

Romanian Physical Education Teachers' Perception of Formative Feedback on Their Professional Competencies

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Abstract: *The main purpose was to identify the formative perception of disciplines studied within the bachelor programs in Physical Education and Sports (PES) on the professional competence provided in the qualification sheets of the National Register of Qualifications in Higher Education (NRQHE) for the occupational qualification of Physical Education Teacher in primary and secondary education levels. Ranking the disciplines outlined in the Romanian Agency for Quality Assurance in Higher Education standards for the program in PES based on their impact on professional competencies (PC). 412 teachers: 284 junior teachers group (JTG) and 128 permanent teachers group (PTG). Online was filled out the Questionnaire (QAFISPES) for assessing the ranking of the disciplines provided in the Romanian Agency for Quality Assurance in Higher Education standards on PC in PES, structured on 3 subscales corresponding to the typology of the disciplines: fundamental, PE field, and specialized. For the Fundamental Disciplines subscale, the highest score per rank was recorded by PES Theory and Methodology at 6.66 points; Basic Gymnastics had 5.75 points. For the subscale PE field disciplines, the greatest impact for PC in PES: the Theory and Practice of Athletics 11.25 points, the Theory and Practice of Gymnastics 11.08 points. For the subscale Specialized Disciplines, the most relevant contributions were made by the Methodology of Teaching Athletics in Schools 12.16 points, and the Methodology of Teaching Gymnastics in Schools 11.83 points. Establishing a hierarchy of disciplines based on their formative significance facilitates the optimal allocation of instructional hours within the bachelor's program's Physical Education and Sports (PES) curriculum.*

Keywords: *professional competence; junior teachers; permanent teaching; fundamental disciplines; PE field disciplines; specialized disciplines.*

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Introduction

The development of the teaching career requires the extension of the fund of professional competencies and specific knowledge to optimize the human, social, and, especially, teaching actional potentialities at the current standards of the educational environment (Baumgartner, 2022; Kovalenko et al., 2021; Tul et al., 2019; Souza Neto et al., 2017). The current trends in professional training at the academic level focus on developing and extending specialized professional competencies for teaching careers (Jones-Jofré et al., 2022; Ruiz-Montero et al., 2022). A major concern of the educational system is improving the quality of the teaching act. The teaching activity is directly influenced by the professionalism of the teaching staff and by the national and international level of visibility and recognition of the scientific activity of active teachers. Teachers should permanently focus on continuous and upward professional training and development, which must be directed toward deepening and expanding professional competencies (Ferry, 2018; Molina García et al., 2024a; Molina-García et al., 2024b).

Through its content, specificity, and complexity, the discipline of Physical Education and Sports presents a series of particularities regarding the methods of transferring theoretical knowledge in developing motor skills, which requires the efficient involvement of specialized teachers (Maksimović et al., 2023; Heck et al., 2021). The teaching of Physical Education and Sports is influenced by the level of pedagogical competence and theoretical knowledge of teachers (Salcines Talledo et al., 2024; Nasrulloh et al., 2022). The role of Physical Education and Sports within the context of integrated and unified quality education is clear, focusing on maximizing human potential in response to the demands of modern society and the professionalization of the teaching career (Ivanii, 2014; Feuerman, 2014).

Experts believe that professionalizing the teaching career establishes the foundation for developing a training and lifelong learning system within an integrated European context (Kougioumtzis et al., 2011; Kårhus, 2010). The evolution and dynamics of career and professional development rely on the expansion of specialized skills that facilitate the transition from theory to practice in real educational contexts (Gordon et al., 2015; O'Sullivan, 2018). Research has shown that the professionalization of the teaching career involves a complex and dynamic process through which teachers become aware of their professional roles and responsibilities and maintain a continuous focus on their professional development to meet current educational challenges and requirements (O'Sullivan, 2018; Pozo, 2018; Tatto, 2021).

The efficiency of an educational process depends on the competence level of teachers. This process of developing specialized pedagogical competence (PC) must start from the initial professional training stage, including bachelor's and master's studies, and continue into the early years of teaching (Jones-Jofré et al., 2023; Nasrulloh et al., 2022). Junior teachers need guidance and mentorship from experienced educators, as the future effectiveness of their teaching depends significantly on the quality of this mentoring process (Baumgartner, 2022; Griban et al., 2022; Goodwin, 2021).

Current professional teaching standards emphasize professionalizing the teaching career, deepening and expanding knowledge, and continuously developing the pedagogical competencies specific to Physical Education and Sports teachers (Lohmann et al., 2023; Lohmann et al., 2021; Goodwin, 2021; Abdelkafi et al., 2020). The professional training of teachers is a major educational goal for education systems. Its development and implementation involve several aspects that require optimization, such as increasing the duration of specialized practice during university studies, enhancing the qualifications of mentor teachers, and implementing a permanent and efficient mentoring process aligned with current educational standards and the professional development requirements of teachers (Nasário et al., 2020; Cañadas et al., 2020; Demir, 2015).

