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TRAINING NEEDS FOR PHYSICAL EDUCATION TEACHERS IN JORDAN IN LIGHT OF THE REQUIREMENTS OF THE KNOWLEDGE ECONOMY FROM THE POINT OF VIEW OF TEACHERS THEMSELVES

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Abstract:
The study aimed to identify the training needs of physical education teachers in light of the requirements of the knowledge economy, from the perspective of physical education teachers in Jordan. The study used a descriptive approach, and a training needs questionnaire was used as a study tool. The questionnaire consisted of (23) items. The study sample consisted of (231) male and female teachers. The study results showed that the training needs of physical education teachers in light of the requirements of the knowledge economy, from the perspective of physical education teachers in Jordan, were (moderate), with an arithmetic mean of (2.98) and a standard deviation of (0.59). The study also found no statistically significant differences in training needs attributable to the variables of gender and number of years of experience.
Keywords: Training needs, physical education teachers, knowledge economy.

Introduction:

The contemporary world is undergoing rapid advancements and transformations across various domains of human existence, including the realm of knowledge and scientific pursuits, the digital landscape, and the sphere of information and communication technologies. These developments have precipitated a paradigm shift towards what is often termed the "knowledge economy," a term denoting the preeminence of knowledge-based economic activities. The education sector has received a considerable portion of the development and change that has transpired, and it has undergone a transformation to become an educational process capable of keeping pace with these changes in all their elements. In this regard, the teacher represents one of the most significant pillars of this educational process and holds the reins of implementation in order to advance the educational process and keep pace with these modern developments and this great progress. The nature of his role has undergone a transformation, giving rise to novel responsibilities that demand an elevation in his level of performance, efficiency, and skillset. To achieve this, he has embarked on a journey of training and self-development, research, and openness to novel concepts. This endeavor is aimed at enhancing his capabilities, ensuring optimal performance, and attaining the objectives of his new roles with both efficiency and efficacy (Sulaiman, 2009; Ahn & Lim, 2025; Al-Momani, 2022).

The preparation of teachers prior to their service, as well as the ongoing training they receive during their tenure, constitute the two pillars of professional growth and scientific advancement. This process aims to enhance teachers' efficiency and provide them with the scientific, educational, and professional skills and culture required by the nature of their work, thereby increasing their productive efficiency. There are compelling justifications for the teacher's professional growth, including the rapid expansion of knowledge and the resulting need for ongoing development, the evolution of the education concept, and the emergence of global concepts such as the knowledge economy, globalization, and quality. The ease of information flow,

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facilitated by the proliferation of communication channels, compels teachers to remain current with scientific and technical developments. Consequently, the teacher's professional growth is a fundamental condition for his success in carrying out the renewed and advanced tasks in his work. The continuous educational training of the teacher is the appropriate means for this growth and maintaining its continuity (Al-Ahmad, 2016; Al-Ta'ani, 2002; Aliwa, 2001).

In-service training is an integral component of the educational process, focusing on the pivotal role of the teacher as the primary catalyst for achieving educational goals and objectives. The significance of the teacher's role in fostering social and economic progress is paramount. Consequently, it necessitates an educator who maintains currency with contemporary developments and utilizes all available resources, whether through personal professional development or specialized training programs (Al-Sakarna, 2011; Al-Ammarin, 2014; Magallanes et al., 2024; Rababah, 2017).

Training constitutes a pivotal component of human resource development, enhancing job-related skills and thereby improving work performance. In the contemporary era, the significance of in-service training has increased considerably, as it has become an urgent necessity in light of the rapid development occurring in all fields and professions, particularly the teaching profession. In order to maintain a competitive advantage, it is imperative to keep pace with the accelerating development of these technologies (Hizam et al., 2021; Pot et al., 2019; Gawrisch et al., 2020).

The teacher is the cornerstone of any educational system. Without a trained teacher, no educational system can achieve its goals. With the changing times and the world entering the era of the knowledge economy, globalization, communications, and technology, the need to train and prepare teachers to be professional, knowledge producers, and constantly develop their abilities, skills, and competencies has increased (Shearer et al., 2018; Johnston, 2007; Al-Azzawi & Al-Hashemi, 2007).

