

2025 輔仁大學教育與運動健康學院 第五屆國際研討會

The 5th International Conference of the College of Education and Sports Health 2025 (ICCESH 2025)

智慧運動，教育永續：資訊創造新世代

Smart Sports, Sustainable Education: Information Creates a New Era



會議手冊

Conference Handbook



教育與運動健康學院

天主教輔仁大學 FU JEN Catholic University

The 5th International Conference of the College of Education and Sports Health 2025 (ICCESH 2025)

2025 輔仁大學教育與運動健康學院第五屆國際研討會

【Smart Sports, Sustainable Education: Information Creates a New Era】

-智慧運動，教育永續：資訊創造新世代-

會議手冊目次

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壹、前言

人工智慧 (AI) 在現今的應用已在各行各業作出諸多貢獻，也影響教育、資訊、運動科技、休閒活動等領域的發展，其影響性與重要性已不言而喻。透過網路技術、資訊科技的精進，使得生活更加有趣。隨著智慧運動、科技賦能、知識共享的世代中，輔仁大學教育與運動健康學院秉持天主教的教育理念，積極培育具有服務社會、改造社會能力的人才，使能發揮助人和長人的影響力，並藉精研學術理論，參與國家教育工作，進而創造更美好的社會。透過學術研討會探究在高科技及人工智慧快速發展的世代中，體育運動、教育、圖書資訊，以及休閒活動對健康與永續的影響及改變。

本年度為本院第五屆教育學術與產業研討會，本次研討會宗旨在於推動運動科技與人工智慧於教育和運動科學領域的深度融合，促進健康與永續發展，透過學術與產業界的跨領域合作，以運動健康發展為基礎，為現代教育與運動訓練探討創新可行且永續的解決方案。研討會致力於探索如何利用前沿科技，例如大數據分析、人工智慧、可穿戴設備、虛擬現實 (VR)、資料檢索等，來提升教學效率、優化運動表現、促進健康管理及推動圖書服務的數位轉型，並提供個性化的學習與訓練模式，為健康永續提出可行之方案。

活動的主要目標是透過學術專業知識分享與交流，邀請運動、教育、科技等領域的專家學者共同探討智慧運動與健康永續的未來發展趨勢。通過成功案例的展示與實務操作的分享，研討會旨在促進學術研究與實踐的有效連結，鼓勵創新技術在教學和運動中的實際應用。除此之外，活動還將聚焦於為學生、教育工作者及運動專業人才提供具體的培訓與發展機會，培養未來的領導者，並強化科技與教育相結合的國際競爭力。

本次研討會以「智慧運動，教育永續：資訊創造新世代」為主題，智慧運動領域主題則涵蓋(1)運動健康科技 (2)運動科學、(3)運動管理、(4)運動教育、(5)運動醫學、(6)運動場館經營、(7)運動企劃/行銷贊助、(8)休閒遊憩等面向；教育永續領域主題涵蓋(1)服務領導、(2)組織領導與學校經營、(3)AI 世代下的教育變革與發展、(4)新興教育領導議題等面向；資訊創新領域主題包含(1)圖書資訊學理論與實務、(2)資訊科技理論與實務、(3)數位內容之規劃、管理與傳播等面向。透過具體之交流，提供與會者瞭解現今智慧運動、教育科技、資訊革新等對身心健康的永續發展。

貳、會議簡介

一、 會議時間：2025 年 04 月 19 日（星期六）08:30-18:00

二、 會議地點：輔仁大學積健樓

三、 參與對象：與會貴賓、師長及研討會參與者約 250 人

四、 主辦單位：輔仁大學教育與運動學院

五、 承辦單位：體育學系、圖書資訊學系、教育領導與發展研究所、師資培育
中心、運動休閒管理學士學位學程、教育領導與科技發展學士
學位學程、資訊創新與數位生活進修學士學位學程

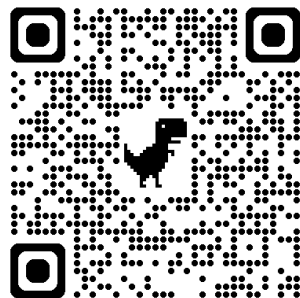
六、 聯絡窗口：教運學院林嘉琪秘書(電話：02-29053303)；

體育學系陳享隆秘書(電話：02-29053249)；

體育學系苗雅婷秘書(電話：02-29053282)；

資創學程呂曼鈺秘書(電話：02-29052867)。

七、 會議官網：



參、會議委員名單

召 集 人	藍易振 校長
副召集人	王英洲 學術副校長 汪文麟 使命副校長
主任委員	黃 騰 教育與運動健康院長 陳昱君 教育與運動健康副院長兼師資培育中心主任 謝宗諭 教育與運動健康副院長兼體育學系主任 林梅琴 教育領導與發展研究所所長兼教育領導與科技發展學士學位 學程主任
副主任委員	彭于萍 圖書資訊學系主任 黃柏芳 運動休閒管理進修學士學位學程主兼資訊創新與數位生活進 修學士學位學程 林建勳 體育學系助理教授兼教育與運動健康學院國際助理執行長
執行委員	張耘齊 體育學系助理教授 余泳樟 體育學系助理教授 林嘉琪 教育與運動健康學院秘書 苗雅婷 體育學系碩士班秘書 李佳倚 體育學系碩士在職專班秘書 鄧家縈 體育學系學士班秘書 陳享隆 體育學系學士班秘書
工作人員	林靜宜 圖書資訊學系碩士班秘書 孫瑋志 教育領導與發展研究所秘書 呂昕遠 教育領導與發展研究所碩士在職專班秘書 鄭翔尹 運動休閒管理學士學位學程秘書 林縵君 師資培育中心秘書 楊子昇 教育領導與科技發展學士學位學程秘書 呂曼鈺 資訊創新與數位生活進修學士學位學程秘書

肆、會議論文評審簡介

智慧運動	張桂菱	國立中央大學體育室助理教授兼組長
	李俞麟	國立臺北商業大學體育室教授兼總務長
	吳治翰	國立中央大學體育室助理教授兼組長
	粘瑞狄	臺北市立大學運動藝術學系助理教授
資訊創新	彭于萍	輔仁大學圖書資訊學系教授兼主任
	杜海倫	輔仁大學圖書資訊學系助理教授
教育永續	林梅琴	教育領導與發展研究所教授兼所長兼教育領導與科技 發展學士學位學程主任
	陳昱君	師資培育中心副教授兼教育與運動健康學院副院長
	劉名峯	教育領導與發展研究所助理教授

肆、議事規則

一、海報發表規則：

- (一) 場次開放張貼時間如下：2025 年 4 月 19 日(六)中午 12:30 起。
- (二) 海報張貼最慢需於發表前 10 分鐘完成，並在指定地點張貼完畢，會場備有張貼海報之黏土或膠帶供發表者使用。
- (三) 請發表人於海報發表時段在張貼地點就位，以回答評審及提問者之問題，如不在場將不頒發證書及取消優秀論文獲獎資格。
- (四) 海報發表場次時段如下所示：請於 2025 年 4 月 19 日(六)下午 13:00-14:30 就位。
- (五) 海報報告時間原則上為 6 分鐘(包含報告 3 分鐘與提問交流時間 3 分鐘，請自行掌握)。
- (六) 發表證明：論文需親自發表，並於發表後，由評審現場頒給發表證明。

二、口頭發表規則：

- (一) 現場備有筆記型電腦 (附有 USB 插槽)、單槍投影機、簡報筆及麥克風，不提供個人外接電腦。
- (二) 請報告者務必於 2025 年 4 月 19 日(六)下午 14 點 10 分前點到達教室，現場會有服務人員協助。請報告者自行將報告的投影片檔案(請以 Power Point 製作) 放置於隨身碟，並於報告開始前，存放於該場次的電腦中。
- (三) 每個人口頭報告時間原則上為 15 分鐘(包含口頭報告 12 分鐘與提問交流時間 3 分鐘，請自行掌握)。
- (四) 口頭報告 12 分鐘內，將會在第 10 與第 12 分鐘時響鈴提示，提醒報告者掌握時間；提問時間 3 分鐘，倒數 1 分鐘響鈴提示。
- (五) 發表證明：於發表完成後，由評審現場頒發發表證書。

三、優秀論文獎：

- (一) 由領域評審進行海報及口頭之評選。
- (二) 獎勵方式：入選優秀論文者，大會將於閉幕典禮頒獎及獎金【獎金需本人在場親自領取，若無在場視同放棄獎金】。

伍、會議議程

Time	Topic	Location
08 : 30-09 : 00	Registration	Jijian Building, Lobby 2F
09 : 00-09 : 20	Opening Ceremony and Signing Agreement Host : Dean Teng Huang 黃騰 司儀：王子函 簽約合作單位： 展昭國際企業股份有限公司 林盟傑 執行長 恆動力有限公司 陳守謙 總經理 堤姆股份有限公司 許嘉榮 董事長 名衍運動行銷股份有限公司 黃承翰 總經理 南野子國際整合行銷股份有限公司 林靜妮 總經理 好的運動股份有限公司 張植雄 執行長 上宸整合行銷有限公司 黃嘉德 創辦人 中華民國配鬪球協會 林書偉 理事長 信品運動行銷股份有限公司 何宗諺 董事長	Lecture Hall 211
09 : 20-09 : 25	Group Photo	Lecture Hall 211
09 : 30-10 : 20	【Keynote Speech I】 Theme : <i>Problem Solving, Flow, Mindfulness, and Learning Coding to Being Citizen Developer: Lessons on the Path to Embrace Tech, and More Tech</i> Speaker : Dr. Kee Ying Hwa (Nanyang Technological University) Host : Dr. Tsung-Yu Hsieh 謝宗諭	Lecture Hall 211
10 : 20-10 : 25	Tea time	Lobby 2F
10 : 25-11 : 15	【Keynote Speech II】 Theme : <i>SMART Steps to Building Lifestyle Habits.</i> Speaker : Dr. Kelly McGrath (Rikkyo University) Host : Dr. Yu-Jen Chen 陳譽仁	Lecture Hall 211
10 : 20-10 : 25	Tea time	Lobby 2F
11 : 20-12 : 10	【Keynote Speech III】 Theme : Faculty Academic Sharing Session Host : Dean Teng Huang 黃騰 Theme : <i>The Theory and Practice About Education of Sustainable Development</i> Speaker : Dr. Din-Yuang Huang 黃鼎元 Theme : <i>Promotion and Application of Sports Injury Prevention and Health Enhancement in Communities</i> Speaker : Dr. Yun-Chi Chang 張耘齊 Theme : <i>Using Natural Language Processing to Support Competency-Based Medical Education</i> Speaker : Dr. Hai-Lun Tu 杜海倫	Lecture Hall 211
12 : 10-13 : 00	Lunch	Room 314

13 : 00-14 : 30	Poster 1. Smart Sports <i>Review Committee Member</i> Dr. Kuei-Ling Chang 張桂菱 Dr. Yu-Lin Li 李俞麟 Dr. Chih-Han Wu 吳治翰 Dr. Jui-Ti Nien 粘瑞狄 2. Sustainable Education <i>Review Committee Member</i> Dr. Mei-Chin Lin 林梅琴 Dr. Ming-Feng Liu 劉名峯 3. Innovative Information <i>Review Committee Member</i> Dr. Hai-Lun Tu 杜海倫	Dance Studio 2F and Lobby 3F
14 : 30-16 : 00	Oral 1. Smart Sports I <i>Session Chair</i> Dr. Yu-Lin Li 李俞麟 <i>Discussant</i> Dr. Kuei-Ling Chang 張桂菱 2. Smart Sports II <i>Session Chair</i> Dr. Chih-Han Wu 吳治翰 <i>Discussant</i> Dr. Jui-Ti Nien 粘瑞狄 3. Sustainable Education <i>Session Chair</i> Dr. Yu-Chun Chen 陳昱君 <i>Discussant</i> Dr. Ming-Feng Liu 劉名峯 4. Innovative Information <i>Session Chair</i> Dr. Yu-Ping Peng 彭于萍 <i>Discussant</i> Dr. Hai-Lun Tu 杜海倫	Smart Sports I Lecture Hall 211 Smart Sports II Room 302 Innovative Information Room 303 Sustainable Education Room 309
16 : 10-16 : 30	Panel Discussion and Award Ceremony 黃騰 院長 陳昱君 副院長兼師資培育中心主任 謝宗諭 副院長兼體育學系主任 林梅琴 教育領導與發展研究所及教育領導與科技發展 學士學位學程主任 彭于萍 圖書資訊學系主任 黃柏芳 運動休閒管理學士學位學程暨資訊創新與數位 生活進修學士學位學程主任 司儀：林嘉琪 秘書	Lecture Hall 211
16 : 30-18 : 00	一般參與者領取出席證明 賦歸/場復 Adjournment	Lobby 2F

陸、專題講座

Keynote Speech I

Problem Solving, Flow, Mindfulness, and Learning Coding to Being Citizen Developer: Lessons on the Path to Embrace Tech, and More Tech



Dr. Kee Ying Hwa

Nanyang Technological University

2025.04.19

09:30-10:20 a.m.

Jijian Building, Lecture Hall 211

Host: Dr. Tsung-Yu Hsieh

2025 輔仁大學教育與運動健康學院
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Keynote Speech II

SMART Steps to Building Lifestyle Habits



Dr. Kelly McGrath

Rikkyo University

2025.04.19

10:25-11:15 a.m.

Jijian Building, Lecture Hall 211

Host: Dr. Yu-Jen Chen

2025 輔仁大學教育與運動健康學院
第五屆國際研討會

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智慧運動，教育永續：資訊創造新世代
Smart Sports, Sustainable Education: Information Creates a New Era

柒、會議論文

一、海報展示

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SSP-09	Li, C-Y	Study on the Differences Between the Dominant and Non-Dominant Hands of Working Women	31
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SSP-27	Chun-Chieh Wang	Effects of six weeks of blood flow restriction combined with low-resistance training on fall risk in the elderly	50
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捌、論文摘要

論文摘要_海報發表

A Review of the Application of Hippotherapy in Children and Its Development in Taiwan

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Abstract

Hippotherapy is a treatment plan that utilizes the horse's movements through horseback riding to achieve positive effects on physiological, psychological, and social functions.

Purpose: The purpose of this study is to integrate relevant literature on the application and effectiveness of hippotherapy in pediatric patients and to explore the current situation and challenges of hippotherapy in Taiwan.

Methods: This study conducted a systematic literature review using data from the Airiti Library and the PubMed database. Hippotherapy was used as a keyword to screen relevant literature, focusing on original studies, case reports, and child-related research published within the past ten years. A total of eight articles were selected to analyze the application of hippotherapy in pediatric patients.

Conclusion: These literatures showed that hippotherapy has a positive impact on children's balance, gross motor skills, social skills, and self-care abilities. However, since most horse farms in Taiwan primarily offer recreational and instructional activities, with only a few providing hippotherapy, the demand for facilities and high costs pose significant challenges to the development of this field in Taiwan. As a result, the amount of Chinese literature is limited, and most of it consists of case reports and literature reviews. There are seven horse farms in Taiwan that provide hippotherapy. The treatment is provided by physical therapists and equestrian coaches. Professional training programs must still be pursued abroad, as Taiwan does not offer relevant certification programs. The shortage of professionals and the need to address economic challenges will be major obstacles for the development of hippotherapy in Taiwan.

Keywords: therapeutic horseback riding; equestrian; human-animal interaction

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An Exploration of Participants' Motivation for Aerobic Exercise Classes: A Case Study of New Taipei City National Sports Centers

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Abstract

In recent years, as public awareness of health has increased, fitness classes have become more and more diverse in line with this trend. Among them, aerobic exercise classes have remained the most popular among the public. Aerobic workouts not only help enhance cardiovascular health and overall physical performance, but also contribute to weight loss and fat burning. **Purpose:** This study aims to explore the motivations behind the participation of individuals enrolled in aerobic exercise classes at the New Taipei City Civil Sports Centers. The goal is to provide insights and reference for newly established fitness venues or existing sports centers in planning and designing their aerobic exercise programs. **Methods:** This study adopts a combination of literature review and field interviews. The interviews were conducted in an unstructured format, focusing on the motivations of participants in aerobic exercise classes at the New Taipei City Civil Sports Centers. The research also employed triangulation methods, including field observation, interviews, document collection, and analysis, to validate the findings. **Results:** This study focused on participants at the New Taipei City Civil Sports Centers and their motivations for joining aerobic exercise classes. The findings revealed and categorized several key motivations as follows: 1. **Physical Health:** Through aerobic classes, participants aim to enhance cardiovascular endurance and immune function, improve muscular endurance, and boost overall health. 2. **Mental Well-being:** Participants reported that aerobic exercise helps them release stress, improve positive emotions, and build self-confidence. 3. **Social interaction and Sense of Belonging:** Many participants felt that group exercise provides a collective atmosphere. Joining classes with family or friends not only strengthens relationships but also helps develop regular exercise habits and expand social circles by meeting like-minded individuals. Motivations for exercise participation can generally be categorized into psychological factors, health and fitness performance, social and recreational aspects, stress relief and emotional regulation, appearance, and weight management (Chen, 2023). Based on this, it can be understood that although motivations for participating in exercise are diverse, they can be broadly classified into physical, psychological, and social motivations (Chen, B. Q., 2014). According to participants' feedback: **Physical Health:** They joined the classes to enhance cardiovascular endurance, maintain health, and manage their physique. **Mental Health:** The classes helped relieve work-related stress and regulate emotions. **Social Interaction and Sense of Belonging:** Having companions in class created a positive atmosphere, providing stronger motivation and a greater sense of accomplishment in continuing regular exercise. **Conclusion:** The motivations behind participants joining aerobic exercise classes are diverse, primarily focusing on health promotion, body management, and psychological adjustment. Most participants hope to improve their physical fitness, control their weight, and relieve stress through exercise, thereby enhancing their overall quality of life. In addition, the group atmosphere and social opportunities provided by the classes are also key factors that encourage continued participation. The professional guidance of instructors and the variety of class content are highly appreciated, highlighting the crucial role that course design and teaching quality play in boosting participants' motivation. In conclusion, future programs can be tailored to meet the needs of different motivational groups by offering differentiated course designs, enhancing instructional interaction, and strengthening social connections. These efforts can increase participant engagement and promote long-term exercise habits, ultimately contributing to the goal of improving public health.

Keywords: Motivation for participation; Aerobic exercise class; Civic Sports Center

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An Investigative Analysis of the Potential Relationships between Zodiac and Astrological Characteristics and Competitive Performance in Olympic Taekwondo Sparring: A Longitudinal Study Across Weight Categories

(2000-2024)

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Abstract

Introduction: The purpose of this study is to explore the correlation between zodiac signs, astrological signs, and athletic performance among Olympic Taekwondo sparring athletes across different weight categories from 2000 to 2024. Previous research has shown that athletic performance may be influenced by various factors, including psychological, social, and cultural backgrounds (Holt, 2008). **Research Background :** Zodiac signs and astrological signs hold significant symbolic meaning in both Eastern and Western cultures. According to traditional Chinese culture, zodiac signs represent individual personality traits and life trajectories (Chen, 2014). Astrological signs, originating from Western astrology, believe that celestial configurations at birth profoundly influence an individual's personality and behavior (Tarnas, 2006). These cultural beliefs may impact athletes' self-perception, psychological preparation, and competition strategies. Previous research has indicated that athletes' psychological states significantly influence their performance. For instance, Holt (2008) mentioned that psychological factors such as confidence, anxiety levels, and motivation directly affect competition performance. Therefore, zodiac and astrological signs, as cultural beliefs, may potentially influence performance by affecting athletes' psychological states. **Research Methodology:** This study will employ a quantitative analysis method, collecting data from Olympic Taekwondo competitions between 2000 and 2024. The data will include athletes' zodiac signs, astrological signs, competition results, and other relevant variables. Data sources will comprise Olympic official websites, national Taekwondo associations, and related literature. **Zodiac Signs and Athletic Performance :** Research suggests that individuals born under different zodiac signs may possess distinct personality characteristics. For example, those born in the Year of the Rat are typically considered intelligent and agile, while those born in the Year of the Dragon are viewed as having leadership capabilities and confidence (Li, 2015). These personality traits may influence athletes' strategy selection and stress-coping abilities during competitions. **Astrological Signs and Athletic Performance:** The influence of astrological signs should not be overlooked. According to astrology, certain signs like Aries and Leo are often perceived as having strong competitive spirits and leadership qualities (Parker, 2010). These traits may provide athletes of these signs with advantages, particularly in high-pressure environments. **Conclusion:** By exploring zodiac and astrological signs, we can gain a more comprehensive understanding of Taekwondo athletes' performance. Although current research has not definitively proven the specific impact of zodiac and astrological signs on athletic performance, these cultural factors warrant further investigation in sports psychology. Future research could consider larger sample sizes and more in-depth psychological assessments to reveal the potential influences of these cultural beliefs on athletic performance.

Keywords: Taekwondo Performance 、 Zodiac Signs 、 Astrological Signs 、 Olympic Sports 、 Sports Psychology

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Lifelong Health Through Yoga: A Comprehensive Analysis of the Effects of Yoga on Women's Physical and Mental Well-being

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Abstract

Purpose: This study aims to examine the impact of yoga practice on various aspects of women's physical and mental well-being at specific life stages, including postmenopausal women, menopausal women, and pregnant women. **Methods:** This study employs a systematic literature review to analyze academic research from the past decade on the effects of yoga on the physical and mental well-being of different demographic groups. Using the Airiti Library academic database, seven yoga-related academic papers published in the last ten years were selected. The literature selection criteria included academic significance, the scientific rigor of the research methodology, and thematic relevance. Keywords such as "yoga practice," "menopausal women," and "pregnant women" were used for data retrieval. Only studies meeting the eligibility criteria were included in the final analysis. **Results:** The findings indicate that yoga has significant positive effects across all studied demographic groups. Postmenopausal women who engaged in high-intensity fitness yoga exhibited a notable increase in bone mineral density and a significant enhancement in antioxidant capacity, including superoxide dismutase and glutathione peroxidase levels. Middle-aged women who practiced yoga regularly experienced a marked reduction in anxiety and depression indices, along with a substantial improvement in overall quality of life and mental well-being. Additionally, pregnant women who participated in yoga training reported effective relief from pregnancy-related discomforts and improved sleep quality. These results suggest that yoga is beneficial in alleviating pregnancy-related stress and physiological burdens. **Conclusion:** The empirical data compiled in this study strongly support the multifaceted benefits of yoga for women's health across different life stages. These benefits include increased bone mineral density, enhanced antioxidant capacity, reduced anxiety and depression, improved quality of life, and better sleep health. Based on these findings, it is recommended that yoga be integrated into health management programs for menopausal and pregnant women. Furthermore, long-term studies should be conducted to establish the most effective yoga training regimens for different demographic groups, ultimately enhancing women's overall health and quality of life.

Keywords: Exercise Prescription, Menopausal Women, Pregnant Women, Mental Health

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To explore the effect of kazoo playing groups on the pulmonary function of the elderly from the perspective of music therapy

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Abstract

This study explores the impact of kazoo music therapy on the pulmonary function of individuals aged above 65. We found that kazoo music therapy significantly enhances pulmonary function by improving respiratory training efficacy, promoting lung activity, and strengthening mucus clearance, thereby improving the overall quality of life for the elderly. This research provides scientific evidence for the application of music therapy in health promotion and introduces a novel approach to improving both the physical and mental well-being of elderly. **Research Purpose:** This study aims to explore the impact of kazoo music therapy on the pulmonary function of individuals aged above 65, providing empirical support and practical guidance from the perspective of music therapy. As aging progresses, the decline in pulmonary function among the elderly has become a global health challenge, leading to reduced quality of life and increased medical costs. However, music therapy has shown potential in improving pulmonary function, with the kazoo being considered an effective intervention tool due to its simplicity and the ability to train relevant muscle groups. The motivation for this study lies in addressing the severity of pulmonary function issues among the elderly and verifying the practical effects of kazoo music therapy to fill current gaps in the literature. By comparing data from experimental and control groups, we aim to analyze the specific improvements in pulmonary function brought by kazoo music therapy, including aspects such as breathing exercises, pulmonary activities, and sputum clearance. Beyond enhancing lung capacity and alleviating breathing difficulties, the study also seeks to investigate the method's impact on mental health and life satisfaction. The findings of this research will provide support for related health promotion strategies, assisting governments and healthcare institutions in promoting low-cost and effective interventions. Additionally, it aims to encourage communities and families to adopt kazoo music therapy, further enhancing the overall physical and mental health and quality of life of elderly individuals. **Research Methods:** 1. Research Framework:- Subjects: 30 elderly individuals aged above 65 from Xinzhuang District.-Experimental Design: A 12-week study where the experimental group undergoes kazoo music therapy (1.5 hours per week), while the control group maintains normal daily routines.-Measurement Indicators: Forced Expiratory Volume (FEV1), with pre-test and post-test data comparisons. 2. Research Procedure:-Pre-Test: Baseline pulmonary function data is recorded for all participants. -Treatment Period: The experimental group practices kazoo training, while the control group remains uninvolved. -Post-Test: Pulmonary function is reassessed at the study's conclusion.-Data Analysis: Statistical software is used for descriptive statistics and t-tests to evaluate therapy efficacy. 3. Research Tools:- Pulmonary Function Measurement Device: Evaluates FEV1 indicators.- Kazoo Instrument: Serves as the central tool for music therapy.-Statistical Analysis Software (SPSS): Analyzes experimental data and verifies outcomes. **Research Results and Discussion:**1. Experimental Group Results: -Significant Pulmonary Function Improvement: After 12 weeks of kazoo music therapy, the experimental group's forced expiratory volume (FEV1) increased from 1511.00 ml to 1862.07 ml (a 15.6% increase, $p < 0.05$). -High Correlation: The pre-test and post-test correlation coefficient was 0.952, indicating highly consistent data.-Conclusion: Kazoo music therapy significantly enhances pulmonary function, effectively supporting respiratory training and improving lung health. 2. Control Group Results:- Minor Changes: The control group's FEV1 increased marginally from 1450.00 ml to 1494.38 ml (a 3.1% increase, $p = 0.008$), with no significant impact.-Limited Natural Variation: Without targeted interventions, improvements in pulmonary function were negligible.3.Discussion and Implications:- Pulmonary Function Improvement: The significant progress observed in the experimental group highlights kazoo therapy's effectiveness in enhancing lung capacity and breathing efficiency among the elderly.-Quality of Life Enhancement: Participants reported reduced breathing difficulties, improved mucus clearance, and higher life satisfaction. -Broad

Applicability: The simplicity and accessibility of kazoo training present a practical option, while music therapy shows great potential as a comprehensive health-promotion strategy. **Conclusion:** Pulmonary Function Improvement: Kazoo music therapy significantly enhances the lung capacity (FEV1) of older adults, reduces breathing difficulties, improves mucus clearance, and promotes overall lung health. Improved Quality of Life: Participants reported enhanced mental well-being and life satisfaction, with the musical experience having a positive emotional impact. Empirical Evidence: The study validates the effectiveness of kazoo music therapy in health promotion for the elderly, providing a scientific basis for its application in public health programs. Wider Implementation: Promote kazoo music therapy in elderly health improvement initiatives to enhance respiratory function and quality of life. Future Research: Expand sample sizes and extend observation periods to further evaluate long-term effects and application potential. Integrated Strategies: Combine kazoo therapy with exercise and nutritional interventions for comprehensive physical and mental health improvements among older adults.

Keywords: Elderly Health ; Respiratory Training ; Quality of Life ; Health Promotion.

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The Study on the Satisfaction of Winter Biathlon Athletes' Course Experience –Taking the Shooting Course Experience as an Example

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Abstract

The biathlon is a widely popular sporting event in Europe. In recent years, the Winter Olympics has also included it as a competition event. In recent years, athletes from the Asia-Pacific region have also emerged, and it is the only sport that requires athletes to quickly transition from dynamic to static, and then from static back to dynamic. The sport, combining cross-country skiing and rifle shooting, merges dynamic and static elements, which also increases the level of difficulty. However, awareness of this sport is limited in Taiwan. **Purpose:** Understanding the experience of participants in the northern region with biathlon shooting, and comparing the differences in course satisfaction based on various background variables after the course. **Methods:** The biathlon "shooting" event was used as a promotional course, and participants were randomly selected to take part in the experiential course for this study. A total of 133 questionnaires were distributed, and all 133 were returned. The participants' satisfaction with the sport was analyzed using factor analysis, independent sample t-tests, and one-way ANOVA. **Results:** The data analysis results show that 72.2% of participants had previous experience with physical shooting sports, while 77.4% had not received professional shooting training. Among the survey items, the statement "The process was enjoyable" had the highest average score (4.55). There were no significant differences in the experience of participants based on different background variables, as most had not received shooting training, resulting in no notable differences in their experiences. **Conclusion:** This study found that in the biathlon course experience, there were no significant differences ($p > 0.05$) in terms of course professionalism, the impact on physical and mental relaxation, learning outcomes, or the condition of the venue and equipment. Therefore, participants from different backgrounds gave similar evaluations. In other words, these factors did not show significant differences in their impact on the participants, indicating that the course can meet the needs of learners with varying background variables.