Professional competencies (PC) are developed through the disciplines included in the curriculum of the bachelor's program in Physical Education and Sports. These curricula must comply with the standards set by the Romanian Agency for Quality Assurance in Higher Education (RAQAHE) for the respective specialized field (RAQAHE, 2023; Solà Santesmasés, 2021). The National Register of Qualifications in Higher Education (NRQHE) outlines six specific professional competencies (PC) for Physical Education and Sports (PES) (NRQHE, 2024). The design of educational plans requires a direct correlation between these six competencies and the disciplines accredited by RAQAHE.

The program coordinator determines each discipline's course hours, seminars, and practical work allocation. Our study is the first to explore PES teachers' formative perceptions regarding the correlation between professional competencies and the significance of subjects in undergraduate university curricula. The weight distribution among these disciplines should be informed by their formative impact on professional competencies. The effectiveness of the Physical Education and Sports (PES) discipline is influenced by multiple factors, including specific infrastructure and logistics, geographical location, teachers' professional experience, the limited duration of study, and the level of professional training attained after completing

undergraduate studies. Each aspect plays a crucial role in enhancing the efficiency of physical education activities and shaping teachers' perceptions of the PES discipline. This study contributes to the existing body of research by addressing a critical knowledge gap regarding how PES teachers evaluate the competencies acquired across various academic disciplines during their studies.

An examination of the curricula within the Romanian academic system reveals notable disparities in the distribution of course hours, seminars, and practical lessons across various programs. Enhancing the awareness of both novice and experienced teachers regarding their roles and responsibilities is essential for improving the overall effectiveness of the teaching process. Furthermore, identifying the disciplines that exert the most significant formative impact on developing teachers' professional competence profiles will serve as a foundation for optimizing the pedagogical framework in Physical Education and Sports (Duclos Bastías et al., 2023; Kida, 2019; Baghurst, 2015).

Establishing this hierarchy will, we believe, lead to a more balanced and fair allocation of time and content for disciplines in bachelor's programs based on their formative impact on developing professional competencies specific to Physical Education and Sports.

The goals of this study are:

- O1. Identifying the formative perception of the disciplines studied within the bachelor programs in Physical Education and Sports (PES) on the PC provided in the qualification sheets of the National Register of Qualifications in Higher Education (NRQHE) for the occupational qualification of Physical Education Teacher in primary and secondary education levels;
- O2. Ranking the disciplines outlined in the RAQAHE standards for the specialization program in Physical Education and Sports based on their formative perception on professional competencies, to develop a comprehensive profile of professional competence in Physical Education and Sports.

Study hypotheses:

- H01. The disciplines provided in the RAQAHE standards and implicitly in the curricula of the bachelor study programs of Physical Education and Sports contribute differentially to the training of specific PC (PC1-6) provided in the NRQHE qualification sheets in primary and secondary education;

- H02. By evaluating the formative impact of the disciplines included in the curricula for bachelor's study programs and, implicitly, in the RAQAHE standards, we aim to establish an accurate hierarchy of the disciplines based on their importance and typology.

Materials and Methods

Study design

In our cross-sectional research design, a questionnaire was applied. It analyzed a Questionnaire for assessing the formative perception (QAFISPES) of the junior teachers and permanent teachers provided in RAQAHE standards on professional competencies according to NRQHE qualification sheets for the Physical Education and Sports teachers at the secondary education level. The distribution of the questionnaire and the collection of the data were made online. Only fully completed questionnaires were quantified for the present study. This study complied with the principles of the Helsinki Declaration; the study was approved under protocol no. 400/06.12.2023 by Ethical Board of Faculty of Physical Education and Mountain Sports, Transilvania University of Brasov. All authors have contributed equally to this article and have equal contributions with the first author.

Participants

412 teachers participated in the study. They were divided into 2 groups: the junior teacher's group (mentored) (JTG) with 284 beginning teachers (121 females, 163 males; average age 22.4 years) and the permanent teacher's group (mentors)(PTG) with 128 teachers (52 females, 76 males; mean age 42.7 years). Depending on the counties where they teach Physical Education and Sports, the study teachers came from: Brasov - 66 teachers; Constanta - 60 teachers; Galati - 28 teachers; Covasna - 38 teachers; Mures 34 - teachers, Cluj - 63 teachers; Prahova - 13 teachers; Arges - 21 teachers; Iasi - 47 teachers; Bucharest - 44 teachers. Study inclusion criteria for junior teachers' group (JTG) were: age over 21 years; undergraduate studies completed with a bachelor's degree, active teachers teaching in the primary or secondary education system; full completion of the questionnaire. Study inclusion criteria for the group of permanent teachers (PTG) were: age over 30 years; bachelor's and master's studies completed with bachelors and master's degrees, active teachers teaching in the primary or secondary education system; minimum didactic degree II, full completion of the questionnaire. The strategy of cluster sampling was chosen for this study.

Teachers who partially completed the questionnaire were excluded from the study. Initially, several 427 teachers participated in the study, but only 412 (96.5%) teachers were included in the study, the remaining 15 (3.5%) teachers were eliminated because they did not out the questionnaire.

The questionnaire was applied between September 2023 and May 2024. The use of the Google Form Platform to disseminate the questionnaire and collect results was based on the email addresses of the dedicated groups of education teachers per the inclusion criteria. The completion of the questionnaire was restricted so that only one questionnaire was completed from a single email address, excluding repetitive completion.

