Analyzing the relationship between the level of professional training received by physical education teachers and their use of modern teaching techniques in public schools

Análisis de la relación entre el nivel de formación profesional recibido por los profesores de educación física y su uso de técnicas de enseñanza modernas en las escuelas públicas

Authors

Assistant Professor. Dr Ahlam Dara Azez [1]
Assistant Professor. Dr Rabih Hazem Salman [2]
Assistant Teacher Enas Enad Ahmed [3]

[1, 2, 3] University of Al-Hamdaniya

Corresponding author:
Assistant Professor. Dr Ahlam Dara Azez
dr.ahlamdara@uohamdaniya.edu.iq

Received: 12-10-25
Accepted: 14-11-25

How to cite in APA

Azez, A. D., Salman, R. H., & Ahmed, E. E. (2026). Analyzing the relationship between the level of professional training received by physical education teachers and their use of modern teaching techniques in public schools. *Retos, 74*, 556-567. https://doi.org/10.47197/retos.v74.117858

Abstract

Introduction: Public schools are educational institutions funded and operated by the government. They form a cornerstone of the education system and aim to provide equal educational opportunities for all children and young people, regardless of their socioeconomic background, abilities, or potential.
Objective: The research aimed to identify the level of professional training received by physical education teachers in public schools.
Methodology: The researchers used the descriptive method, employing both the survey approach and the correlational approach. The research population consisted of physical education teachers in public (intermediate, preparatory, and secondary) schools affiliated with the General Directorate of Education in Nineveh Governorate, totaling 760 teachers.
Results: The results show the questionnaire on modern teaching technologies obtained an average level. That indicates that teachers possess a certain level of awareness and skill in using some of these technologies and show some interest in applying them.
Discussion: There is a strong and significant correlation between the professional training of physical education teachers and their use of modern teaching technologies.
Conclusions: The average result of the professional training questionnaire indicates a moderate level of training among physical education teachers. While they are not entirely deprived of opportunities, support, or attention toward development, they also do not receive sufficient support and opportunities for advancement.

Keywords

Modern teaching; professional training; secondary; technologies.

Resumen

Introducción: Las escuelas públicas son instituciones educativas financiadas y gestionadas por el gobierno. Constituyen un pilar fundamental del sistema educativo y tienen como objetivo brindar igualdad de oportunidades educativas a todos los niños y jóvenes, independientemente de su origen socioeconómico, capacidades o potencial.
Objetivo: Esta investigación tuvo como objetivo identificar el nivel de formación profesional de los profesores de educación física en las escuelas públicas.
Metodología: Se utilizó el método descriptivo, empleando tanto la encuesta como el análisis correlacional. La población estudiada estuvo conformada por 760 profesores de educación física de escuelas públicas (de nivel intermedio, preparatorio y secundario) adscritas a la Dirección General de Educación de la Gobernación de Nínive.
Resultados: Los resultados muestran que el cuestionario sobre tecnologías modernas de enseñanza obtuvo un nivel promedio. Esto indica que los docentes poseen cierto conocimiento y habilidad en el uso de algunas de estas tecnologías y muestran interés en su aplicación.
Discusión: Existe una correlación fuerte y significativa entre la formación profesional de los profesores de educación física y su uso de tecnologías modernas de enseñanza.
Conclusiones: El resultado promedio del cuestionario sobre formación profesional indica un nivel moderado de capacitación entre los profesores de educación física. Si bien no se les priva por completo de oportunidades, apoyo o atención para su desarrollo, tampoco reciben suficiente apoyo ni oportunidades de progreso.

Palabras clave

Enseñanza moderna; formación profesional; secundaria; tecnologías.

Introduction

Public schools are educational institutions funded and managed by governments—whether central, regional, or local. These schools represent a fundamental pillar of the educational system in any country, as they aim to provide equal opportunities for education to all children and youth regardless of their social and economic backgrounds, abilities, or potential. Public schools are characterized by being open to everyone. They are often free or offered at minimal cost, thereby ensuring the right to education for all and granting access to the knowledge and skills necessary for active participation in society. Moreover, public schools serve as a long-term societal investment by providing comprehensive and inclusive education. In addition, these schools contribute to the development of human capital, promote economic and social development, and help build more just and equitable societies. They also play a vital role in instilling democratic values and principles in students, equipping them with the skills needed for active civic participation and for contributing to a better future for all. Given their pivotal role in shaping the future of upcoming generations, public schools receive great attention from both governments and communities alike and are subject to continuous development and improvement processes to ensure the achievement of their noble objectives.