In-service training is a critical component of a teacher's professional development. The necessity of ongoing preparation for the profession is dictated by the perpetual evolution of its requirements. In-service training constitutes the foundation for ensuring the continuous development of workers, thereby guaranteeing that their tasks, responsibilities, and duties remain compatible with developments in their respective fields. It also provides new knowledge, adds diverse information and skills, and influences trends, modifying ideas and changing behavior. This is the key to success for the individual and the institution (Akkaya, 2021; Pot et al., 2018; Robinson et al., 2018).

The knowledge economy is defined as an economic system centered on the acquisition, dissemination, utilization, application, and innovation of knowledge. The primary objective of this economic model is to enhance the quality of life across all dimensions through the utilization of information services and advanced technological applications. It employs the human mind as a source of financial value and utilizes scientific research to instigate strategic modifications in the nature of the economic environment and its structure. The purpose of these modifications is to render the economic system more responsive and in alignment with the challenges posed by globalization, information and communications technology, the universality of knowledge, and sustainable development in its comprehensive, integrated concept (Al-Hashemi & Al-Azzawi, 2009; Al-Momani, 2016).

In accordance with the knowledge economy, teacher preparation and training entails the acquisition, dissemination, utilization, application, and innovation of knowledge. This process is undertaken with the objective of enhancing the quality of life in all its dimensions. It is facilitated by a comprehensive information service and state-of-the-art technological applications. These services and applications leverage human capital, scientific research, and advanced methodologies to effect transformative changes in the nature of the economic environment and its structure. The purpose of these changes is to enhance the environment's responsiveness and align it with the demands of globalization and information technology (Al-Ta'ani, 2007; Najm, 2005; Al-Tawisi, 2014; David, 2010).

The transition to a knowledge-based economy, as evidenced by the development of teacher training programs and the cultivation of human capital, has become imperative to maintain congruence with the prevailing age of knowledge, information, and communications. The relationship between teachers and the knowledge economy is highlighted by equipping teachers with higher-order thinking skills that enable them to understand, analyze, and infer information, reorganize it, and develop it into competitive and marketable knowledge. Teachers'

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awareness of the nature of the current era, as well as their understanding of the profound implications of rapid changes and present and future challenges resulting from the global trend toward a knowledge-based economy, facilitates the determination of the nature and type of teacher training needs. Teachers, in essence, serve as the primary agents for ensuring the desired positive change in any educational development process. This enables them to address shortcomings in training programs, thereby enhancing the quality of teacher performance, enabling them to fulfill their roles, and improving the quality of educational outcomes. The impact of these improvements is bound to be positively reflected on students and society (Al-Sheikh, 2002; Al-Tweissi, 2014; Al-Ghonmeein et al., 2024; Atabek, 2019).

Study problem and questions:

The process of reforming and developing the education system in Jordan has undergone various stages since its inception, owing to successive developments and changes in this sector and other fields. The emphasis was placed on the imperative of providing qualified human cadres with technical and educational experience, wherein the teacher assumes a pivotal, influential, and supportive role through continuous training and development. The objective is to effect a transformation in his behavior in the domains of information, experiences, skills, and attitudes, thereby enhancing his performance and elevating his competencies to align with the demands of the knowledge economy (Al-Ghonmeein & Al-Sa'aida, 2023; Hegarty, 2015; Nascimbeni & Burgos, 2016).

A considerable body of research (Mishra & Koehler, 2006; UNESCO, 2015; Brinkley, 2006; Dimmock & Goh, 2011; Jawarneh et al., 2025; Gaowgzeh et al., 2021), has been dedicated to the identification of teachers' training needs and the development of training programs that align with the demands of the knowledge economy. These studies underscored the imperative for training teachers to cultivate students' attitudes toward scientific openness and a passion for research and exploration. Additionally, emphasis was placed on the necessity of incorporating professional development components to address the future requirements of educators. This necessitates the implementation of training programs for physical education teachers in-service, tailored to their respective professional disciplines and cognitive needs. Furthermore, the necessity of following up with them after the completion of any training course or program was underscored to ensure the degree of their application of the knowledge and skills they have acquired. Accordingly, the present study endeavored to ascertain the training needs of physical education teachers in light of the requirements of the knowledge economy in Jordan from the perspective of the teachers themselves. This inquiry sought to address the following questions:

Question 1: What is the level of training needs for physical education teachers in Jordan in light of the requirements of the knowledge economy, from their own perspective?