The assessment tools

In the study, we used the questionnaire-based survey method, and the collected data were statistically processed to highlight relevant aspects. The questionnaire was named Questionnaire for assessing the formative perception of the disciplines provided in RAQAHE standards on professional competencies in Physical Education and Sports (QAFISPES). The questionnaire was designed on the Google Form platform. The questionnaire was carried out ad hoc. QAFISPES included 6 subscales corresponding to the 6 specific professional competencies provided in the NRQHE qualification sheet for the teacher of Physical Education and Sports in secondary education:

Professional competencies (PC):

- PC1 Modular designing and planning of basic contents of the field with interdisciplinary orientation;
- PC2 Organizing of integrated curriculum and instructional and learning environment, with interdisciplinary focus;
- PC3 The evaluation of physical growth and development and motor quality according to PES-specific requirements and the attitude towards independent practice of physical exercises;
- PC4 The description and demonstration of the operational systems specific to Physical Education and Sports (PES), by age groups;
- PC5 The assessment of the training level of the PES practitioners;
- PC6 The use of the specific management and marketing elements in this field.

Questionnaire scores were evaluated for the six subscales related to Physical Education competency. Only the compulsory disciplines included in most bachelor's programs in Physical Education and Sports from profile

faculties in Romania were assessed. The disciplines were structured according to the distribution from the RAQAHE standards into: fundamental disciplines (7); PE field disciplines(12) and specialized disciplines (14). Each subject was evaluated according to the formative perception of PC according to the Likert scale with a score from 1 to 5 where: 1 point – not at all; 2 points - very little; 3 points – a little; 4 points – a lot; 5 points – very much. The ranking of the disciplines - To rank the disciplines, a rank will be granted in descending order depending on the arithmetic average recorded (for example: for fundamental disciplines, which are 7 disciplines, 7 ranks will be provided, where rank 7 will be granted to the subject with the greatest formative perception in the formation of PC of PES teachers and rank 1 will be granted for the least relevant subject in terms of PS). For fundamental disciplines 7 ranks will be granted, for PE field disciplines 12 ranks will be granted and for the specialized disciplines will be granted 14 ranks. The arithmetic mean between the rank evaluations of the two samples included in the study shall be calculated. The final average value will be the final benchmark value for ranking the disciplines according to the formative perception of the development of the professional competencies of the PES teachers.

The Statistical Analysis of Data

We used SPSS 24 software to calculate the following statistical parameters: arithmetic mean (\bar{X}), difference in arithmetic means (ΔX), Cronbach's Alpha for internal consistency; Cronbach's Alpha value of over 0.8 was considered appropriate for the present study. To rigorously assess the validity and reliability of the questionnaire, Cronbach's Alpha was utilized as a metric of internal consistency. The analysis yielded a coefficient exceeding 0.8, signifying a high degree of reliability and demonstrating strong internal coherence among the measured constructs. This result substantiates the robustness of the instrument, ensuring its suitability for accurately capturing and evaluating the targeted dimensions within this study.

Results

The statistical indicator Cronbach's Alpha (α) ranged between 0.940 and 0.986 (Table 1) at all subscales of the Questionnaire for assessing the formative perception of the disciplines studied and included in the RAQAHE standards on professional competencies in PES provided in the NRQHE qualification sheet (QAPCPEST), the internal consistency was very

good. Cronbach's Alpha values reflected that the questionnaire results were statistically validated for both groups of the study (JTG and PTG).

Table 1. Internal consistency of the Questionnaire for assessing the formative perception of disciplines included in RAQAHE standards on specific professional competencies from the NRQHE qualification sheet in PES (QAFISPES).

PES professional competencies	JTG	PTG
	Cronbach's alpha	Cronbach's alpha
PC1 Modular designing and planning of basic contents of the field with an interdisciplinary orientation	.940	.956
PC2 Organising of integrated curriculum and instructional and learning environment, with an interdisciplinary focus	.953	.957
PC3 The evaluation of physical growth and development and motor quality according to PES-specific requirements and the attitude towards independent practice of physical exercises	.959	.969
PC4 The description and demonstration of the operational systems specific to Physical Education and Sports (PES), by age groups	.964	.976
PC5 The assessment of the training level of the PES practitioners	.963	.975
PC6 The use of the specific management and marketing elements in this field	.970	.985

JTG –junior teachers group; PTG –teachers group; PC – professional competence

In Table 2 we highlighted the arithmetic averages (\bar{x}) and the ranks of the main disciplines from RAQAHE standards for all 6 professional competencies specific to the Physical Education and Sports teacher from secondary education. For JTJG, the subject PES Theory and Methodology scored highest for all professional competencies PC1-6, rank 7. For PTG, PES Theory and Methodology has a major formative role for PC1-3. Respectively for PC4-6 the Basic Gymnastics subject was considered the most important (rank 7). The Kinesiology discipline had the lowest score for JTJG; for all PCs, it ranked 1. For PTG, the lowest score was Kinesiology, rank 1 at PC1,2,3,6, and Health Education and First Aid subject at PC4,5.