Physical education is considered an integral part of the comprehensive educational system. It goes beyond merely providing students with physical activity. It encompasses health, psychological, and social dimensions that contribute to building a well-balanced and holistic student personality. Physical education is not just about lessons; it is an opportunity to develop awareness of the importance of health and physical fitness, to instill noble sports values, and to cultivate essential life skills that students need to face life's challenges successfully. The quality and effectiveness of physical education lessons depend largely on the competence and abilities of the teachers who deliver them. The teacher, who serves as the central figure in the educational process, must be capable of transforming theoretical objectives into tangible realities. Their role is not limited to supervising exercises and activities. But it extends to designing appropriate sports programs, motivating and encouraging students to participate, creating a safe and supportive learning environment, and guiding them toward achieving their athletic and health goals. Therefore, investing in the development of physical education teachers' skills and capabilities is a genuine investment in the future of upcoming generations. A skilled teacher can inspire students, instill a love of sports within them, and equip them with the knowledge and skills necessary to adopt a healthy and active lifestyle. Moreover, such a teacher is capable of identifying and nurturing athletic talents and contributing to the building of a healthy and productive society. Hence, enhancing the professional level of physical education teachers is the key to achieving excellence in this field and ensuring that the goals of physical education—building a strong, healthy, and well-prepared generation capable of facing future challenges- are realized. Undoubtedly, this requires providing continuous opportunities for skill development, updating their knowledge, equipping them with the latest educational strategies and technologies, and encouraging innovation and creativity in designing and implementing sports activities. It also necessitates creating a supportive work environment, recognizing their efforts, and rewarding their achievements to ensure their continued dedication to giving their best to students and society. These developmental opportunities can be embodied in the form of professional training courses. Ahmad et al. (2024) state that professional training involves the process of preparing and qualifying trainees by providing them with the skills and knowledge necessary to practice a specific profession effectively and efficiently. Professional training focuses on developing the practical and technical skills individuals need to be ready to face the challenges of professional life. It is also important because it combines theoretical knowledge with practical application, ensuring that trainees acquire the necessary competencies to contribute effectively within their fields of work (Ahmad et al., 2024: 315).

Today, the world is witnessing rapid developments across various fields, and it is undoubtedly the education sector that lies at the heart of these transformations. Education is no longer limited to the mere transmission of knowledge; rather, it has become an interactive process aimed at developing students' critical thinking, creativity, and problem-solving skills and enabling them to meet the demands of the modern era. Achieving these goals requires teachers to adopt innovative teaching methods and use advanced educational tools that make the learning process more engaging and effective. In the field of physical education, this need becomes even more crucial. The aim of physical education classes is not limited to improving students' physical fitness but also includes promoting healthy values, developing life skills, and enhancing students' self-confidence. To achieve these objectives, physical education

teachers must stay up-to-date with the latest trends in teaching and possess the ability to integrate new tools and methods into their lesson plans. Instead of relying solely on traditional teaching approaches, physical education teachers can employ interactive methods that encourage active student participation and make learning more enjoyable and stimulating. They can also utilize diverse sources of knowledge and present information in creative ways that capture students' attention and curiosity. Furthermore, they can use modern assessment tools to measure student progress and provide accurate and constructive feedback. Therefore, adopting innovative teaching techniques and utilizing advanced educational tools is key to achieving excellence in physical education. It enables students to reach their full physical and mental potential, representing an investment in the future health and well-being of upcoming generations, and ensuring the development of a healthy, active, and prosperous society. Karkera et al. (2024) refer to modern teaching technologies as innovative methods that enhance the educational process by making it more interactive, engaging, and adaptable to diverse learning styles among students. These technologies make use of digital tools, active participation, and practical approaches to improve understanding and develop skills. They aim to move away from traditional teaching methods toward strategies such as case-based learning, problem-based learning, simulation-based learning, e-learning, peer-assisted learning, flipped classrooms, virtual reality, and others (Karkera et al., 2024: 78).

From this perspective, studying the relationship between the level of professional training among physical education teachers and their use of modern teaching technologies in public schools holds significant research importance, both theoretically and practically. From a theoretical standpoint, this study represents a valuable addition to scientific knowledge in the field of physical education, as it seeks to gain a deeper understanding of the factors influencing the quality and effectiveness of teaching. By analyzing the relationship between professional training and the use of modern technologies, researchers can identify existing gaps in current training programs and propose modifications that contribute to their development and improve their outcomes. Furthermore, the study can highlight the importance of continuous professional development for teachers and the necessity of equipping them with the knowledge and skills required to keep pace with the rapid advancements in teaching methodologies. It may also contribute to the development of theoretical models explaining how professional training influences the adoption of modern teaching technologies. Thus, enhancing understanding of the mechanisms behind change and improvement in teaching practices. From a practical perspective, the significance of this study lies in its potential to guide educational policies and support decision-making aimed at improving the quality of physical education in public schools. This can be achieved by determining the level of professional training required to enable teachers to effectively use modern teaching technologies. Additionally, the study provides valuable insights for educational authorities in designing targeted training programs that address the actual needs of teachers.

The necessity of this study stems from the increasing challenges facing the physical education system in public schools, which demand comprehensive and integrated development in all its aspects. In light of the rapid changes occurring in the fields of education and sports, there is a pressing need to equip physical education teachers with the knowledge and skills required to keep pace with these developments and to adopt modern teaching technologies. However, a significant gap can be observed between the desired goals and ambitions and the actual reality within the educational field. Teachers often face great difficulties in translating what they have learned in professional training programs into effective and innovative teaching practices. Through the researchers' continuous observation of the state of physical education lessons in public schools and their experience in the field of education, several challenges have been identified. These include the lack of a clear and detailed understanding of the complex and intertwined relationship between the level of professional training received by physical education teachers in public schools and their use of modern teaching technologies—a deficiency that negatively affects the quality and outcomes of the educational process.