Keywords: Sports-shooting; Biathlon; Experience-satisfaction

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A Study on Training Satisfaction and Participation Motivation of Elementary School Wrestling Athletes

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Abstract

Wrestling, as a challenging and competitive sport, tests not only athletes' physical abilities and technical skills but also requires a high level of psychological resilience and consistent training commitment. With the advancement of sports development in Taiwan, the participation motivation and training satisfaction of elementary school wrestling athletes have gradually become a focus of academic and practical attention. **Purpose:** This study aims to explore the intrinsic and extrinsic factors influencing the participation motivation of elementary school wrestlers and analyze the relationship between training satisfaction and athletes' performance. Through a literature review, this research provides concrete suggestions for the promotion of wrestling and athlete training, aiming to enhance long-term commitment and competitive performance. Given the challenges of limited resources and an underdeveloped training system, how to stimulate athletes' intrinsic motivation, satisfy their psychological needs, and strengthen social support becomes a crucial issue in improving training satisfaction. **Method:** This study adopts a literature review method, integrating research on elementary school wrestling athletes over the past decade. Data were collected from academic databases such as Google Scholar, excluding incomplete articles or those with only abstracts. Key factors affecting training satisfaction were analyzed. **Results:** The literature review found that athletes' participation motivation can be categorized into intrinsic and extrinsic motivation. Intrinsic motivation, including self-challenge and a sense of achievement, is highly correlated with training satisfaction and significantly influences athletes' long-term performance and sustained participation. In contrast, extrinsic motivation, such as support from parents or coaches and external rewards, also impacts training enthusiasm and satisfaction. Besides individual motivation factors, athletes' self-efficacy, fulfillment of psychological needs, and social support from others are crucial in enhancing training satisfaction. **Conclusion:** Currently, wrestling in Taiwan faces challenges such as insufficient resources and an incomplete training system. Therefore, improving athletes' participation motivation and training satisfaction requires the popularization of physical education in schools and the improvement of the sports environment, which would contribute to athletes' long-term participation and better competitive performance. Overall, intrinsic motivation plays a key role in athletes' training engagement and performance, while external factors such as social support and self-efficacy are equally significant. Future research can further explore how to enhance athletes' training experiences through increased coaching support and family involvement.

Keywords: Wrestling; Satisfaction; Participation Motivation

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Sport Safety Management in School Sports Activities

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Abstract

School sports activities are essential for the mental and physical development of students, yet the frequency of sports-related accidents in schools has been increasing. This study aims to investigate the current state and issues of sport safety management in school sports activities, analyze common risks and countermeasures, and propose improvements to reduce injury rates. Through literature analysis and case studies, this research intends to provide concrete suggestions for enhancing sport safety management in schools, promoting the safety and health of students. **Purpose:** This research aims to clarify the current status of sports safety management in school physical education, analyze common risks and countermeasures for sports safety, explore the roles and responsibilities of various parties in sports safety, and propose specific improvement recommendations to reduce the incidence of sports injuries. **Methods:** This research employs literature analysis and case study methods, collecting and analyzing relevant data from multiple academic resources. Using the keywords "school," "physical education activities," "sports safety," and "sports injuries," a search was conducted in the following databases: Airiti Library and Google Scholar. The initial search yielded 380 articles published between 2002 and 2024. After reviewing each article and excluding those lacking full text, those not meeting the study's requirements, those missing abstracts, keywords, or references, and those lacking originality, 18 articles related to the topic were selected. The content of these articles was further analyzed to explore sports safety management issues in school sports education activities. **Results:** The study found that school sports injuries range from minor injuries such as sprains to more serious conditions like concussions and even fatal injuries. These injuries have significant impacts on students, families, and society, including physical and mental health problems, economic burdens, and increased social concern about school safety. This research also explored the roles of schools, teachers, parents, and students in safety management. **Conclusion:** Schools need to prioritize safety management in school sports activities and reduce the risk of sports injuries through collaboration and systematic management measures. Effective safety management systems should be developed and implemented to protect students' physical and mental health.

Keywords: School, Sports Activities, Sport Safety, Sports Injuries

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Study on the Differences Between the Dominant and Non-Dominant Hands of Working Women

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Abstract

Fitts's Law is an important principle related to human-machine interaction and motor control, proposed by American psychologist Paul Fitts in 1954. This law describes the relationship between the time it takes for a user to move from one position to another and the distance and size of the target in human-machine interaction. Fitts's Law is commonly applied in the design of user interfaces, such as the size and position of buttons, to enhance the efficiency and accuracy of user operations. This study is based on Fitts's Law and explores the phenomenon of the trade-off between speed and accuracy, analyzing the impact of target distance and width on movement time. Fitts's Law suggests that when the target is larger and closer, the movement time is shorter; conversely, smaller and more distant targets increase the time required for movement. **Objective:** To explore the effects of the working time and difficulty index on movement time for the dominant and non-dominant hands of working women and analyze the results. **Method:** The participants were married working women with children, who performed five different clicking task scenarios involving varying distances, target types, and target widths. Each scenario was repeated 10 times, for a total of 50 trials. **Results:** Using repeated measures ANOVA, the results showed a significant interaction between working time, difficulty index, and the dominant and non-dominant hands. It was found that as the difficulty index (ID) increased, the movement time also increased. **Conclusion:** The differences between the dominant and non-dominant hands of working women in rapid aiming tasks are significantly influenced by target distance and size, much like how the speed at which we grab a child or carry a heavy object is greatly impacted. Using the dominant hand is similar to solving a problem with a fixed mindset, like writing with the dominant hand. However, there are times when we need to break out of our usual thinking patterns, try different perspectives, or even train the non-dominant hand. The study confirms the application value of Fitts's Law in human-machine interface design. Future research directions could explore whether the differences between the dominant and non-dominant hands change with age, and whether these differences are universal across different cultural backgrounds.

Keywords: Fitts's Law, differences between dominant and non-dominant hands, working women, motor control, human-machine interaction.

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Break through Genetic Height by Five Strategies, including Exercise, Sleep, Nutrition, Psychology, and Physiology to Assist Adolescent Growth

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Abstract

The paper is Qualitative Research conducts in-depth research based on the qualitative aspect. Currently, there are possible strategies, including exercise, sleep, nutrition, psychology, and physiology to break through genetic height.

Before the age of 18, study performance and growth height are the two main areas of growth for teenagers between the ages of 3 and 18. Height, like academic performance, The height of youth is one of the keys to success. can add personal charm and strength to career and interpersonal relationships in the future.

Methods and Materials using qualitative, in-depth understanding of the case study living environment and the background of the growth process. We discussed the Exercise, Sleep, Nutrition, Psychology, and Physiology. We designed various questionnaires for the five major strategies we want to study. We observe factors that affect height growth, including the feedback of the subject's physical growth and his own psychological cognition, as well as the analysis ability of sports, body composition analysis, his desire to grow taller and the length of sleep. We compared the genetic height with actual height and the height difference data after treatment. Our aim goal is to find out all the data reports within three years to explore whether the five major strategies of height growth have an absolute relationship.

The record is based on the individual's exercise, nutrition, physiological and psychological experiences from the age of 10 to 14, surpassing the individual's genetic height calculated by the **international Who** growth formula. $(\text{Father's height} + \text{Mother's height} + \text{Child's height} \pm 11) \div 2 = \text{Genetic height (boy} + 11; \text{girl} - 11)$. We hope that through case study sharing, more people will understand the growth experience of actual cases combined with science and the actual records of the five major projects.

The frequency and method of exercise, growth meals prepared by nutritionists based on blood production values, long-term counseling by psychological counselors to resolve difficulties and overcome problems in the case's growth, as well as physiological medication records and sleep combinations, have achieved the original genetic height of 172.5. Currently, it has exceeded the genetic height to 178. As of today, 2025/4/8, he is now 16 years old and has reached 180.5 and is still growing. Research on the qualitative growth of individual cases, record and share the case studies of all growth processes.

Keywords: Exercise, Sleep, Nutrition, Height, Growth Hormone.

The Effects of Thera Band Training on Physical Fitness and Health in the Elderly-a systematic review

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Abstract

In recent years, Thera-bands are often used as a tool for training and rehabilitation for the elderly. The simple resistance training characteristics of elastic bands are used to help the elderly achieve physical fitness enhancement. The advantage of Thera-band is simple, easily accessible, portable, simply storage, and inexpensive device. Thera-band has led people to explore more ways to use it, including for the elderly, the group that is not suitable for high-intensity exercise training. **Purpose:** Investigate the influence of elastic band resistance training on the physical and mental health of elderly. **Methods:** A systematic literature search was performed in this study. The extensive search strategy included digital database searches in the Cochrane Library, PubMed, Embase, Web of Science, Google Scholar, MEDLINE, and CINAHL from the earliest records up to 26 January 2015. A manual search of the references from the eligible studies was conducted to supplement the electronic searches. **Results:** Five studies were included. A total of 302 participants were investigated across all studies. Those evidence report that Thera-band resistance training may improved upper and lower limb Muscle strength, Range of motion, Functional fitness and Muscle mass. **Conclusion:** Despite there is heterogeneity between the studies, this several studies illustrate that elastic band training is capable of promoting outcomes related to functional fitness, balance, muscle strength, muscle mass, disposition, quality of life, and, consequently, A reduced probability of chronic injury incidence.

Keywords: Thera band, Elastic band, Elderly, Muscle strength and Functional fitness

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Strategies for promoting water safety in rural schools: a case study on portable swimming pools

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Abstract

Taiwan is surrounded by the sea, and in recent years, various types of aquatic activities have been introduced in open waters. However, these activities have simultaneously increased the risk of drowning and posed various degrees of danger. To mitigate drowning-related casualties, the Ministry of Education began promoting swimming and water safety courses in 2001, aiming to enhance students' swimming and lifesaving skills. Despite over a decade of implementation, the established standards have not been revised to reflect practical circumstances. Taking water experience pools as an example, most modular pools are only around seven meters in length, making it impossible to assess the swimming competency required for Level 3 of the National Basic Swimming and Self-Rescue Competency Standards for Elementary and Secondary School Students, as stipulated by the Ministry of Education's Sports Administration. **Purpose:** The purpose of this study is to find out a set of lesson content and strategies that are suitable for the use of water experience pools, that can meet the human resources and other resources of each rural school, and be completed at the lowest cost, reducing the school's additional expenditures. **Methods:** This study is a review article employing a systematic literature review approach. Literature was retrieved from the Airtiti Library using keywords such as "lifesaving," "schools," and "water experience pools." Given that the Ministry of Education initiated the program in 2001, the selection of articles was limited to publications from 2001 to 2024. Based on these criteria, articles were further screened for relevance to the research topic, resulting in a final selection of ten articles for analysis. **Results:** Based on the review of the ten selected articles, this study identifies three key strategies for implementing swimming and water safety education in water experience pools: 1. Developing a New Assessment Framework: A revised evaluation standard tailored for water experience pools should be established by modifying the existing guidelines set by the Sports Administration of the Ministry of Education. This adaptation would ensure that both teachers and students can conduct assessments effectively within the constraints of water experience pools. 2. Prioritizing Lifesaving and Self-Rescue Skills: The curriculum should emphasize lifesaving and self-rescue techniques, with swimming proficiency as a secondary focus. This approach aligns with the unique characteristics of water experience pools and enhances students' ability to respond to water-related emergencies. 3. Integrating Sustainability Education: In alignment with the United Nations Sustainable Development Goals (SDGs), the curriculum should incorporate educational components that raise students' awareness of marine conservation and water resource preservation, fostering a deeper understanding of environmental sustainability.

Keywords: lifesaving; water experience pools; policy; physical education

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The Potential Impact of the Modification of Backstroke Rules on Swimming Athletes' Performance

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Abstract

The modification of competitive swimming rules can significantly affect athlete's competition results and training strategies. The World Aquatics (formerly FINA) released latest regulations in 2023, which introduced a new rule regarding the backstroke finish. According to this rule, swimmers are now allowed to be fully submerged within the final 5 meters before touching the wall, rather than being required to keep part of their body above the water surface. This change aims to reduce subjective judgment by referees and enhance fairness in competition. However, whether this rule modification effectively improves athletes' performance remains to be further explored. **Purpose:** This study aims to analyze the impact of the new backstroke finishing rule on athletes' performance and examine its potential effects on swimming training and competitive strategies. **Methods:** This study recruited six competitive elite swimming athletes (three specializing in backstroke and three were not-backstroke specialists). Two different wall-touch techniques (new and previous rules) were tested. Video recordings were analyzed using Kinovea software to capture the motion and measure time. A two-factor mixed-design ANOVA was conducted to examine the effects of different groups and different methods of the wall-touch technique. **Results:** The findings revealed a significant difference in wall-touch performance between the new rule group and previous rule group ($F(1,4) = 46.04, p < .05, \eta^2 = .92$.) The not-backstroke specialists did not show a significant improvement in performance under the new rule; instead, their wall-touch time tended to be slower. **Conclusion:** Backstroke specialists demonstrated a fewer time in wall-touch when adopting the fully submerged technique (new rule). In contrast, those not-backstroke specialists even finish with a longer time with new rule. This may be attributed to their specialized training habits, body coordination, and technical proficiency; and the training and competitive strategies could also be made according to these findings.

Keywords: rule modification, finish end, swimming

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Exploring Cyclists' Motivation, Leisure Benefits, and Recreational Experiences: A Case Study of Yongding Creek's North Bank

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Abstract

With urbanization and increasing environmental awareness, cycling has gained attention as a low-carbon, healthy mode of leisure and transportation. Yongding Creek provides an excellent cycling environment and is a popular route among cycling enthusiasts. This study explores cyclists' motivations, leisure benefits, and recreational experiences, while analysing their impact on personal health, social relationships, and environmental awareness. His study adopts a qualitative research approach, utilizing semi-structured in-depth interviews to collect data from eight cyclists. The interviews cover topics including basic information, participation motivation, leisure benefits, recreational experiences, and suggestions for environmental and facility improvements. The collected data were categorized through thematic analysis and compared with relevant literature. The research findings indicate that cyclists' motivations can be classified into four main categories: (1) health promotion, such as improving cardiopulmonary function and endurance; (2) social interaction, such as expanding social circles by making friends through cycling groups; (3) self-challenge, including personal achievement records and surpassing participation milestones; and (4) environmental exploration, such as enjoying natural scenery and the pleasure of outdoor cycling. Regarding leisure benefits, most participants recognized that cycling activities contribute to physiological, psychological, and social well-being. Physiological benefits include enhanced physical fitness and reduced sedentary-related issues. Psychological benefits involve stress relief, improved mood, and increased self-confidence. Social benefits help expand social networks and promote family harmony. Additionally, in terms of recreational experiences, participants highly rated the natural scenery along Yongding Creek and the overall cycling atmosphere. Some participants suggested adding rest stops, increasing water stations, and improving night time lighting to enhance convenience and safety. The research findings align with relevant theories, such as the Self-Determination Theory (Ryan & Deci, 2000), which emphasizes that activities with challenging goals and achievements enhance physical satisfaction. Furthermore, Iso-Ahola (1989) categorized leisure benefits into physiological, psychological, and social dimensions, which are consistent with the results of this study. These findings contribute to a deeper understanding of cyclists' needs and provide references for governments and organizations when planning cycling infrastructure. Future research could further explore behavioral patterns across different age groups and backgrounds or integrate quantitative research for broader data support.

Keywords: Cycling, Participation Motivation, Leisure Benefits, Recreational Experience

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A Comparison of Motorcycle Racetrack Venue Satisfaction in Taiwan: A Case Study of Longtan Extreme Racetrack and LiBao Karting Racetrack.

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Abstract

Taiwan has numerous racing tracks, offering a variety of racing experiences for motorsport enthusiasts. The design of the tracks and the quality of venue management are crucial in enhancing participants' experience and satisfaction. Purpose: This study aims to understand the current development of two-wheeled motorcycle racing tracks in Taiwan, and to compare and explore the satisfaction levels regarding "track safety" and "environmental conditions." The study will also provide recommendations for future development planning of two-wheeled racing tracks based on the comparative results. Method: This study uses literature review and in-depth interviews to collect data from users of the Xtreme Racing Track in Longtan and the Lihpao Karting Track in Taichung. Interviews were conducted with coaches and racers of various skill levels. The interview content was transcribed, and an analysis was performed based on the interviewees' descriptions. Results: In terms of track safety, Lihpao Karting Track received higher satisfaction from riders due to its more complete buffer zones and protective installations. Although Extreme Racing Circuit offers affordable pricing and wider, gentler curves, its safety measures are relatively basic. Regarding transportation and overall convenience, Lihpao has better external connectivity thanks to its shuttle service and integration with the nearby amusement park. In contrast, Extreme is limited by its remote location and relies more on private transportation. For pricing, Extreme charges around NT\$500 per day, making it suitable for routine practice. Lihpao, on the other hand, charges over NT\$3000 per day due to its well-equipped facilities and services, making it more appropriate for professional events and training. In terms of rest facilities and support services, Lihpao provides indoor resting areas, refreshments, and emergency medical services—significantly outperforming Extreme, which mainly relies on basic tents and minimal support. As for user demographics, Extreme attracts beginners and budget-conscious riders, while Lihpao is more suited for advanced riders and official race participants. Conclusion: The analysis reveals clear differences between the two tracks in terms of safety, service quality, and pricing. Lihpao Karting Track, with its high standard of design, convenient transportation, and complete infrastructure, is the top choice for professional riders and formal competitions. In contrast, Xtreme Racing Track offers an accessible, budget-friendly option ideal for beginners and daily training. Ultimately, satisfaction levels depend heavily on a rider's goals, budget, and experience. This study recommends that riders choose the venue that aligns best with their individual objectives and needs to optimize both safety and training efficiency. The study also provides recommendations for future development planning of two-wheeled racing tracks, aiming to improve safety, convenience, and overall service quality to attract more motorsport enthusiasts.

Keywords: Two-wheeled motorcycles, Track Safety, User Satisfaction

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A Constraint-Led Framework for Universal Design for Learning: Theoretical Foundations, Assessments, and Implementations

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Abstract

The constraints-led approach (CLA) has recently drawn increased attention within sports pedagogy. Additionally, Universal Design for Learning (UDL), acknowledged by the US government's Every Student Succeeds Act of 2015, aims to support inclusive education by meeting lesson objectives and accommodating individual learning needs across various disciplines, including physical education. **Purpose:** This article introduces the theoretical concept, categorization, practical applications, constraint manipulations, and relevant research findings associated with CLA, aiming further to advance the understanding and application of this approach. **Methods:** This review assessed empirical studies concerning CLA and UDL. Relevant literature was searched using databases such as Google Scholar, PubMed, and Airtiti Library, applying keywords including "Physical education," "Unified sports," "Physical activity," and "intellectual disabilities." Selected studies were synthesized and analyzed based on experimental design, methodology, and content related to verbal instructions. **Results:** Findings suggest that CLA shares foundational principles with UDL, indicating its potential to foster interdisciplinary research collaborations, dismantle existing disciplinary silos in sports science, and restore disciplinary balance within the field. Moreover, CLA can promote a more holistic understanding of sports performance across various analytical levels, increase the explanatory power of applied research, provide stronger rationales for data collection and variable selection, and guide the development of integrated performance monitoring technologies. **Conclusion:** These findings may be a practical guide for enhancing curricular design and instructional efficacy within physical education contexts. Educators must consider individual and group differences to ensure that every student benefits from physical education lessons and develops into an expert learner.

Keywords: unified sports; physical activity; special education

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A Study on the Recruitment Strategies of Sports Volunteers for International Sporting Events in Taiwan

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Abstract

Introduction: In recent years, the expansion of international sporting events has made the successful hosting of major competitions a crucial strategy for enhancing global visibility. Volunteers play an indispensable role in these events, not only assisting with operations but also enhancing the experience of both spectators and athletes. In 2023, the total number of volunteers in Taiwan reached 1.11 million, an increase of 120,000 compared to 2020, demonstrating a high level of social participation in volunteer services. However, effectively recruiting and managing volunteers remains a significant challenge. This study explores the development, participation significance, and recruitment strategies of international sporting event volunteers in Taiwan. It also proposes optimization suggestions to improve volunteer management efficiency and ensure the smooth execution of events. Through a literature review. **Methods:** This research integrates journal articles, electronic newspapers, magazines, and relevant websites for analysis. Since the implementation of the Volunteer. **Results:** Service Act in 2000, Taiwan's volunteer service mechanisms have gradually improved, and the role of sports volunteers has become increasingly important. Sports volunteers provide competition support, venue operations, language translation, and other services to ensure the successful execution of events. However, the number of volunteers is influenced by environmental factors. For instance, in 2019, there were approximately 11,903 sports volunteers, but due to the pandemic, the number dropped to 8,814 in 2020. By 2023, it had rebounded to 13,177, indicating the need for stable support in volunteer development. Since the 2009 World Games in Kaohsiung, Taiwan has accumulated experience in international sports event volunteering. The 2017 Taipei Summer Universiade further boosted its global visibility, while the 2025 World Masters Games in Taipei and New Taipei City has also placed significant emphasis on volunteer programs, reflecting the deepening and professionalization of volunteer culture. Volunteer recruitment strategies should be tailored to different generations. Generation X prefers newspapers and word-of-mouth recommendations, Generation Y utilizes professional social platforms like LinkedIn, while Generation Z relies on social media platforms such as Instagram and TikTok. Therefore, selecting the appropriate promotional channels based on the target audience is essential. Additionally, Maslow's hierarchy of needs suggests that fulfilling volunteers' social, achievement, and self-actualization needs can increase their willingness to participate. For example, fostering teamwork and a sense of belonging can attract volunteers who value social connections, while offering skill training and performance recognition can enhance long-term engagement. The Self-Determination Theory emphasizes the impact of autonomy, competence, and relatedness on volunteers' intrinsic motivation. Organizations should provide flexible work arrangements, proper skill training, and a supportive community environment to enhance volunteer commitment and loyalty. Research indicates that volunteer participation is driven by factors such as self-fulfillment, practical benefits, social opportunities, and learning value, highlighting the importance of offering growth and learning opportunities to improve volunteer satisfaction. **Conclusions:** Moving forward, Taiwan should optimize volunteer management mechanisms, strengthen public recognition of volunteer services, and implement innovative recruitment strategies to attract more volunteers to sports events. Additionally, enhancing volunteer training and support systems will foster the development of volunteer culture, ensuring the successful hosting of large-scale competitions. Ultimately, sports volunteers will continue to play a vital role in advancing social welfare and promoting sports development.

Keywords: International sporting events, volunteer service, volunteer management, recruitment strategies

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Advancing ESG in National Sports Centers Through Sports Technology: A Case Study of the ITRI Smart Gym System

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Abstract

Against the backdrop of increasing global emphasis on sustainable development and ESG (Environmental, Social, and Governance), the application of sports technology has become a crucial means of enhancing the efficiency of public sports facilities and promoting public health. As key facilities for fostering public fitness and community engagement, national sports centers play a vital role in achieving ESG goals. How these centers integrate modern sports technology to enhance national fitness and drive sustainable development is a matter of great significance. In recent years, national sports centers have gradually introduced smart technologies such as access control systems, cloud-based data analytics, and membership management systems to optimize operations and improve user experience. However, these applications are often limited to specific functions, lacking a comprehensive strategy for the intelligent integration of sports facility hardware and software. In the wave of digitalization and smart transformation, sports technology not only improves facility management efficiency but also generates long-term value in environmental, social, and economic aspects. Thus, leveraging sports technology to achieve energy efficiency, enhance social impact, and optimize management effectiveness has become a critical issue. The ITRI Smart Gym System offers an advanced sports technology solution that plays a significant role in environmental protection, social contribution, and governance efficiency, providing new opportunities for the sustainable development of national sports centers.

This study aims to explore the application of the ITRI Smart Gym System in promoting ESG sustainability within national sports centers. It focuses on how the system drives positive transformations in environmental, social, and governance aspects and analyzes its practical benefits. Using a literature review methodology, this study investigates how the ITRI Smart Gym System facilitates the achievement of ESG goals in national sports centers. The research focuses on environmental sustainability (e.g., energy efficiency and resource utilization), social contribution (e.g., promoting fitness and improving public health), and governance efficiency (e.g., digitalized management and operational transparency). Furthermore, it examines how these technologies contribute to enhancing the overall operational efficiency and social responsibility of national sports centers.

The literature review findings indicate that the ITRI Smart Gym System effectively improves the ESG performance of national sports centers. In terms of environmental impact, the system utilizes smart energy-saving technologies to monitor energy consumption, optimize equipment operations, and reduce unnecessary energy waste and carbon emissions. Additionally, the integration of energy-recycling smart fitness equipment—such as devices capable of converting kinetic energy from exercise into electricity—could further enhance energy efficiency, reduce the carbon footprint of national sports centers, and realize the vision of green sports facilities. In terms of social impact, the system's built-in biometric sensing technology enables real-time collection of users' exercise data, providing personalized training guidance and precise health feedback. This feature supports users of different age groups and fitness levels in developing tailored exercise plans, thereby improving overall public health. Additionally, data analysis allows sports centers to provide safer and more customized fitness recommendations for specific populations (such as

older adults or beginners), further promoting social well-being and public health.

From a governance perspective, the digitalized management and cloud-based analytics of the ITRI Smart Gym System enhance decision-making accuracy, making sports center management more transparent and efficient. With the integration of the Internet of Things (IoT), administrators can monitor equipment usage rates and maintenance status in real time, ensuring optimal operation of sports facilities and improving overall management efficiency. Moreover, data-driven decision-making helps sports centers develop resource allocation strategies that align with actual needs, achieving precise management and long-term sustainability goals.

In conclusion, the ITRI Smart Gym System not only enhances the operational efficiency of national sports centers but also significantly contributes to their sustainability in environmental protection, social impact, and governance effectiveness. Moving forward, the system can be further integrated with advanced intelligent technologies and expanded to sports centers nationwide, establishing smart sports facilities that combine technological innovation with sustainable development.

Keywords: Sports Technology, National Sports Center, ESG, Smart Gym, Sustainable Development

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Digital Transformation of Human Resource Management in Sports

Venues: The Impact and Challenges of AI Technology

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Abstract

Purpose: With the rapid advancement of digital technology, artificial intelligence (AI) has fundamentally reshaped human resource management practices, particularly in sports venue operations. Research indicates that jobs with lower specialization and high repetitiveness are highly susceptible to automation, raising concerns about AI's role as either a replacement for human labor or a tool for enhancing managerial decision-making and operational efficiency. **Methods:** This study conducts a systematic literature review of 25 scholarly articles published in the past five years, focusing on digital transformation in sports venues and human resource management. **Results:** Findings reveal that AI significantly improves operational efficiency, enhances safety measures, reduces labor costs, and optimizes marketing strategies through big data analytics. In human resource management, AI facilitates talent acquisition, performance evaluation, promotion, and retention, allowing for more precise resource allocation. However, ethical concerns such as algorithmic bias in recruitment and decision-making fairness persist, alongside workforce challenges such as increased employee stress and resistance to AI-driven automation. **Conclusion:** To address these challenges, organizations must implement structured training programs and transparent communication strategies to support employee adaptation while fostering a collaborative AI-human workforce model that balances efficiency gains with workplace equity. Ultimately, AI technology presents both transformative opportunities and critical challenges in the digital evolution of sports venue management, requiring a strategic and ethical approach to maximize its benefits while mitigating potential risks, ensuring long-term industry sustainability and competitiveness.