Question 2: Are there statistically significant differences at the significance level (α=0.05) in the level of training needs required by physical education teachers in Jordan, in light of the requirements of the knowledge economy, from their own perspective, attributed to the variable of gender (male, female)?

Question 3: Are there statistically significant differences at the significance level (α=0.05) in the level of training needs required by physical education teachers in Jordan, in light of the requirements of the knowledge economy, from their own perspective, attributed to the variable of number of years of practical experience (less than 10 years, more than 10 years)?

Study objectives:

The objective of the study was to ascertain the training needs of physical education teachers in Jordan in the context of the knowledge economy, as perceived by the teachers themselves. Additionally, the study sought to identify any disparities in the perceived training needs based on gender (male, female) and years of practical experience (less than 10 years, more than 10 years).

Importance of the Study

First: Theoretical Importance:

The significance of the present study derives from the importance of its subject matter, which pertains to the identification of training requirements for educators during their tenure, particularly in the context of developments pertaining to the demands of the knowledge economy. Moreover, the subject of the study aligns with the interests of the Jordanian Ministry of Education, the authorities responsible for the educational process, and Jordanian universities, both public and private, in enhancing teachers' performance and cultivating their skills and professional competencies, as shaped by contemporary global shifts. The findings of the study may also assist those responsible for training and preparing teachers in designing programs that contribute to defining and enabling physical education teachers to carry out their

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roles appropriate to the era of the knowledge economy. Moreover, the dissemination of this theoretical framework and the inclusion of related studies will serve to enrich local, Arab, and international libraries.

Second: Practical importance:
The study's results are expected to benefit educational decision-makers and educational officials in the Jordanian Ministry of Education, its training and educational supervision directorates, and public schools in Jordan. It is also expected to benefit those interested in developing the educational process and preparing teachers in colleges of physical education.

Study Limits:
The study was limited to the following limits:
1- Human Limits: Male and female physical education teachers in public schools in Jordan.
2- Spatial Limits: The study was conducted in public schools in the education directorates of Irbid First and Second Districts, Ajloun Governorate, and Jerash Governorate.
3- Temporal Limits: The study was conducted during the second semester of the 2024/2025 academic year.

Study terms and their operational definitions:

1- Training needs:
Al-Taani (2007) defines it as the information, skills, attitudes, and technical and behavioral abilities that are intended to be created, changed, modified, or developed in the trainee to keep pace with contemporary changes or developmental aspects. It is operationally defined as the set of knowledge, skills, attitudes, and activities that a physical education teacher needs to address the shortcomings and deficiencies that hinder them from performing their emerging roles. This was measured through a questionnaire on the training needs based on the knowledge economy for physical education teachers in Jordan.

2- **Knowledge Economy:**
Najm (2005) defines it as an economy that creates wealth through knowledge processes and its various services, which include (creation, improvement, sharing, education, application, and use of knowledge in all its forms) in various sectors, relying on human capital. It is operationally defined as all the activities, creative processes, and intellectual capabilities an individual possesses and employs to produce, disseminate, and utilize knowledge.

3- **Physical Education Teachers:** These are teachers who hold a degree in physical education from specialized physical education colleges at Jordanian universities or abroad, and who teach physical education in schools.

Field Method and Procedures:

1- Study Methodology
The descriptive approach was used to identify the training needs of physical education teachers in Jordan in light of the requirements of the knowledge economy, as this approach is the most appropriate for achieving the study's objectives.

2- Study population
The study population consisted of all physical education teachers in public schools under the Jordanian Ministry of Education for the second semester of the 2024-2025 academic year.

