

Original article. The degree of acquisition of professors for some teaching competencies according to the requirements of the knowledge economy in institutes of physical education and sports . Vol. 11, n.º 1; p. 1-19, Enero 2025.

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The degree of acquisition of professors for some teaching competencies according to the requirements of the knowledge economy in institutes of physical education and sports

El grado de adquisición de los profesores de algunas competencias docentes según las exigencias de la economía del conocimiento en los institutos de educación física y deportes en Argelia

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Abstract

Our research entitled "The degree of acquisition of teaching skills by professors of institutes of physical education and sport according to the requirements of the knowledge economy" aims to assess the level of teaching skills of professors in these institutes from the perspective of the knowledge economy. It also aims to determine whether there are differences in these competencies between the institutes. **Methods:** We used a questionnaire we developed consisting of five axes, each representing a set of teaching competencies that a research professor should possess according to the requirements of the knowledge economy. The questionnaire was distributed using the descriptive method to a random sample of 150 respondents, representing 25% of the statistical population. **Results:** The main results of the study showed that the level of teaching skills of professors at the institutes of physical education and sports was average ($m=170.1 \pm sd=17.45$) according to the requirements of knowledge economy (59.87%). We also concluded that teaching competencies varied according to the institute to which the professors belonged ($f=4.133 \neq sig .000$). The researchers recommend improving professors' professional development by opening up broad avenues for sharing experiences, engaging in communities that value knowledge as capital, relying on e-learning and choosing teaching methods that give students access to the knowledge society and the knowledge economy.

Keywords: Teaching competencies, knowledge economy, physical education and sports teachers.

Resumen

Nuestra investigación titulada "El grado de adquisición de habilidades docentes por parte de los profesores de los institutos de educación física y deporte según los requisitos de la economía del conocimiento" tiene como objetivo evaluar el nivel de habilidades docentes de los profesores en estos institutos desde la perspectiva de la economía del conocimiento. También pretende determinar si existen diferencias en estas competencias entre los institutos. Utilizamos un cuestionario que desarrollamos, compuesto por cinco ejes, cada uno de los cuales representa un conjunto de competencias docentes que un profesor investigador debe poseer según los requisitos de la economía del conocimiento. El cuestionario fue distribuido utilizando el método descriptivo a una muestra aleatoria de 150 encuestados, que representa el 25% de la población estadística. **Resultados:** Los principales resultados del estudio mostraron que el nivel de habilidades docentes de los profesores en los institutos de educación física y deporte fue promedio ($m=170.1 \pm sd=17.45$) según los requisitos de la economía del conocimiento (59.87%). También concluimos que las competencias docentes varían según el instituto al que pertenecen los profesores ($f=4.133 \neq sig .000$). Los investigadores recomiendan mejorar el desarrollo profesional de los profesores abriendo amplias vías para compartir experiencias, participando en comunidades que valoran el conocimiento como capital, confiando en el aprendizaje electrónico y eligiendo métodos de enseñanza que brinden a los estudiantes acceso a la sociedad del conocimiento y la economía del conocimiento.

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Palabras clave: Competencias docentes, economía del conocimiento, profesores de educación física y deporte.

Introduction

Positive engagement in the new era starts with educational institutions, right from their inception. It aims to align education with future challenges, develop higher education and provide inclusive knowledge for the life of the individual (Olssen & Peters, 2005). Particular emphasis is placed on the experiences available to the individual and on educational situations that promote thinking and innovation. This requires a change in the type of education adopted and the roles of students, (Powell & Snellman, 2004) supervisors, athletic department administrators, and their overall responsibilities. In addition, it is essential to focus on the continuous development and renewal of knowledge and to raise its level in order to integrate it into the knowledge economy era (Şahin & Kurban, 2016).

(Peters, 2007) Therefore, education is considered as the most important element that should be prioritised in adapting to the demands of the age and knowledge society. All the requirements of the knowledge economy should be integrated into all components of the educational process, from the general educational objectives to the assessment of academic performance (Sahney et al., 2008). These requirements represent the standards and characteristics that should be present in each component of the educational process and its constituent parts (Peters, 2007).