At the institutional level, some schools lack the necessary support and guidance for teachers, as well as the resources and equipment required to apply modern technologies. At the school level, teachers often face challenges related to the classroom environment, large class sizes, limited incentives, and insufficient recognition. From a pedagogical standpoint, teachers struggle with designing and implementing lessons that incorporate modern technologies and with evaluating the impact of these technologies on student learning. Moreover, the individual characteristics of teachers themselves play an important role in this equation, as they differ in their levels of knowledge, skills, and attitudes toward change and development. Therefore, the researchers sought to define the research problem through the following

questions: Do physical education teachers in public schools receive professional training within their specialization? What is the level of that training; Do physical education teachers in public schools use modern technologies in teaching physical education? What is the level of that use; Is there a relationship between the professional training received by physical education teachers and their use of modern teaching technologies?

Based on these questions, the researchers seek to achieve these objectives: To identify the level of professional training received by physical education teachers in public schools from their personal perspective; To identify the extent to which physical education teachers in public schools use modern technologies during teaching from their personal perspective; To identify the nature of the relationship between the professional training received by physical education teachers in public schools and their use of modern teaching technologies.

The research Fields are: human field is male and female physical education teachers in public (middle, preparatory, and secondary) schools affiliated with the Directorate of Education in Nineveh for the academic year 2024–2025. The period from February 2, 2025, to May 1, 2025. The buildings of selected public schools affiliated with the Directorate of Education in Nineveh.

Professional Training:

It is the method that helps individuals develop their potential and skills through efforts to acquire new information, experiences, and abilities aimed at enhancing their professional competence, improving their financial standing, and achieving satisfaction in life and work (Al-Raisi & Al-Othman, 2022: 405).

Modern Teaching Technologies:

A diverse set of modern teaching methods, techniques, tools, and technological applications that can be used to enhance and improve the learning and teaching process (Shaheen, 2024: 50).

Method

The research method represents the detailed plan that outlines the steps of the scientific research process, starting from identifying the problem to presenting the results and recommendations. The descriptive method is one of the types of scientific research methods that relies on describing the phenomenon or problem under study as it exists in reality, intending to understand its characteristics and various dimensions without attempting to alter or influence it. Therefore, the researchers adopted the descriptive method, using two of its approaches: the survey method and the correlational method, due to their suitability for achieving the research objectives and answering its questions.

Participants

The research population represents the entire group of individuals who are the focus of the researchers' interest and to whom the results of the study are intended to be generalized. The research sample, on the other hand, is a carefully selected portion of the population that accurately represents it. The sample is used to collect data and information that help researchers understand the characteristics of the population as a whole. The sample must be representative of the population to ensure that the results obtained can be generalized to the entire population. Accordingly, the researchers identified the research population as male and female physical education teachers in public schools affiliated with the Directorate of Education in Nineveh for the academic year 2024–2025, with a total number of 760 teachers.

Table 1. Details of the research population

Level	Number of teachers
Middle	270
Preparatory	360
Secondary	130
Total	760

Afterwards, the researchers selected 256 male and female teachers from this population to form the main research sample, based on Thompson's formula for sample size calculation. This sample was then

divided into three subsamples: The pilot application sample (16, (6.25%)), which represents a small group used to test the research tools (such as questionnaires), verify the clarity of the questions, and identify any potential issues before the actual data collection begins. The preparation sample (144, (56.25%)) is used to develop and refine the questionnaires according to scientific procedures. The final application sample (96, (37.50%)), on which the prepared questionnaires are administered to obtain accurate and generalizable data, thereby enhancing the reliability of the research results. In general, this division aims to reduce errors and improve the overall quality of the study.

Measurement Tools

The researchers relied on questionnaires as the main tool for collecting the required data in this study. The purpose of using questionnaires is to obtain accurate and organized information from a large sample, which helps describe the studied phenomenon or problem comprehensively. After reviewing relevant literature and scientific sources related to the research variables, the researchers prepared two questionnaires to measure the levels of these variables among the study sample. Each questionnaire consisted of 20 items in its main structure. Table 2 presents the titles of the questionnaires and the scientific sources used in their preparation.

Table 2. Titles of the questionnaires and the scientific sources used in their preparation.

Questionnaire	Scientific Sources
Professional Training	(Zach and Sindiani, 2025), (Chinyere E. Ekanem, Jane F. Nakato, and Chidinma I. Onyeibor, 2025), (Taqa, 2025), (Nikandrova, Tusheva, and Vovnenko, 2025), (Ansari et al., 2024), (Woulfin, Jones, 2021), (Smanova et al., 2024), (Kravchenko, 2024), (Mazilov and Slepko, 2024), (Hamadat et al., 2024), (Akhter, 2023)
Modern Teaching Technologies	(Pandey, 2025), (Alam, & Forhad, 2023), (Spaska et al., 2025), (Hashim, 2024), (Karkera et al., 2024), (Shaheen, 2024), (Baidabek and Nurbekova, 2023), (Taylor, 2022), (Duishenalieva, Choiubekova, and Rakhmadildeeva, 2020), (Islamova Zilola, 2020), (Yadav, 2019)

Next, the researchers established a set of response options for the statements in both questionnaires, following the five-point Likert scale. These options and their corresponding weights are as follows (strongly agree (5), agree (4), somewhat agree (3), disagree (2), strongly disagree (1)).