Keywords: Artificial Intelligence; Venue Management; Operational Scalability; Ethical AI Governance

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Research on Digital Transformation and E-commerce in the Sports

Industry

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Abstract

With the rapid advancement of digitalization, e-commerce has become an essential driver of transformation in the sports industry. The integration of digital marketing, artificial intelligence, and mobile applications has reshaped consumer behavior, business models, and industry competitiveness. Particularly after the COVID-19 pandemic, the shift towards online platforms has accelerated, making digitalization a crucial strategy for business survival and growth. However, while e-commerce presents significant opportunities, challenges related to management, socio-cultural adaptation, and technological implementation remain. **Purpose:** The purpose of this study is to critically analyze the impact of e-commerce on the sports industry by reviewing existing literature on digital marketing, artificial intelligence, and business management in this field. This review aims to identify key trends, challenges, and strategies for leveraging digital technologies in sports-related businesses. **Methods:** This study adopts a qualitative research approach by conducting a comprehensive literature review of scholarly articles that examine e-commerce in the sports industry. By analyzing multiple sources, including empirical studies and theoretical discussions, this review explores how e-commerce and digital transformation have influenced business strategies, consumer behavior, and market dynamics. **Results:** The findings indicate that while digital technologies enhance operational efficiency, market reach, and consumer engagement, businesses must address managerial and socio-cultural challenges to fully utilize their potential. Additionally, artificial intelligence, big data analytics, and mobile applications play a crucial role in optimizing personalized services and improving consumer experience. The discussion highlights the necessity of integrating both online and offline sales channels to maintain a competitive edge. **Conclusion:** E-commerce and digitalization have revolutionized the sports industry, offering numerous opportunities for growth and innovation. However, businesses must adopt strategic frameworks that incorporate digital solutions while considering organizational and cultural challenges. Future research should focus on developing sustainable e-commerce models and exploring the long-term impact of digital transformation in the sports industry.

Keywords: E-commerce in sports industry; Digital transformation; Sports marketing; Artificial intelligence in sports; Business management in sports

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Taishan Civil Sports Center Survey on Consumer Participation Motivation and Satisfaction

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Abstract

Recently, exercise has become an indispensable part of the public's leisure activities, leading to the burgeoning development of sports facilities. This study aims to explore the service quality and satisfaction of users at the New Taipei City Taishan Civil Sports Center, to compare the differences among various users, and to understand the relationship between user participation motivation and satisfaction. The research employs a questionnaire survey method using convenience sampling on users of the New Taipei City Taishan Civil Sports Center, analyzing the data through descriptive statistics, independent sample t-tests, one-way ANOVA, and Pearson correlation. A total of 443 questionnaires were distributed, with 432 valid responses. The results indicate that the users of the New Taipei City Taishan Civil Sports Center are predominantly female, with most users over the age of 40. The users' educational level is primarily college education, with occupations largely consisting of homemakers. The average income ranges between NT\$40,000 to NT\$50,000, and married individuals outnumber single individuals. Users visit the sports center 2 to 3 times a week, with each visit lasting from 1 to 3 hours, with badminton courts being the most popular facility. The majority of users are residents of the Taishan area. Significant differences in service quality and satisfaction were found among users based on various variables such as age, education level, frequently used facilities, weekly usage frequency, and place of residence. Additionally, all dimensions of service quality and satisfaction showed significant positive correlations.

Keywords: sports center, service quality, satisfaction.

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The digital transformation of fitness facilities: Adapting to post-pandemic challenges

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Abstract

The COVID-19 pandemic has posed significant challenges to the operational models of fitness facilities. Government-imposed social distancing and lockdown measures have led to operational restrictions, member attrition, and revenue decline, increasing long-term business uncertainty. Meanwhile, the growing public awareness of health and the widespread adoption of digital fitness services have necessitated adjustments in management strategies for fitness facility operators to adapt to market changes and enhance competitiveness. Traditional physical fitness centers are gradually transitioning to a hybrid model that integrates both online and offline services. This shift involves the extensive use of digital tools, such as reservation systems, online courses, and membership management apps, to improve operational efficiency and the user experience. Furthermore, the introduction of intelligent technologies, such as smart motion-sensing devices and digital management systems, helps reduce human contact, enhance safety, and strengthen pandemic prevention measures through real-time monitoring, ultimately boosting consumer trust. This study employs a literature analysis approach to explore the digital management strategies and transformation experiences of fitness facilities in Taiwan during the pandemic. It examines key management measures, their impacts, and provides recommendations for future digital optimization. The findings indicate that digital technology applications have become a core strategy for improving fitness center operations. In particular, the implementation of digital management systems streamlines administrative processes, optimizes equipment usage, and enhances the overall member experience. Three key digital management strategies for fitness facilities are summarized as follows: 1. Integration of Online and Offline Services: Utilizing online reservations, digital courses, and interactive coaching systems to improve exercise convenience and safety while reducing overcrowding at fitness centers. 2. App Utilization and Smart Management: Apps serve as the core of digital management, offering real-time reservations, course and facility inquiries, and integration with wearable devices for exercise data monitoring and personalized services. Additionally, electronic payment options and membership reward programs help improve member retention, while backend data analytics enable managers to optimize operations and pandemic prevention strategies. 3. Digital Business Models and Employee Skill Development: Digital tools enhance operational processes, improve employees' digital literacy, and enable the development of flexible business models to adapt to market changes and future challenges. However, challenges remain in digital transformation, including technological barriers, member adaptability, and high investment costs. In particular, older members tend to have lower adaptability to app usage, which affects the widespread adoption of digital systems. Overall, the pandemic has accelerated the digital transformation of fitness facilities. Digital management not only enhances operational efficiency and customer experience but also reshapes consumer behavior patterns. Moving forward, fitness centers should continue to deepen their digital strategies, enhance digital literacy among employees and members, and strike a balance between digital and physical services. By doing so, they can establish a flexible and resilient business model that will achieve sustainable development.

Keywords: Post-pandemic era, fitness facilities, digital optimization, operations management

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The Application of Smart Sports Technology and Educational Transformation in the Post-Pandemic Era: A Systematic Literature Review

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Abstract

Purpose: With the rapid development of smart sports technology, this technology has begun to reshape the landscape of physical education and sports participation. This systematic literature review aims to explore how smart sports technology has transformed educational models and enhanced sports participation in the post-pandemic era. The study focuses on analyzing how smart sports devices, applications, and data analytics impact the ways in which physical education is delivered, training is personalized, and overall sports participation is fostered. **Methods:** This is a systematic literature review that examines various research on smart sports technology and its impact on physical education and sports participation. The review analyzes the use of smart sports devices, applications, and data analytics, exploring how these technologies are being integrated into educational practices and their influence on training and sports involvement in the post-pandemic context. **Results:** The research findings show that smart sports technology has facilitated the digitization of physical education, making remote learning, personalized training programs, and physical performance monitoring possible. Wearable devices, such as fitness trackers and smartwatches, along with mobile applications, provide users with real-time feedback, allowing them to track their physical activities, set goals, and receive improvement suggestions. These technologies have broken the traditional classroom setting of physical education, creating new opportunities for virtual or blended learning. Additionally, the integration of machine learning and artificial intelligence (AI) in smart sports technology is becoming increasingly important. These technologies can provide tailored advice based on individual needs and performance, promoting a more personalized and effective learning experience. Furthermore, data collected from smart sports devices has been shown to be a key tool in managing sports health and preventing injuries, contributing to the improvement of participants' physical and mental well-being. **Conclusion:** These results suggested that smart sports technology holds disruptive potential in the post-pandemic era, providing innovative solutions for personalized learning and increased sports participation. It has shifted the educational approach from traditional methods to a more flexible, interactive, and data-driven physical education model. However, to fully realize the potential of these technologies, issues such as accessibility, privacy, and digital literacy must still be addressed. Future research should explore strategies to overcome these barriers and develop effective models for integrating smart sports technology into educational practices.

Keywords: Smart sports technology, post-pandemic era, educational transformation, digital learning

A Study on Consumer Participation Behavior and Satisfaction at Xinzhuang National Sports Center

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Abstract

Purpose: This study focuses on consumers at the Xinzhuang National Sports Center in New Taipei City. It primarily explores consumer participation behavior, satisfaction with the sports center, and differences among demographic variables. Additionally, it analyzes the correlation between consumer participation behavior and usage satisfaction.

Method: The study employs a questionnaire survey using convenience sampling among consumers of the Xinzhuang Sports Center. Statistical analyses, including descriptive statistics, independent sample t-tests, one-way ANOVA, and Pearson correlation analysis, were conducted. A total of 451 questionnaires were distributed, with 431 valid responses, resulting in an effective response rate of 95.56%.

Results:

- I. Current Participation Behavior at Xinzhuang National Sports Center
 - The number of male consumers was higher than that of female consumers.
 - The majority of consumers were between 18 and 30 years old.
 - The results showed that respondents visited the sports center an average of 2.47 times per week, staying for approximately 2.58 hours per visit. This indicates that most consumers maintain a stable exercise routine.
 - The most frequently used facility was the gym.
- II. Differences in Satisfaction Among Consumers of Different Demographic Backgrounds
 - Younger consumers had a higher demand for course diversity, scoring 3.80 points.
 - Older consumers (aged 40 and above) placed more importance on facility convenience, scoring 4.20 points.
 - Most consumers were from the Xinzhuang District.
- III. Significant Differences in Participation Behavior and Satisfaction Across Different Variables
 - Factors such as age, education level, most frequently used facility, weekly usage frequency, and place of residence all showed significant differences in participation behavior and satisfaction.
 - There was a significant positive correlation between participation behavior and satisfaction across all dimensions.

Conclusion: Age, education level, preferred facility, weekly usage frequency, and place of residence significantly influence consumer participation behavior and satisfaction. The findings indicate that consumers who actively participate in sports activities tend to have higher satisfaction with the sports center.

Keywords: Consumer Participation Behavior, Sports Center Satisfaction, Demographic Variables

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A Study on Service Quality and User Satisfaction at YeYu Sports Badminton Hall

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Abstract

Foreword: In recent years, badminton has become a leisure activity for most people, driving the prosperity and development of badminton venues. The purpose of this study was to explore the Ye Badminton Sports Badminton Hall, analyze the service quality and satisfaction of its users, and explore the differences between users from different backgrounds, as well as the correlation between service quality and satisfaction. **Objectives:** 1. To understand the current situation of user background variables, service quality and satisfaction of Ye Yu Sports Badminton Hall, 2) to compare the service quality of users of Ye Yu Sports Badminton Hall with different background variables, 3) to analyze the satisfaction of users of Ye Yu Sports Badminton Hall with different background variables, and 4) to explore the correlation between user service quality and user satisfaction of Ye Yu Sports Badminton Hall. **Methods:** This study used a questionnaire survey method to collect the opinions of users of the leaf badminton hall through convenience sampling, and used descriptive statistics, independent sample t-test, one-way variation analysis and Pearson correlation statistical analysis. A total of 400 questionnaires were distributed in this study, and 380 valid questionnaires were recovered, with a recovery rate of 95%. **Results and discussion:** The results showed that the main users were males aged 20 to 39, most of whom had high school vocational education, engaged in the service industry, and had an income of about 30,000 to 40,000 yuan, and were mainly residents of Xinzhuang District. Users have a high evaluation of site facilities and cleaning and maintenance, but there is still room for improvement in personnel services and additional services. In terms of satisfaction, the environment and equipment were positive, but the price rationality and activity arrangement were reserved. There are significant differences in service quality and satisfaction among users of different ages, education levels and usage frequency, and there is a positive correlation between service quality and satisfaction. The research results can be used as a reference for the stadium to improve the service quality and competitiveness. **Conclusion:** The results of this study indicate that users are generally satisfied with the venue facilities and cleanliness maintenance. However, there is still room for improvement in staff services and additional services. It is recommended that Ye Yu Sports Badminton Hall enhance staff training, improve additional services, and adjust pricing and event arrangements to meet the needs of different groups, thereby increasing user satisfaction.

Keywords: Badminton hall, service quality, satisfaction

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A Study on the Factors Influencing User Choices and Satisfaction at Beitou National Sports Center

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Abstract

Title: With the rise in health awareness, fitness has become a symbol of self-improvement and lifestyle. Regular exercise contributes to physical and mental well-being, prevents diseases, and delays aging (Hsueh et al., 2021; Chou et al., 2020). However, the fitness market is highly competitive, and consumers consider factors such as facilities, location, price, and service quality when choosing a gym, with price and cost-performance ratio (CP value) being particularly critical. This study takes Beitou Civil Sports Center as an example to analyze the key factors influencing consumers' choice of fitness facilities and provide optimization suggestions to enhance market competitiveness. **Research Objectives:** 1.To explore consumers' participation behavior in choosing Beitou Civil Sports Center.2.To investigate consumers' service needs at Beitou Civil Sports Center.3. To compare the personal background variables of consumers when selecting a fitness venue.4. To analyze consumer satisfaction with Beitou Civil Sports Center. **Research Methods:** This study surveyed users of Beitou Civil Sports Center to analyze the relationship between selection factors, service quality perception, and satisfaction. A questionnaire survey method was adopted, with 450 questionnaires distributed and 403 valid responses collected using convenience sampling. The questionnaire covered demographic background, selection factors, service quality perception, and satisfaction. Data analysis was conducted using SPSS, including descriptive statistics, t-tests, ANOVA, correlation analysis, and multiple regression analysis. **Results and Discussion:** The findings indicate that most users of Beitou Civil Sports Center are aged 21-40 and primarily use the fitness area and swimming pool. Regarding service needs, respondents valued staff care and professionalism the most, followed by facility conditions and environmental maintenance. Further analysis revealed that age, education level, and exercise frequency influence users' choices. The satisfaction analysis showed a significant positive relationship between service quality perception and satisfaction, with facility environment and staff attitude being the main influencing factors. **Conclusion:** The key factors influencing consumers' choice of Beitou Civil Sports Center include facilities, location convenience, and reasonable pricing, which, in turn, impact service quality perception and satisfaction. Staff attitude and facility maintenance are also crucial factors affecting satisfaction. It is recommended that Beitou Civil Sports Center improve facility maintenance and upgrades, enhance staff training, and implement promotional activities and differentiated marketing strategies (such as student discounts and membership rewards) to attract potential customers and enhance satisfaction and loyalty. Future research could further explore different types of sports centers or consumer groups to gain a more comprehensive understanding.

Keywords: Civil Sports Center, Service Quality, Purchase Motivation, Consumer Satisfaction

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Effects of six weeks of blood flow restriction combined with low-resistance training on fall risk in the elderly

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Abstract

In today's aging society, falls among older adults represent a critical public health issue. Research in exercise medicine clearly highlights that proactive training programs can prevent falls by enhancing muscle strength and increasing lower limb power. Traditional high-intensity resistance training often carries significant injury risks; therefore, alternative strategies have been explored. Notably, blood flow restriction (BFR) training provides a low-resistance intervention with benefits comparable to high-intensity workouts. This method permits older adults to safely improve muscle size, maximal strength, and endurance. **Purpose:** This study aimed to examine the effects of combining low-resistance training (LRT) with blood flow restriction (BFR) on fall risk and lower limb power in the elderly, as well as to evaluate its potential benefits for mobility. **Methods:** Ten elderly individuals aged 65 and above were recruited (mean age = 70.4 ± 3.02 years; mean height = 155.9 ± 5.91 cm; mean weight = 62.93 ± 7.33 kg). Participants were randomly assigned to either the BFR combined with LRT group (BFR-LRT, $n = 5$) or the LRT group (LRT, $n = 5$). Both groups completed a 6-week lower limb strength training program, conducted twice weekly. The training intensity was set at 30% of one-repetition maximum (1RM), and the cuff pressure for the BFR-LRT group was established at 40% of the limb occlusion pressure. Timed Up and Go (TUG) tests and Sit-to-Stand (STS) tests (with collection of rate of force development (RFD) data) were administered before and after the training period. **Results:** The BFR-LRT group demonstrated significant improvements in lower limb extensor RFD (3692.61 to 4617.61 , $p < 0.05$) and TUG performance (6.86 to 5.80 , $p < 0.05$). The LRT group also exhibited significant improvements in the TUG test (9.16 to 6.80 , $p < 0.05$). However, the between-group differences for TUG and RFD were not statistically significant ($p = .347$ and $p = .251$, respectively). **Conclusions:** After 6 weeks of training, both groups showed significant improvements in fall risk as assessed by the TUG test. Although both groups exhibited a trend toward improved lower limb explosive power as measured by the STS test, only the BFR-LRT group achieved statistically significant gains. These results suggest that training duration and frequency may have influenced the outcomes.

Keywords: Blood flow restriction; Elderly; Physical function; Resistance training; Strength.

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The Effect of the coaches' timeouts on baseball games in UBL

Division I

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Abstract

In 2023 season, Major League Baseball (MLB) implemented several rule changes, including the pitch timer, limits on pitcher pickoff attempts, and a new tiebreaker system, all of which are designed to accelerate the pace of the game. However, baseball remains a highly challenging and complex sport, with intricate offensive and defensive strategies. Timeouts are a flexible tactic that allows players to manage stress, enables coaches to execute strategies, or disrupts the opponent's momentum. Coaches play a critical role in guiding the team, and their decisions during crucial moments, especially in the use of timeouts, can significantly impact the outcome of the game.

Purpose: With the evolving rules of baseball and increasing game variability, a coach's timeout strategy has become a vital factor in determining the game's outcome. This study examines the timing of defensive coach timeouts in Men's UBL Division I games. **Method:** This study collects and analyzes data from 64 games in the 2023–2024 Men's UBL Division I final season. The dataset includes variables such as the inning, number of outs, run difference, and base occupancy before and after the timeout. Chi-square tests of independence are used to investigate the relationship between the timing of timeouts and various game-related factors. **Results:** The findings indicate that the timing of a timeout is significantly related to the number of outs $\chi^2_3 = 56.12$ ($ps < .05$), run difference $\chi^2_2 = 9.24$ ($ps < .05$), and base occupancy $\chi^2_2 = 46.66$ ($ps < .05$). Additionally, the run difference at the moment of the timeout is significantly associated with the inning in which the timeout occurs $\chi^2_4 = 14.1$ ($ps < .05$). **Conclusion:** The timing of the timeout is influenced by the outs, run difference, and base occupancy. Coaches typically call a timeout when there are two outs or when there are runners in scoring position. However, the specific inning is not the primary determinant of whether a timeout is called. When a team is trailing early in the game, the coach is more inclined to call a timeout to prevent the score deficit from increasing. While previous research has extensively examined timeout strategies in other sports, studies on baseball timeouts remain limited. This study provides a quantitative analysis of coach-initiated timeouts in UBL Division I, offering insights into their timing and effectiveness.

Keywords: Baseball timeouts, defensive coach's timeouts, timeout timing, coaching decisions

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A study of the motivation for student taekwondo varsity team participation

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Abstract

Research Purpose: The purpose of this study is to explore and understand the current status, relevance, and impact of participation motivation, team cohesion, and social support among Taekwondo athletes in the national Taekwondo team. The goal is to encourage more students to participate in and continue practicing Taekwondo, thus contributing to the development of more excellent athletes. **Method:** The study focuses on athletes in Taekwondo specialty teams, using literature collection and analysis to gather necessary data. A thematic induction is conducted, with the literature reference drawn from the Chinese Sports Quarterly. The keywords "Taekwondo" and "participation motivation" were used in the search. Three studies involving Taekwondo athletes from elementary, junior high, high school, and college levels were included in the analysis. **Results:** The highest participation motivation among Taekwondo athletes in the competitive group is "achieving personal competition results," followed by "sports development." **Conclusion:** The characteristics of Taekwondo as a sport and the traits of the athletes uniquely influence participation motivation. Close contact with teachers, coaches, family, and peers is essential, especially the support from family, which has a profound impact on participation motivation. Therefore, coaches should provide athletes with support in psychological aspects, sports knowledge, and material resources, thus enhancing athletes' self-assessment and motivation to participate in sports.

Keywords: Taekwondo, Poomsae, Business Strategy, Chinese

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A study on the impact of technology introduction on the elderly population –Shuang-Ho Hospital as an example

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Abstract

In response to the impact of Taiwan's super-aging society, the government has also formulated many corresponding policies; the digitization of the elderly has made significant progress in recent years, and the government and all sectors of society have begun to actively promote digital aging and smart long-term care. For example, Taiwan's "Long-term Care 2.0" plan not only provides home care for the elderly, but also combines digital technologies such as remote health monitoring and smart care platforms. These measures can enable the elderly to receive timely care and health management; smart home and wearable devices: smart home products and wearable devices, such as smart bracelets, home monitoring systems, etc. These technologies can assist the elderly in living independently while providing emergency rescue functions. The purpose of this study is to explore whether digital courses offered by institutions or communities can make the elderly feel that they are growing and attract their continued participation.

This study was conducted through a literature review, through the Huayi Online Library, GOOGLE Academic, and Taiwan Doctoral and Master's Thesis Network. The keywords entered during the literature search were the literature related to the elderly, LOHAS courses, and digital courses. In addition, field interviews were conducted, using the method of triangulation, field observation, interviews, document collection and analysis to obtain the impact on the elderly's participation in digital courses. The following main impacts were discovered and classified: social interaction, physical health, and mental health.

With the development of medical technology today, the average life expectancy of Chinese people has reached new highs. Extending the average life expectancy of the elderly population while preventing and delaying disability will become an important issue. Even as we age and our body functions gradually decline, our body and mind still need to continue to develop healthily to maintain a good quality of life.

New Taipei City Shuanghe Hospital has introduced smart board game robots, smart monitoring bracelets, and mobile tablet education courses into its courses for the elderly. The study found that the participation of the elderly in digital technology courses can achieve social interaction, improve their learning motivation and sense of participation, help slow down cognitive decline, enhance their sense of self-efficacy and accomplishment, reduce loneliness and depression, enhance social skills, and improve their mental health. These activities not only help them maintain cognitive function, but also enhance their mastery of technology, allowing the elderly to better integrate into modern society and achieve successful aging.

Keywords: Seniors, Digital Technology, Lohas Courses

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A Systematic Literature Review on the Relationship Between Physical Fitness and Depression of the Elderly

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Abstract

Depression has been recognized by the World Health Organization as one of the three major diseases of the 21st century and is the leading cause of disability worldwide. Among the elderly, the gradual decline in physical function not only reduces the convenience of daily activities but also significantly increases the risk of injuries and the likelihood of developing various diseases. Physical limitations and discomfort can profoundly impact mental health. Therefore, this study aims to explore the relationship between physical fitness performance and depressive symptoms of the elderly. **Purpose:** This study aims to investigate whether physical fitness performance of the elderly affects their depressive symptoms and to evaluate whether exercise training can improve depression of the elderly. **Methods:** This study adopts a literature review approach to systematically collect, analyze, and synthesize academic theses related to physical fitness performance and depressive symptoms. The evaluation is conducted based on factors such as the characteristics of the study participants, research methods, and study findings. Through this analysis, the study aims to explore the relationship between physical fitness performance and depressive symptoms of the elderly, as well as the influencing factors. **Results:** Through a systematic literature review and comparative analysis of existing studies, it was found that exercise interventions provide significant benefits to the physical fitness performance of the elderly. For instance, grip strength, upper limb muscle strength, and lower limb muscle strength all showed improvements following exercise training. Additionally, these physical fitness indicators were negatively correlated with depressive symptoms. **Conclusion:** The findings of this study indicate a negative correlation between physical fitness performance and the severity of depressive symptoms of the elderly. Enhancing physical fitness of the elderly can help alleviate depressive symptoms and promote overall physical and mental well-being. Population aging is a global trend and a pressing issue in Taiwan. In addition to providing better mental health support, it is hoped that improving the physical fitness of the elderly will help them maintain a good quality of life and reduce the occurrence of depressive symptoms.

Keywords: elderly; physical function; depression

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Analysis of Offensive and Defensive Performance Differences Among Teams in the 2024 Taiwanese University Baseball League

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Abstract

Offensive and defensive performance in baseball games is one of the key factors in responding to changes in on-field situations. A recent RSR analysis was conducted to examine its validity and to provide a comprehensive evaluation method for team sports. **Purpose:** This study investigates the differences in offensive and defensive performance between the top four and bottom four teams during the 2024 Division I men's baseball season. **Methods:** Data from 120 games involving 16 teams were collected from official game statistics. After applying the RSR method to comprehensively assess team performance, an independent-sample t-test was conducted to analyze differences in offensive and defensive statistics between the top four and bottom four teams. **Results:** The top four teams demonstrated significantly superior offensive performance compared to the bottom four teams, indicating stronger offensive capabilities. Additionally, they exhibited significantly better performance in ERA, OBP, BB%, and BAA ($p < .05$), highlighting greater pitching effectiveness and overall defensive efficiency. **Conclusion:** The findings indicate that the top four teams possessed significantly stronger offensive capabilities than the bottom four teams, particularly in batting efficiency and base running—factors that may play a crucial role in determining game outcomes. Defensive differences were also notable, with ERA and opponent batting statistics further highlighting the advantage of the top four teams.

Keywords: stats, rank-sum ratio, performance analysis

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Court Surface Effects on Serve Performance in Professional Women's Doubles

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Abstract

Women's doubles in the Women's Tennis Association (WTA) represent the top teams competing in high-intensity, strategic matches. The serve enables players to start the point with a strategic advantage. A player's performance in professional tournaments is significantly influenced by the court surface on which matches are played. **Purpose:** This study investigates how various court surfaces affect the serving performance in professional women's doubles tennis. **Method:** Data from the third round to the final match of the women's double in the 2024 Wimbledon, and French Open were collected from the respective official websites. Mixed-design ANOVA was used to examine the effect of the court surfaces on performance indicators between winners and non-winners. **Results:** Winners exhibited superior performance across various serving indicators, including winning first and second-serve points and total points. Therefore, Wimbledon recorded the highest number of aces and break points won than the French Open ($p < .05$). **Conclusion:** Our results highlight key performance indicators and differences between these two Grand Slam championships, offering insights into crucial serving advantages in women's doubles.

Keywords: Grand Slam, match analysis, performance analysis

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Effects of Attentional Foci on Basketball Shooting Performance

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Abstract

Basketball is widely recognized as a popular sport across the globe. Achieving a competitive advantage in the game requires a deep understanding and mastery of its fundamental skills. One key factor influencing motor skill acquisition is attentional focus. **Purpose:** the purpose of this study is to review recent research on the effects of attentional focus on basketball shooting performance. **Methods:** This review aimed to assess empirical studies on applying attentional focus in basketball shooting. Relevant literature was searched from Google Scholar, PubMed, and Airiti Library using keywords such as "attentional focus," "basketball shooting," "verbal instruction," and "constrained action hypothesis." The selected studies were synthesized and analyzed based on their experimental design, methodology, and the content of verbal instructions. **Results:** By reviewing the five selected studies, the attentional focus for basic sports skills can effectively guide learning, with an external focus of attention generally yielding better athletic performance compared to an internal focus of attention. However, the success of an external focus of attention is influenced by movement complexity and the learner's developmental stage. **Conclusion:** The importance of attentional focus in improving basketball shooting performance is highlighted in this review. These findings highlight the necessity of specialized attentional techniques to maximize basketball skill acquisition. To improve attentional focus applications in sports performance, future studies should investigate contextual factors and the impacts of prolonged training.

Keywords: basketball shooting; verbal instruction; skill acquisition

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Effects of Inertial Resistance Training on Sports Performance: A Systematic Review

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Abstract

Inertial resistance training has emerged as an innovative approach to enhance athletic performance. By applying direct overload to both the concentric and eccentric phases of movement, this modality aims to improve sport-specific neuromuscular adaptations and performance outcomes. Its potential lies in targeting key physical qualities such as vertical power, sprint speed, and change of direction (COD) ability. **Purpose:** This systematic review aimed to investigate the effectiveness of inertial resistance training in both short- and long-term interventions, focusing on its impact on vertical jump, sprinting, and COD performance. **Methods:** A comprehensive literature search was conducted through the PubMed database using the following keywords: flywheel training, eccentric overload training, isoinertial training, flywheel warm-up, inertial warm-up, post-activation, combined with sports performance, strength, power, jump performance, change of direction, and sprint. The PICOS framework was used to assess eligibility. Eleven studies were included, each involving 10 to 36 participants. The reviewed studies analyzed the application of inertial resistance during warm-ups and training programs across various sports contexts. **Results:** The findings indicate that inertial resistance training has limited effects when used solely as a warm-up strategy. However, it showed significant improvements in vertical jump performance, especially in training programs extending beyond six weeks. The modality also influenced training adherence and offered practical variations for performance enhancement. Nonetheless, inconsistencies remain regarding optimal training prescriptions. **Conclusion:** Inertial resistance training appears to be a promising method for improving explosive performance in sports. Future studies are warranted to refine training variables such as program duration, weekly frequency, training volume, and inertia settings to develop precise and effective training protocols.