One of the most important components of the educational elements is the professor. This professor must have a set of teaching skills and professional qualities that primarily enable him or her to teach effectively (Kozlovskiy et al., 2022). In addition, they must have the qualities, knowledge and skills required for the profession at a university in the age of the knowledge economy. This new change affects all sectors and institutions of society, especially those that form the backbone of the economy and have a direct impact on society, namely the university (Najibi & Alamalhoda, 2023).

Since knowledge is a product of the human mind and mental processes are characterised by capacity, diversity and infinity (Michael A. Peters, 2024.), this knowledge remains in a continuous state of development and accumulation. As such, it provides the economy with an advantage that is not present in other traditional economies (Powell & Snellman, 2004).

Since higher education is an effective factor that prepares individuals to face changes in life and keep up with developments in various fields, the continuity of universities in their unity and structure is essential in any economy (Karthek R & John

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Volk,2019.),regardless of whether it is a traditional or knowledge-based economy. Considering that professors and their professional and didactic skills are among the most important active elements of university life due to their impact on students and their knowledge(Guruz, 2011), the academic material they provide and the type of education they impart to their students and the field of study in general. Considering that the dynamics of society and its constant developments require the university to adapt to modern updates in order to be considered a community-oriented university and fulfil its noble mission of positively impacting society(Guerriero & Révai, 2017), the following questions arise:

Questions

- What is the level of teaching competencies of professors in institutes of physical education and sports compared to the requirements of the knowledge economy?
- Is there a difference between institutes of physical education and sports in terms of the degree of acquisition in line with the requirements of the knowledge economy?

Research Methodology and Procedures

Methodology:The nature of our research requires us to follow a specific methodology that allows us to study the phenomenon and achieve its objectives. Therefore, it was most appropriate to follow the descriptive method.

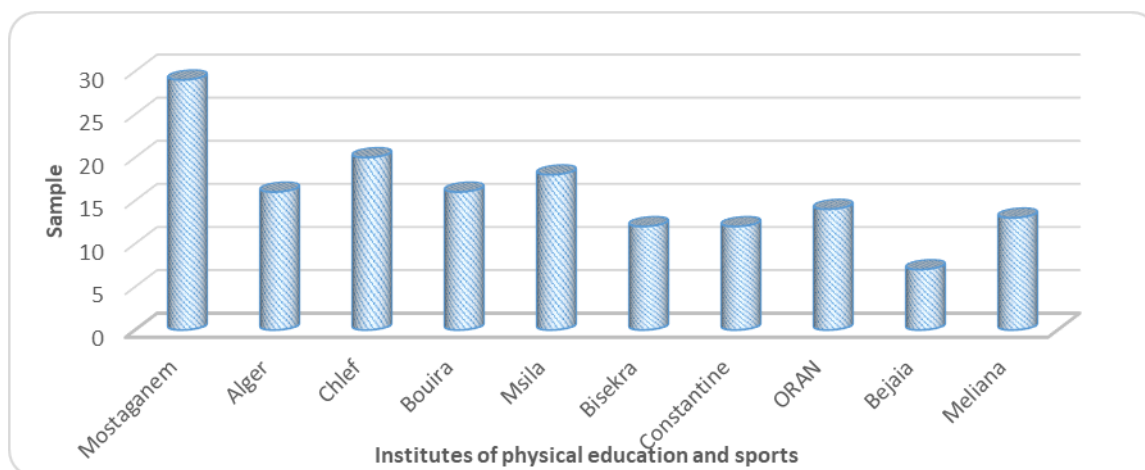
Research sample: The study sample in our research consists of permanent university faculty members in institutes of physical education and sports in Algeria. It is a random sample of 150 respondents, representing 25% of the statistical population. Including (University Professor, Assistant Professor A, Assistant Professor B), as indicated in the following tables:

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Figure 1

the distribution of the university faculty sample



Research tools

Questionnaire:

We developed a questionnaire specifically for the faculty members to identify the determinants of Knowledge economy and diagnose their presence in the teaching competencies of the faculty. Since we have a vision regarding the relationship between Knowledge economy and education in general, and higher education in particular, the questionnaire represents the requirements of Knowledge economy in the educational or training aspect. In other words, it represents the teaching competencies of the faculty according to the requirements of Knowledge economy. The axes and phrases were derived from the requirements of Knowledge economy, and in another formulation, they represent what these competencies should be according to the perspective of Knowledge economy.