After completing the initial version of both the professional training questionnaire and the modern teaching techniques questionnaire, and in order to verify their apparent validity, the researchers presented them to a group of 12 experts specializing in teaching methods. Most items in the Professional Training Questionnaire for physical education teachers received acceptable approval rates from the experts, except for a few items that showed relatively low agreement. Therefore, these items were removed, leaving the questionnaire with a refined set of items. Similarly, most items in the Modern Teaching Techniques Questionnaire achieved high levels of expert agreement, while a few items with lower agreement were excluded, resulting in the final version of the questionnaire.

Pilot and Preparation Application of the Research Questionnaires

After finalizing the preliminary versions of both the Professional Training Questionnaire and the Modern Teaching Techniques Questionnaire, the researchers administered them to a small, randomly selected subgroup from the main research sample, representing the pilot application sample, which included a number of physical education teachers. The pilot study was conducted on March 2, 2025. Implementing the questionnaires in this preliminary phase contributed to improving their quality and accuracy, as it enabled the researchers to assess the clarity of the items and identify any challenges or obstacles that might arise during the actual data collection process.

To obtain the data necessary for completing and refining both questionnaires, the researchers then applied the preliminary versions to another randomly selected subgroup from the main research sample, referred to as the preparation sample. The application process was conducted from March 9, 2025, to March 27, 2025. After collecting the responses, the researchers processed and organized the data for statistical analysis to verify that both questionnaires possessed scientific validity and reliability.

Internal Consistency of the Research Questionnaires

Internal consistency refers to the extent to which the items within a questionnaire measure the same underlying construct, reflecting how closely related the items are as a group. It is typically assessed using the Pearson correlation coefficient, which evaluates the relationship between each item and the total score of the questionnaire. According to Tavakol and Dennick (2011), higher correlations between individual item scores and the total test score indicate stronger internal consistency and, consequently, greater reliability of the instrument. The analysis revealed that all items in both questionnaires demonstrated statistically significant correlations with their respective total scores, indicating a satisfactory level of internal consistency. Therefore, all 18 items in each questionnaire were retained without modification, confirming their internal validity and reliability.

Reliability Coefficients of the Research Questionnaires

The reliability of both questionnaires was assessed using the split-half method, following the procedure described by Miller and Lovler (2020). Pearson's correlation coefficient was employed to determine the relationship between the two halves, and the Spearman–Brown prophecy formula was subsequently applied to estimate the overall reliability of each questionnaire. The results indicated a reliability coefficient of 0.945 for the Professional Training Questionnaire and 0.975 for the Modern Teaching Techniques Questionnaire, confirming a high level of internal consistency for both instruments.

Final Version of the Research Questionnaires

After confirming that both the Professional Training Questionnaire and the Modern Teaching Techniques Questionnaire possessed the necessary scientific characteristics of validity and reliability, the final form of each questionnaire consisted of 18 items. Responses to the questionnaire items were provided using a five-point Likert scale with the following options and corresponding weights: (strongly agree (5), agree (4), somewhat agree (3), disagree (2), strongly disagree (1). Then the final questionnaires were applied in the sample study from April 8, 2025, to April 21, 2025.

Determining the Levels of the Research Questionnaires

The researchers determined the levels of the questionnaire items and their overall results by calculating the class intervals between the arithmetic means of the items and the total scores. Table 3 shows the classification of these levels based on the five-point Likert scale.

Table 3. Classification of Levels According to the Five-Point Likert Scale

Range	Interval	Interpretation
1 – (1 + 0.8)	1.00 – 1.80	Very Low
1.81 – (1.81 + 0.8)	1.81 – 2.60	Low
2.61 – (2.61 + 0.8)	2.61 – 3.40	Medium
3.41 - (3.41 + 0.8)	3.41 – 4.20	High
4.21 – (4.21 + 0.8)	4.21 – 5.00	Very High

Statistical Methods

The researchers relied on the Statistical Package for the Social Sciences (SPSS) for data analysis, employing a set of statistical tools, including percentage (%), Pearson's simple correlation coefficient, Split-half reliability method, Spearman–Brown formula, Class interval (range), arithmetic mean (AM), and standard deviation (Std).

Results and Discussion

The results presented in Table 4 report the 1st objective. The findings reveal that the overall level of professional training among physical education teachers is moderate, with an arithmetic mean of 3.39. This indicates that while teachers benefit from certain professional development opportunities, these opportunities are not yet sufficient to reach a high level of professional training across the sample. Specifically, several items related to participation in workshops, conferences, and continuous learning initiatives achieved moderate scores, suggesting partial but inconsistent engagement in professional development activities.