3- study sample:
The study sample consisted of (231) male and female physical education teachers in government schools in the Irbid First District Education Directorates, Irbid Second District Education Directorates, Ajloun Governorate Education Directorates, and Jerash Governorate Education Directorates. These teachers were selected using a simple random method. The following table, No. (1), shows the distribution of the study sample according to its variables:

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Table (1) Distribution of study sample members according to their variables

variable	Categories	number	percentage
Sex	male	127	55%
	female	104	45%
the total		**231**	**100%**
number Years of experience	more than5 years	98	42%
	below5 years	133	58%
the total		**231**	**100%**

Study tool:

In order to achieve the study's objectives, the study instrument was developed in the form of a questionnaire. This instrument was developed by referring to the theoretical framework and previous studies related to the subject of the current study. These previous studies include the following: the study by (Akhu Arsheeda, 2013); the study by (Al-Sawafi, 2015); the study by (Sulaiman, 2009; the study by (Ahn & Lim, 2025); the study by (Al-Momani, 2022); the study by (Al-Ta'ani, 2002); the study by (Aliwa, 2001); the study by (Al-Ahmad, 2016); the study by (Magallanes et al., 2024); the study by (Gawrisch et al., 2020); the study by (Johnston, 2007); the study by (Akkaya, 2021); the study by (Atabek, 2019); the study by (Gaowgzeh et al., 2021); the study by (Hizam et al., 2021); The initial version of the questionnaire comprised 29 paragraphs, the purpose of which was to assess the training needs of physical education teachers in Jordan in the context of the requirements of the knowledge economy.

Validity of the study instrument:

In order to verify the validity of the study tool, the following types of validity were considered:

First: Apparent honesty:

The questionnaire was presented in its initial form to a group of ten expert and experienced faculty members in the field of curricula, teaching, and physical education at the University of Jordan, Al-Balqa Applied University, and Yarmouk University. These faculty members were asked to express their opinion on the accuracy of the wording of the paragraphs and their linguistic integrity. The extent to which the paragraphs belong to the nature of the study, the extent to which they achieve the study's objectives, the extent to which the paragraphs are related, their sequence and logical progression, and the exclusion of paragraphs that are not appropriate to the study's objectives and the making of any amendment deemed appropriate, whether by addition, modification, merger, or deletion, are to be considered. The observations proposed by the arbitrators were duly considered, with the retention of paragraphs that garnered an approval rate of at least 80%. Consequently, the questionnaire was finalized with a total of twenty-three paragraphs, designed to assess the training requirements for physical education teachers in Jordan in the context of the knowledge economy.

Second: Internal consistency validity:

To verify the internal consistency of the questionnaire, it was administered to a pilot sample of 25 male and female physical education teachers from the same study community but outside its sample. The Pearson correlation coefficient was subsequently calculated between the questionnaire items and the total score, as illustrated in the following table (2).

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Table (2) Pearson correlation coefficient between the questionnaire items and the total score of the scale

Paragraph	Correlation coefficient	Paragraph	Correlation coefficient	Paragraph	Correlation coefficient
1	0.58	9	0.52	17	0.67
2	0.59	10	0.62	18	0.52
3	0.63	11	0.67	19	0.55
4	0.61	12	0.51	20	0.60
5	0.66	13	0.63	21	0.67
6	0.58	14	0.52	22	0.57
7	0.52	15	0.59	23	0.66
8	0.67	16	0.63		

As illustrated in Table (2), the Pearson's correlation coefficients for each paragraph of the questionnaire and the total score ranged from 0.51 to 0.67. These values are deemed acceptable, thereby validating the questionnaire and affirming its applicability to the study sample.

Stability of the study tool:

To verify the reliability of the questionnaire, it was administered to a survey sample consisting of 25 male and female physical education teachers from the same study community but from outside the study sample. The reliability coefficient was calculated using Cronbach's alpha coefficient for all paragraphs of the questionnaire, and for the questionnaire as a whole, where the reliability coefficient for the questionnaire as a whole reached (0.88), which are statistically acceptable values, indicating the questionnaire's applicability to the study sample.