The questionnaire contains five axes

- Professor's professional development
- Teaching styles and methods
- The learner in the knowledge society
- Educational programs and curriculum
- E-learning and the knowledge society

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Questionnaire Correction Scale:

The correction method involves assigning three points for the response labeled as "always," two points for the response labeled as "often," and one point for the response labeled as "rarely." This scale applies to positive statements. However, for negative statements, the process is reversed.

Table 1

shows the scale of correcting the questionnaire

Statement Phrase	Always	Often	Rarely
Positive	03	02	01
Negative	01	02	03

Psychometric Properties of the Questionnaire:

- *Validity Coefficients:*

- *Presentation of Internal Consistency Results of the Questionnaire:*

Table 2 . Present Internal Consistency Results of the Questionnaire:

Statement N	Professor's professional development	Teaching styles and methods	The learner in the knowledge society	Educational programs and curriculum	E-learning and knowledge society
01	(0.2)	(0.28)	0.58	0.72	0.53
02	0.56	0.77	0.56	0.49	0.49
03	0.68	0.765	0.64	(0.40)	0.75
04	0.65	0.57	0.69	0.54	0.63
05	0.65	0.54	0.45	0.61	0.59
06	0.45	(0.38)	0.78	0.74	(0.36)
07	0.68	(0.40)	0.55	0.57	0.75
08	0.69	0.68	(0.36)	0.64	0.66
09	0.50	0.47	0.67	0.70	0.70
10	0.76	(0.10)	0.73	0.70	0.84
11	0.59	0.70	0.55	0.72	0.80
12	0.73	0.64	0.74	0.80	0.82
13	0.90	0.65	0.64	0.66	0.64
14	0.84	0.47	(0.13)	0.68	0.88
15	//	0.57	//	0.63	//
16	//	0.68	//	0.53	//
17	//	0.51	//	0.73	//
18	//	0.50	//	//	//

between the brackets means that the value shown in the table is not statistically significant at (.005).

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The above table shows that sentence no. (01) from the axis of the teacher's professional development, and for each of the sentences no. (01-06-07 and 10) from the axis of teaching methods and procedures, and sentences no. (08 and 14) from the axis of learners and knowledge society, and sentence no. (03) from the axis of Educational programs and curriculum, and sentence no. (06) from the axis of e-learning and knowledge society, were not all statistically significant compared to (t) tabulated (0.444), at the significance level 0.05, and the number of sample (21), Therefore, these statements are excluded from the questionnaire.

- Questionnaire's statements after accounting for internal consistency:

Table 3. *number of questionnaire statements after calculating internal consistency*

Statement	Professor's professional development	Teaching styles and methods	The learner in the knowledge society	Educational programs and curriculum	E-learning and knowledge society	Total
N	12	14	12	17	12	67

Reliability Statistics of Questionnaire:

- Cronbach's Alpha

Table. 4

the value of Cronbach's Alpha

Reliability Statistics	
Cronbach's Alpha	N of Items
,787	6

The reliability statistics table provides information about the consistency or reliability of the measurement scale used in the study. A Cronbach's Alpha coefficient of 0.787 indicates that the items included in the measurement scale have a moderate level of internal consistency.

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- Split-Half Coefficient

Table 5

the value of Cronbach's Alpha

Reliability Statistics			
Cronbach's Alpha	Part 1	Value	,608
		N of Items	3 ^a
	Part 2	Value	,760
		N of Items	3 ^b
	Total N of Items		6
Correlation Between Forms			,810
Spearman-Brown Coefficient	Equal Length		,895
	Unequal Length		,895
Guttman Split-Half Coefficient			,800

A. The items are: Compare the results of the questionnaire, Professor's professional development, Teaching styles and methods.

B. The items are: The learner in the knowledge society, educational programs and curriculum, E-learning and knowledge society.

The table provided presents the Split-Half Coefficient, which is a measure of reliability or internal consistency for a set of items. The value of 0.800 represents the Guttman Split-Half Coefficient calculated for the set of items being assessed. This coefficient indicates the extent to which the items within the scale or measure are internally consistent when split into two halves

Results

- Results of the level of teaching competencies:

Table 6

illustrates the level of teaching competencies.