Table 4. AM, Std and levels of the professional training questionnaire items

No.	Statement	AM	Std.	Level
1	Physical education teachers have suitable and continuous training opportunities in their field of specialization.	3.08	0.958	Moderate
2	They receive sufficient support from the school administration to encourage participation in professional training.	3.10	1.193	Moderate
3	They make an effort to watch educational videos and lectures related to physical education topics online.	3.12	1.448	Moderate
4	They feel great enthusiasm toward participating in specialized training programs that help improve their teaching methods in physical education.	3.50	0.870	High
5	They are keen to participate in professional development events organized by the school or the Directorate of Education.	2.92	1.261	Moderate
6	They believe that having access to diverse and appropriate training opportunities is a fundamental right for every teacher seeking development and excellence in their profession.	3.67	1.032	High
7	They make every effort to attend training courses to stay updated with the latest developments and innovations in physical education.	3.25	1.095	Moderate
8	They prefer to participate in training programs that focus on practical and applied aspects, offering opportunities to experiment with new teaching methods.	3.52	0.870	High
9	They believe that training courses offered by experienced physical education experts are the most beneficial and inspiring.	3.75	1.015	High
10	They prefer training programs that rely on active learning methods that encourage participation and interaction.	3.83	1.148	High
11	They believe that the level of training they have received so far is suitable for their career stage and current teaching needs.	3.58	0.958	High
12	They believe that the training programs they have attended have enhanced their understanding of the fundamental concepts of physical education and their practical applications.	3.75	0.833	High
13	They believe that professional training helps them develop skills in designing, implementing, and evaluating physical activities suitable for different age groups and abilities.	3.92	0.763	High
14	They believe that training programs contribute to improving their ability to work with students with special needs.	3.17	0.902	Moderate
15	They look forward to participating in advanced training programs focusing on developing leadership skills and the ability to guide and share experiences with colleagues.	3.33	0.749	Moderate
16	They wish to receive more training in differentiated teaching strategies that take into account individual student differences.	3.67	0.794	High
17	They participate in training courses focused on developing their skills in assessing students' physical performance using modern and reliable tools.	3.25	0.929	Moderate
18	Teachers receive specialized training on how to use social media platforms to communicate with students and parents.	2.75	1.169	Moderate
	Questionnaire (overall)	3.39	0.894	Moderate

It is evident from Table 4 that the items of the Professional Training Questionnaire ranged between high and moderate levels. The items (1, 2, 3, 5, 7, 14, 15, 17, and 18) obtained moderate levels, with mean scores between approximately 2.9 and 3.3, while the remaining items demonstrated high levels. On average, the professional training questionnaire achieved a moderate overall level, confirming variability in teachers' access to and engagement with professional development initiatives. The researchers attribute the moderate result of the Professional Training Questionnaire to several factors. Most notably, while there are some available training opportunities, they may not always be sufficient or suitable for all physical education teachers. This may reflect challenges in planning training programs, ensuring their alignment with teachers' actual needs, or providing them regularly enough to maintain continuous updates in knowledge and skills. Additionally, the support provided by school administrations, whether material, moral, or through offering time and necessary facilities to attend training courses and professional events, may exist but does not always reach a level that effectively motivates all teachers to actively participate.

This outcome aligns with several studies emphasizing that professional development among physical education teachers often remains at a moderate level due to various contextual and structural factors (Armour & Yelling, 2007). Limited access to continuous training programs, insufficient administrative support, and inadequate alignment between training content and teachers' practical needs have been identified as major constraints (Hardman et al., 2014; Casey et al., 2015). The moderate results observed in this study may also reflect challenges in maintaining a culture of continuous professional learning. Previous research has shown that many physical education teachers rely primarily on self-directed learning methods, such as attending occasional workshops or viewing online materials, rather than participating in structured or ongoing professional development programs (Tsangaridou, 2017; MacPhail,

2011). While such practices indicate some motivation toward self-improvement, they do not ensure consistent growth across the teaching workforce. Furthermore, the current findings may point to limitations in institutional support. As noted by O'Sullivan (2007), administrative encouragement, provision of time, and access to resources are key determinants of teachers' willingness and ability to engage in professional learning. When such support is only partial or inconsistent, teacher participation tends to remain moderate, as reflected in the present study. Referring to Jehanzeb & Bashir. (2013), professional training is considered a fundamental pillar of human resource management, as its importance lies in its effective contribution to developing individuals' knowledge and skills, enhancing their various capabilities, and positively influencing their attitudes and behaviors. This, in turn, leads to comprehensive and sustainable workforce development in the long term. Moreover, training plays a pivotal role in achieving multiple benefits and advantages that serve both the organization and its employees. (Jehanzeb & Bashir, 2013, p. 243). In general, these results demonstrate that physical education teachers in public schools exhibit a moderate engagement in professional training activities, confirming the first research objective. This suggests the presence of foundational training practices but also highlights the need for more systematic, needs-based, and sustained professional development programs to promote continuous improvement in teaching quality and student outcomes.

The results presented in Table 5 address 2nd objective. The findings reveal that the overall mean score for the modern teaching techniques questionnaire was 3.12, indicating a moderate level of use of modern technologies among physical education teachers. This suggests that while teachers demonstrate a certain degree of technological awareness and practical application, the integration of modern tools and methods in their teaching remains limited and inconsistent across the sample.

Table 5. AM, Std, and levels of the items in the modern teaching techniques questionnaire