Statistical processing:

The study employed the Statistical Analysis Program for Social Research (SPSS 21) to execute the requisite statistical processing, which is outlined as follows:

• Arithmetic means, standard deviations, and ranks were used to determine the degree of response of the study sample members to the questionnaire items.
• Two-sample t-test was used to determine the significance of differences in the variables of gender and teacher practical experience.
• Pearson's correlation coefficient was used to verify the validity of the questionnaire.
• Cronbach's alpha coefficient was used to verify the reliability of the questionnaire.

The responses of the study sample members were distributed to the questionnaire items according to a five-point Likert scale, where five levels were identified as alternatives with specific points as follows: very high (five points), high (four points), medium (three points), low (two points), very low (one point).

To determine the rank of each item on the scale, the following equation was used:

Category length = upper limit - lower limit = 5 - 1
Number of levels: 3

A standard has been established to evaluate the extent of training needs required for physical education teachers in Jordan, considering the demands of the knowledge economy. The subsequent table No. (3) provides a visual representation of this standard.

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Table (3) Statistical standard for interpreting averages and their estimates

degree	arithmetic mean
low	1.00-2.32
Medium	2.33-3.66
High	5:00-3.67

Study results and discussion:

Results related to the first question, which states: **"What is the level of training needs for physical education teachers in Jordan in light of the requirements of the knowledge economy from their own point of view?"**

In order to respond to the aforementioned inquiry, the arithmetic means and standard deviations were computed for the items of the scale of the level of training needs required by physical education teachers in Jordan in light of the requirements of the knowledge economy from their own point of view. The subsequent table, designated as Table No. 4, provides further elucidation on this matter.

Table (4): Arithmetic means and standard deviations of the items of the training needs scale for physical education teachers in Jordan in light of the requirements of the knowledge economy from their point of view, arranged in descending order according to their arithmetic means:

Rank	Paragraphs	arithmetic mean	deviation Standard	Level
1	Employing communication skills in the teaching and learning process	4.29	0.67	High
2	Mastering basic computer skills in the educational process	4.02	0.55	High
3	Leveraging the knowledge economy in developing curricula	3.88	0.58	High
4	Planning the use of learning resources to enhance student learning	3.71	0.61	High
5	Access to educational resources that support the achievement of general educational goals	3.60	0.63	Medium
6	Utilizing the knowledge economy system to identify physical education skills	3.52	0.67	Medium
7	Employing the knowledge economy to develop students' problem-solving skills	3.44	0.58	Medium

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8	Motivating students to build knowledge independently	3.38	0.63	Medium
9	Directing students towards research and exploration	3.21	0.51	Medium
10	Taking into account individual differences and abilities of students	3.11	0.52	Medium
11	Involving students in assessing their learning according to knowledge economy standards	3.04	0.61	Medium
12	Providing clear and appropriate feedback to students	2.91	0.57	Medium
13	Developing problem-solving and decision-making skills	2.83	0.74	Medium
14	Preparing study plans based on students' needs	2.75	0.62	Medium
15	Developing verbal and nonverbal communication skills with others	2.64	0.66	Medium
16	Benefiting from the knowledge economy to develop my cognitive abilities	2.53	0.58	Medium
17	Preparing educational research related to the specialization	2.41	0.52	Medium
18	Employing teamwork skills	2.38	0.50	Medium
19	Benefiting from educational courses and scientific journals to develop my professional capabilities	2.32	0.55	low
20	Mastering time management skills and techniques	2.28	0.61	low
21	Practice continuous self-assessment	2.16	0.59	low
22	Familiarity with ways to develop intellectual capital	2.15	0.57	low
23	Using electronic search engines to obtain information	2.08	0.52	low

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The overall score for the level of training needs for physical education teachers in Jordan in light of the requirements of the knowledge economy.	**2.98**	**0.59**	**Medium**