Keywords: Inertial resistance, power, sprint speed, change of direction

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Exploring the Impact of the Fly Ball Revolution on Batting Performance

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Abstract

With the advancement of technology and the progress of data analysis techniques, the "fly ball revolution" in baseball hitting has driven many batters to pursue higher launch angles and exit velocities to increase extra-base hit rates and scoring opportunities. The hang time of a fly ball influences the outcome of the hit: a longer hang time allows fielders more time to judge the landing point and complete a catch, whereas a shorter hang time may increase the chances of the ball landing for a hit. Therefore, this study analyses the relationship between hang time and the probability of an out. **Purpose:** This study aims to establish a model to analyse the effects of hang time, exit velocity, launch angle, and flight distance on the probabilities of a hit or an out. **Method:** This study collects data from 360 regular-season games in the 2024 Chinese Professional Baseball League (CPBL). Using post-game video analysis, we record the hang time, exit velocity, launch angle, flight distance, and hitting outcomes. Cluster analysis is employed to examine the distribution of hitting performance, followed by logistic regression to predict the probability of a hit or an out based on hang time, launch angle, exit velocity, and flight distance. To address multicollinearity issues related to flight distance, we apply standardization techniques to improve model accuracy and evaluate predictive performance using a confusion matrix. **Results:** The findings indicate that when the hang time is less than 3 seconds, the ball is less likely to be caught; however, when the hang time exceeds 4 seconds, the probability of an out increases significantly, and when it surpasses 6 seconds, the ball is almost certainly caught. Additionally, the multicollinearity of flight distance may affect model accuracy, but after standardization, the prediction results became more reasonable, achieving an accuracy rate of 83.83%. **Conclusion:** This study confirms that hang time has a significant impact on hitting outcomes. It also suggests that simply increasing the launch angle without optimizing exit velocity or launch trajectory may not be beneficial. Based on these findings, coaches can refine training strategies by not only focusing on launch angles but also ensuring appropriate launch trajectories and exit velocities to minimize the probability of an out during the hitting process.

Keywords: fly-ball revolution, advanced data, prediction

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Hand coordination for straight punch in Poomsae

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Abstract

Taekwondo Poomsae is a sport that requires athletes to demonstrate a sequence of Taekwondo techniques linked together into a pattern of moves. The straight punch is one of the most basic and essential offensive movements in Taekwondo. It establishes the foundation for more advanced techniques and combinations. **Purpose:** This study aims to investigate the coordination of the straight punches between different levels of Poomsae skill. **Method:** Six participants (3 Poomsae athletes) performed continuous straight punches alternatively with two hands at their own paces. Position data of a marker on hands were captured. The kinematics data and discrete relative phase were derived, and an independent t-test was used to examine the differences between groups. **Results:** Our results showed that there were no significant differences in the relative phase between levels of athletes. However, Poomsae athletes showed higher maximum velocities and acceleration than non-athletes, particularly in their dominant hand ($p < .05$). **Conclusion:** Both levels of athletes exhibited a similar relative phase, but the kinematic profile revealed that they generated greater power and stiffness. More specifically, the relative phase captured the dynamics of a straight punch, while the qualitative nature of the observed movement pattern depended on the kinematics.

Keywords: relative phase, motor learning, dynamic system theory

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Performance Analysis in Judo Combat

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Abstract

Judo is a high-intensity, intermittent combat sport that requires a combination of physical attributes for optimal technical-tactical development and competitive success. Understanding strategic and tactical responses in judo combat is essential for optimizing training methodologies and movement outcomes. **Purpose:** This study aimed to explore the relationship between attacking strategies and match outcomes (win/loss). **Methods:** The sample data on judo combats were obtained from the official website of the National Games of Taiwan and included 21 contests. Successful and unsuccessful attacks (i.e., those that did not result in a score) were comprehensively analyzed, considering various variables such as the attacker's / defender's approach, grip, stance, and final movement outcome. The Chi-squared test of independence was used to examine the associations between these variables and match outcomes (win or loss). **Results:** We observed significant associations between match outcomes and Tachi-waza. Winners were associated with Ashi-waza and Koshi-waza, $\chi^2_{(4)} = 28.54$. Additionally, match outcomes were also associated with Ne-waza, $\chi^2_{(2)} = 5.67$, where winners had positive associations with Osae-Komi-waza (10 sec) ($ps < .05$). **Conclusion:** These results can be used to improve the physiological performance in intermittent practices and technical tactical training during judo sessions.

Keywords: performance analysis, decision making, combat sports

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Performance Analysis of 3x3 Women's Series Basketball Games in 2024

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Abstract

Recently, 3x3 basketball has gained popularity and was officially recognized as a sport at the 2020 Tokyo Olympics. However, compared to regular basketball, there is limited research on game statistics, especially for women. **Purpose:** The study aimed to examine the characteristics of offensive performance between the winning team and the losing team of the 2024 FIBA 3x3 Women's Series games. **Methods:** Video clips from 25 games of 3x3 women's basketball were captured from the official YouTube channel, and relevant offensive performances were recorded using Excel. The Chi-squared test of independence was used to examine the characteristics of the ball possession, types of ball recovery, completion types, and the completion zones of the winning and losing teams ($\alpha = .05$). **Results:** For the completion zone, the winning team had a significant positive association with shooting from the paint area. Moreover, for the type of ball recovery, the losing team had a significant positive association with the opponent's score ($ps < .05$). **Conclusion:** Winning teams primarily rely on shots from the paint area and 2-point line as their main offensive strategies. Most offensive plays are executed within 3 to 6 seconds, while the fewest shots are made when fewer than 4 seconds remain on the shot clock.

Keywords: shooting, performance analysis in sport, offensive area, shot clock

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Sex difference in functional movement screen among youth boxers in Taiwan

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Abstract

Purpose: The Functional Movement Screen (FMSTM) has been used to identify functional movement impairments and asymmetries, making it a potential predictor of sport injuries. However, the FMS has been administered to some youth athletes from various sports, however, both male and female youth from boxing have not been studied extensively. The purpose of this study was to investigate sex specific performance of FMS among youth boxers in Taiwan.

Methods: We analyzed cross-sectional data from sixty junior and senior high school boxes aged 13-18 years who participated in a demographic questionnaire, anthropometric measures, and FMS assessment between July and September 2024. Statistical analysis was performed by Student's t-test, one-way analysis of variance, and chi-square test.

Results: The results demonstrated that boys had significantly lower FMS total composite scores than girls (12.11 ± 1.41 vs. 13.70 ± 2.16 , $p = 0.026$) in senior high school, while boys with 14 or less on the FMS total composite scores had significantly higher rates in general compared with girls (100.0% vs. 60.0%, $p = 0.002$), which suggests these boys may be at higher risk for sport injury.

Conclusions: In summary, the current findings of the study showed that a sex difference exists in FMS performance among senior high school boxers in Taiwan.

Keywords: functional movement screen, boxing, youth, Taiwan

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Smart Supplementation and Data-Driven Performance Optimization: The Effects of β -Alanine on Strength Adaptation in Elite Powerlifting

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Abstract

Background: In the era of smart sports and data-driven training, optimizing athletic performance extends beyond traditional methods to include precision supplementation and physiological monitoring. β -Alanine supplementation is known to enhance muscle buffering capacity and fatigue resistance, but its impact in maximal strength sports remains underexplored. This study investigates the role of β -alanine supplementation in performance optimization using a data-driven approach in an elite world-record-holding powerlifter.

Methods: A female powerlifter competing in the 47 kg weight class followed an 8-week β -alanine supplementation protocol (3 g/day for Weeks 1–4, 1.5 g/day for Weeks 5–8). Performance tracking included maximal deadlift strength (1RM), training load adaptations, body composition, muscle soreness, and perceived exertion (RPE). Data was collected at baseline, midpoint, and post-intervention and analyzed for strength adaptations, recovery efficiency, and physiological changes.

Results: The subject achieved a 16.9% increase in maximal deadlift (160 kg \rightarrow 187 kg), setting new national and world records. Body composition analysis showed a 2.7% increase in skeletal muscle mass and a 15.9% reduction in body fat percentage, while muscle soreness decreased by 48.6% (37 \rightarrow 19) and RPE remained stable. The findings indicate that β -alanine supplementation enhanced fatigue resistance, improved recovery efficiency, and supported strength adaptation, even with a less aggressive training load than in previous competitive years.

Discussion: The performance gains align with previous research demonstrating β -alanine's role in buffering muscle acidosis and improving neuromuscular function. The subject's mental resilience and experience also played a crucial role, showcasing how psychological preparedness interacts with physiological adaptations in elite performance. These results highlight the potential for data-driven supplementation strategies to support strength performance, athlete recovery, and sports optimization. Future research should explore AI-based training analytics and wearable monitoring systems for enhancing precision sports supplementation.

Conclusion: This study underscores the integration of supplementation science, performance tracking, and sports analytics in elite athlete preparation. Leveraging data-driven insights and precision supplementation can contribute to smarter training methodologies and enhanced sports performance in strength sports.

Keywords: Smart Sports, Sports Science, Performance Analytics, Strength Training, β -Alanine, Data-Driven Training

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Technical Analysis of the Volleyball Competition at the 2023 New Taipei City Elementary School Sports Meet: A Case Study of Changping Elementary School Girls' Volleyball Team

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Abstract

Purpose: The purpose of this study was to analyze the serving and receive performance and effectiveness, long-set attack performance and effectiveness, as well as defense and block performance and effectiveness of the Changping Elementary School girls' volleyball team in comparison with three other teams during the 2023 New Taipei City Elementary School Sports Games. **Method:** The study analyzed three matches (six sets) between Changping Elementary School and the other three teams, recorded with video equipment during the 2023 New Taipei City Elementary School Sports Games. After recording the match footage, the video data was compiled and analyzed using SPSS for Windows version 22.0. Descriptive statistics and one-way analysis of variance (ONE-WAY ANOVA) were used to examine the relationships between the factors, focusing on the serving, reception, long attack, defensive, and blocking performance of the four teams. **Result:** There were no significant differences ($p > .05$) in the effectiveness of serving, receive, long-set attacks, defense performance, or blocks between the four teams. However, Jisui Elementary School and Yingge Elementary School performed better in receive and defense, with higher averages than the other two teams. **Conclusion and Suggestion:** The four teams did not create significant advantages through serving or long attacks. It is recommended that teams practice diverse attacking techniques and develop the ability to target specific spots on the court. Additionally, or skills related to receive, defense, and blocks, it is suggested that training include combination drills to help players adapt to dynamic court situations.

Keywords: volleyball, serve, receive, attack, defense

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The Impact of Technology on Badminton Players

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Abstract

Purpose: With the development of digital technology, badminton players' training methods, match performance, and their professional development have all been affected. Sports Technology not only enhances training efficiency and competitive performance but also presents new challenges, such as high equipment costs, adaptability to sports technology, and data security issues. This study analyzes the impact of sports technology through the perspective of badminton players. **Methods:** This study adopts a literature analysis approach, collecting and analyzing 15 research articles from the past five years related to badminton and the practical application of sports technology. **Results:** In training, smart rackets and wearable sensors quantified players' performance, which helps refine techniques and enhances consistency between subjective observation and objective data, while shuttle machines and light-based reaction devices diversify training. AI data analysis simulates the specified opponent's tactics to improve strategic preparation. During the season, sports technology enhances fairness with the Hawk-Eye system, ensuring accurate referee decisions; it also improves tactical analysis with using data to optimize shot placement and movement strategies for players. For badminton athletes' career development and exposure, high-resolution broadcasts, multi-angle filming, and real-time data analysis increase player visibility, while VR and AR technologies enrich the viewing experience by making data display and tactical analysis more intuitive. However, due to the smaller badminton market size, limited investment in broadcasting technology affects some players' exposure and commercial opportunities. **Conclusion:** Despite the many advantages brought by digital sports technology, challenges remain. The high cost of advanced equipment makes it difficult for grassroots players and smaller tournaments to afford such sports technology, as seen with the expensive Hawk-Eye system. Additionally, some players believe that while smart rackets and data analysis provide valuable specified technical references, they cannot fully replace real-match experience and on-the-spot adaptability. Wearable devices may also affect players' comfort and concentration, reducing their willingness to use them. Furthermore, data security is a major concern—if a player's technical data is leaked, it could impact match strategies and competitive advantage. Digital sports technology is reshaping the way badminton players train and compete, enabling them to enhance their performance through data-driven insights and advanced equipment. However, sports technology costs, adaptability, and data security remain key challenges. In the future, as AI, AR, and VR technologies continue to develop, badminton players will be able to enhance their skills through more scientific methods. However, finding a balance between technological applications and traditional techniques will be a crucial consideration throughout their professional careers.

Keywords: Digital Technology; Badminton Training; AI Data Analysis

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The Preliminary Exploration of the Impact of the Instant Replay System on Volleyball Matches

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Abstract

Purpose: As volleyball continues to develop, the increasing speed and intensity of matches have made it more challenging for referees to make accurate judgments, especially on critical calls such as in-or-out and touch-out decisions. To enhance fairness and accuracy, the instant replay system has been gradually introduced into volleyball and is now widely used in international competitions. While this technology improves decision-making precision, it also impacts match fluidity, increases referee pressure, and alters the spectator experience.

Methods: This study employs a literature analysis approach to examine the development of the instant replay system, the challenge system in volleyball, and its overall impact on matches.

Results: Findings indicate that instant replay effectively reduces incorrect calls, with approximately 33% to 40% of challenged decisions being overturned, thereby ensuring greater fairness. However, the challenge system may disrupt the match rhythm, and some coaches strategically use challenges to prolong the game. Additionally, this system places higher demands on referees, requiring them to adapt to technological advancements and improve their decision-making accuracy.

Conclusion: To optimize the challenge system, it is recommended to limit the number of challenges allowed in the latter part of matches to maintain game flow and establish clearer regulations on when challenges can be made for better decision efficiency. Moreover, enhancing referee training through data analysis and case studies can further improve judgment accuracy. Additionally, implementing higher-resolution camera technology and a “rapid review process” can shorten replay time, improve the spectator experience, and make matches both fairer and more engaging.

Keywords: Sports officiating, instant replay system, volleyball

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The Relationship between Coaching Leadership Behaviors, Team Cohesion, and Self-Perceived Sports Performance in Esports

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Abstract

Esports has been rapidly developing in recent years. However, as an emerging sport, the relationship between coaching leadership behaviors, team cohesion, and athletes' self-perceived sports performance in esports may differ from that in traditional competitive sports, making it a topic worthy of in-depth research. The purpose of the present study was to explore the relationship between coaching leadership behaviors, team cohesion, and athletes' self-perceived sports performance in esports. Specifically, it compares differences in coaching leadership behaviors, team cohesion, and self-perceived sports performance among participants with different background variables, and analyzes the correlations between these factors. The study targeted nine schools with esports representative teams and conducted a questionnaire survey using convenience sampling, collecting a total of 375 valid responses. Data analysis methods included descriptive statistics, independent samples t-test, one-way ANOVA, Scheffé post hoc comparison, and Pearson correlation analysis. The results were as follows: (a) Among the participants' perceptions of coaching leadership behaviors, "Guidance and Caring Behaviors" received the highest score, while "Autocratic Behaviors" received the lowest. In terms of team cohesion, "Team Synergy" scored higher than "Interpersonal Attraction." For self-perceived sports performance, "Personal Feelings" scored the highest, while "Overall Satisfaction" scored the lowest. (b) There were significant differences in the perception of coaching leadership behaviors based on training hours, while no differences were found for other background variables. In terms of team cohesion, no significant differences were observed among participants across all background variables. For self-perceived sports performance, only participants from different training locations showed significant differences, while no significant differences were found for other background variables. (c) There were significant correlations between coaching leadership behaviors, team cohesion, and self-perceived sports performance.

Keywords: esports, coaching leadership behaviors, team cohesion, self-perceived sports, performance

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The Relationship Between Life Stress and Team Cohesion in Archery Athletes

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Abstract

Purpose: In recent years, grassroots archery in Taiwan has steadily progressed, with young athletes demonstrating outstanding performance in international competitions. However, archery performance is not solely determined by technical skills and training, but is also influenced by life stress and team cohesion. This study aims to explore the relationship between life stress and team cohesion among adolescent archery athletes, and to provide empirical evidence to support psychological adjustment and team collaboration among archers. **Methods:** The participants of this study were 336 adolescent archery athletes. Data were collected using a questionnaire survey. The research instruments included the Life Stress Scale (Lu, 2012) and the Group Cohesion Scale (Wu, 2001). Data analysis involved descriptive statistics, exploratory factor analysis (EFA), reliability analysis, multivariate analysis of variance (MANOVA), post hoc comparison analysis, and Pearson's product-moment correlation analysis. **Results and Discussion:** The results revealed a significant negative correlation between life stress and team cohesion; the higher the life stress experienced by athletes, the lower their perceived team cohesion. Significant differences were also found in life stress and team cohesion based on gender, age, and years of training experience. **Conclusion:** The findings of this study indicate that life stress and team cohesion among archery athletes are influenced by factors such as gender, age, and training experience. Moreover, there is a significant negative association between life stress and team cohesion. These findings provide practical implications for archery athletes and coaching staff, highlighting the importance of effective stress management strategies to enhance team cohesion, improve athletic performance, and optimize training practices for overall team development.

Keywords: Psychological adjustment, Sports culture development, MANOVA

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Preliminary Exploration of the Current Development of Safe Baseball in Elementary Schools in New Taipei City

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Abstract

In September 2011, the Education Department of New Taipei City Government launched the unique “Safe Baseball” program for elementary schools to promote student participation in baseball. By modifying the rules and equipment, the program reduces the risk of sports injuries and successfully increases student participation. This initiative enables many baseball enthusiasts to try this club-based version of the sport. **Objective:** The goal of promoting this program is to encourage elementary school students to participate in baseball while reducing the risk of sports injuries and overcoming space limitations through an educational and enjoyable approach. This initiative not only allows students to experience the joy of baseball but also fosters a habit of regular physical activity, ultimately increasing community participation in baseball. **Results:** The New Taipei City Elementary School Safe Baseball Tournament is held every semester. Over time, the number of participating teams has grown from a dozen in the early stages to over thirty teams today. This expansion has not only promoted grass-roots baseball but also provided an important platform for competition and exchange among elementary school Safe Baseball teams. Additionally, it has facilitated skill development and the building of friendships among students. **Conclusion:** The New Taipei City 'Safe Baseball' system has successfully reduced barriers to playing baseball, increased student involvement, and effectively expanded the baseball community, laying a strong foundation for the sustainable growth of community baseball in Taiwan.

Keywords: Safe Baseball

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Exploring the Relationship Between Athletic Trainers and Athletes

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Abstract

This study explores the relationship between athletic trainers and athletes using a literature review methodology. It focuses on three primary functional roles: injury prevention, physical rehabilitation, and psychological support. Through analysis, the study identifies three core dimensions: interpersonal interaction, psychological impact, and institutional support. Findings indicate that trainers play a crucial role in athletes' emotional regulation and rehabilitation processes. However, the current system provides insufficient training in psychological competencies. It is recommended to enhance interdisciplinary collaboration and educational planning to improve holistic care for athletes. **Purpose** : This study aims to synthesize literature to examine the role of athletic trainers in training and rehabilitation contexts. It seeks to clarify the interpersonal and emotional support relationships between trainers and athletes and further evaluate how institutional structures respond to practical needs. **Method** : Using a literature review approach, the study analyzes four key documents from the perspectives of institutional background, training content, and practical functions. It summarizes three major dimensions: (1) interpersonal interaction patterns; (2) impact on rehabilitation and psychological adjustment; and (3) how training systems support the holistic development of athletes. **Conclusion** : In addition to providing technical care, athletic trainers also exert substantial influence in psychological support, especially when athletes face post-injury stress and emotional challenges. However, the current system lacks adequate coverage of psychological competencies. The study recommends incorporating psychological first aid training and fostering cross-disciplinary collaboration to strengthen trainers' role in holistic athlete care.

Keywords: Athletic trainer, athlete, psychological support, rehabilitation behavior, professional role

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A Comparative Study on Life Stress and Burnout among Collegiate Athletes in Sports- and Non-Sports-Related Academic Majors

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Abstract

Purpose: In recent years, an increasing number of universities in Taiwan have recruited student-athletes through special admission channels, such as athletic recruitment and individual application schemes. As a result, more student-athletes are now enrolled in non-sports-related academic programs. Life stress and athletic burnout, as key variables in sports psychology, have long attracted scholarly attention. However, limited empirical research has examined whether differences exist in these variables based on academic majors. Therefore, this study aims to explore differences in perceived life stress and burnout among collegiate athletes enrolled in sports-related versus non-sports-related programs. **Methods:** A total of 225 collegiate athletes ($M = 19.69$ years, $SD = 1.235$) participated in this study. Data were collected using the Life Stress Scale (Lu, 2012) and the Athlete Burnout Questionnaire (ABQ; Lu, 2006). Statistical analyses included descriptive statistics, Pearson's correlation, and MANOVA. **Results and Discussion:** Results indicated a significant positive correlation between life stress and athletic burnout. Significant differences were found between the two groups of athletes in several dimensions, including training adaptation ($F = 10.656, p = .001$), family relationships ($F = 11.550, p = .001$), emotional and physical exhaustion ($F = 11.307, p = .001$), sport devaluation ($F = 6.659, p = .011$), and reduced sense of accomplishment ($F = 8.577, p = .004$). Post hoc analysis revealed that athletes in sports-related majors scored significantly higher on these dimensions compared to those in non-sports-related majors. **Conclusion:** The findings suggest that student-athletes majoring in sports-related fields experience higher levels of life stress and burnout in certain aspects. These results provide practical implications for high school athletes and their parents when making academic decisions, helping them better understand the stressors and challenges associated with sports-related majors and potentially preventing early burnout that could affect long-term athletic participation and career development.

Keywords: Role conflict, Career decision-making, Mental health risks

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A Study on the Strategies for Securing the Men's Singles Silver Medal at the 2025 All England Open Badminton Championships: A Case Study of Player Lee Chia Hao

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Abstract

Introduction: The All England Open Badminton Championships, recognized as one of the oldest and most prestigious international tournaments globally, rigorously tests athletes' competitive prowess under high-intensity conditions. This study focuses on Lee Chia Hao, a Taiwanese athlete who clinched the men's singles silver medal at the 2025 Championships, examining the development and demonstration of his competitive abilities. It explores four key dimensions—pre-competition training, pre-competition adaptation, in-competition responses, and post-competition optimization—to provide insights into sports competition strategies.

Methods: This case study on Lee Chia Hao's training and competition performance employs a mixed-method approach, including semi-structured interviews, document analysis, and match observations for data collection. Thematic analysis is utilized to identify core themes, with triangulation applied through cross-verification to ensure the credibility and reliability of the findings.

Results: (1) A supportive family background and rigorous pre-competition training established a solid technical and psychological foundation, helpful to remain competitive in high-intensity matches. (2) Pre-competition preparation employed psychological self-regulation techniques, remaining stress resistant and maintaining stable sports performance against top global opponents. (3) During the single-elimination rounds, Lee demonstrated technical versatility and mental toughness, leveraging adaptive offensive strategies to advance to the final. (4) In the critical moments of the gold-medal match, there is still room for stability and tactical adjustments. Thus, enhancing physical endurance, accumulating competition experience, and reflecting on performance gaps were identified as directions for optimizing future performance.

Conclusion: Lee Chia Hao's commendable silver medal, marking the best men's singles achievement for Taiwan in the history of this Badminton World Federation premier event, underscores the value of seamlessly integrated training, adaptation, and competition strategies, together with by his passion for competitive badminton and unyielding mental resilience. Addressing stability issues during decisive moments in finals could pave the way for further breakthroughs in his performance.

Keywords: sports family, athletic competition, competition strategy

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Analyzing the Impact of First Pitches in Junior High School Baseball Leagues

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Abstract

In baseball, if a pitcher gains an advantage by throwing a strike on the first pitch, it not only reduces the batter's on-base percentage but also limits the batter's ability to anticipate pitch types, allowing for greater flexibility in subsequent pitching strategies. For instance, when a pitcher gets ahead in the count, they can more confidently use breaking balls to induce swings or exploit speed differentials and entry angles to increase swing-and-miss rates. Therefore, whether the first pitch is a strike or a ball plays a crucial role in determining the final batting outcome. **Purpose:** This study aims to investigate the relationship between first-pitch outcomes and batting performance, specifically in terms of batting average (AVG), on-base percentage (OBP), slugging percentage (SLG), and on-base plus slugging (OPS). **Method:** The study analyzes data from 10 games played by the top eight teams in the 113th National Softball League (including ranking matches). The first-pitch outcome and the final batting result of each at-bat were recorded. The data was processed using Excel to calculate AVG, OBP, SLG, and OPS. A paired sample t-test was conducted to determine the differences in these metrics based on whether the first pitch was a strike or a ball. **Results:** The findings indicate that the first pitch significantly affects OBP and OPS ($p < .05$). However, no significant differences were observed in AVG or SLG ($p > .05$). **Conclusion:** In various sports, initial plays influence overall performance. Previous baseball studies have found that a first-pitch strike reduces a batter's likelihood of reaching base. This study, focusing on junior high school competitions, confirms these findings, showing that a first-pitch strike effectively lowers the opponent's OBP without significantly impacting AVG or SLG. These findings can serve as a reference for coaches when training pitchers, encouraging them to aggressively target the strike zone on the first pitch to reduce opponent on-base rates.

Keywords: Sabermetrics, First-Pitch Performance, Junior High School League

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Effect of Low-Level Laser Therapy on Muscle Soreness After Strength Training in Marathon Runners

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Abstract

Photobiomodulation therapy (PBMT) is a treatment that uses near-infrared light of specific wavelengths to irradiate biological tissue, regulating cells and promoting tissue repair. Low-level laser therapy (LLLT) is a form of PBMT. It is non-invasive and has been widely used in physical therapy within rehabilitation departments. In recent years, marathon events have become quite popular in Taiwan. Previous studies have also indicated that long-distance running can lead to muscle damage, muscle pain, inflammation, and other issues that affect muscle function. This study explores the use of low-level laser therapy on the quadriceps muscles of recreational marathon runners after strength training, which induces muscle fatigue, and examines the immediate changes in knee joint mobility and muscle soreness. **Purpose:** The study investigates the effect of low-level laser therapy on reducing soreness in running-related muscle groups after lower limb strength training in recreational marathon runners. **Methods:** This study used an experimental design with nine recreational marathon runners (6 males, 3 females; average age: 40.67 ± 10.27 years; height: 169.89 ± 7.54 cm; weight: 69.94 ± 11.44 kg) randomly assigned to either a laser or placebo group. Both groups performed 72 step-ups on a 30 cm step to induce quadriceps fatigue, followed by laser treatment for the laser group and a placebo treatment for the control group. Visual Analog Scale (VAS) scores and knee joint range of motion were assessed before and after the laser treatment. **Results:** The results showed no significant difference in VAS scores between the laser and placebo groups (change value $p=0.19$, percentage change $p=0.41$). However, there was a significant difference in knee joint range of motion (change value and percentage change $p=0.016$). **Conclusions:** Low-level laser therapy (LLLT) significantly improves joint range of motion after exercise training.

Keywords: photobiomodulation therapy (PBMT); quadriceps fatigue; knee joint range of motion; marathon runners

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A study of guided metacognition of elementary school children's flipped teaching strategy – taking baseball batting as an example

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Abstract

In the past, baseball batting training often relied on quantity to achieve success. Under monotonous and tedious training, learners often lost their motivation to learn. In the traditional one-way teaching model (explanation → demonstration → practice), learners mostly engaged in passive learning. Additionally, due to insufficient physical fitness, cognitive ability, concentration, and practice hours, the learning outcomes were not satisfactory. **Objective:** This study is based on the flipped teaching theory of Bergmann and Sams (2012), integrating flipped teaching strategies into baseball batting instruction. It aims to explore how learners apply metacognition in the learning process and understand the factors influencing learners, thereby enhancing learning outcomes. **Method:** A qualitative research method was employed, using a quasi-experimental design and in-depth interviews. Semi-structured interviews were the main data collection method, supplemented by learning sheets, coach logs, and player logs. The triangulation method was used to verify the data, and after data induction, the application of metacognitive learning in baseball batting was analyzed. The research subjects were three elementary school baseball players from a primary school in New Taipei City. First, the learners explained the key points of the five steps in baseball batting. Then, after filming the learners' batting actions, the learners conducted an analysis of their own batting movements. Finally, in-depth interviews were conducted using a Delphi expert interview outline. **Results:** I. The flipped teaching strategy had a positive impact on the planning dimension of metacognition for elementary school students. II. The flipped teaching strategy had a positive impact on the monitoring dimension of metacognition for elementary school students. III. The flipped teaching strategy had a positive impact on the evaluation dimension of metacognition for elementary school students. **Conclusion:** This study found that guiding metacognitive application through flipped teaching strategies in baseball batting instruction had a significant impact on elementary school children of school age.