No.	Item	AM	Std	Level
1	Physical education teachers possess the knowledge and skills necessary to use a variety of teaching techniques in their field.	3.33	1.032	Moderate
2	They regularly follow the latest developments in educational technologies and seek to experiment with new tools and software.	3.00	1.005	Moderate
3	They use the demonstration method to show how to correctly perform sports skills, focusing on details and providing clear models.	3.75	0.833	High
4	They use individualized teaching methods to provide additional support to students facing learning difficulties and to meet their individual needs.	3.68	0.929	High
5	They design sports activities that include elements of fun and excitement to attract students' attention and increase their enthusiasm for participation.	3.83	0.803	High
6	They use role-playing techniques to teach students how to handle different situations they may encounter in sports life.	3.38	0.763	Moderate
7	They organize group discussions to encourage students to express their opinions and ideas about issues related to physical education.	2.83	1.072	Moderate
8	They use brainstorming to generate new and creative ideas on how to improve athletic performance.	3.42	1.120	High
9	They organize field trips to local sports facilities to introduce students to the world of sports and encourage them to engage in physical activities.	2.98	1.193	Moderate
10	They work on integrating teaching techniques into the curriculum in a holistic way to make them a natural part of the learning process.	3.17	1.072	Moderate
11	They show short educational videos to explain sports concepts or demonstrate the correct and safe performance of skills.	2.67	1.253	Moderate
12	They create interactive presentations using programs such as PowerPoint to explain game rules or playing strategies.	2.90	1.448	Moderate
13	They use teaching techniques to link sports concepts to real-life situations, helping students understand the importance of physical education in daily life.	2.92	1.110	Moderate
14	They integrate digital games and interactive activities into lessons to enhance student engagement and motivation.	2.85	1.148	Moderate
15	They use digital tools to create interactive and engaging educational materials that suit their diverse teaching styles.	3.08	0.958	Moderate
16	They adapt their teaching methods to align with available technologies, offering students unique learning experiences.	3.42	0.866	High
17	They create a blog or website dedicated to physical education to share educational resources and sports advice with students and the public.	2.33	1.253	Low
18	They use digital spreadsheet programs such as Word and Excel to record student results, analyze data, and prepare detailed progress reports.	2.58	1.505	Low
	Questionnaire Average	3.12	0.998	Moderate

Table 5 shows that the items of the modern teaching techniques questionnaire ranged from high to low levels. Most items reflected moderate levels, indicating partial engagement in practices such as role-

playing, group discussions, and the use of videos and presentations to link theoretical concepts with real-life applications. Some items achieved high levels, suggesting that certain teachers effectively employ technology to enhance learning experiences. However, other items recorded low levels, particularly those related to creating and managing online platforms (e.g., blogs or educational websites) and using digital tools for assessment and data analysis. This moderate overall level suggests that physical education teachers possess a foundational understanding of modern educational technologies but lack the depth of training and institutional support necessary for consistent integration into daily teaching practice.

Similar findings were reported by Casey et al. (2015), who noted that while physical education teachers often value technology's potential, its classroom application is frequently constrained by inadequate training and limited resources. Moreover, Hardman et al. (2014) emphasized that disparities in technological infrastructure and support across schools contribute to uneven implementation of modern teaching methods. The results also align with the observation of MacPhail & Lawson (2020), who highlighted that teachers' willingness to adopt innovative methods depends largely on professional development opportunities and the perceived relevance of technology to their teaching context. In this study, although teachers demonstrated some efforts to incorporate digital tools such as interactive presentations, videos, and educational games, their use of more advanced digital strategies, such as online collaboration or data-driven evaluation systems, remains minimal. According to Shaheen (2024), the integration of modern educational technologies is essential to keep pace with rapid scientific and technological advancements, as traditional teaching methods alone are no longer sufficient to meet the learning needs of the modern era. Modern technologies enhance the teaching process through diverse multimedia elements that stimulate students' engagement, motivation, and retention of knowledge. The moderate findings in this study, therefore, indicate a transitional stage in which physical education teachers recognize the value of technology but have not yet fully embedded it into their professional practice. These results confirm that physical education teachers in public schools demonstrate a moderate level of use of modern teaching technologies. This finding underscores the need for comprehensive training programs and institutional encouragement to enhance teachers' technological competence and promote more effective, technology-based physical education instruction.

The findings in Table 6 revealed a strong and statistically significant positive correlation between professional training and the use of modern teaching technologies among physical education teachers ($r = 0.810$, $p < 0.001$). This result clearly indicates that teachers who receive higher levels of professional training are more likely to integrate modern teaching techniques and technological tools into their instructional practices.

Table 6. Correlation coefficient between professional training and modern teaching techniques

Research Variables	Correlation Coefficient (r)	Significance Level
Professional Training	Modern Teaching Techniques	0.810

This strong relationship suggests that professional training serves as a key driver in enhancing teachers' technological competence, readiness, and confidence to apply modern educational strategies. Similar findings have been reported in previous studies emphasizing that effective professional development programs substantially influence teachers' willingness and ability to adopt innovative teaching methods (Desimone & Garet, 2015; Smith & Gillespie, 2023). Such training not only updates teachers' pedagogical knowledge but also fosters the practical skills necessary to implement technology-based instruction effectively. The positive association observed in this study aligns with research by Koh et al. (2014), who highlighted that teachers' participation in professional learning activities significantly increases their technological pedagogical content knowledge, which in turn enhances their ability to use technology meaningfully in the classroom. Similarly, Villalobos et al. (2025) emphasized that the quality of professional preparation and training in physical education is a decisive factor in shaping teachers' perceptions, motivation, and professional identity. Additionally, Lolowang et al. (2025) highlighted that incorporating technology and gamification strategies in physical fitness education substantially enhances student engagement and learning outcomes. In summary, the significant correlation identifies a positive and interdependent relationship between professional training and the use of modern teaching technologies. This demonstrates that investing in the professional development of physical education teachers

is not merely beneficial but essential for promoting pedagogical innovation and advancing the quality of physical education instruction in public schools.