A review of Table No. 4 reveals that the level of training needs required for physical education teachers in Jordan, as perceived by the teachers themselves, was classified as medium on a scale that ranged from low to high. The arithmetic mean of the responses was 2.92, with a standard deviation of 0.59. The responses were divided into three categories: high (4 paragraphs), average (14 paragraphs), and low (5 paragraphs). The paragraph that states "employing communication skills in the teaching and learning process" received the highest mean score of (4.29) and the lowest standard deviation of (0.67). In second place was the paragraph that states "familiarity with the basic skills in using the computer in the educational process," which received an arithmetic mean of (4.02) and a standard deviation of (0.55). The paragraph that states "familiarity with the methods of developing intellectual capital" was ranked second to last, with an arithmetic mean of (2.15) and a standard deviation of (0.57). The final category was designated for the paragraph that states "On 'using electronic search engines to obtain information,'" with an arithmetic mean of 2.08 and a standard deviation of 0.52.

This outcome can be ascribed to the finding that physical education teachers in Jordan exhibit a satisfactory degree of professional and cognitive competencies, yet this degree falls short of the benchmarks necessary to effectively address the demands of the knowledge economy. A review of the literature revealed that aspects related to communication and interaction were identified as the top training priorities, indicating an awareness of the pivotal role of the human dimension in the educational process. This dimension was recognized as the foundational element in establishing effective relationships with students and cultivating a positive learning environment. The results also revealed a marked interest in fundamental technical skills related to computer use, reflecting their growing awareness of the importance of technology and its role in supporting education. Conversely, a conspicuous deficiency was identified in domains pertaining to digital research and intellectual capital development, signifying an absence of investment in contemporary instruments for knowledge acquisition and its strategic implementation to benefit the educational process. Consequently, it can be posited that physical education teachers tend to prioritize the humanistic and traditional dimensions of their profession, while concurrently necessitating specialized training programs that augment their capacity to remain at the forefront of technological and cognitive advancements. These programs are designed to equip educators with the requisite competencies to effectively engage in an educational milieu characterized by knowledge and innovation.

Results related to the second question of the study, which states: **Are there statistically significant differences at the significance level (α=0.05) in the level of training needs required by physical education teachers in Jordan in light of the requirements of the knowledge economy from their own point of view, which are attributed to the gender variable (males, females)?**

In order to respond to the aforementioned inquiry, arithmetic means and standard deviations were computed. Subsequently, the t-test was employed to ascertain the collective professional requirements of physical education teachers. The following table, number 5, illustrates this point:

Table (5): Arithmetic means, standard deviations, and (**t-test**) To measure the professional needs of physical education teachers as a whole, which are attributed to the gender variable (males, females)

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field	Sex	arithmetic mean	deviation Standard	Value T	level significance
Training needs for physical education teachers in Jordan in light of the requirements of the knowledge economy	male	3.75	0.69	1.368	0.184
	female	3.68	0.66		

As illustrated in Table (5), there is an absence of statistically significant differences in the level of training needs of physical education teachers in Jordan, in light of the requirements of the knowledge economy, from their own perspectives. This phenomenon can be attributed to the gender variable (male, female). This suggests that both males and females articulated their training requirements to a comparable extent, considering the demands of the knowledge economy. This phenomenon can be attributed to the inherent characteristics of the field of physical education, which involves tasks and responsibilities that are uniform for all educators, irrespective of their gender. This uniformity in duties is due to the fact that all educators in this field are subject to the same professional conditions and are confronted with analogous educational and technological challenges. Moreover, the requirements of the knowledge economy are inherently linked to cognitive and technical competencies more than they are linked to individual differences between the sexes. This results in a similar level of awareness of training needs between male and female teachers. Moreover, the absence of observed differences may be indicative of a shared awareness among both parties of the significance of self-development and maintaining pace with the technological and cognitive shifts imposed by the prevailing stage. This common awareness is likely to foster a mutual recognition of the imperative for continuous training and professional development. The findings indicate that gender differences do not play a substantial role in determining the level of training needs, suggesting that training programs can be designed and implemented in a uniform manner without the necessity of discriminating between males and females.