Table 2. Descriptive statistics - Questionnaire for assessing the formative perception of the main disciplines from RAQAHE standards on professional competencies (PC) in PES

Main disciplines	PC1		PC2		PC3		PC4		PC5		PC6		
	X	R	X	R	X	R	X	R	X	R	X	R	
Kinesiology	JTG	2.74	1	3.06	1	3.13	1	2.97	1	2.95	1	2.94	1
	PTG	2.57	1	2.53	1	2.74	1	2.87	2	2.81	2	2.76	1
Psychopedagogy	JTG	2.94	2	3.65	3	3.33	2	3.20	3	3.15	3	3.12	3
	PTG	3.12	3	3.14	3	2.87	3	2.94	3	2.95	3	2.88	3
PES Theory and Methodology	JTG	4.19	7	3.77	7	3.85	7	3.76	7	3.73	7	3.71	7
	PTG	4.28	7	3.66	7	3.27	7	3.34	5	3.35	6	3.27	7
Health Education and First Aid	JTG	3.30	3	3.46	2	3.18	3	3.05	2	2.99	2	2.98	2
	PTG	3.11	2	2.98	2	2.80	2	2.83	1	2.80	1	2.79	2
General Basics of Athletics	JTG	3.59	4	3.66	4	3.72	4	3.54	5	3.54	4	3.50	4
	PTG	3.95	5	3.36	5	3.35	5	3.37	6	3.34	5	3.19	5
Basic Gymnastics	JTG	4.17	5	3.76	6	3.72	5	3.54	4	3.56	5	3.51	5
	PTG	3.98	6	3.38	6	3.41	6	3.49	7	3.48	7	3.30	6
Scientific Foundations of Sports Games: Basketball, handball, volleyball, football	JTG	4.18	6	3.76	5	3.76	6	3.63	6	3.62	6	3.58	6
	PTG	3.61	4	3.14	4	2.98	4	3.07	4	3.06	4	3.02	4

JTG –junior teachers group; PTG –teachers group; R- rank of disciplines; X- arithmetic mean.

For field disciplines, we found that JTG considered the Theory and Practice of Gymnastics' Branches subject as having the greatest formative perception on PC1, ($x=3.66$; rank 12); and the Theory and Practice of Athletics subject had a major formative perception on PC2-6. The PTG considered that the Theory and Practice of Athletics subject (rank 12) contributed most to the formation of all PC of the PES teachers in secondary education (Table 3). The lowest arithmetic averages, respectively rank 1, were recorded by JTG for: PC1,2,4 in the Theory and practice in combat sports subject, respectively in the Functional Anatomy subject for PC3,5,6. In the case of PTG, the most irrelevant disciplines (rank 1) with a formative role in the formation of PC were: the Theory and Practice of Combat Sports subject for PC1,2,3,5, the Functional Anatomy subject for PC4, respectively the Theory and Practice in Water Sports subject for PC6 (Table 3). We consider that the disciplines that have a low formative perception of the professional competencies of the PES teacher are because they are not provided in the national curriculum at PES for primary and secondary school and, in this context, the disciplines of the study consider them to have a low formative contribution.

Table 3. Descriptive statistics - Questionnaire for assessing the formative perception of the disciplines from RAQAHE standards on PC in PES

PE field disciplines		PC1		PC2		PC3		PC4		PC5		PC6	
		X	R	X	R	X	R	X	R	X	R	X	R
Motor and Somato-Functional Assessment	JTG	3.04	10	3.46	8	3.50	8	3.40	7	3.41	8	3.37	8
	PTG	3.11	8	3.03	8	2.76	5	2.95	10	2.98	10	2.91	2
Functional Anatomy	JTG	3.28	8	3.46	9	3.17	1	3.09	2	3.11	1	3.09	1
	PTG	3.20	11	3.14	10	2.88	7	2.85	1	2.84	5	2.80	6
Physiology	JTG	3.26	4	3.27	3	3.44	6	3.39	10	3.37	7	3.36	7
	PTG	3.20	10	3.13	9	2.99	10	2.98	2	2.95	9	2.90	11
Theory and Practice of Athletics	JTG	4.16	11	3.86	12	3.91	12	3.75	12	3.75	12	3.70	12
	PTG	3.89	12	3.34	12	3.15	12	3.16	12	3.16	12	3.03	12
Theory and Practice of Gymnastics Branches	JTG	3.76	12	3.86	11	3.82	11	3.73	11	3.73	11	3.69	11
	PTG	3.13	9	3.20	11	3.10	11	3.13	11	3.13	11	3.04	5
Theory and Practice of Winter Sports	JTG	3.16	3	3.28	6	3.53	9	3.44	9	3.43	9	3.42	9
	PTG	2.70	4	2.72	4	2.73	4	2.84	4	2.82	4	2.88	9
Theory and Practice of Water Sports	JTG	3.27	5	3.38	7	3.46	7	3.37	4	3.36	5	3.35	5
	PTG	2.92	7	2.91	6	2.80	6	2.95	9	2.91	7	2.93	1
Theory and Practice of Combat Sports	JTG	2.76	1	3.08	1	3.26	2	3.17	1	3.17	2	3.17	2
	PTG	2.20	1	2.23	1	2.40	1	2.52	5	2.48	1	2.59	3
Theory and Practice of Expressive Sports	JTG	3.28	7	3.28	5	3.40	5	3.38	3	3.36	6	3.36	6
	PTG	2.70	3	2.66	2	2.59	2	2.79	6	2.74	2	2.80	8
Practical Lessons in Winter Sports	JTG	3.16	2	3.18	2	3.38	4	3.32	5	3.31	4	3.31	4
	PTG	2.64	2	2.67	3	2.91	8	2.95	7	2.93	8	2.92	10
Practical Lessons in Water Sports	JTG	3.27	6	3.28	4	3.26	3	3.29	6	3.27	3	3.27	3
	PTG	2.86	5	2.88	5	2.91	9	2.94	3	2.91	6	2.96	4
Theory and Practice of Other Sports	JTG	3.38	9	3.58	10	3.64	10	3.59	8	3.57	10	3.55	10
	PTG	2.91	6	2.95	7	2.73	3	2.76	8	2.77	3	2.82	2