Keywords: Reflection, Autonomous Learning, Imagery Training, Perspective-Taking

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A Study on Sports Injuries Among Track and Field Athletes in Zhonghe District, New Taipei City

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Abstract

Title: Sports injuries greatly affect the training and performance of middle school track and field athletes, as their developing bodies make them more vulnerable to long-term impacts. With rising training intensity in Taiwan's competitive sports, injury frequency has increased. This study examines sports injuries among middle school athletes in Sanchong District, New Taipei City, to propose effective prevention strategies. **Research Objectives:** (1) Understand the current training status of middle school track and field athletes in Sanchong District. (2) Examine the occurrence and characteristics of sports injuries among these athletes. (3) Compare the differences in sports injuries based on different background variables. **Research Methods:** This study employed a questionnaire survey targeting track and field athletes from five middle schools in Sanchong District, New Taipei City (New Taipei High School, Mingzhi Junior High School, Glory Junior High School, Sanchong High School, and Sanchong Vocational High School). A total of 129 questionnaires were distributed and collected. The questionnaire covered personal background information, types of sports injuries, causes, treatment methods, and preventive measures. The collected data were analyzed using SPSS statistical software, including descriptive statistics, t-tests, and chi-square tests, to examine the impact of different background variables on sports injuries. **Results and Discussion:** Most athletes participated in strength training (91.5%) and enhanced protective measures (89.1%), indicating that schools emphasize injury prevention. However, sports injuries remained frequent, with 38.8% of athletes experiencing injuries 2-3 times and 27.9% suffering injuries more than six times. The most commonly affected areas were leg muscles (35.7%) and ankle joints (24.0%). The primary causes of injury were recurrent old injuries (35.7%), unfamiliar movements (18.6%), and insufficient warm-up (14.0%). After injury, most athletes opted for ice therapy (84.5%), while only a small percentage sought immediate medical attention (3.1%), which may worsen their condition. Differences in injury location were observed based on athletes' specialization, grade level, and training frequency, possibly related to exercise habits, technical demands, and physical load distribution. **Conclusion:** Despite strength training and protective measures, injuries remain common in the legs and ankles, mainly due to recurrent injuries, unfamiliar movements, and inadequate warm-ups. Injury frequency and location vary by experience and awareness. Most athletes use ice therapy, but few seek immediate medical care, risking worsened injuries. Schools and coaches should enhance prevention education, offer personalized training and rehabilitation, and improve protective awareness.

Keywords: Sanchong District, Track and Field Athletes, Sports Injuries

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The Impact of Information Technology Development on School Physical Education in the Post-Pandemic Era: A Systematic Literature Review

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Abstract

Purpose: This study aimed to explore the impact of information technology on school physical education (PE) in the post-pandemic era. It examines the relationship between technological stress and job burnout among PE teachers and analyzes the moderating effect of constructivist teaching beliefs. **Methods:** A systematic literature review was conducted using academic databases such as the Taiwan Thesis and Dissertation Knowledge Value-Added System, Airiti Library, and Google Scholar. A total of 12 relevant studies published between 2020 and 2024 were selected and analyzed. **Results:** These results indicate a significant positive correlation between technological stress and job burnout among PE teachers. However, constructivist teaching beliefs effectively mitigate this impact, enhancing teachers' adaptability and teaching effectiveness. Additionally, digital education has become a major trend, with online and blended learning models helping to reduce student absenteeism and promote sustainable education. However, remote PE instruction faces challenges such as reduced hands-on opportunities, technological limitations, and insufficient digital competence among teachers. **Conclusion:** These findings suggested that it is recommended to strengthen teachers' technological literacy, optimize digital teaching strategies, and improve digital resources and training to enhance PE quality and learning outcomes. Future research should further explore the impact of different academic disciplines and teacher seniority on technological stress and job burnout and investigate how professional development can improve teachers' digital skills to effectively respond to the challenges of digital education.

Keywords: COVID-19, information technology, distance education, physical education

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A Preliminary Study of Service Marketing Strategies and Current Situations of Information Service Industry

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Abstract

The information service industry is increasingly vital to the global economy, encompassing services like e-books, databases, digital tools, and professional software, widely used in academic, educational, and corporate sectors. Yet, rising market competition has made effective marketing strategies essential for boosting brand awareness and competitiveness. This study addresses this critical issue. **Purpose:** With information technology advancements, the information service industry has evolved diverse service models, becoming integral to academia, education, and business. However, the intangible nature of information products and shifting market demands complicate marketing strategy formulation compared to traditional industries. This study explores how marketing strategies are applied in the information service industry in the digital era and examines how companies can leverage innovative approaches to enhance brand influence and competitiveness in a crowded market. It aims to offer actionable marketing strategy references and suggest improvements to existing models, helping companies sustain a competitive edge amid market changes. **Methods:** This qualitative study uses semi-structured interviews to assess the current state and challenges of marketing strategies in the information service industry. It focuses on three companies—spanning database management, e-book publishing, and digital learning—for diversity and representativeness. Interviewees include marketing heads, product managers, and sales representatives. The analysis draws on the 7P marketing theory and STP market strategy frameworks. **Results:** The findings reveal distinct trends in applying the 7P marketing strategy. For products, companies offer digital resources like e-books, academic databases, and research tools tailored to market needs. Many prioritize resources for academic institutions or digital reading platforms for education, featuring custom reading lists and data analytics to assess learning outcomes. Some provide localized content for specific regions or cultures. Pricing strategies are flexible, with adjustments based on customer profiles and content licensing, often via subscription models that match user needs and budgets. Distribution relies heavily on online platforms, sales visits, and academic partnerships to broaden reach. Companies use digital platforms for real-time services and boost visibility through academic conferences and exhibitions. Promotion blends digital and physical tactics—social media, email campaigns, webinars, and platform design—alongside academic events to elevate brand image. These efforts strengthen customer interactions, reflecting adaptability in digital transformation and competition. In the STP framework, companies segment markets by demand and institutional type (e.g., academic, medical, public libraries). Positioning emphasizes technological innovation and service differentiation—via AI search, data analytics, and localized offerings—as key competitive edges. Data analytics and customization drive precise marketing, with firms building advantages through segmented, specialized services. **Conclusion:** This study examines marketing strategies in the information service industry via qualitative interviews, focusing on the 7P and STP frameworks. In the 7P approach, companies meet demands with innovative, tailored products and enhance competitiveness through flexible pricing and data analytics. They blend digital marketing (social media, emails) with physical efforts (academic collaborations) to boost visibility, while academic events deepen user ties and loyalty. In the STP approach, firms segment markets by demand and

craft targeted solutions, with some expanding into personal markets via subscriptions and digital platforms to improve coverage and retention.

However, challenges persist fierce competition, shifting user needs, and budget constraints. To counter these, companies should bolster data analytics for precision marketing, build robust customer relationship systems for loyalty, and pursue cross-industry partnerships, AI applications, and content innovation. Continuous optimization of marketing strategies is vital for maintaining leadership in this dynamic industry.

Keywords: Information service industry, marketing strategies, service marketing, 7P marketing theory, STP market analysis

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Preliminary Exploration of Graduate Students' Information Behavior in Using Mobile Devices for Thesis Research

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Abstract

With the increasing integration of mobile devices into academic research, graduate students rely heavily on these tools for literature retrieval, note-taking, data organization, and collaboration. This study investigates how mobile devices influence graduate students' information behavior, focusing on information seeking, encountering, and management. Using qualitative research methods, in-depth interviews were conducted with graduate students across various disciplines. Findings indicate that mobile devices significantly enhance research efficiency, yet introduce challenges such as information overload and fragmented information management. Additionally, the study highlights the role of mobile-assisted learning in fostering self-regulated research habits and enhancing the accessibility of scholarly materials. This study provides insights into improving digital learning tools and academic support systems to better assist graduate students in research activities. The results also suggest the need for further exploration into optimizing digital resource management to better support students in handling large volumes of academic content efficiently. **Purpose:** The purpose of this study is to explore the impact of mobile devices on the research behavior of graduate students, particularly their role in information seeking, encountering, and management. While previous research has examined digital learning and information retrieval, there remains a gap in understanding how mobile technology supports academic research across different research stages. By analyzing graduate students' experiences, this study aims to develop a comprehensive understanding of mobile-assisted research practices and provide recommendations for enhancing academic efficiency. Furthermore, this study seeks to identify the challenges students face when using mobile devices for academic purposes, offering potential solutions for optimizing their research workflow. The research also aims to assess the extent to which mobile device dependency affects students' ability to critically evaluate academic resources and maintain a structured research approach. **Methods:** A qualitative research approach was adopted, utilizing in-depth interviews and thematic analysis to examine mobile device usage among graduate students actively engaged in academic research. The data collection framework considered three levels: macro (academic environment), meso (research stages), and micro (personal information management strategies). Thematic analysis was conducted to identify key patterns, revealing both the benefits and challenges associated with mobile device usage in academic contexts. The study also analyzed students' strategies for integrating mobile tools into their daily research activities, offering insights into the effectiveness of various digital tools. Additionally, the research examined the perceived reliability of mobile-based academic sources and how students verify and cross-check digital materials. **Results and Discussion:** The findings reveal that graduate students extensively use mobile devices for academic research, primarily for literature access, cloud-based storage, and real-time collaboration. Mobile devices facilitate efficient note-taking, document annotation, and information organization, improving workflow and knowledge retention. Information encountering frequently occurs through academic networking, recommendation algorithms, and interdisciplinary collaboration. However, challenges such as information overload, distraction, and managing multi-platform data require strategic adaptation. To cope with these challenges,

students employ advanced filtering techniques, citation management software, and cloud-based note-taking applications to optimize research efficiency and maintain academic productivity. Additionally, mobile devices allow for flexible research habits, enabling students to access materials across different locations, which enhances learning opportunities but may also contribute to digital fatigue if not managed effectively. The study also found that while mobile devices provide convenience, some students expressed concerns over the reliability of digital sources and the difficulty in maintaining a focused research workflow. **Conclusions:** This study underscores the significant role of mobile devices in shaping graduate students' research behavior by facilitating information acquisition, organization, and collaboration. However, the increased reliance on digital tools necessitates the development of intelligent strategies for managing digital resources effectively. Future research should focus on refining mobile applications for academic use, particularly in addressing information overload and streamlining cross-platform data management. The findings offer valuable implications for academic libraries, educational technology developers, and research institutions to optimize mobile-assisted academic practices. By enhancing the usability and efficiency of digital learning tools, graduate students can better navigate the complexities of academic research and improve their overall scholarly performance. This study also suggests future directions for research, such as investigating the long-term effects of mobile-assisted learning on academic success and evaluating the effectiveness of emerging AI-driven research tools. Furthermore, addressing concerns about digital distractions and ensuring the credibility of online academic sources will be crucial in refining mobile-based research methodologies.

Keywords: Information Behavior, Information Seeking, Information Encountering, Mobile Learning, Graduate Students

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Exploring the Employability of Library and Information Science Professionals in Non-Library Institutions through Job Advertisements

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Abstract

As technology and science continue to advance, along with changes in population structure and the environment, the current labor market is gradually becoming more globalized and continuously evolving. Understanding labor market trends and employer demands can help individuals better prepare for their target jobs (Ivona & Babac, 2021; Kassim et al., 2023). According to Wang Meiling and Zhang Jingyu (2020), only about 50% of library and information science (LIS) graduates work in library-related positions, indicating that their career paths are diverse and not limited to the library sector. With the development of information technology and industrial transformation, the proportion of LIS graduates entering non-library institutions is steadily increasing. However, current research tends to focus on the development of LIS professionals within libraries, with relatively little attention paid to cross-industry employment needs, which urgently requires further exploration. Therefore, studying the employability demands of LIS graduates in non-library institutions holds significant research value and necessity. At its core, employability refers to an individual's ability to obtain, maintain, and perform in a job, while continuously developing their knowledge and skills to adapt to changes in both internal and external labor markets, thereby continuously securing or creating employment opportunities (Harvey et al., 2002; Vos et al., 2011; Zhang & Liu, 2023). Drawing on the perspectives of Peng Yuping (2016), Trembach (2024), and others, this study broadly categorizes employability into specific and general employability. Specific employability refers to knowledge and skills associated with particular professional fields or job requirements, while general employability includes soft skills applicable across various workplace environments. **Purpose:** This study analyzes job advertisements to explore the specific competencies that LIS graduates should possess when entering non-library institutions, in order to help students improve their workplace competitiveness. **Methods:** This study adopts content analysis to examine job advertisements collected from the Library Association of the Republic of China (Taiwan)'s LIS job database and the job listings platform of the Department of Library and Information Science at Fu Jen Catholic University. The data collection period spans from January 1, 2023 to December 31, 2024. **Results:** A total of 74 job advertisements were collected. The types of companies were categorized according to the industrial classification system of the Directorate-General of Budget, Accounting and Statistics (Executive Yuan, 2021). The findings reveal that the wholesale and retail sectors accounted for the largest proportion of job advertisements (about 30%), including physical bookstores and information service-related companies such as Wenjing Bookstore, Eslite Bookstore, HyWeb Technology, and Airiti. Referring to the *Standard Classification of Academic Disciplines for Higher Education Institutions* (Ministry of Education, 2017), this study categorized the academic backgrounds required in the job advertisements. The analysis shows that the most in-demand job functions across all advertisements include classification and cataloging, archival management, and information organization, reflecting a strong demand from non-library institutions for LIS professionals. In addition, many advertisements also valued skills in digital resource management, programming, database management, human resource management, event planning, and business development. These results suggest that LIS graduates should enhance their job market competitiveness and

employment opportunities through interdisciplinary learning, rather than limiting themselves to traditional fields of specialization. General employability was categorized based on Guo Jiayun (2019) into eight areas: language skills, information literacy, work ethic, interpersonal skills, personality traits, self-management, analytical and innovative thinking, and other abilities. Regarding language requirements, most job advertisements did not specify a particular language, followed by English being the most frequently mentioned. For information literacy, the most frequently mentioned skill—accounting for nearly 50%—was proficiency in office software such as Microsoft Office, indicating this as a fundamental competency expected by both employers and job seekers. Programming skills and basic computer operation were also in demand. Other general employability traits frequently mentioned included communication and coordination skills (48.6%), teamwork (27.8%), proactivity (27.8%), diligence (25.0%), attentiveness (25.0%), ability to work independently (16.7%), and possession of relevant certifications (12.5%). These results indicate that in addition to basic digital skills, job seekers should also strengthen their capabilities in communication, teamwork, and professional attitudes to enhance their workplace competitiveness.

Conclusion: Through the analysis of job advertisements, this study found that non-library institutions have a high demand for LIS graduates, especially valuing their expertise in information management, archival organization, digital resource management, and knowledge integration. The increasing demand for data management, content curation, and knowledge management in industries such as business, education, and information technology has created more diverse job opportunities for LIS graduates to apply their expertise. Therefore, LIS professionals should not be confined to traditional library roles, but rather expand into interdisciplinary workplaces to improve their competitiveness.

Keywords: Employability, Library and Information Science, Job Advertisements

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A Preliminary Study of Service Marketing Strategies of LIS University Libraries

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Abstract

Due to changes in information needs and in order to adapt to the digital age, libraries need to adopt innovative marketing methods to meet readers' needs. Therefore, in addition to adopting marketing concepts to increase usage and change stereotypes, university libraries must, more importantly, strengthen their connections with teachers and students. Without good marketing, the library's collections may not be fully utilized, and the library's role in the future information society will be weakened. **Purpose:** Known as the heart of the university, the University Library is not only a great place to facilitate group and individual study, but is also the primary source of information for faculty, students and university staff. Therefore, without effective marketing, students, faculty and staff may not be aware of available library services and resources. Lack of awareness results in the services provided by libraries being easily unused or underutilized, and they may also be reluctant to use products or services. Accordingly, it is extremely important for academic libraries to use marketing strategies to provide readers with better resources and services. This study explores the 7P strategy of library service marketing, covering product, price, place, promotion, process, physical evidence and people, analyzes the practical practices of the 7P strategy of service marketing, as well as the significance and importance of university library marketing and related research on domestic and foreign university library marketing issues. Based on the above importance, this study is conducted. **Methods:** The number of research literature on academic library marketing issues at home and abroad covers a wide range of areas, including research on electronic resources, social media marketing, etc. However, in general, it is found that most articles related to academic library issues lack service marketing strategy-type articles. It can also be found that many libraries have not set up special marketing departments to promote library services and resources. The most influential and widely used marketing mix is the 7P marketing mix proposed by Booms and Bitner (1981), which is applied to the context of university libraries. The content is explained as follows: (1) Product: In libraries, products refer to all tangible and intangible products used by libraries to meet users' information needs. Services such as providing reference services, purchasing copies, document delivery services, providing network access, and meeting users' information needs are all library products. (2) Price: Price is the cost of money or time spent by library users when using the library and its resources. It can also include the value of information services, such as subscriptions, participation in seminars, library user fees, time spent by users going to the library, energy spent searching and checking resources, etc. (3) Place: The access to the library includes physical library space, servers and Internet supply. A library with a quiet environment, no interference and a suitable atmosphere can attract readers to continue to visit. (4) Promotion: Promotion can help convey information and enhance users' knowledge and understanding of library activities. (5) Process: The marketing mix process in the library includes: circulation services, reference services and information literacy training, book procurement, cataloging, book borrowing and returning procedures, interlibrary cooperation applications, etc. (6) Physical evidence: Physical presentation refers to the physical characteristics of library facilities, products and services or the environment of services. (7) people: The library relies on librarians or participants to successfully achieve its mission and vision. The study found

that domestic and foreign university libraries use various novel ways to cooperate with the industry in marketing to improve service efficiency and user experience. For example, generative AI is used in reference services to help librarians provide more accurate information responses, and social media and video marketing are used to attract more young people and increase exposure. Through data analysis, we understand users' reading habits, provide personalized recommendations and services, cooperate with the community to organize various activities to enhance community cohesion, and participate in professional training and innovative projects to improve service quality. **Conclusion:** This study explores the significance and importance of university library marketing and issues related to university library marketing at home and abroad, and conducts a preliminary study and summary of the application of 7P service marketing practices and service marketing strategies in university libraries. It is expected to provide reference and suggestions for future service marketing in university libraries.

Keywords: University library 、Service Marketing 、Marketing Strategies 、Marketing for Libraries

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The Effects of Integrating Virtual Reality into Bilingual Digital Instructional Material on Junior High Students' Science Achievement, English Vocabulary Ability, and Attitudes Toward Biology Learning: Using the Lymphatic System and Defense Mechanisms as an Example

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Abstract

With the growing trend of bilingual education and digital learning, integrating innovative technologies into bilingual instruction to enhance students' learning outcomes and language proficiency has become a critical issue in educational research. **Purpose:** This study aims to develop a bilingual VR digital instructional material on the lymphatic system and defense mechanisms based on the Content and Language Integrated Learning (CLIL) approach and virtual reality (VR) technology. It further examines the effects of this instructional material on students' science achievement, English vocabulary ability, and attitudes toward biology learning. **Methods:** This study adopts a mixed-methods research design. Participants were 76 seventh-grade students from two junior high schools in Hsinchu County and one in Taichung City. The instructional intervention, utilizing the bilingual VR digital instructional material on the lymphatic system and defense mechanisms, was conducted over two class periods (90 minutes in total). Data were collected through pre- and post-tests on students' achievement in the lymphatic system and defense mechanisms, English vocabulary ability, and attitudes toward biology learning. A paired-sample t-test was performed to analyze students' learning outcomes. **Results and Discussion:** The findings reveal that the bilingual VR digital instructional material significantly enhances students' science achievement, English vocabulary ability, and attitudes toward biology learning. This effect can be attributed to the material's immersive and interactive features, which facilitate the comprehension of abstract biological concepts, strengthen language learning, and foster peer interaction, thereby refining learning strategies and fostering a more supportive learning environment. **Conclusion:** This study confirms that the bilingual VR digital instructional material can effectively improve students' learning outcomes. Future research may explore its application in other subjects, promoting the integration of VR technology into education to foster immersive and interactive learning.

Keywords: bilingual VR digital instructional material; science achievement; English vocabulary ability; attitudes toward biology learning

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The Learning Outcomes of College Students' Service-Learning in Community Engagement Activities

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Abstract

Service-learning integrates academic learning with social practice, offering students opportunities to engage in community activities while developing essential skills. This study explores the learning outcomes of college students participating in service-learning with direct community engagement. Through semi-structured interviews with three students, findings indicate improvements in communication, teamwork, and problem-solving skills. Challenges such as resource limitations and coordination difficulties were also identified. Recommendations include better training, digital tools integration, and stronger university-community collaboration to enhance service-learning effectiveness. **Purpose:** This study aims to analyze the learning outcomes of college students engaging in service-learning activities and examine the challenges they face. By investigating students' reflections and experiences, this study provides insights into how service-learning enhances students' skills, values, and civic engagement while identifying areas for improvement in program design. **Methods:** A qualitative research approach was adopted, using semi-structured interviews to explore students' experiences in service-learning programs. Participants were three students from Fu Jen Catholic University, each with experience in service-learning activities related to elderly care, environmental advocacy, and educational support. Interviews were conducted individually, recorded, transcribed, and analyzed using thematic coding to identify key themes related to learning experiences and challenges. **Results:** Findings from the interviews indicate that service-learning has a profound impact on students' personal and academic development. The participants reported significant improvements in their ability to communicate effectively, work collaboratively in teams, and apply problem-solving strategies in real-life situations. Engaging with community members helped students develop empathy and a deeper understanding of societal needs. For instance, students involved in elderly care mentioned how meaningful conversations with senior citizens enhanced their listening skills and patience, while those working on environmental advocacy gained hands-on experience in organizing public awareness campaigns. However, challenges were also observed. The most frequently mentioned issue was resource limitations, such as insufficient funding, lack of proper training before service activities, and inadequate materials for carrying out planned tasks. Another key challenge was difficulty in coordinating with community members and fellow volunteers, leading to miscommunication and unmet expectations. Some students expressed frustration over the lack of structured guidance from their universities, which sometimes resulted in ineffective project execution. Despite these difficulties, students found ways to adapt and overcome obstacles. Many suggested that better pre-activity training and clearer role assignments would enhance service-learning experiences. They also emphasized the importance of digital tools for improving communication and coordination among volunteers. Additionally, strengthening partnerships between universities and community organizations was identified as a critical factor in ensuring sustainable service-learning programs. **Conclusion:** Service-learning provides college students with valuable experiences that integrate academic learning with real-world applications. Through direct engagement with community members, students not only enhance their communication, teamwork, and leadership skills but also develop a deeper sense of social responsibility. These

experiences allow students to bridge the gap between theoretical knowledge and practical application, making their learning more meaningful and impactful. However, challenges such as limited resources, inadequate training, and difficulties in coordination highlight the need for improvement in service-learning program design. To optimize service-learning effectiveness, universities should establish structured training programs that equip students with the necessary skills before engaging in service activities. Providing clearer guidelines, assigning well-defined roles, and incorporating digital tools can enhance efficiency and reduce communication barriers. Strengthening collaborations between universities and community organizations is also essential to ensuring long-term sustainability and greater social impact. By addressing these areas, service-learning can evolve into a more effective educational approach that benefits both students and the communities they serve. Future research should further examine the long-term effects of service-learning on students' academic performance, career development, and civic engagement. Additionally, exploring how service-learning programs can be adapted to different cultural and societal contexts will be crucial in broadening their effectiveness. By continuously refining service-learning models, educational institutions can cultivate socially responsible graduates who are well-prepared to address the challenges of the modern world.

Keywords: Service-learning, community engagement, college students, qualitative research, learning outcomes

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Enhanced Chinese Sentiment Analysis with BERT and BiLSTM : Content-Aware Sentiment Lexicon Recognition

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Abstract

Purpose: With the rise of social media platforms, vast amounts of texts with different emotional expressions are generated daily, presenting valuable insights for business intelligence, public opinion monitoring, and mental health assessment. Many studies on sentiment analysis have been conducted, primarily in English, as Chinese sentiment analysis faces several challenges, including inaccurate word segmentation, polysemy, implicit sentiment, and contextual dependency in sentiment expression. To overcome these difficulties, this study proposes a new approach to Chinese sentiment analysis by combining the advantage of BERT (Bidirectional Encoder Representations from Transformers) in semantic understanding with BiLSTM (Bidirectional Long Short-Term Memory), known for its ability of capturing contextual dependencies. Additionally, sentiment lexicon was applied and dynamically expanded during the analysis to enhance the recognition of low-frequency words and online sentiment texts. **Methods:** The proposed framework follows a multi-stage process: (1) preprocessing using BertTokenizer for tokenization and part-of-speech tagging; (2) contextual word embedding extraction via BERT to capture deep semantic representations; (3) sequence modeling through a BiLSTM network, which processes both forward and backward dependencies to enhance contextual understanding; (4) dynamic lexicon augmentation by identifying emotionally relevant but infrequent words through cosine similarity calculations with existing sentiment terms; and (5) integrating word- and sentence-level features for final sentiment classification. The model was trained and evaluated on labeled datasets containing six sentiment categories (happiness, anger, sadness, fear, surprise, and neutrality). **Results:** The result shows that our model achieved notable improvements in accuracy, recall, and F1 scores across six emotional categories (happiness, anger, sadness, fear, surprise, and neutrality), compared to traditional methods, particularly in identifying subtle emotional differences in complex contexts, such as expressions with emotional shifts or implicit sentiment indicators. Furthermore, the application of dynamic sentiment lexicon also proved effective in extracting low-frequency yet emotionally significant terms. **Conclusion:** This study explores an approach to Chinese sentiment analysis by precisely extracting emotionally significant terms with deep semantic features learned from text using BERT and BiLSTM. The BERT-BiLSTM model demonstrates stable performance in classifying texts into six sentiment categories and shows significant potential in capturing both explicit and subtle contextual sentiment expressions. This model can be widely applied to real-time social media sentiment monitoring, business intelligence opinion mining, as well as early warning of potential mental health crises, providing important theoretical and practical value for research and applications that require deep understanding of the emotional content in Chinese text.

Keywords: sentiment analysis, emotion recognition, opinion mining, deep learning

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The impact of mindful yoga on stress management, attention, and emotional regulation

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Abstract

With the rapid changes in society, stress management and mental health have become critical issues. This study explores how Mindful Yoga helps different populations reduce stress, enhance concentration, and promote overall well-being. Using interpretative phenomenological analysis (IPA), this study conducts a literature review, analyzing academic research, qualitative studies, and case reports to understand the applications of Mindful Yoga in education, sports, and workplace settings, while summarizing subjective experiences across different populations. Mindfulness emphasizes present-moment awareness and adopting a non-judgmental and accepting attitude toward internal and external experiences (Brown & Ryan, 2003; Kabat-Zinn, 1994; Sedlmeier, 2012). In 1979, Dr. Kabat-Zinn introduced mindfulness into the medical field, creating mindfulness-based stress reduction (MBSR) to help patients with chronic illnesses regulate stress and emotions. Research indicates that yoga postures combined with mindfulness practice, through stable movements and breath control, not only promote muscle relaxation but also stimulate glandular secretion, balance hormones, and stabilize emotions (Visceglia & Lewis, 2011). Findings suggest that Mindful Yoga helps different populations cope with stressors, enhance psychological adjustment, and improve quality of life. Students who receive mindfulness training can use breath awareness and body scanning techniques to reduce test anxiety, improve concentration, and develop greater emotional stability in academic settings (Li, 2021). Athletes enhance mental resilience through mindfulness practice, effectively regulate emotions in high-pressure competitive environments, maintain focus, and improve sports performance. Additionally, they learn to collaborate with teammates with a more open attitude, fostering a better team atmosphere (Ma, 2021). Working professionals benefit from Mindful Yoga by developing emotional regulation skills, helping them respond more rationally to challenges in high-stress work environments, reduce the negative effects of stress, and enhance overall life satisfaction (Zeng, 2013). Research also highlights that depression relapse is closely related to how individuals respond to negative thoughts. Mindfulness training encourages continuous observation, allowing individuals to recognize negative thoughts as psychological events rather than absolute truths, preventing them from falling into depressive cycles (Huang, 2019). The core impacts of Mindful Yoga can be summarized into three dimensions: “Stress Management”, reducing anxiety and stress through mindfulness practice; “Attention Enhancement”, helping individuals stay focused in learning, work, and sports, thereby improving efficiency and performance; and “Emotional Regulation”, fostering self-awareness and psychological resilience, allowing individuals to adapt to environmental changes and maintain emotional stability. This study demonstrates the cross-population applicability of Mindful Yoga. Future research could further explore digital mindfulness training (such as APP and VR applications) and extend its application to medical, creative industries, and other high-stress professions to deepen its effectiveness and long-term impact.

