



Differences in Subject-Specific Competences between Slovenian and Italian Physical Education Teachers

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Abstract

This cross-sectional study was designed to analyse the differences between the subject-specific competences of Slovenian and Italian physical education (PE) teachers. The participants, 669 Slovenian and 484 Italian PE teachers, evaluated their professional competences with a self-administered questionnaire on a four-level Likert scale. A t-test for independent samples indicates differences in the self-evaluations of the majority of subject-specific competences between both groups. However, in almost all items, Slovenian PE teachers evaluate their competences higher. A multivariate analysis of variance, used to identify the role of some socio-demographic factors (state, gender, years of service), shows that the state has the highest impact on the differences between self-efficiency of both groups ($p < 0.001$, $\eta^2 = 0.531$). The greatest differences (Cohen's $d > 0.8$) are observed on those competences that relate to some of the narrower aspects of PE didactics. The reasons for the perceived differences can be found in some historical and social events, length of education, the different orientation of PE teacher education programmes, and the different responses of both countries to educational policies. The present study outcomes may aid in updating initial PE teacher training and designing a creative system of continuous professional development.

Keywords: *physical education, educators, self-efficiency, cross-cultural study*



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Introduction

In the 1990s, when “competences” became one of the key terms in professional education, many attempts were made to classify and describe this elusive and multi-layered term. The term “competence” involves tacit and explicit knowledge, cognitive and practical skills, as well as motivation, beliefs, value orientations, and emotions (Rychen & Salganik, 2003).

The European network Eurydice (2003) divided teachers' competencies into general (universal or subject-independent) and specific ones closely related to an individual subject area. Physical education (PE) is included in all national school systems as a vital part of children's development; however, national curriculum documents, material conditions for implementing PE, and physical education teacher education (PETE) programmes vary considerably

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between the countries (Hardman, 2008). The competences of PE teachers from different European countries have been studied (Casolo et al., 2019; Gallardo, 2006; Kovač et al., 2008; Romero Granados & Campos Mesa, 2010; Tul et al., 2019; Vitali & Spoltore, 2010). In contrast to the intracultural factors, little attention has been paid to the intercultural factors of PE teachers' self-efficacy. After an extensive literature review, there has only been one cross-cultural study investigating the importance of PE teacher's competences (Nieminen et al., 2008), which showed that Finnish PE students generally value the importance of pedagogical skills and the ability for collaborative relationships as more important than Greek, Japanese and Dutch students do. The authors also reflected that the country's whole culture and educational tradition have a more important influence on the development of the students' perceptions of a PE teacher's competences than the national PETE programmes. Laporte (1997) emphasized the importance of a common (i.e., European) approach to PE, including uniform concepts and PETE programmes. Thus, the question of teachers' competences needs to be set in the wider context of the European Union's work to ensure high quality educational outcomes (European Commission, 2013). Therefore, we conducted a study to evaluate the differences between the self-perceived subject-specific professional competences of Slovenian and Italian PE teachers.

Methods

Subjects

The sample included 669 Slovenian and 484 Italian PE teachers. The Slovenian sample consisted of 399 male (59.6%) and 270 female (40.4%); 423 (63.2%) participants were employed at primary schools (6th to 9th grades), 212 (31.7%) participants at secondary schools (10th to 13th grades), and the remaining participants were employed elsewhere (1st to 5th grades, project work). Almost half of the participants had been teaching more than 20 years ($n=301$, 45%); the remaining participants are almost equally distributed in the following groups: from 11 to 20 years of working experience ($n=185$, 27.7%), and up to 10 years of working experience ($n=183$, 27.3%). Most of the participants ($n=514$, 76.8%) have finished a four-year university PETE programme.

The sample of Italian PE teachers consisted of 209 male (43.2%) and 275 female (56.8%) from the north-eastern part of Italy; 196 (40.5%) participants were employed at lower secondary schools (6th to 8th grades), 244 (50.4%) participants at upper secondary schools (9th to 13th grades), and the remaining participants were employed elsewhere (primary schools, project work). Almost two thirds of participants had been teaching more than 20 years ($n=338$, 69.8%); the remaining participants are almost equally distributed in the following groups: from 11 to 20 years of working experience ($n=68$, 14%) and up to 10 years of working experience ($n=78$, 16.1%). Most of the participants ($n=402$, 83.1%) had finished a three-year higher school for PE.

Procedures

As with previous studies (Gallardo, 2006; Kovač et al., 2008), a self-administered questionnaire was constructed. Before administration, the questionnaire was qualitatively validated for content by a group of 22 PE teachers (10 male

and 12 female) of different ages, amounts of working experience, and working at different teaching levels. The original questionnaire was shortened slightly, as per the recommendations of the validation group. The questionnaire consisted of three parts: demographic (gender, length of work experience, age, teaching level), general competences (36 items) and specific competences (40 items). For the purpose of this paper, only the self-perception of specific competences is used. Teachers reported their current competences on a four-level scale (1-completely incompetent, 2-less competent, 3-competent, and 4-highly competent).