JTG –junior teachers group; PTG –permanent teachers group; R- rank of disciplines; X- arithmetic mean.

According to Table 4, we found that the specialized subject with the greatest formative role for PTG was the Internship in Educational Units subject for PC1-6 (rank 14) because it is the subject in which theoretical concepts are applied in concrete conditions of teaching PES in school to different classes of primary or secondary school students. In the case of JTG, the situation is

different compared to PTG, They considered that for PC1 and PC6 the most important formative role was played by the Methodology of Teaching Gymnastics in Schools subject (rank 14); for PC2 by the Methodology of Teaching Basketball in Schools subject ($\bar{x}=4.28$; rank 14); for PC3 and PC5 by the Methodology of Teaching Athletics in Schools subject (rank 14); for PC4 by the Fitness subject ($\bar{X}=3.74$, rank 14). The differences between PTG and JTG regarding the disciplines with the greatest formative role of PC were due to practical experience in schools. PTG appreciated the experience gained during specialized practice. JTG appreciated various disciplines (Athletics, gymnastics, sports games, and fitness), which they considered to have increased applicability in school based on their experience during undergraduate studies and reduced teaching experience in school. For both groups of the study, the lowest formative input regarding the PC specific to the PES teacher had the disciplines (rank 1): Fitness for PC1 and Leisure Motor Activities for PC4,5,6. For PC2, JTG considered that the Body Expression and Eurythmy subject is the most irrelevant from the point of view of training PC, and for PTG, the Internship in Tourism Activities subject was the most irrelevant. We noticed that both groups rated almost the same the disciplines with the lowest formative perception of professional competencies, with one exception for PC2.

Table 4. Descriptive statistics - Questionnaire for assessing the formative perception of specialized disciplines from RAQAHE standards on PC in PES

Specialized disciplines		PC1		PC2		PC3		PC4		PC5		PC6	
		X	R	X	R	XD	R	X	R	X	R	X	R
Adapted motor activities	JTG	3.48	3	3.58	6	3.62	10	3.61	10	3.60	9	3.57	9
	PTG	3.25	6	3.20	6	3.09	8	3.17	6	3.19	6	3.15	9
Leisure Motor Activities	JTG	3.50	4	3.38	2	3.35	1	3.37	1	3.35	1	3.33	1
	PTG	2.83	3	2.80	4	2.63	1	2.75	1	2.73	1	2.79	1
Body Expression and Eurythmy	JTG	3.59	6	3.35	1	3.44	2	3.70	12	3.44	3	3.50	11
	PTG	3.03	5	3.06	5	3.04	5	3.00	5	3.01	5	2.97	3
Fitness	JTG	3.38	1	3.56	5	3.53	4	3.74	14	3.54	4	3.42	3
	PTG	2.77	1	2.78	2	2.90	4	2.77	2	2.80	2	2.82	2
Methodology of Teaching Athletics in Schools	JTG	4.38	13	3.77	10	3.82	14	3.56	6	4.22	14	3.67	13
	PTG	4.02	13	3.45	12	3.21	12	3.42	13	3.38	13	3.20	13
Methodology of Teaching Basketball in Schools	JTG	3.77	12	4.28	14	3.64	8	3.56	5	3.55	5	3.52	7
	PTG	3.34	10	3.31	10	3.06	6	3.23	7	3.20	7	3.10	7
Methodology of Teaching Football in Schools	JTG	3.66	9	3.78	13	3.46	3	3.45	2	3.44	2	3.41	2
	PTG	3.25	8	3.23	8	3.13	9	3.30	10	3.26	9	3.14	8
Methodology of Teaching Gymnastics in	JTG	4.39	14	3.78	12	3.82	13	3.46	3	3.71	13	3.68	14
	PTG	3.52	12	3.46	13	3.22	13	3.34	12	3.30	12	3.17	11