Keywords: Stress Management, Attention Enhancement, Well-being, Psychological Resilience

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Evaluating Bilingual Physical Education Policy from the Perspective of Junior High School Physical Education Teachers

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Abstract

As the government promotes the "Bilingual 2030" policy, physical education (PE) courses are gradually being incorporated into the bilingual education framework. However, the nature of PE differs from other subjects, as it involves motor skill acquisition, real-time instructional feedback, and the transmission of sports culture. These factors present challenges for teachers in implementing bilingual instruction, including language proficiency, curriculum design, instructional adaptation, and assessment standards. Some teachers believe that bilingual education enhances students' English communication skills and international competitiveness, while others worry that language switching may hinder the automation of motor skills, reducing students' motivation and learning effectiveness in PE classes.

This study conducted in-depth interviews with local PE teachers participating in the Bilingual Education Highlight Program in Taoyuan City. The findings indicate that teachers' acceptance of bilingual PE policies is influenced by factors such as school resource allocation, individual language proficiency, teaching experience, and students' learning needs. While most teachers agree with the core principles of the policy, they commonly report issues such as insufficient bilingual teaching materials, inaccurate translations of technical terms, unclear curriculum design and assessment standards, and an increased learning burden for students. Additionally, some teachers highlight that although foreign teachers' bilingual PE teaching experiences in other countries offer valuable insights, Taiwan's unique PE education environment and cultural background necessitate policy adjustments to local needs rather than the direct adoption of international models.

This study provides specific recommendations: The government should offer comprehensive bilingual PE teacher training, develop bilingual teaching materials suited for motor learning and sports science, and establish adaptive assessment standards to ensure teaching quality and student learning outcomes. Furthermore, interdisciplinary collaboration between PE teachers and foreign educators should be encouraged to design curricula that align with the professional demands of PE and learning sciences. This approach ensures that bilingual PE education can simultaneously enhance students' language skills and physical literacy without compromising motor skill acquisition.

Keywords: Bilingual education, junior high school teachers, bilingual physical education policy

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An Action Research on Integrating Learning Platforms into Taiwanese Hokkien Education to Enhance Students' Learning Outcomes

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Abstract

This study aims to explore the impact of integrating the LearnMode learning platform into Taiwanese Hokkien instruction on elementary school students' learning outcomes and attitudes. Through the implementation of a series of Taiwanese Hokkien teaching sessions that incorporate digital resources provided by LearnMode, this research seeks to offer innovative teaching models and methods while empirically verifying the effectiveness of digital learning platforms in Taiwanese Hokkien education.

Background : The current Taiwanese Hokkien teaching environment remains predominantly lecture-based, with limited use of supplementary digital resources such as e-books. There is a lack of systematic and interactive learning platforms, and teachers often have limited proficiency in utilizing digital tools. Furthermore, there is a scarcity of digital resources specifically designed to teach Taiwanese Hokkien.

Purpose: This study aims to investigate the effects of integrating the LearnMode digital learning platform into Taiwanese Hokkien instruction on students' language proficiency and learning attitudes. By incorporating LearnMode's digital resources into teaching designs that cover listening, speaking, reading, and writing, this research seeks to provide innovative teaching models and methods, while offering empirical evidence for the role of digital learning platforms in Taiwanese Hokkien education.

Methods: This study adopts an action research approach, combining pre- and post-tests for learning outcome assessments and questionnaire surveys to comprehensively collect and analyze data. The diverse digital tools and resources offered by LearnMode will be integrated into lesson designs to enhance skills in listening, speaking, reading, and writing. A mixed-methods analysis of both qualitative and quantitative data will be conducted to examine the effectiveness of digital tools in supporting Taiwanese Hokkien education, and to provide empirical evidence for the digital transformation and innovative applications in language teaching.

Expected Outcomes: By integrating the LearnMode digital platform into Taiwanese Hokkien education, the study is expected to achieve the following outcomes: 1. Enhancement of Learning Outcomes: Students' proficiency in Taiwanese Hokkien is anticipated to improve through the use of digital tools. 2. Improvement in Learning Attitudes: The use of digital resources is expected to foster more positive attitudes toward learning Taiwanese Hokkien. 3. Verification of the Supportive Role of Digital Tools: The study aims to empirically validate the effectiveness of digital tools in supporting Taiwanese Hokkien education. 4. Promotion of Digital Transformation and Innovation: The research will promote the digital transformation and innovative application of Taiwanese Hokkien education.

Conclusion: Based on the research findings, this study will provide concrete recommendations to assist educators in utilizing digital technology to enhance teaching effectiveness. It will also contribute to the cultural preservation and development of Taiwanese Hokkien by facilitating the

digital transformation of Taiwanese Hokkien instruction. The study's findings will offer practical guidance for the future integration of digital resources in Taiwanese Hokkien education and contribute to the broader movement of educational modernization and innovation.

Keywords: Application of Learning Platforms , Taiwanese Hokkien, , Learning Outcomes

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An Action Research on the Application of Technology-Assisted Self-Explanation in Social Studies Instruction

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Abstract

This study examines the integration of self-explanation with technology-assisted instruction (tablets and Padlet) in third-grade social studies education to enhance students' learning outcomes and engagement. The research was conducted with 25 students using an action research approach to assess their progress in cognitive, affective, and skill-based domains. Additionally, the study reflects on the effectiveness of the instructional strategies, aiming to provide valuable insights and practical references for educators. By doing so, it seeks to contribute to the development of social studies instruction and promote more effective teaching practices.

Background: With the rise of digital education, technology has become essential in modern teaching. The COVID-19 pandemic further accelerated this shift, requiring both students and teachers to adapt. However, social studies education still faces challenges, as traditional strategies often fail to enhance comprehension and knowledge expression. This study explores the integration of self-explanation with technology-assisted instruction to improve students' cognitive, affective, and skill-based learning outcomes. By evaluating its effectiveness, the research aims to provide innovative teaching strategies that enhance engagement and instructional quality in social studies.

Purpose: This study aims to investigate the learning effectiveness of integrating technology-assisted self-explanation into social studies instruction for third-grade elementary school students. Specifically, it examines students' cognitive, affective, and skill-based changes throughout the learning process. Additionally, the study seeks to reflect on the effectiveness of these instructional strategies and technological tools to enhance the researcher's professional teaching competence.

Methods: An action research approach was adopted, targeting a class of 25 third-grade students taught by the researcher. The implementation involved using tablets and the Padlet interactive platform to facilitate self-explanation activities. Research instruments included a teacher-assessed self-explanation rating scale, a student self-assessment learning questionnaire, and a teaching reflection journal.

Expected Outcomes: 1. Students demonstrated tangible improvements in their learning after receiving instruction incorporating the self-explanation, along with a positive shift in their attitudes toward social studies. 2. The use of technology-assisted tools, such as tablets and the Padlet online platform, enhanced students' interest in learning social studies. 3. Through reflective teaching practices, the teacher improved professional teaching competence and developed a broader repertoire of instructional strategies, thereby enhancing overall teaching effectiveness.

Conclusion: This study contributes to the field by demonstrating the effectiveness of integrating self-explanation with technology-assisted instruction in elementary social studies education, offering a practical instructional model to enhance students' learning outcomes, engagement, and interest. Furthermore, the study underscores the importance of continuous teacher reflection and adaptation to improve instructional practices and learning outcomes, providing valuable insights for other educators.

Keywords: Self-Explanation, Technology-Assisted, Elementary Social Studies, Learning Effect

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The Impact of Exercise on Teachers' Stress Management and Teaching Effectiveness

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Abstract

Purpose: In today's educational landscape, teachers are not only responsible for heavy teaching workloads but also face multiple challenges, including administrative tasks, student counseling, and communication with parents. These stressors accumulate over time, often leading to physical and mental exhaustion, which in turn affects teaching quality and student learning outcomes. Although educational policies emphasize the development of professional teacher competence, teachers are still burdened with classroom management, administrative collaboration, and parent engagement, which hinder their professional growth and effective teaching. This study aims to explore the relationship between teachers' participation in physical activities and their stress management, and further analyze how stress-coping abilities influence teaching effectiveness. Additionally, by comparing the working conditions and educational policies for teachers both domestically and internationally, the study investigates the sources of work-related stress among Taiwanese teachers, the limitations this stress imposes on their well-being and professional development, and offers concrete suggestions for improvement. **Methods:** This study adopts a literature review approach, collecting and analyzing relevant research from both domestic and international sources. **Results and Discussion:** According to the 2018 Teaching and Learning International Survey (TALIS), junior high school teachers in Taiwan work an average of 36 hours per week, similar to the OECD average. However, only 17 of those hours are spent on actual teaching, suggesting that a significant portion of time is consumed by non-teaching duties. In contrast, Finnish teachers work just 33 hours per week but spend 21 hours teaching, indicating a much lower administrative burden. Although Taiwanese teachers have similar total work hours, they spend less time teaching and more time on administrative tasks. Japanese teachers have the highest average working hours at 56 per week, yet still retain space for professional development, with less time spent on student counseling and administrative duties compared to Taiwan. Moreover, Ko et al. (2019) noted that although Taiwanese teachers generally recognize the benefits of professional development, 65.8% reported being too busy to participate due to heavy workloads. These findings indicate that stress for Taiwanese teachers stems not only from teaching itself but also from the excessive administrative demands they must manage. Over time, this pushes them toward "multitasking overload," undermining professional engagement and teaching passion. This contradicts the core focus of Taiwan's revised Teacher Professional Competency Guidelines, which emphasize "teacher expertise" and "student learning." Against this backdrop, participation in physical activities has emerged as a vital strategy for stress management among teachers. Multiple studies (Iwasaki & Mannell, 2000; Lin, 2006; Wang & Chen, 2020) have shown that regular exercise effectively reduces stress, enhances emotional stability and psychological resilience, and in turn improves teaching performance and student engagement. Teachers with good stress-coping skills are better equipped to face teaching challenges, motivating students and increasing classroom participation (Yeh & Tseng, 2022). Furthermore, when teachers receive institutional support and reduce stress through regular exercise, their teaching becomes more dynamic and students become more engaged in learning (Wu & Chen, 2022). These findings suggest that timely physical activity can significantly alleviate stress and positively impact

teaching effectiveness. **Conclusion:** This study integrates both domestic and international research to reveal that Taiwanese teachers spend significantly more time on non-teaching duties compared to their international counterparts, resulting in high levels of occupational stress. However, participation in physical activities has been shown to help teachers regulate emotions and enhance teaching focus, thereby strengthening classroom interaction and student motivation. Therefore, it is recommended that educational authorities and schools take policy-level actions to reduce teachers' administrative workload and allow for more professional autonomy and preparation time. At the same time, schools should actively develop supportive systems—such as providing exercise facilities, offering stress management training, and establishing psychological counseling services—to foster a workplace culture that promotes physical and mental well-being. Ultimately, this would lead to improvements in both teacher health and teaching effectiveness, creating a mutually beneficial learning environment for both teachers and students.

Keywords: Physical activity; mental health; school education; teaching effectiveness

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The Impact of Integrating VR into Bilingual Digital Learning Materials on Students' Learning Achievement, English Vocabulary Proficiency, and Learning Engagement: A Case Study on the "Composition of the Human Cardiovascular System" Unit

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Abstract

Purpose: This study aims to explore the impact of integrating CLIL (Content and Language Integrated Learning) with virtual reality in the Bilingual VR Human Cardiovascular System Learning System on students' learning achievement, English vocabulary proficiency, and learning engagement in junior high school biology courses. **Methods:** An experimental research design was employed, involving 76 students from two junior high schools in Hsinchu County and one in Taichung City. The experiment lasted for two class sessions (90 minutes in total) using the Bilingual VR Human Cardiovascular System Learning System. Pre- and post-tests were conducted using the Learning Achievement Test on the Composition of the Human Cardiovascular System, the English Vocabulary Test on the Composition of the Human Cardiovascular System, and the Learning Engagement Scale to assess student performance. Paired-sample t-tests were used for data analysis. **Results:** 1. The Bilingual VR Human Cardiovascular System Learning System significantly improved students' learning achievement. 2. The Bilingual VR Human Cardiovascular System Learning System significantly enhanced students' English vocabulary proficiency. 3. The Bilingual VR Human Cardiovascular System Learning System had no significant effect on students' learning engagement. **Conclusion:** The findings confirm the effectiveness of integrating CLIL-based bilingual learning with virtual reality in science education. Future research could extend learning duration or explore additional units to further enhance the application and impact of bilingual VR science materials.

Keywords: CLIL; virtual reality; the human cardiovascular system

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The Research on the Impact of Applying the Servant Leadership Philosophy on Parenting Education in New Taipei City

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Abstract

This study explores the application and impact of the servant leadership model within parenting education in New Taipei City. Specifically, it examines how parents of elementary school children perceive and incorporate the principles of servant leadership into their parenting practices, as well as the effects these principles have on their parental efficacy, parent-child interactions, and the overall quality of family education.

A quantitative research methodology is employed, utilizing a self-developed instrument titled "Survey on the Application and Impact of Servant Leadership in Parenting Education in New Taipei City." The sample consists of parents of elementary school students in New Taipei City, with data gathered through cluster sampling techniques. The study seeks to achieve the following objectives:

1. To investigate the application of servant leadership principles within the context of parenting education.
2. To analyze the influence of these principles on parental behaviors and attitudes.
3. To assess the impact of servant leadership on parent-child relationships.
4. To provide recommendations for enhancing the integration of servant leadership in parenting education.

The findings indicate that key servant leadership principles, such as empathy, active listening, and stewardship, have a positive impact on parental engagement, communication, and responsiveness. Parents who apply these principles tend to demonstrate higher levels of parental efficacy, stronger emotional bonds with their children, and enhanced conflict resolution capabilities. Furthermore, the study reveals that demographic factors, including parents' educational attainment and socio-economic status, significantly influence the degree to which servant leadership is embraced in parenting practices.

The research concludes that incorporating servant leadership into parenting education can foster a more supportive and effective parenting model, promoting healthier parent-child relationships and enhancing overall family well-being. The study underscores the importance for educational policymakers to consider the integration of servant leadership frameworks when designing parenting education programs. Future research should focus on examining the long-term effects and cross-cultural applicability of servant leadership in family education contexts.

Keywords: Servant Leadership, Parenting Education, Parental Efficacy, Parent-Child Interaction, Family Education

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The institutional bottleneck and sustainable reform ideas of billiards education in Taiwan

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Abstract

Taiwan has achieved remarkable results in international billiards competitions, especially in nine-ball events. Top players such as Chao Fong-Pang and Yang Ching-Shun brought Taiwan global recognition, followed by Wu Chia-Ching and Ko Pin-Yi, who continued to secure impressive world titles. Taiwan has since earned the nickname the “Kingdom of Billiards.” However, the domestic development of cue sports remains hindered by institutional gaps and the lack of an integrated youth development framework. This has resulted in weak pipelines from grassroots to elite levels, contributing to the sport's ongoing marginalization. **Purpose:** This study aims to conduct a commentary-based review of the institutional challenges affecting the sustainable development of billiards education and youth training in Taiwan. It focuses on how the absence of cue sports in the formal physical education system, fragmented training pathways, inconsistent coach certification, and lack of governmental support collectively contribute to systemic breakdowns. **Methods:** This study adopts a commentary-driven evaluation and comparative institutional analysis. Drawing on youth training models from table tennis, badminton, and taekwondo, it establishes a framework consisting of three comparative pillars: (1) educational structure and public infrastructure, (2) development pathways for training and competition, and (3) professional coaching capacity and certification systems. Data are synthesized through literature review and field-based institutional observation. **Results:** The analysis reveals five key bottlenecks facing cue sports in Taiwan: (1) Lack of integration into school curricula – Billiards is not included in PE courses or student clubs, unlike mainstream sports such as table tennis and badminton, leading to limited grassroots participation. (2) Disconnected youth training and academic advancement – Cue sports rely entirely on private coaching, with no institutional pathways aligned with school progression. (3) Underdeveloped coaching structure – Most coaches are former players without formal certification or professional development channels, undermining their recognition and legitimacy. (4) Fragmented competition system – The absence of tiered youth leagues and stable evaluation metrics impedes long-term athlete planning and performance accumulation. (5) Minimal policy and funding support – As a non-Olympic sport, billiards lacks national policy prioritization and centralized institutional leadership. In contrast, sports such as table tennis and taekwondo benefit from well-integrated systems combining education, coaching, competition structures, and policy support. Billiards, however, remains dependent on isolated elite efforts without systemic reinforcement. **Conclusion:** To address Taiwan's structural deficiencies in cue sports, this study proposes three strategic reforms: (1) Integrate billiards into national physical education curricula through formal courses and student clubs; (2) Establish an age- and tier-based youth league system linking schools with training centers; and (3) Develop a national coach certification and professional development framework through public-private collaboration. Only through policy-driven reform and institutional reconstruction can billiards evolve from a medal-oriented elite sport into an inclusive, educational, and sustainable discipline.

Keywords: billiards education, youth training system, physical education, institutional reform, cross-sport comparison

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Factors Influencing Students' Motivation and Learning Outcomes in Physical Education: A Literature Review

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Abstract

Student learning outcomes in physical education (PE) are influenced by multiple factors, among which learning motivation, teaching methods and behaviors, and classroom climate play critical roles. This study reviews literature from the past decade to explore the key elements that affect students' motivation and learning outcomes, focusing specifically on three dimensions: instructional strategies, teacher behaviors, and the social-emotional atmosphere of PE classes. The results indicate that an increasing number of PE teachers in practical settings are adopting student-centered teaching models such as the Sport Education Model (SEM) and Teaching Games for Understanding (TGfU). These approaches emphasize realistic learning experiences, promote student autonomy and cooperation, and help stimulate interest while enhancing skill performance. When PE classes are designed around game simulations, role assignments, and tactical discussions, students are more likely to perceive the course as meaningful and engaging. Moreover, teacher behavior plays a crucial role. Highly supportive teaching practices, such as listening to student input, providing encouragement and constructive feedback, and guiding students in self-directed learning, effectively enhance student motivation and engagement. In contrast, overly controlling teaching or an exclusive focus on technical performance can lead to student resistance, anxiety, and reduced participation. The overall classroom climate, including fairness, peer relationships, and emotional safety, also has a significant impact on motivation and achievement. A classroom culture that emphasizes respect, collaboration, and personal improvement encourages students to take initiative and face challenges. Conversely, in competitive or unsupportive environments, students may avoid participation due to fear of evaluation or judgment. In conclusion, to improve participation quality and educational outcomes in PE, it is recommended that schools and educational institutions enhance teacher training and feedback mechanisms while continuously monitoring classroom interaction and students' learning experiences. Doing so will support the development of more engaging, educationally meaningful PE programs that foster both active participation and lasting motivation.

Keywords: physical education, student motivation, learning outcomes, teaching strategies, teacher behavior, classroom climate

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The Impact of Integrating Virtual Reality into Bilingual Digital Biology Teaching Materials on Junior High School Students' Scientific Learning Achievement, Scientific Learning Motivation, and English Vocabulary Proficiency—A Case Study on the Systemic and Pulmonary Circulation Unit

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Abstract

The purpose of this study is to investigate the effects of using a bilingual VR cardiovascular circulatory system learning software, developed based on the Content and Language Integrated Learning (CLIL) instructional model and incorporating virtual reality (VR) technology, on students' scientific learning achievement, scientific learning motivation, and English vocabulary acquisition. Additionally, this study aims to collect students' feedback on the learning software and assess their satisfaction with its use.

This study employed a mixed-methods research approach. The participants consisted of 76 seventh-grade students from two junior high schools in Hsinchu County and one junior high school in Taichung City. The instructional intervention involved two class sessions utilizing the bilingual VR cardiovascular circulatory system learning software, with a total duration of 90 minutes.

The results indicated that the implementation of the bilingual VR cardiovascular circulatory system learning software significantly enhanced students' scientific learning achievement. Analysis of course feedback surveys revealed that the majority of students found learning with the bilingual VR software to be more comprehensible compared to traditional instructional methods. Furthermore, the software was found to have a significant positive effect on students' English vocabulary acquisition. However, no significant impact was observed on students' scientific learning motivation. Further analysis of the biology course feedback surveys indicated that some students lacked confidence in learning biology in a bilingual context, which in turn affected their motivation. Additionally, many students reported experiencing learning pressure due to their perceived inadequacy in English proficiency or a lack of self-confidence when engaging in bilingual learning.

Keywords: bilingual VR cardiovascular circulatory system learning system, body circulation, pulmonary circulation, science achievement, science learning motivation, english vocabulary ability

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Exploring the Impact of Mindfulness Interventions on Exercise Self-Efficacy

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Abstract

With the growing awareness of health, exercise has become an essential means of maintaining physical and mental well-being. However, many individuals struggle to sustain regular exercise due to a lack of confidence, motivation, or doubts about their abilities. Exercise self-efficacy is a crucial factor influencing exercise behavior, and according to social cognitive theory, individuals with high self-efficacy are more likely to overcome challenges and maintain exercise habits. In recent years, mindfulness training has gained attention in the fields of mental health and behavior modification, with studies showing its potential to enhance confidence, motivation, and behavioral persistence. **Purpose:** This study aims to explore the impact of mindfulness interventions on exercise self-efficacy. However, systematic research on how mindfulness influences exercise self-efficacy remains limited. **Methods:** Therefore, this study employs a literature review approach to summarize and analyze the mechanisms through which mindfulness interventions affect exercise self-efficacy and their practical applications. **Results:** The findings indicate that mindfulness primarily influences exercise self-efficacy through four key mechanisms: stress regulation, emotional management, enhanced focus, and self-awareness and acceptance. Mindfulness training helps individuals stabilize their emotions, reduce the impact of stress, and enhance exercise performance and confidence by focusing on the present moment. Additionally, mindfulness promotes self-awareness, enabling individuals to better accept their current state, reduce self-doubt, and strengthen their exercise self-efficacy. This study also identifies a gap in research on the effects of mindfulness interventions on exercise-related psychological skills. Future studies should further explore the influence of mindfulness on stress management, resilience, focus, and confidence, utilizing both quantitative and qualitative research methods to gain a deeper understanding of its mechanisms. **Conclusion:** The results of this study have broad applications in education, health promotion, rehabilitation, and daily life. Developing diverse and effective mindfulness training programs can enhance individuals' self-efficacy, support the sustainability of exercise behaviors, and contribute to overall physical and mental well-being.

Keywords: mindfulness; exercise self-efficacy; stress regulation; emotional management

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An Action Research on the Abstraction Problem Solving Strategy of Computational Thinking and the Effectiveness of Primary for Elementary School Students' Mathematics Learning

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Abstract

While computational thinking has emerged as a crucial 21st-century skill, its application in elementary mathematics education, particularly the abstraction component, remains underexplored. Recent studies suggest that computational thinking's abstraction capability could enhance students' mathematical problem-solving abilities, yet empirical research in elementary settings is limited. Purpose: This action research aims to investigate the effectiveness of computational thinking abstraction-based problem-solving strategies on fifth-grade students' mathematics learning outcomes and examine teacher reflections on student learning processes. Methods: The study employs an action research methodology with 28 fifth-grade students in a New Taipei City elementary school. The intervention focuses on teaching division of integers and decimals by integral divisors through an instructional design that integrates Pólya's four-step problem-solving process with computational thinking abstraction frameworks. Data collection involves multiple instruments including mathematical problem-solving behavior questionnaires, pre-post achievement tests, homework performance analysis, mathematics notes evaluation, teaching journals, and peer observation records. The intervention is implemented through three teaching cycles over eight mathematics lessons, following a systematic instructional design incorporating concept understanding, strategy construction, and application enhancement phases. Expected Results: The study anticipates significant improvements in students' cognitive, skill-based, and affective learning outcomes. In the cognitive domain, students are expected to develop more systematic mathematical thinking patterns and enhanced problem-solving capabilities. In terms of skills, the intervention aims to foster effective problem-solving strategies and improved computational abilities. In the affective domain, through clear thinking frameworks, the study expects to increase learning motivation and self-confidence, while providing teachers with an effective teaching framework for observing learning difficulties and offering timely support. Expected Conclusion: The integration of computational thinking abstraction-based problem-solving strategies is anticipated to effectively enhance students' mathematics learning outcomes by fostering systematic thinking patterns and metacognitive abilities.

Keywords: Mathematical Computational Thinking, Computational Thinking, Abstraction, Learning Effectiveness, Learning Strategy

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Motivation, Barriers factors, and Self-Efficacy in Physical Education: A Literature Review

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Abstract

Student participation in physical education (PE) is influenced by multiple factors, with motivation, barriers, and self-efficacy playing crucial roles. This study reviews literature from the past decade to synthesize findings on key determinants of student engagement in PE. Research indicates that intrinsic motivation, including enjoyment, competence, and autonomy, significantly enhances participation, while extrinsic motivation, such as rewards and social expectations, plays a secondary role. However, various barriers psychological (e.g., lack of confidence, body image concerns), social (e.g., peer influence, teacher support), economic (e.g., lack of sports equipment), and environmental (e.g., inadequate school facilities) may hinder participation. Additionally, self-efficacy is a strong predictor of sustained engagement in PE. Students with higher self-efficacy are more likely to overcome participation barriers, whereas those with low self-efficacy tend to avoid PE due to fear of failure or embarrassment. Furthermore, the role of teachers and school policies is significant in shaping student motivation. A supportive teaching approach that fosters autonomy, provides constructive feedback, and offers a variety of physical activities positively impacts student attitudes toward PE. This review underscores the need for comprehensive interventions to promote student participation. Recommendations include diversifying PE curricula to cater to different interests and skill levels, improving school sports environments, implementing teacher training programs focused on motivation strategies, and fostering social support networks. These findings provide valuable insights for educators and policymakers seeking to optimize PE programs and encourage lifelong physical activity habits among students.

Keywords: Physical education, student participation, motivation, barriers factors, self-efficacy, school policies

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A Study on Learning Motivation and Satisfaction of Students in the Undergraduate Program of Sport and Leisure Management at Fu Jen Catholic University

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Abstract

This study primarily investigates the current status of learning motivation and course satisfaction among students in the Department of Exercise and Leisure Management at Fu Jen Catholic University. It explores how personal attributes such as gender, grade level, prior athlete experience, and enrollment motivation influence students' learning expectations, value perception, and emotional engagement¹. Furthermore, it analyzes whether these personal attributes significantly affect students' course satisfaction, including teaching quality, curriculum design, and the quality of physical and software facilities¹. Finally, it examines the relationship between learning motivation and course satisfaction to further understand students' learning behaviors and needs¹.

The study employed a questionnaire survey targeting undergraduate students from the first to fourth year in the Bachelor's program of Exercise and Leisure Management at Fu Jen Catholic University. A total of 217 questionnaires were collected, with 205 valid responses, resulting in a 94.5% return rate¹. Data analysis was conducted using IBM SPSS Statistics 22, employing various statistical methods, including descriptive statistics, reliability analysis, correlation analysis, difference analysis, and one-way ANOVA¹.

The main findings are summarized as follows:

1. The primary purpose of this research was to understand the basic characteristics, learning motivation, and course satisfaction of students in the Department of Exercise and Leisure Management at Fu Jen Catholic University.
2. Regarding basic information, the majority of respondents were fourth-year students (28.3%) and biological males (63.4%)². The main reason for enrolling in the program was interest in exercise and leisure management (39.5%)². Additionally, 75.1% of respondents had prior experience as athletes, and 86.3% had part-time work experience.
3. The overall Cronbach's α value of the questionnaire was 0.982, indicating very high reliability.
4. The difference analysis showed no significant differences in learning motivation and course satisfaction in exercise and leisure management among students of different genders, prior athlete experience, and part-time work status. However, the one-way ANOVA revealed a significant difference in learning satisfaction among students of different grade levels, with second-year students showing significantly higher scores in the "affective" dimension compared to first and third-year students. Similarly, the main reason for enrolling in the Department of Exercise and Leisure Management at Fu Jen Catholic University had a significant impact on students' learning motivation and course satisfaction, but post-hoc tests revealed no significant differences across specific dimensions (significance > 0.05).
5. The correlation analysis indicated a significant positive correlation between learning motivation and course satisfaction in exercise and leisure management, with a correlation coefficient (r) of 0.847, suggesting a strong positive relationship between the two.

In conclusion, this study provided an in-depth analysis of the basic characteristics, learning

motivation, and course satisfaction of students in the Department of Exercise and Leisure Management at Fu Jen Catholic University through a questionnaire survey and various statistical analysis methods. It revealed the similarities and differences in learning experiences among different student groups and the close relationship between learning motivation and course satisfaction.