This study was approved in advance by the Ethics Committee of the University of Ljubljana. The questionnaire was sent to all Slovenian primary ($n=449$) and secondary schools ($n=137$) and all Italian lower ($n=807$) and upper ($n=310$) secondary schools in the regions of Friuli-Venezia-Giulia and Veneto by regular mail with an invitation to PE teachers to complete it. Teachers were informed about the objectives of the study and the voluntary and anonymous nature of their participation. A total of 681 Slovenian and 495 Italian questionnaires were returned; 551 questionnaires (80.6%) were fully completed. Twenty questionnaires were missing more than three pieces of data and were thus excluded from the study. Questionnaires with one to three pieces of data missing (Slovenia: $n=121$, 17.7%; Italy: $n=87$, 17.6%) had the missing data imputed with the use of an E-M algorithm. In the end, 669 Slovenian and 484 Italian questionnaires were included in the analysis. According to data from the Slovenian Ministry of Education, Science and Sport and the Regional School Office of Trieste, Italy, the sample represented approximately 52% of the entire population of PE teachers in Slovenia and 28% in both Italian regions.

Statistical analyses

The data were analysed with the IBM SPSS Statistics 23.0 software. The basic statistics of variable distribution were calculated. The differences between both groups of teachers were tested with a t-test for independent samples. The statistical significance of the differences between the groups was tested at the $\alpha = 5\%$ error level. Cohen's d was used as a standardized measure of the size of differences between the two countries. A multivariate analysis of variance (MANOVA) is used to identify the role of some socio-demographic factors (gender, state, years of service) in explaining the differences between teachers in their teaching competences.

Results

The entire questionnaire has a high degree of reliability (Cronbach's $\alpha=.97$), while the values of individual segments of the questionnaire vary between .77 and .92.

Both groups have recognized the highest level of competences in the following areas: understanding health aspects of physical activity (PA) and sport; understanding PE curriculum; being able to use different teaching methods and forms of teaching PE; understanding the social importance of sport (Table 1).

Both groups reported low competences in the following areas: understanding financial flow in sport; qualification for working with modern teaching technology (MTT) in sport; and understanding the philosophical aspects of sport (Table 1).

Table 1. Descriptive statistics of professional competences items sorted by Cohen's d index size