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Schools													
Methodology of Teaching Handball in Schools	JTG	3.69	11	3.67	8	3.55	6	3.58	9	3.56	8	3.52	6
	PTG	3.33	9	3.30	9	3.16	10	3.31	11	3.27	10	3.17	10
Methodology of Teaching Volleyball in Schools	JTG	3.68	10	3.68	9	3.55	5	3.58	8	3.56	7	3.51	5
	PTG	3.25	7	3.23	7	3.09	7	3.23	8	3.20	8	3.10	6
Practice and Methodology of Motor Activities by Age Groups	JTG	3.61	7	3.78	11	3.73	11	3.73	13	3.71	12	3.66	12
	PTG	3.50	11	3.42	11	3.18	11	3.29	9	3.29	11	3.20	12
Internship in Tourism Activities	JTG	3.48	2	3.49	4	3.62	9	3.57	7	3.55	6	3.55	8
	PTG	2.80	2	2.78	1	2.82	2	2.84	4	2.81	4	3.03	5
Internship in Leisure Facilities	JTG	3.59	5	3.49	3	3.64	7	3.55	4	3.63	11	3.62	4
	PTG	2.89	4	2.88	4	2.87	3	2.82	3	2.80	3	3.01	4
Internship in Educational Units	JTG	3.66	8	3.67	7	3.73	12	3.64	11	3.62	10	3.61	10
	PTG	4.28	14	4.15	14	4.01	14	4.09	14	4.09	14	3.97	14

JTG –junior teachers group; PTG –permanent teachers group; R- rank of disciplines; X- arithmetic mean.

According to Table 5, analyzing the results for PC1-6, we found that the arithmetic means of JTG were higher than those recorded by PTG at all subscales corresponding to the disciplines' typology. For PC1, the most significant differences between JTG and PTG occurred at subscales of the PE field and specialized disciplines with 0.41 points. The most considerable average difference was for subscales PE Field disciplines at PC2 with 0.50 points, PC3 with 0.57 points, PC4 with 0.50 points, PC4 with 0.51 points, and PC6 with 0.50 points. Analyzing Cronbach's alpha values, we found that at all the subscales of the questionnaire, for all the professional competencies (PC1-6), the values ranged between 0.802 and 0.979, which reflects a very good internal consistency. Cronbach's Alpha values reflected that the questionnaire results were statistically validated for both groups of the study (JTG and PTG).

Table 5. The statistical analysis of PC about the disciplines' typology

PC	Disciplines' typology	Group	X	ΔX (JTG-PTG)	Cronbach's alpha
	Fundamental disciplines	JTG	3.47	0.23	.803
		PTG	3.24		.802
PC1	PE Field disciplines	JTG	3.32	0.41	.933
		PTG	2.91		.952
	Specialized disciplines	JTG	3.63	0.41	.911
		PTG	3.21		.922
	Fundamental disciplines	JTG	3.58	0.41	.880
		PTG	3.17		.804
PC2	PE Field disciplines	JTG	3.41	0.50	.894
		PTG	2.90		.950
	Specialized disciplines	JTG	3.62	0.44	.894
		PTG	3.18		.923
	Fundamental disciplines	JTG	3.52	0.46	.802
		PTG	3.05		.814
PC3	PE Field disciplines	JTG	3.40	0.57	.943
		PTG	2.82		.948
	Specialized disciplines	JTG	3.60	0.54	.909
		PTG	3.06		.946
	Fundamental disciplines	JTG	3.38	0.25	.844
		PTG	2.12		.820
PC4	PE Field disciplines	JTG	3.40	0.50	.954
		PTG	2.90		.963
	Specialized disciplines	JTG	3.57	0.39	.961
		PTG	3.14		.952
	Fundamental disciplines	JTG	3.36	0.25	.838
		PTG	3.11		.811
PC5	PE Field disciplines	JTG	3.40	0.51	.949
		PTG	2.88		.959
	Specialized disciplines	JTG	3.56	0.43	.961
		PTG	3.13		.959
	Fundamental disciplines	JTG	3.33	0.30	.867
		PTG	3.02		.925
PC6	PE Field disciplines	JTG	3.38	0.50	.961
		PTG	2.88		.979
	Specialized disciplines	JTG	3.54	0.44	.966
		PTG	3.09		.967

PC – professional competence, X- arithmetic mean, ΔX – difference of arithmetic means between groups, JTJG – junior teachers group, PTG – permanent teachers group.

Based on the ranks assigned to the disciplines included in each subscale about the arithmetic means, we made a hierarchy of disciplines on subscales to highlight the importance of these disciplines in terms of the

formative aspect of the professional competencies of the PES teacher in the secondary education cycle. We found that for the Fundamental Disciplines' subscale, the highest score per rank 7 was recorded by PES Theory and Methodology with 6.66 points, followed by Basic Gymnastics with 5.75 points and by Scientific Fundamentals of Sports Games: basketball, handball, volleyball, and football with 4.91 points. In the opinion of the study disciplines, for the subscale Fundamental Disciplines, Health Education and First Aid with 2 points and Kinesiology with 1.16 points (Table 6) had the lowest impact in PC training. For the subscale PE field disciplines, we found that the Theory and Practice of Athletics, with 11.25 points, the Theory and Practice in Branches of Gymnastics, with 11.08 points, and the Motor and Somato-Functional Evaluation, with 7.91 points, had the greatest formative role for the PC in PES. The following undergraduate disciplines contributed the least to the training of PC: the Theory and Practice in Expression Sports with 5.50 points, and the Theory and Practice in Combat Sports with 1.66 points.