Level	Poor	Below Average	Average	Above Average	Good	Total
Frequency	12	28	94	18	5	157
Percentage	7.64%	17.83%	59.87%	11.64%	3.18%	100%

We observe that the level of professors in certain teaching competencies associated with the requirements of the knowledge economy was average. The highest frequency of responses in the questionnaire was in the "average" category, with a frequency of 94, representing a percentage of 59.87%. This was followed by the "below

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average" level with a frequency of 28, accounting for 17.83%. The "above average" level had a percentage of 11.64%, while the "poor" level accounted for 7.64%. Finally, the "good" level had the lowest percentage at 3.18%.

- Results of ANOVA between institutes of physical education and sports to answer the sample:

Table 7

the value of ANOVA one way among the institutes for the sample's response to the questionnaire and the axes of the questionnaire

Comparison between instutius and dpartement		Sum of Squares	df	Mean Square	F	Sig.
Compare the results of the questionnaire	<i>Inter-groupes</i>	9588,070	9	1065,341	<u>4,133</u>	,000
	<i>Intra-groupes</i>	37636,289	146	257,783		
	<i>Total</i>	47224,359	155			
Professor's professional development	<i>Inter-groupes</i>	950,890	9	105,654	<u>7,406</u>	,000
	<i>Intra-groupes</i>	2082,776	146	14,266		
	<i>Total</i>	3033,667	155			
Teaching styles and methods	<i>Inter-groupes</i>	2667,823	9	296,425	<u>19,991</u>	,000
	<i>Intra-groupes</i>	2164,869	146	14,828		
	<i>Total</i>	4832,692	155			
The learner in the knowledge society	<i>Inter-groupes</i>	917,371	9	101,930	<u>7,837</u>	,000
	<i>Intra-groupes</i>	1898,802	146	13,005		
	<i>Total</i>	2816,173	155			
Educational programs and curriculum	<i>Inter-groupes</i>	2984,524	9	331,614	<u>7,545</u>	,000
	<i>Intra-groupes</i>	6416,726	146	43,950		
	<i>Total</i>	9401,250	155			
E-learning and knowledge society	<i>Inter-groupes</i>	1483,722	9	164,858	<u>5,989</u>	,000
	<i>Intra-groupes</i>	4018,586	146	27,525		
	<i>Total</i>	5502,308	155			

Table number (07) shows us the value of (F) for the analysis of variance test between institutes and departments in the questionnaire and questionnaire axes. For the questionnaire directed to the professors the calculated value of (F) was (4.133) In the professional development axis, the calculated value of (F) was (7.406). In the teaching methods axis from the questionnaire directed to the professors, the calculated value of (F) was (0.99191). In the learner axis in the knowledge society, the calculated value of (F) was (7.837). In the premises and study programs axis according to the requirements

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of the knowledge economy, it was statistically significant because the calculated values of (F) reached (7.545). As for the e-learning and knowledge society axis according to the requirements of the knowledge economy, it was also statistically significant because the calculated values of (F) reached (5.989).

Discussion

Based on the questions presented in the study and the results obtained, which indicate a discrepancy between the institutions in terms of the level of acquisition of certain teaching competencies by physical education and sport teachers according to the perspective and requirements of the knowledge society, and given that the level of teachers is considered average compared to these requirements, it can be said that the determinants and variables presented in the survey represent the competencies that teachers should have in order to have a significant impact in the age of the knowledge society.

It is true that the scope of the study does not allow us to investigate and identify all the variables related to the knowledge economy and the age of the knowledge society, nor can we measure all the teaching competencies associated with this new change. However, we can discuss the competencies identified in the study, which were defined on the basis of the steps taken in the creation of the questionnaire:

-Professional Development Axis for Teachers

The results of the professional development level for teachers do not differ from the results of the other axes related to the questionnaire for administrative teachers. Table 06 show that the level of professional development for teachers according to the requirements of the knowledge economy does not exceed the average.

