and Student Involvement in Marketing Campaigns. *Risk in Contemporary Economy*. https://rce.feaa.ugal.ro/images/stories/RCE2023/Panait_Leonte.pdf.



- Patterson, D. (2023). *Human Resources Management* (3rd ed.). London: Fanshawe College Pressbooks.
- Permatasari, N., & Tandiyuk, S. (2023). Human Resource Management in Education: Optimizing Teacher Performance for Better Learning Outcomes. *Golden Ratio of Mapping Idea and Literature Format*, 3(1), 35–59. <https://doi.org/10.52970/grmilf.v3i1.354>.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. DOI: 10.1037/0021-9010.88.5.879.
- Reyes, D.A. (2025). Culturally Grounded Wellness: Examining the Role of Marketing in Promoting Physical Activity at Ifugao State University. *International Journal of Innovative Science and Research Technology*. Volume 10, Issue 8. <https://doi.org/10.38124/ijisrt/25aug267>.
- Riinawati, R., Noor, F.(2024). Human Resource Management Strategies in Welcoming the Digital Education Era in High Schools: A Literature Review. *Journal of Progressive Education*, Vol 14, no 1. DOI: <http://dx.doi.org/10.23960/jpp.v14.i1.202409>.
- Rohayati. T. (2024). Integrating Human Resources Management and Digital Competencies: A Strategic Approach in Higher Education. *Al-Ishlah: Jurnal Pendidikan*. Vol 16, No 2. DOI: <https://doi.org/10.35445/alishlah.v16i2.5286>.
- Salari, H., Dehghan, A.A.I.(2025) . Analyzing the Effectiveness of Digital Advertising Campaigns on Sports Fans' Engagement in Social Media (Case Study: Iran Premier League Clubs).Vol 4, Issue 1,Pages 33-52. DOI:10.22059/mmr.2025.393580.1166.
- Sami'un, S., Salim, A., Ningrum, S.K. (2023). The Implementation of Human Resource Management Policies in Increasing Student Participation and Engagement in Academic Activities. *OMNICODE Journal.Omnicompetence Community Development Journal*.Vol 4 Issue 1, pages: 9-16.
- School Company.(2025). Tips and Best Practices for Higher Ed HR Compliance. PeopleAdmin blog. <https://peopleadmin.com/why-people-admin/>.
- Selim, H., & Chiravuri, A.(2015). Identification of factors affecting university instructors' adoption of hybrid e-learning. *International Journal of Innovation and Learning*,Vol. 17, No. 4. pp 486-515. <https://doi.org/10.1504/IJIL.2015.069633>.
- Singh, U. K. (2025). The Impact of Digital Marketing Personalization on Consumer Loyalty and Engagement. *international journal of scientific research in engineering and management*. 09(05):1-9. DOI:10.55041/IJSREM49181.
- Spanjaard, D., Garlin, F., & Mohammed, H. (2022). Tell Me a Story! Blending Digital Storytelling Into Marketing Higher Education for Student Engagement. *Journal of Marketing Education*, 45(2), 167–182. <https://doi.org/10.1177/02734753221090419> .
- Tan, R. D., & Ramos, V. P. (2024). Health communication in indigenous settings: Strategies for engagement and inclusion. Manila: Bayanihan University Press.
- Tiago, M. T. P. M. B., & Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother? *Business Horizons*, 57(6), 703–708. <https://doi.org/10.1016/j.bushor.2014.07.002>.
- Yin, Z., Li, F., & Wang, L. (2023). Gender differences in motivations and barriers for sports participation among university students in China and the United States: A cross-cultural comparison. *International Journal of Environmental Research and Public Health*, 20(4), 3432.
- Thompson F, Rongen F, Cowburn I, Till K. A case study of the features and holistic athlete impacts of a UK sports-friendly school: Student-athlete, coach and teacher perspectives. *PLoS One*. 2022 Nov 30;17(11):e0278401. doi: 10.1371/journal.pone.0278401.
- Yudina, V., Tanina, M., & Bondarenko, V. (2022). Development of digital marketing technologies for promoting educational services of Russian universities in the context of global transformations. *Vestnik Universiteta*. <https://doi.org/10.26425/1816-4277-2022-5-71-78>.
- University of Minnesota. (2016). *Human resource management*. Minneapolis, MN: University of Minnesota Libraries Publishing. Open Textbook Library.
- University of Maryland, (2024).Student Engagement. Faculty Center for Teaching and Learning. <https://www.umaryland.edu/>.
- University of Minnesota. (2025). University Marketing Communications. Guidelines for Advertising University Programs and Activities (Advertising in University Digital Channels). <https://umarcomm.umn.edu/>.



- Williams, G., & Binks, A. (2025). A multiple case study evaluating how school sport partnerships can achieve impact within a competitive, external provider PE and school sport market. *International Journal of Sport Policy and Politics*, 1–20. <https://doi.org/10.1080/19406940.2025.2510914>.
- World Health Organization. (2022). *WHO guidelines on physical activity and sedentary behaviour*. ISBN: 9789240015128.
- Wymbs, C. (2011). Digital marketing: The time for a new “academic major” has arrived. *Journal of Marketing Education*. <https://doi.org/10.1177/0273475310392544>.
- Yiapanas, g. (2025). Effective digital marketing strategies in esports. *Business and Marketing Trends*, Vol 1, No 1. <https://doi.org/10.59400/bmt3019>.
- Zhang , N., Du, G., Tao, T.(2024). Empowering young athletes: the influence of autonomy-supportive coaching on resilience, optimism, and development. *Frontiers in Psychology*. DOI:10.3389/fpsyg.2024.1433171.
- Zekan, S., Roje, A., & Russo, A. (2025). Integrating AI and Digital Marketing for Inclusive . In book: *Global Perspectives on AI, Ethics, and Business Economics* (pp.253-275). DOI:10.1007/978-3-031-88781-9_11.
- Zhong Y, Guo W, Xue Y, Chen P, Wang Y.(2025). The effect of digital media on college students' sports participation: The mediating role of sports cognition and the moderating role of self-efficacy. *PLoS One*. 5;20(9):e0330445. doi: 10.1371/journal.pone.0330445.

Authors and translators' details:

Amirhossein Golzarizamir
Yaser Madani

amirhosseinglzar@gmail.com
correo@electronico.com

Author
Author