Results related to the third question of the study, which states: **Are there statistically significant differences at the significance level (α=0.05) in the level of training needs necessary for physical education teachers in Jordan in light of the requirements of the knowledge economy from their own point of view, which are attributed to the variable of the number of years of practical experience (less than 10 years, more than 10 years)?**

In order to answer this question, the arithmetic means and standard deviations were calculated, and the t-test was used to measure the professional needs of physical education teachers as a whole. The following table, number 6, illustrates this point:

Table (6): Arithmetic means, standard deviations, and test(**t-test**) To measure the professional needs of physical education teachers as a whole, which is attributed to the variable of the number of years of practical experience (less than 10 years, more than 10 years)

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field	Number of years of experience	arithmetic mean	deviation Standard	Value T	level significance
Training needs for physical education teachers in Jordan in light of the requirements of the knowledge economy	less than 10 years	4.05	0.52	1.118	0.285
	More than 10 years	3.96	0.63		

As demonstrated in Table 6, a lack of statistically significant differences is evident in the level of training needs required by physical education teachers in Jordan, when viewed in the context of the requirements of the knowledge economy, as perceived by the teachers themselves. This discrepancy is attributed to the variable of years of practical experience (less than 10 years, more than 10 years). This finding suggests that educators with varying degrees of experience, including those with less tenure, articulate comparable training requirements in the context of the knowledge economy. This phenomenon can be attributed to the accelerated advancements in the domains of knowledge and technology, which have engendered novel challenges for all educators, irrespective of their prior experience. These challenges necessitate incessant refinement of skills, thereby diminishing the correlation between temporal experience and the magnitude of training requirements. Moreover, the knowledge economy is predicated on contemporary competencies such as technological proficiency, digital research methodologies, and the cultivation of intellectual capital. In the contemporary landscape, conventional expertise alone is inadequate in addressing these challenges, necessitating ongoing training to maintain currency with evolving developments. Furthermore, the professional environment of physical education teachers is characterized by a unification of systems, programs, and tasks, thereby ensuring that all teachers encounter analogous needs irrespective of their years in the profession. Therefore, it can be concluded that the findings of this study demonstrate that training requirements in the context of the knowledge economy are comprehensive and pertain to all teachers. Both papers underscore the significance of formulating cohesive training programs that prioritize the needs of the stage over the disparities in years of experience.

Recommendations and suggestions:

In light of the study's findings, the following recommendations are put forth:

1. The necessity to cultivate bespoke training curricula for physical education instructors that emphasize the cultivation of technical and cognitive competencies pertinent to the knowledge economy, particularly in the domains of digital research and intellectual capital development, is paramount.

2. It is imperative to fortify ongoing training programs for physical education teachers. This will ensure that these professionals remain at the forefront of modern technological and cognitive developments. It is essential to move away from a reliance on traditional practical experience and towards a more contemporary approach.

3. The integration of competencies pertaining to educational technology and e-research into fundamental training curricula is imperative to empower educators to leverage digital knowledge resources in an optimal manner.

4. The objective of this initiative is to cultivate a heightened level of awareness among physical education teachers concerning the significance of intellectual capital and its role in facilitating the development of the educational process and attaining institutional excellence.

5. It is imperative that training plans for teachers be unified to ensure inclusivity across all groups, irrespective of gender or years of experience. This

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necessity arises from the findings that demonstrated a convergence of needs.

6. Conducting future studies focused on evaluating the impact of training programs for physical education teachers in light of the knowledge economy.

7. The expansion of the research scope to encompass teachers from various academic disciplines is imperative for conducting a comparative analysis and identifying the distinguishing characteristics that differentiate between different educational fields.

8. A comprehensive analysis should encompass the examination of ancillary factors that may exert an influence on the extent of training requirements. Such factors may include, but are not limited to, the educator's academic background, the prevailing conditions within the academic environment, and the extant technical capabilities.

9. It is hereby proposed that partnerships be established between the ministries of education and academic institutions with the objective of developing innovative training content with a focus on digital literacy and effective communication skills.

10. Teachers should be encouraged to adopt self-directed initiatives for continuous learning through open electronic courses and online learning resources, enhancing their independence in developing their skills.

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