	t	p	Slovenia		Italy		Cohen's d
			M	SD	M	SD	
Recognizing sport-talented students and their guidance	10.71	<0.001	3.40	0.61	2.98	0.73	0.96*
Qualification for demonstrating skills that are a part of curriculum	9.84	<0.001	3.36	0.60	2.99	0.70	0.89*
Respecting principles of inclusion, individualization and differentiation	3.85	<0.001	3.11	0.62	2.74	0.71	0.84*
Understanding methodical ways in teaching skills that are not a part of the curriculum	9.84	<0.001	3.01	0.64	2.60	0.78	0.84*
Qualification for pedagogical management of class in PE	8.38	<0.001	3.40	0.61	3.09	0.64	0.81*
Understanding physical and motor development of children and youth	8.06	<0.001	3.46	0.57	3.17	0.63	0.81*†
Qualification for working with MTT in sport	9.48	<0.001	2.78	0.70	2.37	0.77	0.78*†
Understanding methodical ways of teaching motor skills from the curriculum	7.29	<0.001	3.51	0.54	3.26	0.65	0.74*†
Qualification for demonstrating skills that are not a part of the curriculum	8.91	<0.001	2.96	0.70	2.56	0.80	0.72*†
Qualification for different ways of assessment and grading knowledge in PE	6.69	<0.001	3.30	0.63	3.04	0.68	0.61*†
Understanding PE curriculum	5.08	<0.001	3.58	0.55	3.38	0.66	0.58*†
Ability to use different teaching methods and forms of teaching PE	5.56	<0.001	3.49	0.55	3.30	0.60	0.58*†
Qualification for encouraging students to be sport active in free time	6.11	<0.001	3.44	0.61	3.21	0.68	0.57*†
Organizational skills and knowledge for the implementation of school and extracurricular programmes	6.61	<0.001	3.37	0.64	3.10	0.75	0.57*†
Understanding general didactics of PE process	5.60	<0.001	3.36	0.60	3.15	0.65	0.54*†
Qualification for evaluation of own pedagogical work in PE	5.54	<0.001	3.25	0.63	3.04	0.63	0.52*†
Qualification for setting goals according to curriculum	4.91	<0.001	3.36	0.63	3.16	0.70	0.45*†
Qualification for encouraging personal progress of a student	4.57	<0.001	3.33	0.61	3.17	0.62	0.45*†
Understanding historical aspects of sport	5.02	<0.001	2.96	0.69	2.75	0.77	0.42*†
Qualification for planning a process according to status analysis and curriculum	4.52	<0.001	3.22	0.63	3.05	0.66	0.42*†
Qualification for formation and conveying of feedback information	4.50	<0.001	3.32	0.60	3.15	0.68	0.42*†
Qualification for efficient conveying of theoretical contents in PE lessons	4.76	<0.001	3.20	0.65	3.00	0.74	0.41*†
Understanding anatomical-functional aspects of sport	3.41	0.001	3.39	0.60	3.27	0.62	0.34*†
Understanding health aspects of PA and sport	2.94	0.003	3.56	0.54	3.46	0.56	0.32*†
Understanding how to use different pedagogic strategies	3.85	<0.001	2.84	0.71	2.67	0.77	0.31*†
Understanding the importance of continuous professional development for PE teacher	3.30	0.001	3.38	0.62	3.25	0.68	0.31*†
Understanding physiological aspects of sport	3.06	0.002	3.35	0.61	3.24	0.63	0.30*†
Qualification for encouraging creativity in finding solutions to motor tasks	3.34	0.001	3.10	0.64	2.96	0.70	0.30*†
Understanding psychological aspects of sport	3.13	0.002	3.25	0.62	3.13	0.69	0.29*†
Understanding theory of practising sport	3.41	0.001	3.18	0.68	3.04	0.75	0.29*†
Qualification for inter-subject connection of PE with other subjects	2.45	0.014	2.96	0.65	2.86	0.72	0.22*†
Understanding social circumstances in PE lessons	2.25	0.024	3.26	0.62	3.18	0.65	0.21*†
Understanding financial flow in sport	2.72	0.006	2.50	0.79	2.37	0.80	0.20*†
Qualification for encouraging student's learning in an instructive and creative way	1.99	0.470	3.18	0.60	3.11	0.66	0.19 †
Understanding biomechanical aspects of sport	2.11	0.030	3.00	0.72	2.90	0.72	0.18*†
Understanding media influence on sport	1.25	0.210	2.88	0.73	2.82	0.77	0.10 †
Understanding cultural aspects of PE	-1.07	0.280	3.17	0.65	3.21	0.68	-0.10 †
Understanding philosophical aspects of sport	-1.56	0.118	2.67	0.81	2.74	0.83	-0.11 †
Understanding social importance of sport	-1.23	0.210	3.40	0.59	3.45	0.61	-0.12 †
Qualification for diagnosing and composing status analysis	-4.80	<0.001	3.07	0.66	3.26	0.63	-0.44*†

Note. M = mean; SD = standard deviation; * p<0.05 (unadjusted); † p<0.05 (adjusted for gender and years of service).

Statistically significant differences between both groups were shown in 35 out of 40 competences (Table 1, * symbol); in all (except qualification for diagnosing and composing status analysis), Slovenian PE teachers evaluated their

competences statistically significantly higher than Italian ones did. In most cases, the differences were statistically significant even after adjusted for gender and years of service (Table 1, † symbol). The differences were greater (Cohen's

$d > 0.8$ means large differences; Cohen, 1988) in those competences that related to some of the narrower aspects of PE didactics, such as recognizing sport-talented students and their guidance; respecting principles of inclusion, individualization and differentiation; qualification for demonstrating skills that are a part of the curriculum and that are not

included in it; understanding the methodical ways in teaching skills that are not a part of the curriculum and those in it. There were also differences in perceptions of one's competence in successful pedagogical management during the PE lessons, understanding children and youth's physical and motor development, and working with MTT in PE lessons.

Table 2. MANOVA table for the multivariate differences in professional competences between states controlled for gender and years of service

Effect	λ	F	df (1)	df (2)	p	Eta ²
State	0.469	15.901	76	1,066	<0.001	0.531
Gender	0.785	3.831	76	1,066	<0.001	0.215
Service (years)	0.717	2.538	152	2,132	<0.001	0.153
State \times gender	0.895	1.642	76	1,066	0.001	0.105
State \times service	0.825	1.417	152	2,132	0.001	0.092
Gender \times service	0.862	1.084	152	2,132	0.236	0.072
State \times gender \times service	0.869	1.024	152	2,132	0.408	0.068

Note. λ = Wilks' lambda; df = degrees of freedom; p = p-value; Eta² = partial eta squared (estimate of effect size).

Univariate interactions between professional competences, controlled by state, gender, and years of service were statistically significant for the whole set of variables (Table 2). The biggest differences between the groups are explained by the state ($p < 0.001$, Eta² = 0.531). Also significant are the two-way interactions of state with gender and state with years of service; however, the interactions between gender and years of service, as well as the three-way interaction between state, gender and years of service, were negligible.