Conclusions

The moderate result of the professional training questionnaire for physical education teachers reflects a balanced reality of training. Teachers are not completely lacking in opportunities, support, or interest in development; however, they also do not receive sufficient support and opportunities to achieve a high and sustained level of comprehensive professional growth that aligns with modern challenges and requirements in their field.

The moderate results of the modern teaching techniques questionnaire indicate that teachers possess a reasonable level of awareness and skills in using some of these techniques and show some interest in applying them. However, their use remains in the developmental stage and has not yet reached full adoption and comprehensive integration of these technologies across all aspects of teaching consistently and proficiently.

The strong and significant correlation between professional training and the use of modern teaching techniques clearly highlights that continuous professional development plays a central and essential role in enhancing teachers' ability and willingness to effectively employ modern educational technologies in their instructional practices.

Recommendations

The researchers recommend that educational authorities work to enhance and expand professional training programs for physical education teachers—raising them from a moderate to a high and continuous level—by increasing training opportunities, providing necessary support for teacher participation, and ensuring that program content aligns with the modern challenges and demands of the field.

It is recommended to provide focused and practical training programs for physical education teachers that emphasize hands-on application and demonstrate how to comprehensively integrate modern teaching techniques within curricula and daily instructional practices. This would enable the majority of teachers to use these techniques effectively, proficiently, and sustainably.

Priority should be given to investing in continuous professional development programs for physical education teachers, particularly those aimed at equipping them with the knowledge and skills necessary to use modern teaching technologies effectively. This is essential, given the crucial role professional training plays in increasing teachers' ability and motivation to apply these technologies and enhance the quality of the educational process.

References

Ahmad, F., Tanzeela U., Muhammad A. (2024). Effectiveness of Prior Professional Training on Prospective Teachers' Performance. Indus Journal of Social Sciences, 2(2): 313–323. https://doi.org/10.59075/ijss.v2i2.213

Akhter, N. (2023). How Teachers Develop Professionally: Effectiveness of Trainings Programs on Teaching Attitude and Performance of Science Teachers. SJESR, 6(1), 76-85. https://doi.org/10.36902/sjesr-vol6-iss1-2023(76-85).

Alam, G. M., & Forhad, M. A. (2023). The impact of accessing education via smartphone technology on education disparity—A sustainable education perspective. Sustainability, 15(14), 10979. https://doi.org/10.3390/su151410979.

Al-Raisi, F. K., & Alothman, H. (2022). The impact of vocational training programs on social security beneficiaries in the society of the United Arab Emirates During the COVID-19. Al-Adab Journal, 2(141), 399-420. https://doi.org/10.31973/aj.v2i141.3657

Ansari, R., Akhtar, N., & Hafeez, A. (2024). Exploring the perceptions of secondary school teachers on teaching licenses in Sindh: A qualitative study. International Journal of Social Science & Entrepreneurship, 4(3), 126-147.

Armour, K. M., & Yelling, M. (2007). Effective professional development for physical education teachers: The role of informal, collaborative learning. Journal of teaching in physical education, 26(2), 177-200.

Baidabek, U., Gulzhaina N. (2023). Modern Techniques of Teaching a Foreign Language in High School. InterConf, 40 (183): 144–154. https://doi.org/10.51582/interconf.19-20.12.2023.013.

Casey, A., Goodyear, V. A., & Dyson, B. P. (2015). Model fidelity and students' responses to an authenticated unit of cooperative learning. Journal of Teaching in Physical Education, 34(4), 642-660.

Cisternas Villalobos, C. G., Batista, P., Merellano-Navarro, E., & Ribeiro-Silva, E. (2025). Percepciones de futuros docentes de Educación Física acerca de la formación y la profesión: un estudio en Chile y en Portugal. Retos, 68, 1823-1838. https://doi.org/10.47197/retos.v68.111307

Desimone, L. M., & Garet, M. S. (2015). Best practices in teacher's professional development in the United States.

Duishenalieva, N. A., Choiubekova N. M., Rakhmadildeeva B. K. (2020). Modern Techniques of Teaching a Foreign Language in High School. The Herald of KSUCTA named after N. Isanov, 3(3–2020): 395–399. https://doi.org/10.35803/1694-5298.2020.3.395-399

Ekanem, C. E., Jane F. N., Chidinma I. O. (2025). Strengthening Teacher Training and Professional Development in Low-Resource Settings: A Systems Reform Approach. International Journal of Management & Entrepreneurship Research, 7(5): 404–412. https://doi.org/10.51594/ijmer.v7i5.1928.

Hamadat, M. H., Mariam A. M., Manal A. M., Amjed M. A., Mohammad O. M. (2024). Training Courses and Their Role in the Professional Development of Teachers. International Journal of Religion, 5(11): 1502–1514. https://doi.org/10.61707/b2004423

Hardman, K., Murphy, C., Routen, A., & Tones, S. (2013). World-wide survey of school physical education.

Hashim, Z., & Köprülü, F. (2024). The Impact of Technology on Education and the Development of Educational Methods. Conhecimento & Diversidade, 16(42), 337-355. https://doi.org/10.18316/rcd.v16i42.11709.

Jehanzeb, K., & Bashir, N. A. (2013). Training and development program and its benefits to employee and organization: A conceptual study. European Journal of business and management, 5(2).