In Table 6, for the subscale, Specialized disciplines were recorded as the highest ranks, reflecting a major formative perception on PC at the Methodology of Teaching Athletics in School with 12.16 points, the Methodology of Teaching Gymnastics in Schools, and Internship in Educational Units with 11.83 points. Fitness recorded the lowest formative role in the subscale Specialized Disciplines with 3.67 points and Leisure Motor Activities with 1.75 points. This hierarchy of disciplines corresponding to the three subscales will facilitate understanding the formative perception. It will implicitly contribute to rethinking the content and the number of hours assigned for courses, seminars, and practical lessons for all disciplines. The better ranking of some disciplines is related to the formative role in the perception of PES teachers. The ranking of the disciplines will have to determine the allocation of a more significant number of course hours or practical work in the curricula for the bachelor's program. Increasing the workload of the disciplines will ensure the training of the specific professional skills necessary for teaching PES in the school.

Table 6. The ranking of the disciplines according to X – ranks in the Questionnaire for assessing the formative perception of the disciplines from RAQAHE standards on professional competencies (PC) training in PES in both groups of the study (PTG and JTG)

Professional competence	PC1	PC2	PC3	PC4	PC5	PC6	XPC
Disciplines	Rank of disciplines						
Fundamental disciplines							
Theory and Methodology of PES	7	7	7	6	6.5	6.5	6.66
Basic Gymnastics	5.5	6	5.5	5.5	6	6	5.75
Scientific Foundations of Sports Games: Basketball, handball, volleyball, football	5	4.5	5	5	5	5	4.91
General Basics of Athletics	4.5	4.5	4.5	5.5	4.5	4.5	4.66
Psychopedagogy	2.5	3	2.5	3	3	3	2.83
Health Education and First Aid	2.5	2	2.5	1.5	1.5	2	2.00
Kinesiology	1	1	1	1.5	1.5	1	1.16
PE Field disciplines							
Theory and Practice of Athletics	11.5	12	12	12	12	8	11.25
Theory and Practice of Gymnastics Branches	10.5	11	11	11	11	12	11.08
Motor and Somato-Functional Assessment	9	8	6.5	8	9	7	7.91
Physiology	7	6	8	8.5	8	5	7.08
Theory and Practice of Other Sports	7.5	8.5	6.5	6	6.5	5.5	6.75
Theory and Practice of Winter Sports	3.5	5	6.5	6.5	6.5	12	6.66
Functional Anatomy	9.5	9.5	4	3	3	9	6.33
Theory and Practice of Water Sports	6	6.5	6.5	6	6	6.5	6.25
Practical Lessons in Winter Sports	2	2.5	6	6.5	6	12	5.83
Practical Lessons in Water Sports	5.5	4.5	6	4.5	4.5	8	5.50
Theory and Practice of Expressive Sports	5	3.5	3.5	4.5	4	12.5	5.50
Theory and Practice of Combat Sports	1	1	1	1.5	1.5	4	1.66
Specialized disciplines							
Methodology of Teaching Athletics in Schools	13	11	13	9.5	13.5	13	12.16
Methodology of Teaching Gymnastics in Schools	13	12.5	13	7.5	12.5	12.5	11.83
Internship in Educational Units	11	10.5	13	12.5	12	12	11.83
Practice and Methodology of Motor Activities by Age Groups	9	11	11	11	11.5	12	10.92
Methodology of Teaching Handball in Schools	10	8.5	8	10	9	8	8.91
Methodology of Teaching Basketball in Schools	11	12	7	6	6	7	8.16
Adapted motor activities	4.5	6	9	8	7.5	9	7.33
Methodology of Teaching Volleyball in Schools	8.5	8	6	8	7.5	5.5	7.25
Methodology of Teaching Football in Schools	8.5	10.5	6	6	5.5	5	6.91
Body Expression and Eurythmy	5.5	3	3.5	8.5	4	7	5.25

Internship in Leisure Facilities	4.5	3.5	5	3.5	7	4	4.58
Internship in Tourism Activities	2	2.5	5.5	5.5	5	6.5	4.50
Fitness	1	3.5	4	8	3	2.5	3.67
Leisure Motor Activities	3.5	3	1	1	1	1	1.75

PC – professional competence.

Discussion and limit

The first purpose of the study was to identify the formative perception of the disciplines studied within the bachelor programs in Physical Education and Sports (PES) on the PC provided in the qualification sheets of the National Register of Qualifications in Higher Education (NRQHE) for the occupational qualification of Physical Education Teacher in primary and secondary education levels. The results show that the disciplines from the RAQAHE standards contribute to different PC training for PES teachers. Also, there were differences of opinion in assessing the formative perception of PC depending on the typology of disciplines between study groups (PTG and JTG). Thus, PTG emphasizes disciplines that make the transfer between theory and current practice specific to PES teaching in schools. At the same time, JTG values more disciplines with a higher degree of attractiveness, based on experience in undergraduate studies and their little teaching experience in school.

The secondary purpose of our study is to rank the disciplines outlined in the RAQAHE standards for the specialization program in Physical Education and Sports based on their formative perception of professional competencies to develop a comprehensive profile of professional competence in PES. This ranking aimed to create a profile of professional competencies in PES. Using the study results, we categorized the disciplines into the three groups provided in the RAQAHE standards (fundamental, PE field, and specialized disciplines). We ranked them according to their formative role in developing the professional competencies of PES teachers. This hierarchy supports revising and optimizing curriculum content and its distribution for university-level PES specialization programs.