Keywords: Learning Motivation, Satisfaction, Exercise and Leisure Management

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An investigate of Junior High School Coaches' Professional Development Motivation and Barriers: A Case Study of New Taipei City

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Abstract

Purpose: The purpose of this study is to explore the status of professional development needs among junior high school sports coaches in New Taipei City. A questionnaire survey was conducted, targeting coaches of nine sports disciplines participating in the New Taipei City Secondary School Games. **Methods:** Data analysis was performed using descriptive statistics, independent sample t-tests, one-way ANOVA, and Pearson product-moment correlation. **Results:** The findings revealed the following:

1. Most junior high school coaches in New Taipei City are between 31 and 40 years old, accounting for approximately 43%, with nearly 60% holding a master's degree.
2. Most junior high school sports coaches in New Taipei City also serve as teachers (about 70%) and hold coaching qualifications primarily from individual sports associations (approximately 79%).
3. The primary motivation for professional development among sports coaches is "job requirements," followed by "personal achievement," "career advancement," "networking," and "external encouragement." The main barriers include "poor external conditions," "time and family constraints," and "low personal willingness."
4. Among the motivations for professional development, only "job requirements" and "personal achievement" showed no significant correlation, while among the barriers, only "low personal willingness" and "poor external conditions" were not significantly correlated. All other factors demonstrated significant positive correlations.

Based on the findings, this study provides recommendations for relevant institutions, junior high school teachers, and future research.

Keywords: Coach. Development Motivation, Barriers.

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An Exploration of the Impact of Modern Lifestyles on the Fundamental Athletic Abilities of Elementary School Track and Field Athletes

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Abstract

With the rapid development of modern society, the widespread use of electronic devices such as computers, smartphones, and tablets has significantly influenced people's lifestyles. These changes include modifications in communication methods, consumption habits, learning patterns, and leisure activities. However, they also bring challenges such as health issues, social changes, and information security risks. Elementary school track and field athletes, who are in a critical phase of physical development and athletic performance improvement, may face potential threats to their training and growth due to excessive reliance on the internet and electronic devices.

Purpose: This study aims to examine whether prolonged use of electronic devices in modern lifestyles affects the training of elementary school track and field athletes. Additionally, it proposes training adjustment strategies and recommendations to help balance athletic performance with physical and mental well-being. Research Objectives should be 1. To understand the internet usage patterns of elementary school track and field athletes. 2. To compare the fundamental athletic abilities—including muscular endurance, cardiorespiratory endurance, explosive power, flexibility, reaction time, balance, agility, coordination, and speed—between the experimental and control groups. 3. To explore gender-based differences in athletic performance within the experimental group. **Methods:** This study adopts a questionnaire survey and physical fitness tests to collect data from 200 elementary school track and field athletes in New Taipei City. Participants were divided into an experimental group (internet addiction group) and a control group (non-internet addiction group). The collected data were analyzed using SPSS statistical software. **Results:** 1. Athletes in the internet addiction group demonstrated significantly lower performance in muscular endurance, cardiorespiratory endurance, explosive power, and flexibility compared to those in the non-internet addiction group. 2. Among male athletes, those in the internet addiction group exhibited significantly lower explosive power and flexibility than their non-addicted counterparts. 3. Among female athletes, those in the internet addiction group showed significantly lower muscular endurance and cardiorespiratory endurance than the non-addicted group. **Conclusion:** There are significant differences in athletic performance between the experimental and control groups, indicating that the increasing exposure of children to electronic devices—whether for homework, gaming, or social interactions—leads to more sedentary behavior and insufficient physical activity. Although electronic devices provide convenience, their usage should be properly controlled. Encouraging children to engage in regular physical activity, reduce sedentary time, and limit electronic device use can enhance their overall growth, development, and athletic performance.

Keywords: Elementary school track and field athletes; internet addiction; athletic performance

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Sports Innovation and Sustainable Talent Development under Industry-Academia Collaboration

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Abstract

Purpose: The rapid development of the sports industry has led to an increasing demand for professional talent, yet a gap between talent supply and demand still exists. Industry-academia collaboration has become a key strategy to bridge this gap. This study aims to explore how cooperation between academic institutions and enterprises can drive talent cultivation and technological innovation to promote the sustainable development of the industry. **Methods:** This study adopts the literature analysis method, collecting and analyzing 15 research papers from the past ten years related to industry-academia collaboration in talent cultivation, sports innovation, and sustainable development. **Results:** Industry-academia collaboration is key to driving sports innovation and sustainable development by fostering market-competitive professionals through technological research and practical training. Taking the Neihu Smart Sports and Leisure Center as an example, personalized sports management is optimized through empirical field testing and data analysis, enhancing both safety and efficiency. The success of smart sports centers relies on human thought processes, emphasizing interactive feedback, interdisciplinary collaboration, and innovative adaptability while integrating business strategies to seamlessly merge technology with sports and daily life. Collaboration between academia and sports technology enterprises enables students to participate in the development of smart sports equipment, data analysis software, and green sports products, cultivating creative thinking, critical thinking, problem-solving, and teamwork skills. This fosters industry innovation and the growth of smart technology talent. Internships and shadowing programs help students gain experience in innovation and research while learning how to implement sustainable practices in the sports industry. Meanwhile, enterprises can establish green supply chains through industry-academia collaboration, promote the sustainable operation of eco-friendly sports venues and events, and enhance both brand value and market competitiveness. **Conclusion:** Industry-academia collaboration not only enhances the effectiveness of talent cultivation but also drives innovation and development in the sports industry. Through close cooperation between academia and enterprises, professionals with global vision and innovative capabilities can be nurtured, laying a solid foundation for the future of the sports industry.

Keywords: Interdisciplinary Collaboration; Industry-Academia Collaboration; Talent Development

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The Technical Analysis of Taekwondo Poomsae Training Strategy in Kaohsiung Municipal Nanzih Senior High School

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Abstract

The training strategy of the Taekwondo poomsae athletes is centered around an annual plan, with monthly competitions used to evaluate and refine athletic performance in Kaohsiung Municipal Nanzih Senior High School. The main purpose of this study was to discuss the effects of technical analysis for Taekwondo poomsae training strategy on youth taekwondo performance in Taiwan. Technical analysis of training strategy incorporate diverse methods, combining dynamic strength exercises with repetitive segmented practice to enhance precision and muscle memory. In terms of tactics, the team emphasizes experience accumulation and guidance from senior athletes. Psychological training includes simulated competitions and imagery training to improve mental resilience. For physical conditioning, interval sprints and aerobic or anaerobic training are used to enhance performance. Additionally, off-site training is scheduled during winter and summer breaks, with training tailored to different grade levels for optimal development. However, the team faces challenges such as a shortage of coaching staff, a lack of professional strength coaches, and an absence of sports injury protection specialists, which are areas for future improvement. In conclusion, this study can be a reference for the training strategy in technique and skills for our youth taekwondo poomsae athletes.

Keywords: Taekwondo poomsae, youth athlete, Taiwan

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An Action Research on Enhancing English Learning Effectiveness of Sixth-Grade Elementary School Students by Using the Interactive Response System

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Abstract

This study aims to explore the impact of using the IRS (Interactive Response System) Blooket to assist in sixth-grade English spelling instruction. Spelling instruction refers to repetitive practice using Blooket after teaching English phonics, combined with competition to achieve digital game-based learning. The study investigates changes in students' attitudes toward English learning, English learning anxiety, and English learning achievement. This study adopts the action research method and involves a class of 24 sixth-grade students from an elementary school in New Taipei City, conducting eight lessons of spelling instruction. The researcher collected and analyzed both qualitative and quantitative data to summarize the findings. Using the phonics teaching method in conjunction with the IRS not only helps the researcher understand learners' difficulties and provide immediate feedback to clarify doubts but also raises teachers' awareness of students' learning issues and offers effective counseling and instructional support. In terms of teaching, it is recommended to integrate various styles of IRS into the classroom. For future research, early planning and diverse presentations of research results are suggested to enhance originality and provide reference for subsequent teaching and research. The main purposes of this study are as follows:

- Adjusting and modifying the teaching process to address challenges encountered when using Blooket in teaching.
- Using the IRS Blooket to enhance students' attitudes toward English learning.
- Using the IRS Blooket to reduce students' English learning anxiety.
- Using the IRS Blooket to improve students' English learning achievements.
- Using the IRS Blooket to support teachers' reflection and professional growth.

By integrating the Blooket IRS into sixth-grade English instruction, this study aims to enhance students' spelling proficiency through repeated practice and immediate correction, boost learning motivation by leveraging gamified competition, improve learning attitudes by fostering a positive and engaging environment, and reduce learning anxiety by creating a stress-free and confidence-building learning experience, ultimately contributing to better overall learning outcomes.

Keywords:

Digital game-based learning, Interactive Response System (IRS), Learning effectiveness.

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論文摘要_口頭發表

Management Models of Esports Teams: Talent Development and Organizational Culture

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Abstract

The exponential growth of the esports industry has led to its growing recognition from global sports organizations. Notably, the 2018 Jakarta Asian Games featured esports as a demonstration event, the 2022 Hangzhou Asian Games officially incorporated it as a medal event, and in 2024, the International Olympic Committee (IOC) announced the establishment of the Olympic Esports Games (Chinese Taipei Esports Association, 2025). As the industry matures, the operational frameworks of esports organizations, talent development pipelines, and organizational culture have emerged as critical determinants of long-term competitiveness and sustainability. **Purpose:** This study aims to analyze the management models of professional esports teams, with a particular focus on talent acquisition, development frameworks, and organizational culture. As esports undergoes rapid professionalization and gains legitimacy within the global sports ecosystem—evidenced by its inclusion in major multi-sport events—this study examines how structured management practices impact team performance, player retention, and overall organizational success. **Methods:** This study employs a systematic literature review, based on ten high-quality sources, including peer-reviewed journal articles, industry reports, media analyses, and official esports federation publications. Through a comprehensive examination of current research and case studies of internationally renowned esports teams, this study assesses the efficacy of various management strategies related to player development, training methodologies, and team culture cultivation. **Results:** Findings indicate that high-performing esports organizations implement structured talent development pipelines, foster a cohesive and resilient team culture, and deploy strategic market positioning initiatives. Key success factors include rigorous scouting and recruitment processes, evidence-based training programs integrating cognitive, physiological, and psychological conditioning, as well as team synergy optimization. Moreover, branding strategies, sponsorship negotiations, and revenue diversification models play a pivotal role in ensuring financial stability. League-based franchise systems, which require substantial entry fees, also serve as mechanisms to mitigate short-term investment risks while ensuring the career sustainability of professional players. **Conclusion:** The long-term success of esports teams is contingent upon the implementation of a robust management infrastructure, proactive player development strategies, and dynamic market engagement models. Insights derived from this study offer valuable strategic guidance for esports executives, team managers, and stakeholders aiming to enhance competitive performance and operational sustainability. Additionally, this research establishes a foundation for future academic inquiry into esports management and organizational best practices.

Keywords: Team Management, Talent Development, Organizational Culture, Competitive Performance, Esports Industry

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Inducing Incidental Physical Activity: Exercise Science Applications in Residential Architecture

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Abstract

This study examines the application of exercise science principles to residential architecture design to promote incidental physical activity and enhance occupant health. Modern urbanization has exacerbated sedentary lifestyles, with the World Health Organization (WHO, 2020) identifying physical inactivity as a key contributor to chronic diseases like cardiovascular conditions and diabetes. Research by Sallis et al. (2016) further establishes the built environment's critical role in shaping physical activity patterns, suggesting architectural interventions could mitigate global health burdens associated with sedentary behavior. Our work bridges exercise science and architectural design to develop activity-promoting strategies for residential spaces.

While health-focused building certifications like WELL, LEED, FITWEL, and UL address air quality and comfort, they inadequately target physical activity promotion in homes. For instance, WELL activity-related guidelines lack residential specificity (International WELL Building Institute, 2020), and LEED prioritizes sustainability over movement incentives (USGBC, 2019). Existing frameworks provide generalized recommendations without actionable residential design protocols.

Through literature review, case studies, and empirical research, we propose four evidence-based strategies:

1. Activity-driven circulation design: Enhanced stair accessibility and looping pathways.
2. Integrated exercise spaces: Modular activity zones with shock-absorbent flooring.
3. Landscape-enabled movement: Walkable green connectors and community exercise nodes.
4. Behavioral nudging systems: IoT-enabled feedback mechanisms leveraging environmental psychology.

Results demonstrate measurable increases in daily activity levels through: 27% greater stair use with optimized stair design (vs. elevator). 18% activity duration improvement through smart monitoring systems. Significant behavioral impacts from spatial configurations, contrasting with urban-scale studies that emphasize public spaces over residential interiors.

This research advances health-centric residential design by operationalizing exercise science through architectural interventions. Future studies should investigate cultural, demographic, and geographic variations in activity-responsive housing design.

Keywords: Healthy Building, Incidental Physical Activity, Built environment-behavior, Exercise Science

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Predicting MLB Batters' Salaries: A Data-Driven Analysis of Performance Factors and Salary Discrepancies

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Abstract

Salaries generally reflect a player's value, but the process of salary determination is not easy to understand. Therefore, this study focuses on exploring the relationship between player performance data and salaries, developing a predictive model for MLB batters' salaries based on player data, and analyzing the discrepancies between actual and predicted salaries to gain deeper insights into salary determination mechanisms. **Purpose:** Explore the relationship between batting players' performance data and salaries, and compare predicted salaries with actual salaries. **Method:** This study employs data analysis to examine the performance data of MLB batters from the 2023 season, using stepwise multiple regression analysis to calculate the weight parameters influencing salaries. Based on these parameters, salary predictions for batters in 2024 are made, and the predicted salaries are then compared with the actual salaries. During preliminary analysis, it was found that the number of plate appearances (PA) varied excessively (ranging from 0 to 753, with a standard deviation of 239). Players with fewer plate appearances may lead to excessive variability in the overall data, resulting in outliers. Furthermore, due to the long season of professional sports, players with very low plate appearances cannot guarantee the stability of their performance. To ensure fairness, impartiality, and objectivity in the analysis and minimize the impact of data anomalies, this study excludes players whose data are influenced by various factors and only includes data from batters with at least 162 plate appearances in 2023. A total of 349 records were included in the analysis. **Results:** Based on the analysis in this study, the regression analysis results indicate that runs scored, age, and intentional walks (IBB) are positively correlated with salary ($r > 0$), while grounding into double plays (GIDP) is negatively correlated with salary ($r < 0$). All these factors have a significant impact ($p < .05$), with an $R^2 = 0.532$. Therefore, the final model selected **R**, **AGE**, **IBB**, **GIDP**, and **Salary** as the key parameters for model construction. The batting data of each player were then incorporated into the model to predict player salaries, and the actual and predicted salaries were validated using the Mean Absolute Percentage Error (MAPE). The results indicate that the model predicts salaries with high accuracy, with a MAPE of 6.22%, meaning the average error rate is 6.22%. **Conclusion:** This study constructs a highly accurate model through data analysis, which provides valuable insights for teams in salary decision-making and helps the public better understand the factors influencing player salaries. However, salary decisions are affected by multiple factors, including market supply and demand, team financial status, and player contract negotiations. Therefore, future research could consider incorporating additional variables, such as defensive performance, celebrity status, and player injury, to further enhance the comprehensiveness and accuracy of salary predictions.

Keywords: MLB; MAPE; forecast salary; stepwise multiple regression

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Exploring Strategies for the Professionalization of Muay Thai in Taiwan: A case Study of Thailand

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Abstract

Muay Thai, Thailand's national sport, has developed into a highly professionalized industry with a structured competition system and commercial model. In contrast, Muay Thai in Taiwan remains in its early stages, lacking a professional league and stable market support, which hinders its professionalization. This study conducts a literature analysis of Muay Thai development in Thailand and Taiwan, adopting Watanabe Tamotsu's (2007) professional sports development model to compare their differences and explore strategies for Taiwan's Muay Thai professionalization.

Development of Professional Muay Thai in Thailand: The Muay Thai industry in Thailand is highly professionalized, consisting of three core components: gyms, promoters, and stadium operators. Gyms are responsible for training athletes, promoters organize and market competitions, and stadium operators manage events and venues such as Lumpinee and Rajadamnern. Revenue sources include ticket sales, broadcasting rights, corporate sponsorships, betting income, and sports tourism. The Thai government supports the sport through policies and international promotions, ensuring sustainable industry growth.

Current Development of Muay Thai in Taiwan: Muay Thai in Taiwan is overseen by the Chinese Taipei Muay Thai Association, which organizes competitions and facilitates international exchanges. However, the sport remains largely amateur-based, lacking a structured professional league and stable financial backing. Major competitions include the National Muay Thai Championship, National Youth Cup and so on. The training system is incomplete, with a limited market, weak corporate sponsorship, and reliance on coaching and experiential courses for sustainability.

Comparison of Muay Thai Professionalization in Thailand and Taiwan: Using Watanabe Tamotsu's model, key differences emerge between Thailand and Taiwan in market scale, private sector support, social contribution, organizational structure, and sustainability. Thailand has an established market with a strong audience base and integration with the tourism industry, whereas Taiwan lacks a professional league and a consistent fan base. Thailand secures corporate sponsorships and betting revenue, ensuring stable event operations, while Taiwan lacks long-term commercial investments and relies on self-funded athletes and gyms. Muay Thai is deeply embedded in Thai culture, integrated with custom, military training, and tourism, while Taiwan has yet to incorporate Muay Thai into its national sports framework. Thailand's professional organizations manage the sport effectively, while Taiwan's competitions remain largely amateur-level and lack professional league structure.

Financially, Thailand benefits from diverse revenue sources, including tickets, broadcasting, sponsorships, betting, and tourism, supporting long-term growth. Taiwan, however, relies mainly on tuition fees and occasional competitions, leading to an unstable economic model that hinders professionalization.

Strategies for the Professionalization of Muay Thai in Taiwan: To promote professionalization, this study proposes five key strategies: Establish a professional league: Create a structured competition system to provide long-term development opportunities for athletes. Enhance commercial models: Leverage ticket sales, broadcasting, and corporate sponsorships to increase market value. Increase government support: Integrate Muay Thai into national sports programs, securing funding and grassroots development. Develop grassroots talent: Improve training programs to strengthen athlete competitiveness. Expand international cooperation:

Engage in global competitions and athlete exchanges to boost Taiwan's Muay Thai visibility. Conclusion: Taiwan's Muay Thai industry has a foundational structure but faces challenges due to market size, corporate support, and an underdeveloped competition system. To achieve professionalization, efforts should focus on building a structured league, strengthening commercial strategies, securing government funding, and fostering international collaboration to drive the industry toward long-term growth and sustainability.

Keywords: Muay Thai; professionalization; combat sports industry; commercialization; Taiwan-Thailand comparison.

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Exam-free Admission Policy: The Effects of Incorporating Physical Fitness Performance as a Comparison Criterion for Admission

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Abstract

Since the implementation of the exam-free admission policy in 2012, some school districts have included physical fitness performance in their admission rating systems, encouraging students to focus on and improve their fitness to better adapt to the challenges of school life.

Purpose: This article explores the methods employed by school districts that include physical fitness scores as part of the admission criteria and examines the effects of these practices.

Methods: The researchers analyzed publications containing keywords such as exam-free admission, health and physical fitness, and student physical fitness, gathered from online platforms. Relevant documents from the National Committee for Admission to Senior Secondary Schools and the Ministry of Education were also reviewed. **Results:** Among the 15 school districts that have adopted the exam-free admission policy, 11 have included physical fitness performance as a criterion in the admission rating system, typically setting a physical fitness level at PR25 or PR50. These districts include Taoyuan-Lienchiang, Changhua, Yunlin, Chiayi, Kaohsiung, Pingtung, Hualien, and Penghu. Of these, Changhua does not require students to reach a minimum score, and Pingtung awards an additional point for those who complete all four fitness tests. Additionally, the Tainan school district treats the same sub-scores from two fitness tests as the overall physical fitness score for each student, whereas Yilan and Kinmen assign different scores for PR25, PR50, PR75, and PR85 performances, which may explain why more students in these two districts scored higher than PR85 compared to other districts. In addition to variations in district practices, it was found that students' fitness performance, particularly in the standing long jump and the 800/1600m run, was significantly better in the 11 districts that included physical fitness tests in the admission criteria compared to those that did not. **Conclusion:** Using admission scores as an incentive and incorporating physical fitness performance into the evaluation process for exam-free admission can encourage secondary school students to pay more attention to their physical health. Furthermore, students are more likely to improve their performance if their fitness level is considered differently in the admission process.

Keywords: Physical fitness; Exam-free admission policy; Comparing criteria for admission

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Differentiating Attack-Defense Performance Between Starting and Bench Players in Taiwanese Division I Men's Basketball Games (2023)

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Abstract

Player rotation is one of the key factors for basketball coaches to respond the changes in on-court situations. An RSR analysis was conducted recently to determine its validity and provide a comprehensive evaluation of team sports. **Purpose:** This study investigates the differences in offensive and defensive performance between starting and bench players during the 2023 Division I men's basketball season. **Methods:** The sample data were obtained from the official UBA website's technical statistics, covering 16 teams and 192 players, including PPG, 2P%, 3P%, FT%, OR, AS, TO, DR, ST, BS, and PF. The independent t-test to examine the differences in performance indicators of attack and defense between starting and bench players. **Results:** The RSR indicates that NCCU had the best offensive and defensive performance overall. The starting and bench players of the top four teams generally had higher RSR values. The offensive performance of starting players was significantly better than bench players, particularly in points per game, three-point field goal percentage, assists, and offensive rebounds ($ps < .05$). On the defensive, starting players outperformed substitutes in steals, blocks, and defensive rebounds ($ps < .05$). In addition, the RSR showed that starting players of the top four teams had significantly higher 2P% and 3P% than the bottom four teams. **Conclusion:** The RSR comprehensive evaluation highlights bench depth as a key factor in game outcomes, with substitutes from the top four teams making more significant offensive contributions. Therefore, it is recommended that coaches prioritize outside shooting and free throw accuracy when selecting starting players while enhancing substitutes' playmaking and rebounding abilities to improve overall team competitiveness.

Keywords: performance analysis; ranking; team sports; tactics

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Immediate Effects of Radial Extracorporeal Shock Wave Therapy on Myofascial Trigger Points in the Upper Trapezius Muscle: A Quantitative Assessment Using Myoton

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Abstract

Extracorporeal shock wave therapy (ESWT) has been widely applied in managing various musculoskeletal disorders; however, the immediate biomechanical effects of radial ESWT (rESWT) on active myofascial trigger points (MTrPs) in the upper trapezius muscle remain inadequately explored. **Purpose:** This preliminary study aimed to quantitatively assess the immediate biomechanical effects of rESWT on muscle stiffness in active MTrPs of the upper trapezius muscle. **Methods:** Six participants clinically diagnosed with active MTrPs in the upper trapezius muscle were recruited, with each participant measured three times, totaling 18 measurements. Participants underwent a standardized rESWT intervention with parameters set at 1.5–2.5 bar pressure, frequency of 10 Hz, and a total of 1500 shocks delivered. Muscle stiffness was quantitatively assessed using MyotonPro immediately before and after treatment. Statistical analysis was conducted using paired t-tests. **Results:** Significant immediate reductions in muscle stiffness were observed bilaterally following treatment in participants without known shoulder pathologies (Left side: pre-treatment mean = 400.8 N/m, SD = 64.91 N/m; post-treatment mean = 368.1 N/m, SD = 51.19 N/m, $p < 0.001$; Right side: pre-treatment mean = 363.9 N/m, SD = 85.01 N/m; post-treatment mean = 335.4 N/m, SD = 65.14 N/m, $p < 0.001$). However, when participants with shoulder conditions (e.g., frozen shoulder or adhesive capsulitis) were included, muscle stiffness significantly decreased only on the right side (pre-treatment mean = 410.3 N/m, SD = 77.49 N/m; post-treatment mean = 377.0 N/m, SD = 62.05 N/m, $p = 0.005$), with no significant change observed on the left side (pre-treatment mean = 408.5 N/m, SD = 55.99 N/m; post-treatment mean = 418.9 N/m, SD = 70.39 N/m, $p = 0.68$).

Conclusion: rESWT (1.5–2.5 bar, 10 Hz, 1500 shocks) effectively and immediately reduces muscle stiffness of active MTrPs in the upper trapezius muscle among healthy participants. However, existing shoulder pathologies such as frozen shoulder or adhesive capsulitis appear to influence the immediate biomechanical responses. Given the limited sample size, future studies with larger cohorts, long-term follow-ups, and clear stratification of pathological conditions are recommended to further clarify the clinical efficacy of rESWT.

Keywords: Myofascial Trigger Points; Upper Trapezius Muscle; Radial Extracorporeal Shock Wave Therapy; Myoton; Immediate Effect

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The relationship between respiratory muscles and core stability on football players.

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Abstract

Previous studies have shown that 8–12 weeks of respiratory muscle training can enhance endurance and improve core stability in athletes. Diaphragm, as a muscle that assists in inhalation and contributes to intra-abdominal pressure (IAP), plays a crucial role in these processes. While past research has suggested that improvements in core stability are accompanied by diaphragm thickening. But there is no research that have directly investigated the relationship between the diaphragm and core stability. This study aims to examine whether stronger inspiratory pressure correlates with greater core stability. Thereby defining the impact of the diaphragm on core stability. **Methods:** Twenty-five collegiate soccer athletes were recruited, all of whom had participated in collegiate-level competitions within the past year and trained more than four times per week for over two hours per session. Athletes with asthma, oral injuries, or lower back pain with a pain score exceeding 3 in the past week were excluded. Maximum inspiratory pressure was measured using a respiratory pressure meter (Gio60, Galemed, Taiwan), and core stability was assessed using a biofeedback pressure device (Chattanooga Stabilizer Pressure Bio-feedback, DJO Consumer LLC, Australia). Each test was performed three times, with participants given practice trials beforehand to ensure they understood the testing procedures. Testing was stopped when the difference between the three recorded values was within 10%, and the best performance was used for Pearson correlation analysis. Shapiro-wilk, Pearson correlation analysis were used to examine the relationship with respiratory muscle and core stability. **Results:** The results indicate that inspiratory muscle strength is not directly related to core stability($P=.339$), meaning that stronger inspiratory muscles do not necessarily correspond to greater core strength. **Conclusion:** By this research found that inspiratory pressure correlates is not direct relationships with core stability. Previous studies have found that 8-12weeks respiratory muscle training can lead to diaphragm thickening and improved core stability, but no research has confirmed that core stability improvements are solely due to diaphragm thickening. The muscles responsible for generating intra-abdominal pressure include the transversus abdominis, internal obliques, diaphragm, and multifidus. The enhancement of core stability is related to the coordinated function of the diaphragm and transversus abdominis, and different breathing patterns influence transverse abdominis(TrA) activation. The results of this experiment confirm that diaphragm strength and core strength are not directly correlated. Instead, breathing patterns influence TrA activation and its coordination with the diaphragm, ultimately enhancing core stability.

Keywords: Respiratory muscle; core stability; maximum inspiratory pressure

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Effect of PETTLEP Imagery Models on Sport Performance

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Abstract

Athlete performance is primarily determined by the comprehensive interaction of physical and mental factors, including physical condition, technical skills, and psychological attributes. In recent years, athlete recovery and mental skills have gained increasing attention. Psychological factors that may impact performance during competitions include: 1) lack of self-confidence, 2) insufficient self-control, 3) anxiety or nervousness, and 4) lack of focus. Stable psychological skills are a critical factor in whether athletes can perform optimally. For elite athletes, training often includes simulating competitive scenarios to provide the necessary tension and allow athletes to adapt, thus enhancing their psychological resilience and improving competition performance. This study focuses on the impact of PETTLEP imagery training on enhancing athlete performance. **Methods:** This study adopts a literature review approach, searching related to PETTLEP imagery training, traditional imagery training, and their impact on athletes' performance enhancement from the Huayi and PubMed databases. **Result and Discussion:** Most studies employed experimental methods to explore the impacts of imagery training on athletes' performance with the intervention of PETTLEP imagery and traditional imagery training, and the samples included various sports such as baseball pitching accuracy, golf bunker shot precision, and basketball free throw success rates. These studies mainly analyzed the differences in sports performance before and after the intervention, and improvements in performance due to different intervention methods. According to the result, that indicated most athletes showed significant improvements in their performance after receiving both PETTLEP imagery training and traditional imagery training. Among these, PETTLEP imagery demonstrated the most substantial performance enhancement, which showed that PETTLEP imagery training model can effectively improve athletes' performance in personal sports skills such as baseball pitching, golf bunker shots, and basketball free throw. However, although personal performance skills may indirectly enhance overall team sports, that still remains more investigation. **Conclusion:** For athletes, performed the best in competition always the ultimate goal of daily training. To achieve this goal, athletes need systematic training to improved their physical fitness, technical skills, and strong psychological skills. Imagery, one psychological skill, which help athletes to cope with the high-intensity competition and situational tension brought by the competition. Therefore, for athletes' development, cultivating the ability to overcome psychological stress, the PETTLEP imagery training should be regularly incorporated in raining programs.