Karkera, S., Devendra, N., Lakhani, B., Manahan, K., & Geisler, J. (2024). A review on modern teaching and learning techniques in medical education. EIKI Journal of Effective Teaching Methods, 2(1): 63–80. https://doi.org/10.59652/jetm.v2i1.128

Koh, J. H. L., Chai, C. S., & Tay, L. Y. (2014). TPACK-in-Action: Unpacking the contextual influences of teachers' construction of technological pedagogical content knowledge (TPACK). Computers & education, 78, 20-29.

Kravchenko, K. (2024). Specific Features of the System of Professional Training of Future Foreign Language Teachers in Germany. Social Work and Education, 11(2): 281–291. https://doi.org/10.25128/2520-6230.24.2.9.

MacPhail, A. (2011). Professional learning as a physical education teacher educator. Physical education & sport pedagogy, 16(4), 435-451.

MacPhail, A., & Lawson, H. (2020). School Physical Education and Teacher Education. Oxon: Routledge.

Mariana Lolowang, D. ., Ihsan, F., Piri, N. ., Emor Kumenap, E., & Alfrets Makadada, F. . (2025). Innovative teaching methods in physical fitness education: integrating technology and gamification to improve student engagement-a systematic review. Retos, 68, 1148-1163. https://doi.org/10.47197/retos.v68.116064

Mazilov, V. A., Yuriy N. S. (2024). Psychological Analysis of Competencies in the Structure of Teacher Professional Training. Integration of Education, 28(4): 514–532. https://doi.org/10.15507/1991-9468.117.028.202404.514-532\

Miller, L. A., Robert L. L. (2020). Foundations of Psychological Testing: A Practical Approach. (6th Ed.). SAGE Publications, Inc., USA.

Nikandrova, T., Elena T., Ksenia B. V. (2025). Modular Design of Professional Training Programs for Special Education Teachers: Criteria-Based Approach. Bulletin of Kemerovo State University. Series: Humanities and Social Sciences, 9(1): 11–22. https://doi.org/10.21603/2542-1840-2025-9-1-11-22

O'Sullivan, M. (2008). Creating and sustaining communities of practice among physical education professionals. eJRIEPS. Ejournal de la recherche sur l'intervention en éducation physique et sport, (15).

Pandey, S. R. (2025). Cultivating Learner-Centered Techniques in Classrooms for Quality Learning and Teaching. Journal of Innovation in Teaching and Instructional Media, 5(3): 1104–1120.

Shaheen F., A. (2024). The Use of Modern Technologies and Ways to Activate Them to Improve the Performance of Public Schools in the State of Palestine in Light of Modern Trends. Journal of Educational and Psychological Sciences, 8(1), 47-59.

Shaheen, A. (2024). The Internet of Things (IoT): A Comprehensive Review of Technologies, Applications, Challenges, and Future Trends. Journal of Engineering and Computational Intelligence Review, 2(1), 1-8.

Smanova, A., K. Sarybekova, E. Aitenova, Zh. S. (2024). The Importance of Professional Training of Future Teachers on the Basis of Dual Training (Experience of Germany and Kazakhstan). Scientific Article, 4(149): 50–59.

Smith, C., & Gillespie, M. (2023). Research on professional development and teacher change: Implications for adult basic education. In Review of Adult Learning and Literacy, Volume 7 (pp. 205-244). Routledge.

Spaska, A., Halyna K., Gulaim A., Vladyslav K., Yuliya K., (2025). Evaluation of Innovative Teaching Methods Using Modern Information Technologies. Jurnal Ilmiah Ilmu Terapan Universitas Jambi, 9(1): 422–440. https://doi.org/10.22437/jiituj.v9i1.38107

Taqa, A. (2025). Teacher Training and Professional Development. In Research Journal Article, 190–200.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, 2, 53. https://doi.org/10.5116/ijme.4dfb.8dfd

Taylor, R. (2022). Modern Teaching Methods in Education in the Modern Era. International Journal of Education Research and Review, 10(2).

Tsangaridou, N. (2017). Early childhood teachers' views about teaching physical education: Challenges and recommendations. Physical Education and Sport Pedagogy, 22(3), 283-300.

Woulfin, S. L., & Jones, B. (2021). Special development: The nature, content, and structure of special education teachers' professional learning opportunities. Teaching and Teacher Education, 100, 103277. https://doi.org/10.1016/j.tate.2021.103277

Yadav, C. D. (2019). Emerging Modern Teaching Techniques in Education. International Research Journal of Management, Sociology & Humanity (IRJMSH), 10(10): 346–350.

Zach, S., Mahmood, S. (2025). Pre-Service Teachers' Evaluations of Their Cooperating Teachers' Contribution to Their Professional Training: Questionnaire Development. Frontiers in Education, 10 (April): 1–7. https://doi.org/10.3389/feduc.2025.1507154.

Zilola, I., & Makhsuda, S. (2020). Modern teaching techniques in education. International Journal of Engineering Science and Computing, 10(4), 25440-25446.

Authors and translators' details:

Ahlam Dara Azez	dr.ahlamdara@uohamdaniya.edu.iq	Autor/a
Rabih Hazem Salman	Rabeslman03@uohamdaniya.edu.iq	Autor/a
Enas Enad Ahmed	enas.enad@uohamdaniya.edu.iq	Autor/a