The study complements previous research highlighting the importance and necessity of updating the process of training professional competencies to align with current school contexts (Quilindo, 2023; Asún et al., 2020; Ward et al., 2016; Ennis, 2013). In the Romanian school system, Athletics, Gymnastics, and Sports Games (handball, basketball, volleyball, and football) are the main activities (Murathan, 2017; Kovač et al., 2008). Various studies have explored integrating holistic approaches in teaching physical exercises, enabling students to adapt effectively to new practice contexts (Yildiz et al., 2021; Murathan, 2017;

Kovač et al., 2008; Richardson et al., 2018). The traditional approach to training professional competencies in PES must continuously evolve to meet modern educational requirements and adapt to emerging practice forms, such as fitness (Huhtiniemi et al., 2022; Davis, 2020).

We believe that the curricula specific to bachelor programs in PES should be updated periodically to align with societal needs (Protsenko et al., 2024; Ponciano Nuñez et al., 2023, Shivorov et al., 2017; Marinho et al., 2017) and modernize teaching and exercise activities (Protsenko et al., 2024; Gheorghe et al., 2023; Harju et al., 2016). Studies conducted in various European countries have examined the correlation between the professional competencies of PES teachers and different professional training factors, including training volume, the compactness of specific content, and the typology of disciplines (Hurtado Almonacid et al., 2024; Protsenko et al., 2024; Ahmed et al., 2017; Litoi, 2016). These studies have highlighted differences in competencies among PES teachers based on curriculum content and experience level, consistent with our study's findings on the importance of aligning professional competencies with the number of hours allocated to PES degree program disciplines (Hurtado Almonacid et al., 2024; Protsenko et al., 2024; Cañadas et al., 2019; Ahmed et al., 2017).

Study limits

The limitations of the study: active students in the I-III years of their Field' in PES and future teachers were not included in the study; the analysis of transversally specific competencies was not targeted; the geographic location where the disciplines of the study came from (urban or rural) was not taken into account, the school infrastructure where the disciplines teach was not taken into account; the material base influences the way of organizing the teaching process and the typology of physical activities; the optional disciplines were not included in the evaluation due to their diversity in the curricula; the urban or rural environment of the schools where the teachers come from was not analyzed in the study; the reasons why there are differences in the ranking of PES disciplines according to PC between JTG and PTG have not been analyzed.

Practical implication

The allocation of hours to courses, seminars, and practical lessons should be aligned with the formative perception of professional competencies (PC) among Physical Education and Sports (PES) teachers in the gymnasium education cycle. This original contribution aims to facilitate the reassessment of curricular content and enable the restructuring of time

and resource allocation for each subject within the curricula of specialized faculties. Such adjustments will enhance their impact on the development of specialized professional competencies, thereby optimizing teacher preparation and instructional effectiveness. This study addresses an important issue in the training of PES teachers because depending on the formative perception of the subjects studied, the weight of the subjects in the curriculum should be restructured; the practical experience of teachers in schools should be the main criterion for allocating the number of hours for each specific discipline of the PED program: until now, no study has been carried out to rank the disciplines according to their formative role for teachers, the distribution of hours for each the discipline being at the discretion of the study program coordinator; the study results should be taken into account for the modernization of the PES curriculum.

Conclusions

The site study's results reveal differences of opinion in assessing the formative perception of PC depending on the typology of the disciplines between study groups (PTG and JTG). Thus, PTG emphasizes the disciplines that make the transfer between theory and current practice specific to PES teaching in schools. At the same time, JTG values the disciplines with a higher degree of attractiveness based on their experience in undergraduate studies and the reduced teaching experience in schools. Based on the relevant results, we identified the formative perception of the compulsory disciplines provided in the RAQAHE standards for the specialization of Physical Education and Sports about the specialized PC provided in the NRQHE qualification sheets for the teacher of Physical Education – secondary education.

The Disciplines were structured as in RAQAHE standards into fundamental disciplines, PE field disciplines, and specialized disciplines, and the granting of the ranks according to the arithmetic average recorded in the study allowed us to rank these disciplines from the perspective of their formative perception on the development of PC of PES teachers. The results of the study reveal that the disciplines with the greatest formative role on the PC of PES teachers were the fundamental disciplines: the PES Theory and Methodology, Basic Gymnastics, the Scientific Foundations of Sports Games Basketball, Handball, Volleyball, Football the PE field disciplines: the Theory and Practice of Athletics, the Theory and Practice of Gymnastics' Branches, the Motor and Somato-Functional Evaluation; among the specialized disciplines: the Methodology of Teaching Athletics in Schools, the Methodology of Teaching Gymnastics in Schools and the

Internship in Educational Units. The lowest formative role on PC, on subscales, has the disciplines Kinesiology, Theory, and Practice in Combat Sports, respectively, the Motor Leisure Activities.

Currently, the distribution of hours by subjects in the bachelor's programs in Physical Education and Sport (EPS) curricula is determined not by their formative significance but by the administrative preferences of the department heads when they constitute the didactic norms. This approach may negatively affect professional skills development in future PES teachers, as the training volume does not align with current teaching requirements in schools. The ranking of the disciplines according to their formative role will be able to determine the improvement of allocating the weight of hours (the number of course hours and seminars/practical work) for each discipline in the PES curriculum for the bachelor's program.

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