This result indicates that the professional development of the teaching staff does not meet the requirements of the knowledge economy and falls short in several aspects. One reason is the difficulty in continuously and regularly obtaining internships, in addition to the classic obstacles faced by university professors such as the difficulty of publication, social difficulties, and the digital divide between our communities and

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knowledge-based societies. There is also a lack of training and familiarity with the requirements of the knowledge economy and the roles assigned to them as a teaching staff in the knowledge and knowledge-based economy. This result is illustrated and confirmed by (Hamadi & Al-Khaleel, 2023; Şahin & Kurban, 2016; Snježana Močinić et al., n.d.; Wasfi, 2014)" in his paper presented at the Ninth Arab Conference on Higher Education held in Syria under the title "The Student and the Faculty Member from the Perspective of the Knowledge Society." It is a result that contradicts what a higher education professor should be in a knowledge society, as the same researcher identifies a set of professional characteristics that should be present in them, such as being an experienced administrator and a researcher who serves the community,(Snježana Močinić et al., n.d.) as well as being an evaluator of student performance and an expert in teaching methods and modern educational resources, a guide and facilitator in cooperative learning and critical thinking (Guruz, 2011)

2- Teaching Methods and Approaches

The phrases in this axis represent the implementation of lessons, program application, curriculum delivery, and knowledge transmission to students. This axis is not an exception, as its level does not exceed the average. This result can be interpreted in different ways. For example, the large number of students does not greatly facilitate the implementation of modern teaching methods and approaches such as brainstorming, problem-solving,(Guerriero & Révai, 2017) discovery, and group work. Additionally, it does not allow for significant consideration of individual differences and understanding the cognitive, psychological, and social characteristics of each student for effective guidance, counseling, and follow-up, as emphasized by (Council et al., 2002) Ibrahim in his book "Studies in Contemporary Educational Curriculum" (2000, pages 75-99). Furthermore, there is a significant lack of using e-learning, which has a positive impact on educational content, learners, and teachers, as confirmed by the study of "Abdullah Al-Khattabi" and "Awad Al-Mamari" titled "The Importance of Using E-Learning in Higher Education Institutions in the Sultanate of Oman from the Perspective of Faculty Members in the Knowledge Economy" (2006, page 25). Some professors still rely on

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traditional teaching methods and have justifications for doing so.(Alharthi et al., 2021; Alkaaf & Al-Issa, 2021; Almasrite & Dow, 2023; Asún et al., 2020; OECD, 2017)

3- The Learner in the Knowledge Society

The phrases in this axis represent the characteristics that should be present in a learner in the knowledge society, as well as how university professors in physical education institutes and departments perceive students in these institutions. The results in Table 07 indicate that the level of students remains below average compared to these characteristics and requirements. In his study (Palacios Picos et al., 2019) "The Student and the Faculty Member from the Perspective of the Knowledge Society," Ali Al-Sheikhibi identified psychological, cognitive, and mental characteristics that should be present in a student of the knowledge society, such as optimal use of modern technological tools in education, critical and free thinking, creative thinking, communication skills, specialization and general knowledge,(Alkaaf & Al-Issa, 2021) ambition, active participation in society, responsibility, and research skills. These characteristics are not fully possessed by students in physical education institutes and departments in Algeria as a whole. This leads us to discuss the characteristics of students entering physical education institutes and whether their characteristics tend towards practicing this profession and having the ability to excel and innovate in it.(Asún et al., 2020) The ability of institutes to meet the needs of students,(Almasrite & Dow, 2023) especially considering that some institutes have large numbers of students and a shortage of pedagogical and administrative supervision, all represent obstacles to raising the level of learning and acquisition, as confirmed by Ahmed Mahmoud Al-Zanfali in his book "Strategic Planning for Higher Education" (2012, page 725).(Al Musawi & Abdelraheem, 2004)

4-: Educational programs and curriculum

The phrases in this axis represent the translation of the requirements of the knowledge economy that should be present in the programs and study curricula adopted in education and training. It should be noted that the specialization or field of study in

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our institutes and departments is not considered an important criterion for determining the requirements of the knowledge economy (Alharthi et al., 2021; Council et al., 2002; Hamadi & Al-Khaleel, 2023). The requirements of the knowledge economy are the background on which these curricula are built, and the foundation from which they derive their characteristics and features in any specialization or field. Programs and study curricula that do not develop critical and creative thinking skills, provide continuous and lifelong learning skills, (Şahin & Kurban, 2016; Sywelem & Makhoulf, 2023; Tierney & Lanford, 2018; Trudeau & Shephard, 2008) reflect the needs of society in general and the specific academic discipline, and foster high-level thinking skills, innovation, and creativity are not needed in the era of the knowledge society and the knowledge economy. (Trudeau & Shephard, 2008)