Keywords: Functional equivalence, Regular Imagery, Sport performance

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A Study on the Sources of Stress and Confidence of Basketball Referees During Games

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Abstract

In recent years, Taiwan's professional basketball leagues have flourished, with various leagues emerging rapidly. The number of games has increased annually, along with the level of viewership and competitiveness. Currently, in addition to the original Super Basketball League (SBL), new leagues such as P. LEAGUE+ (PLG) and TPBL have been established, fueling the basketball boom and significantly increasing the demand for referees. However, as the excitement of the games rises, the attention and expectations from spectators and teams toward referees have also intensified, placing greater pressure on referees during the officiating process. Therefore, this study aims to explore the sources of pressure faced by basketball referees during games and their impact on confidence, analyze the factors influencing referees' psychological state, and further investigate ways to enhance referees' confidence to improve the stability and accuracy of their officiating. The study seeks to provide relevant recommendations to help referees strengthen their psychological resilience and officiating performance. **Purpose:** (1) Identify sources of referee pressure by analyzing the factors that referees may face during officiating, including reactions from spectators, coaches, and players, the importance of the game, personal experience, and external environment. (2) Evaluate the impact of pressure on referees' confidence by exploring how different sources of pressure influence their decision-making confidence, psychological stability, and overall officiating performance. (3) Analyze factors affecting confidence by studying key elements that influence referees' confidence, such as accumulated experience, professional training, psychological adjustment, and social support. (4) Enhance referees' confidence and pressure management by providing practical recommendations based on research findings to help referees effectively manage pressure, boost confidence, and improve officiating standards. **Methods:** This study adopted a review approach, searching for ten relevant articles on basketball referees' sources of pressure and confidence. The literature examined the methods used in various studies. Participants were invited to complete a researcher-designed questionnaire on sources of pressure. Additionally, referees of different levels were interviewed to analyze the factors contributing to referees' officiating pressure. **Results:** The results of the pressure source questionnaire revealed that most basketball referees experience pressure from the following factors during officiating: (1) fear of making incorrect judgments, (2) officiating with unfamiliar referees, (3) protests from coaches, (4) team walkouts, and (5) close games near the end of regulation. Additionally, interview findings indicated that other factors contributing to referee pressure include transportation issues, poor diet and physical condition, whistle conflicts between referees, differences in game levels, conflicts with full-time jobs, and irrational behavior from fan groups. For confidence assessment, the "Taiwan Professional Basketball Referee Confidence Scale" was developed using a five-point questionnaire, adapted from Huang Chong-Ru's (2003) Athlete Confidence Source Scale. The scale consists of four factors: "self-presentation," "leadership style," "social support," and "technical perception." **Conclusion:** With the development of Taiwan's professional basketball leagues, the role of referees has become increasingly crucial, and the pressure they face during games has also intensified. This study, through a literature review, provides an in-depth understanding of the relationship between referee

pressure and confidence and offers practical recommendations to improve officiating quality. However, future research could further explore the impact of different sports, cultural backgrounds, and referee levels on pressure and confidence. Additionally, long-term follow-up studies could be conducted to verify the effectiveness of various pressure management strategies, providing more concrete guidelines. In conclusion, pressure in officiating is inevitable, but with proper psychological training and support systems, referees can effectively enhance their confidence, maintain high officiating standards, and ultimately contribute to the fairness and professional development of sports competitions.

Keywords: Basketball Referees, Psychological Stress, Confidence, Sources of Stress

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An Academic Knowledge Graph Integrating Text-Image Similarity Comparison and Author Relationships

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Abstract

With the rising prevalence of text plagiarism and image manipulation in academic publishing, detecting these issues has become a critical challenge for academic integrity. Existing detection technologies primarily analyze text and images separately, making it difficult to integrate their results effectively. Additionally, few studies have explored the relationships between bibliographic information, text similarity, and image manipulation. Therefore, integrating and presenting these connections has become a key issue in academic publishing. **Purpose:** When academic publishers receive a submitted paper, existing detection methods typically analyze text and images separately, lacking an integrated approach. This study constructs an academic knowledge graph that integrates bibliographic information, textual content, and image content, providing a visualized approach to help publishers identify potential text plagiarism or image manipulation more effectively. **Methods:** This study builds an academic knowledge graph that semantically describes entities and their relationships. (1) Bibliographic Information: Entities and relationships are established bibliographic details such as paper titles, authors, DOIs, and journal names. (2) Textual Content: Text similarity relationships indicate similarity between submitted manuscripts and published papers. (3) Image Content: Image similarity relationships highlight similarities between submitted and published papers. **Results:** This study constructs an academic knowledge graph using the Neo4j graph database, integrating information on submitted and published papers, authors, text, and images as entities and visualizing their interrelationships. The primary entities in the knowledge graph include papers (both submitted and published), textual and image content, authors, journals and their respective categories, as well as authors' affiliations and country information. In terms of entity relationships, papers are linked to authors through the Authored relationship and to journals through the Published in relationship. The textual and image content within papers are connected via Text Similar To and Figure Similar To relationships, respectively. Authors are associated with their affiliations and countries, while journals are linked to their respective subject categories. Query results show that the knowledge graph effectively visualizes textual and image similarities between submitted and published papers. If a submitted paper's text exhibits a similarity of over 40% with a published paper, or if its images show more than 80% similarity to another paper's images, potential cases of image reuse or content overlap may be present. Users can adjust query parameters based on specific needs, increasing similarity score thresholds to filter varying levels of similarity, thereby assisting publishers in detecting potential text plagiarism and image manipulation in submitted papers. **Conclusion:** The proposed academic knowledge graph integrates bibliographic information, text similarity, and image similarity, facilitating semantic-based retrieval and visualizing the relationships between entities. This approach helps publishers identify potential issues in submissions while also revealing links between image manipulation and specific research fields, institutions, or authors, enhancing academic integrity monitoring.

Keywords: knowledge graph; image manipulation; academic journals

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An Exploration of College Students' Experiences in Using Generative Artificial Intelligence Tools

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Abstract

Artificial Intelligence (AI) applications are now ubiquitous in our daily lives, with AI and Generative Artificial Intelligence (GAI) tools becoming increasingly significant, especially ChatGPT. The rapid development of GAI tools has drawn a great deal of attention across various fields. **Purpose:** This research aims to explore the factors that motivate college students to use ChatGPT in their daily lives. Additionally, it examines the challenges students face when using GAI tools and how they overcome these obstacles. The findings can provide valuable insights for technophiles, educators, and individuals. **Methods:** This study employed a qualitative research approach. A semi-structured interview outline was developed to explore the motivations for using ChatGPT, as well as participants' experiences and feelings about using the tool. We used a convenience sampling method to invite three senior students from the Department of Library and Information Science (LIS) at Fu Jen Catholic University. All interviewees were female. The interviews were conducted between December 10 and 12, 2024. **Results:** The results show that the respondents' use of ChatGPT is influenced by academic, work-related, and daily life factors. (1) Academic factors: These include tutoring for coursework, assistance with information retrieval for reports or assignments, and translation from Chinese to English. (2) Work-related factors: One interviewee shared that during her internship at the Taipei Public Library, she used ChatGPT to generate a draft project plan for a task. (3) Daily life factors: These include travel planning and shopping advice. In addition, the uncertainty and anxiety about the results from ChatGPT stem from concerns about accuracy, reliance, and emotional factors. (1) Accuracy factors: Two interviewees mentioned data errors, which led them to question the accuracy of the results generated by ChatGPT. (2) Reliance factors: One interviewee expressed concern that some college students overly rely on ChatGPT to complete their homework. (3) Emotional factors: ChatGPT lacks empathy, which was highlighted as a significant difference compared to interacting with a real person. **Conclusion:** ChatGPT appeals to students because it enhances efficiency, particularly when exploring new topics, seeking immediate advice, or dealing with difficulties. However, there are potential errors in the content generated, and the convenience of ChatGPT may reduce critical thinking and problem-solving skills. The interviewees also noted that they would prefer to interact with a real person for emotional support rather than rely on ChatGPT. When using ChatGPT, users should clearly articulate their needs. To improve the accuracy of the content generated, ChatGPT should be viewed as an assistant rather than the sole source of information. Since all three interviewees were from the same department, the small sample size (fewer than 15 participants) limits the generalizability of this research. Future studies should aim to expand the sample to include college students from across Taiwan.

Keywords: Generative artificial intelligence; Artificial intelligence; ChatGPT

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Constructing a Knowledge Graph for Library Makerspace

Resource Management

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Abstract

The makerspace in a library acts as a center for innovation, learning, and collaboration, which greatly influences users' learning experiences and their ability to innovate. The resource management within a makerspace, which includes a wide range of equipment, affects not only user experience but also the effective utilization of resources. As the types of equipment diversify and usage demands fluctuate, traditional management methods face significant challenges in resource integration and efficiency. Existing management approaches often rely on various databases and manual records, making it difficult to achieve effective integration and flexible scheduling. This leads to fragmented key information, such as equipment status, maintenance records, and usage frequency, ultimately affecting resource utilization and management effectiveness. **Purpose:** This study aims to construct a knowledge graph-based resource management approach for library makerspaces to enhance management efficiency and accuracy. The research focuses on tracking resource usage status, maintenance management, and fault prediction. By integrating semantic relationships and structured information, it provides an efficient management tool to help administrators monitor equipment status in real time, optimize resource allocation, and improve the accuracy and timeliness of maintenance management. **Method:** Knowledge graphs are employed to enhance the efficiency of resource management in makerspaces, with a particular focus on tracking equipment usage, maintenance management, and fault prediction. Compared to traditional methods, such as manual record-keeping, this study emphasizes integrating equipment usage information extracted from surveillance footage with maintenance records and usage frequency into a unified knowledge graph, improving management comprehensiveness and query convenience. The knowledge graph consists of three key components: entities, relationships, and attributes. Importantly, this study focuses on three core entity types: (1) Resources – recording information such as equipment name, type, usage status, usage duration, and maintenance history. (2) Events – corresponding to changes in equipment status, including “In Use,” “Idle,” “Under Maintenance,” and “Fault,” along with timestamps and detailed descriptions. (3) Maintenance Records – covering fault occurrence times, maintenance actions, and related usage data. Additionally, the knowledge graph effectively supports equipment status queries, fault predictions, and maintenance recommendations. The study assesses the effectiveness of the knowledge graph in resource management through various query scenarios, such as filtering equipment by specific status, identifying devices that have been idle for extended periods, or detecting equipment running continuously for excessive durations. **Result:** The findings indicate that integrating and managing makerspace resource information through a knowledge graph facilitates a comprehensive representation of resource usage and enhances the convenience of querying operational status, maintenance history, and usage frequency. By leveraging the knowledge graph for conditional filtering and historical tracking, this approach can efficiently identify equipment that has been unused for long periods, has been running continuously for excessive durations, or has experienced frequent failures. This enables administrators to pinpoint resources requiring maintenance or reassessment, ultimately providing

recommendations for maintenance actions and resource allocation. This approach not only allows administrators to gain a more comprehensive understanding of resource conditions but also improves the precision of management decisions, thereby enhancing the operational efficiency of makerspaces. **Conclusion:** This study proposes a preliminary knowledge graph framework for resource management within library makerspaces. By structuring and integrating equipment usage and maintenance data, and leveraging visualization, the framework empowers administrators to gain a comprehensive understanding of resource status, thereby enhancing resource allocation and decision-making. This approach advances beyond traditional management methods by extracting visual information from surveillance footage and transforming it into structured data, enabling real-time reflection of resource usage and capturing granular details often overlooked by conventional record-keeping. Furthermore, the knowledge graph's relational analysis and visualization capabilities facilitate a more intuitive understanding of resource interactions, optimizing resource allocation and utilization. Nevertheless, opportunities for further refinement remain. These include enhancing data update mechanisms and accuracy, and improving the scalability of the knowledge graph to ensure robust performance when handling increasing data volumes and diverse user demands. These improvements are critical for ensuring robustness and achieving more effective resource management results.

Keywords: Knowledge Graph, Makerspace, Resource Management

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Analyzing the Evolution and Distribution of Smart Sports Patents

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Abstract

Smart Sports refers to the deep integration of technology and sports training, utilizing Artificial Intelligence (AI), Big Data, Internet of Things (IoT), Deep Learning, Smart Sensing, and Cloud Computing technologies to conduct real-time monitoring, data collection, and intelligent analysis of the sports process. It aims to enhance sports performance, scientific training, health management, and competitive performance (Luo, J., Gao, W., & Wang, Z. L., 2021). Its application scope includes intelligent monitoring and data analysis, artificial intelligence and machine learning, smart management and decision support, and multidisciplinary integration (Wang, T., & Park, J., 2021), highlighting the importance of related digital technologies for the development of the sports industry. The purpose of establishing patent rights is to encourage the protection of creations and promote industrial development (Wang, 2023). Patents contain rich technical information that reflects the latest technological breakthroughs and industry development trends. For various technologies generated by Smart Sports, companies wishing to produce related products must apply for patents to protect their technological innovations and ensure market competitive advantage. We can also understand the latest technological developments in Smart Sports through patents.

Purpose: This study explores the overall landscape and layout of smart sports technologies by analyzing related granted patents. Understanding market competition and potential development opportunities will provide a reference for academic research and corporate innovation, further promoting technological innovation and application in the smart sports industry. **Methods:** The smart sports patents analyzed in this study are collected from different patent offices, including the United States, China, and Taiwan. Patents related to smart sports are searched through the Global Patent Search System patent database. Keywords such as "Smart" or "Intelligent" and "Sports" or "Exercise" were used for the search. To enhance search precision, the Cooperative Patent Classification (CPC) codes A63B (equipment for physical training, gymnastics, swimming, climbing or fencing; ball games; training appliances) was applied for scope limitation. The search was divided into two primary search queries. The first query[Search Query 1:(智慧* or 智能* or Smart* or Intelligent*)@TI,AB,CL AND (運動* or 體育* or Sport* or Exercise*)@TI,AB AND (CS=A63B*) AND ID=20150101:20241231], used by the United States and China, incorporated the CPC codes . The second query[Search Query 2:(智慧* or 智能* or Smart* or Intelligent*)@TI,AB,CL AND (運動* or 體育* or Sport* or Exercise*)@TI,AB AND ID=20150101:20241231), is primarily focused on Taiwan. In this query, CPC codes are not used because Taiwan has not yet adopted them. Regarding the explanation of fields and symbols, it mainly utilizes TI for patent title, AB for abstract, and CL for claim, in order to focus on the main subject of smart sports patents. Furthermore, an asterisk (*) is added to the keywords as a truncation symbol to broaden the search for relevant data, while the ID year is primarily from 2015 to 2024. Additionally, CS refers to the meaning of the CPC classification number. **Results:** From 2015 to 2024, the patent offices of three countries have granted 1,107 patents. In terms of annual trends, smart sports patents have shown a year-on-year increase, with a significant acceleration in patent numbers after 2020. This indicates that smart sports technology is gaining increasing attention and developing rapidly. Among the three countries' patent offices, China has the highest number of granted patents, totaling 547. This number far exceeds that of the other two countries' patent offices, showing that the patent layout for smart sports technology is most active in China. Taiwan has 300

granted patents, and the United States with 260 granted patents. Although Taiwan's patent office is smaller in scale, it has a relatively large number of patents, indicating a significant layout for smart sports in Taiwan. **Conclusion:** Over the past decade, the number of patents for smart sports technology has increased yearly, with a significant acceleration in the past five years. China has been the most active in the layout of smart sports technology, while the United States and Taiwan also highly emphasize it. Smart sports technology is rapidly developing globally, laying a solid foundation for future technological innovation and application.

Keywords:

Smart Sports; patent evolution; patent analysis; competitive performance

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Recommendation of Monuments Exploration Routes Based on Hierarchical Knowledge Graph

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Abstract

Monuments, as significant cultural heritage assets, carry profound historical value. However, existing monument-related data are often fragmented and insufficiently structured, making it difficult to meet diverse query and application needs. A hierarchical knowledge graph, which organizes knowledge based on a layered structure, not only focuses on relationships between entities but also introduces conceptual hierarchies to structure raw data. This approach enables classification and reasoning based on different attribute levels, thereby enhancing knowledge relevance, retrieval accuracy, and reasoning capabilities. **Purpose:** Traditional knowledge graphs are predominantly static, while contemporary monument data encompass various data types. This static nature hinders the effective integration of heterogeneous data, leading to less comprehensive retrieval results. Moreover, monuments are not only important resources for research and education but also key attractions for tourism, but static knowledge graphs lack dynamic computational capabilities, making real-time updates and adjustments based on user's locations or needs difficult, which limits the application of monument data in various scenarios. This study aims to construct a hierarchical knowledge graph to systematically represent the relationships and attributes of monuments, and further develop it into a dynamic knowledge graph. In addition to improving information retrieval efficiency, the dynamic knowledge graph provides exploration route recommendations to meet the needs of different scenarios. Users can intuitively plan their exploration sequence through dynamic filtering mechanisms and obtain information that meets their needs, further enhancing the convenience of monument visits and promoting the digital application of cultural heritage. **Methods:** To achieve the aforementioned functionality, this study is based on the monument data from the Bureau of Cultural Heritage. A total of 1,049 raw monument records were cleaned and standardized, addressing issues such as missing values and inconsistent formatting, ensuring the integrity and consistency of the data. Each monument is then individually defined as a “node”, with its corresponding metadata incorporated as “attributes”, including the city, administrative district, detailed address, governing authority, latitude, longitude, monument category, and a brief description. Meanwhile, a function was designed to store the user's current location as a node and dynamically compute the geographical distances between nodes, thereby establishing “NEAR” relations. This overcomes the limitations of traditional static graphs and creates a more flexible recommendation mechanism. Additionally, hierarchical “relations” are established based on attribute characteristics such as city, administrative district, and monument category, enabling the knowledge graph to possess a layered structure. This strengthens the semantic connections between nodes and enhances the system's information retrieval capabilities. Finally, to optimize recommendation results, the system dynamically adjusts the relations between nodes based on conditions such as the user's current location, geographical distance, monument category, and region, better aligning with the user's needs. **Results:** A hierarchical knowledge graph was constructed using the graph database Neo4j, successfully implementing a monument exploration recommendation function that filters results based on the user's location and specified conditions. The system allows users to set query

parameters to retrieve monuments within a specific range and suggests exploration routes accordingly. Through visual design, different colors and node styles were employed to improve readability and intuitive interaction. Compared to traditional text-based search results, the knowledge graph clearly presents monument relationships, enhancing usability and enabling users to quickly grasp core information. Experimental results indicate that the system effectively provides monument queries within a specified distance and recommends suitable monuments based on criteria such as city, administrative district, and monument type. For instance, if a user wishes to search for temple-type monuments within a 5km radius, they simply need to set the conditions “Type: Temple” and “Distance: 5km”. The system then returns relevant monument nodes along with their geographic locations and historical backgrounds. Users can then click on the nodes in the visualized graph to explore detailed attribute information. Additionally, if a user plans to explore monuments in the same district, “SAME_DISTRICT” relationships are dynamically established based on location, and providing inter-node distances to assist in planning. For example, from “Taipei City Hall”, recommended sites may include “Songshan Tobacco Plant”, “National Dr. Sun Yat-sen Memorial Hall”, and “Taipei Railway Workshop” all within Xinyi District, with distances and other attributes displayed. **Conclusion:** The hierarchical knowledge graph addresses the challenges of integrating heterogeneous data and the limitations of static graphs in dynamic applications. By incorporating geographic distance computation and attribute-based filtering, it enhances monument information retrieval and enables personalized exploration route recommendations. Experimental results demonstrate improved query accuracy, readability, and interactivity through visual representation. This approach not only optimizes monument data retrieval but also supports the integration of cultural heritage into smart tourism. Future research could expand data sources and refine recommendation algorithms to improve personalized services, further broadening the applications of knowledge graphs in tourism, research, and education.

Keywords: knowledge graph; graph database; cultural heritage; data visualization

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A CASE STUDY OF THE FEATURED CURRICULUM DEVELOPMENT AT A SENIOR HIGH SCHOOL

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Abstract

Purpose: The main purpose of this study was to explore the development process of the featured curriculum of a case school, the roles and tasks of teachers in developing and practicing the curriculum in the process, and the effectiveness of the curriculum implementation. **Methods:** The study methods were based on qualitative research approach and semi-structured interviews with the sample of 13 interviewees including the principal, five teachers, five students and two parents. All of the documents and materials were analyzed and cross-compared by triangulation method. **Results:** The results showed there are five stages for “the Leader in Me” featured curriculum development in the case school including coaching right after a short-term incubation, preparing for mobilization, evolving curriculum dynamically, applying rolling adjustment methods, and then to the final stage of evaluating and revising curriculum with stability and sustainability. Teachers served as models to demonstrate the competence of “Leader in Me.” They prepared teaching materials collaboratively for the specific “Leader in Me” course as well as strategies incorporated into other curricula. In addition, they applied “Leader in Me” model to improve class management, and some even enlisted in the lighthouse team responsible for school-wide “Leader in Me” relevant decision making and execution. The effectiveness of the curriculum implementation was reflected on students' behavioral changes such as being more proactive and applying “Leader in Me” model to their study habits and personal lives. **Conclusion:** According to the research results, the following suggestions are provided for the case school. First, the school should continue to implement the “Leader in Me” featured curriculum in its effectiveness. In the meantime, it is required to have comprehensive communication among teachers and staff, so as to strengthen their commitment to making the “Leader in Me” model rooted in their career and daily life. Also, it is indispensable that the lighthouse team redefined its roles and tasks with time. As for the school administration, strategies for flexible curriculum implementation should be developed with a view to reflecting students' characteristics. Next, reward system is a great encouragement for teachers to involve “Leader in Me” model into their own discipline. The channels for comprehensive communication along with easy access to opinion exchange should be set up, too. It is suggested that the implementation of the featured curriculum should be adjusted at times. Last, but not least, model teachers, students and parents should be chosen regularly, and be praised in public. In conclusion, it is essential that teachers should continue to apply “Leader in Me” model to foster self-responsibility of students, and engage themselves in cross-fields and co-planning communities as well as the lighthouse team to become the driving force of the featured curriculum. It is hoped that teachers in each discipline can work collaboratively to build instructional scaffolding for flipped learning and teaching. Finally, it is strongly advised that students broaden their understanding to analyze and compare various tools in different ways. Meanwhile, students should constantly internalize “Leader in Me” model to make it the power for further study and employment in the future.

Keywords: Featured Curriculum, Curriculum Development, Learning Effectiveness

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A Study on the Impact of Collaborative Teaching by Local Teachers and Foreign Teachers on Intercultural Competence

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Abstract

Purpose: The collaborative teaching process between local and foreign teachers involves contexts of two cultures and languages, reflecting its connection to intercultural competence. This study examines the collaborative teaching process between local and foreign teachers and its impact on their intercultural competence.

Methods: Employing a qualitative research design, data were collected through semi-structured interviews with eight educators from the case school, including five English teachers, two bilingual teachers, and one foreign teacher. Documentation analysis was also utilized to ensure triangulation and facilitate cross-comparison, enhancing the validity of the findings.

Results and Discussion: The results reveal that the collaborative teaching process evolves through two primary phases: construction and practice. During the construction phase, the academic office plays a pivotal role in facilitating collaboration by providing introductory materials and curriculum guidance, fostering initial relationship-building between local and foreign teachers. This phase is characterized by in-depth discussions regarding the professional division of labor and curriculum planning, establishing a foundation for effective collaboration. In the practice phase, teachers collaboratively execute instructional tasks according to their designated roles and responsibilities, followed by post-lesson discussions aimed at curriculum evaluation. These interactions contribute to both student learning outcomes and the professional development of teachers. Furthermore, the teachers' prior intercultural experiences significantly influence their ability to understand and navigate cultural differences, fostering a positive environment for cultural exchange and collaboration. Throughout the process, teachers exhibit a constructive attitude, which strengthens emotional bonds and promotes consensus-building. Cultural reflection and participation in festive activities enrich their intercultural understanding, while flexibility, proactive communication, and adaptive responses enhance the effectiveness of their collaboration.

Conclusion: Based on these findings, the study recommends that school administrative units continue to serve as intermediaries to facilitate communication between local and foreign teachers. Enhancing preparatory measures and optimizing the frequency and duration of foreign teachers' participation are suggested to accelerate the adaptation process and improve collaborative outcomes. To deepen cultural exchange and foster mutual understanding, schools should cultivate an open and trust-based collaborative atmosphere and actively engage teachers in cultural activities. Additionally, integrating local cultural elements into the curriculum is recommended to strengthen cultural identity and exchange. Finally, regular post-lesson evaluations are proposed to create opportunities for dialogue and professional growth among educators.

Keywords: Local and Foreign Teachers, Collaborative Teaching, Intercultural Competence

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A Research on Curriculum Change in a Preschool

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Abstract

Purpose

Many preschools in Taiwan are facing difficulties adapting to the pressure from declining birth rates, increasing competition and policy changes. Some have faced failed reforms and even leading to school closures. One of the key factors in effectively addressing increased resistance and challenges is understanding the process and essential elements of school change, as well as recognizing shifts in teachers' attitudes. Exploring how to implement this process through action research is an effective approach. This study focuses on a private preschool in Taiwan as a case study. It aims to investigate the curriculum change process within this preschool by analyzing the stages of curriculum change, exploring the key tasks, and identifying driving forces and restraining forces at each phase. It also examines shifts in teachers' attitudes during the reform and the key strategies encountered that contributes to these changes.

Methods

The study employs a qualitative methodology. Ten participants, including administrators and teachers with diverse roles, years of experience, English proficiency levels and degrees of engagement in the reform, were purposively selected. Data were collected through 10 semi-structured interviews, 15 reflective journals, 33 meeting records, 12 school activity documents, 10 teaching materials, and 5 classroom videos. These sources were systematically coded and analyzed thematically, while the researcher's dual role as both a curriculum developer and participant observer offered deep insights into the experiences of those involved. Reliability and validity checks, as well as research ethics, were also considered. With the application of action research principles, the process involved cycles of reflection, data analysis, and adaptive planning to address continuing challenges during the change process. Although the study was conducted from 2017 to 2018, its findings remain valuable. The insights are particularly relevant, as many preschools are facing similar challenges today.

Results and Discussion

The findings present a three-phase model for curriculum change in response to external competitive pressures and internal demands for curriculum and professional development needs. During the pre-implementation phase, efforts were focused on clarifying shared goals, establishing effective communication, and forming an influential core administrative team. In the implementation phase, the school showed an atmosphere of collaborative learning and a supportive environment. In the new stabilization phase, the school worked to create a shared sense of meaning in the reform, celebrate moments of joy and achievement, and establish sustainable management systems.

Teacher attitudes underwent noticeable shifts across these phases. While many initially acknowledged the necessity of change, some felt anxious about their capabilities and displayed avoidance, denial, or passive resistance, leading to hesitancy in their participation. As the change was officially implemented, more teachers gradually accepted and embraced the changes, demonstrating a willingness to learn and improve. By the new stabilization phase, some teachers were not only actively engaged but also demonstrated a commitment to self-reflection and collaboration, particularly in co-teaching settings. This shift in teacher mindset significantly

influenced participation levels and played a crucial role in the successful stabilization of the curriculum change of the preschool.

To support these attitude shifts for more positive school change involvement, the preschool adopted various strategies at different stages. During the pre-implementation phase, the school created a sense of urgency, established a clear vision, analyzed strengths and weaknesses, adjusted plans accordingly, and ensured that the core team took the lead. In the implementation phase, the school fostered a positive atmosphere through active engagement, ongoing communication, professional development support, and teacher empowerment to build confidence. In the new stabilization phase, activities to strengthen teacher consensus and encourage continued collaboration were emphasized to ensure sustained development.

Conclusion

Based on the findings, this study presents conclusions and recommendations for future preschool curriculum change leaders, administrators involved in school change, teachers in future school changes, schools undergoing change and related research. Regarding to the change phases, the study indicates that throughout the change process, driving and restraining forces shape the progress by maintaining a balance. Driving forces, such as strong leadership and collaborative learning, and restraining forces, like resistance to change, ensures sustained momentum and long-term stability through meaningful engagement of parents, teachers, and students.

Leaders should create a sense of urgency, build shared understanding, and provide structured support for teachers. Administrators must establish a resilient core team and involve them early in planning. Teachers should actively engage in dialogues, step out of their comfort zones, and collaborate to foster a supportive learning environment. Meanwhile, schools are encouraged to recognize that change follows a process, provide tailored support for teachers, and ensure that all changes prioritize students' well-being and future success. By implementing targeted strategies at each stage, schools can foster lasting and meaningful transformation.

Keywords: curriculum change, change stages, change strategies, teachers' attitudes shift

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