This is confirmed by several studies and books that have contributed to the establishment of the knowledge economy, such as the study by Mohammed Najib Abdulwahid and Asif Diab titled "The Basic Elements of the Knowledge Society" (Abdulwahid, Diab, 2006, page 169), and the study by Abdulwahid Abdul Sattar (2006, page 285) titled "Innovation in the Knowledge Society." Additionally, the study by Abdullah Youssef Al-Khashab and Khaled Hassani Al-Ishb titled "The Content of Higher Education to Keep Pace with the Knowledge (Djamel & Djamel, 2020; Hamadi & Al-Khaleel, 2023; Najibi & Alamalhoda, 2023; Wasfi, 2014) Society" (2006, page 391), and the book "Perspectives of Good Education in the Knowledge Society" by Salah Al-Din Arfa Mahmoud (2005, page 77), and the book "Strategic Planning for Higher Education" by the author Ahmed Mahmoud Al-Zanfali (2012, page 761). However, the results of the questionnaire for professors in this axis, as shown in Table 43, indicate that the programs and study curricula adopted in physical education institutes and departments do not align with the requirements of the knowledge economy (Almasrite & Dow, 2023). If we describe the level at which they are concentrated, we find that it does not exceed the average level shown in Table 06.

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5- E-Learning and the Knowledge Society

This is a crucial aspect that constitutes one of the fundamental pillars of education in the knowledge society and the knowledge economy due to its importance in equipping students with electronic skills for information retrieval and ensuring the continuity of continuous education, knowledge updating, (Council et al., 2002) and renewal. This is particularly significant considering that knowledge in the knowledge society is largely encoded and relies on the internet and modern communication methods for its transmission and dissemination. It also plays a role in enriching technical and applied knowledge and helps in saving time in the educational learning process, as highlighted by the American Association of Collegiate Registrars and Admissions Officers in 1997 and the study conducted by Abdullah Al-Khattabi and Awadh Al-Maamari titled 'The Importance of Using E-Learning in Higher Education Institutions in the Sultanate of Oman from the Perspective of Faculty Members in the Knowledge Economy' (2006).(Alkaaf & Al-Issa, 2021)

However, the reality of E-learning in physical education and sports institutes and departments reflects otherwise, especially considering that the utilization of this technology is still at a moderate level, as shown in Table (06). It is important to note that e-learning technology does not merely involve the use of computers and projectors but goes beyond that to encompass electronic simulation, the use of visual lessons, wireless communication, wireless lectures, and other modern technologies." (Buckner, 2011; Kartheek R & John Volk, n.d.; Révai, 2018; Şahin & Kurban, 2016; Tierney & Lanford, 2018)

Conclusion:

It is evident that there are several challenges facing the teaching faculty of physical education and sports institutes and departments in achieving the aspirations of the knowledge economy and knowledge society.(Council et al., 2002) Improving the level of teaching competencies for the faculty is necessary to enhance the quality of education provided in these institutions. Efforts should be directed towards developing

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training programs and enhancing the capabilities of faculty members to meet the requirements of the knowledge economy.(Trudeau & Shephard, 2008)

Furthermore, there is a need to promote the use of modern educational methods and technology, including modern means of communication,(Bailey et al., 2009) in the learning and training process. The use and implementation of e-learning should be emphasized as a fundamental element in education to achieve advanced and innovative learning experiences.(Djamel & Djamel, 2020)

It is also essential to reassess the goals of the training programs and ensure their coherence with the requirements of the knowledge economy and knowledge society. These goals should be based on the future needs of the workforce and the requirements of the job market.(Stroebel et al., 2017)

Additionally, professional development for faculty members should be enhanced, providing opportunities for continuous and renewed training to keep them informed of the latest concepts and methods in the knowledge economy and the knowledge society (Snježana Močinić et al., n.d.).

Moreover, the use and harnessing of modern means of communication should be promoted in the education and training process. These means should be readily available and properly equipped to enable students and faculty members to fully benefit from the educational potentials provided by modern technologies.(Karthek R & John Volk, n.d.)

Furthermore, teaching methods and approaches should be enhanced to meet the needs of the knowledge economy and knowledge society. Curricula should be adapted, and innovative educational programs should be designed to align with the requirements of the modern era, enhance student interaction, and develop their mental and physical capabilities and skills. By implementing these recommendations, the quality of education and training in physical education and sports institutes and departments can be enhanced, keeping up with the latest developments in the field.(Peters, 2007)

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