Discussion

The main findings of the study are i) PE teachers are able to evaluate their own perceived level and, at times, lack of competences critically; ii) the state has the highest impact on differences between both groups of teachers; iii) Slovenian PE teachers perceive their subject-specific competences to be much higher than the Italian ones do; iv) the greatest differences are observed on those competences that relate to some of the narrower aspects of PE didactics.

The highest evaluated competences of both groups

It is known that PE can play a significant role in reducing sedentary behaviour and contributing to public health (McKenzie & Lounsbury, 2013) and that establishing PA as a habitual behaviour in children can result in active adult lifestyles (Pate, 1996). McKenzie and Lounsbury (2013) even emphasize that the survival of PE programmes in schools depends largely on how effective PE teachers are in operating within a public health context. Italian PE teachers have placed the competence understanding health aspects of PA and sport in the first place ($M = 3.46$) and Slovenian in second place ($M = 3.56$). The understanding of the PE curriculum as a basic guideline that supports the teacher's work is highly rated ($MSLO = 3.59$; $MITA = 3.38$) by both groups. Both curricula are quite precise in guiding the teachers to identify PE as a place for learning about and through PA participation, and teachers have been working following them for a long time. Teachers specific didactic knowledge, such as being able to use different teaching methods and forms of teaching, is one of the most valuable competences for PE teachers (Casolo et al., 2019; Romero Granados & Campos Mesa, 2010). Also in this study, teach-

ers' sense of efficacy in student-teacher interaction in practice-learning experience by using different teaching methods and forms of teaching is high ($MSLO = 3.49$, $MITA = 3.30$); this is significant because their self-efficacy is strongly associated with the achievement levels of students (Klassen & Tze, 2014). Both Slovenian and Italian PE teachers perceive themselves to be sufficiently competent in understanding the social importance of sport ($MSLO = 3.40$; $MITA = 3.45$), which has also been confirmed by Vitali and Spoltore (2010), who found that belief in the important social significance of sport is high among Italian PE teachers. Sport can bring people together, especially with great sporting success (Starc, 2010); furthermore, sport is a means of the effective socialization of those children who come from marginalized groups such as immigrants and Roma (Starc & Klinčarov, 2016). Therefore, Slovenian PE teachers pay attention to the wider social context of sport.

The lowest evaluated competences of both groups

Both groups rated their competence for understanding financial flow in sport very low ($MSLO = 2.50$, $MITA = 2.37$). Until recently, PE has been very firmly established in Slovenian educational curricula, and the conditions for work have been continuously improving since 1990; therefore, teachers did not pay attention to the wider financial context and the influence of governing political options, which have been observed in other countries (Kovač, 2011). This is frequently encountered by Italian PE teachers as they have to provide the financial resources to support many out-of-school activities (Tul et al., 2019).

In the digital age, knowledge of MTT applied to subject teaching is fundamental for teachers; even so, the use of MTT is one of the weakest points of European teachers, as it is seldom included in the lessons, presumably due to the insufficient knowledge for its effective use and also negative attitudes toward the new technology (Eurydice, 2019). It has been particularly observed in the present study, as the use of MTT in PE was the lowest marked competence among Italian ($M = 2.37$) and the third-lowest among Slovenian teachers ($M = 2.78$). As the correlation between the ability of teachers to use MTT and their age has been confirmed in other studies (Gianferrari, 2009; Sitar, 2010), the results can be explained by

the age of teachers included in the present study. Despite the low evaluation for understanding the philosophical aspects of sport, there are no statistically significant differences between the groups, presumably due to their lower influence in PE lessons.

The competences in which the groups differ most

The biggest discrepancy between Slovenian and Italian PE teachers is revealed in some competences related to specific didactic approaches to special groups of students and a narrower sense of teaching PE (Cohen's $d > 0.8$; Table 1). Both groups perceive the average level of their competences; however, in all items, Slovenian PE teachers value their competency higher. Recognizing sport-talented students and their guidance differentiates both groups most (Cohen's $d = 0.96$; Table 1). Sport-talented children require extra attention and an individual approach to PE. Slovenian teachers, especially the older ones, are still very performance-oriented, and most of them consider PE to be the most important environment for recognizing and supporting this group of children (Kovač et al., 2008). Empirical investigations have also shown that the profession of PE teacher is mostly chosen by people who have been successful in sport at a high level (Edmonds & Lee, 2002). Their positive experience in sport influences their understanding of the image of PE teacher and the core mission of PE.

Qualification for working with students with special needs and acceptance of diversity are important characteristics of highly qualified PE teachers (Napper-Owen et al., 2008). Both groups of teachers are critical in assessing how to respect principles of inclusion, individualization and differentiation in PE lessons, particularly when working with students with special needs, behaviourally challenged, health-endangered or children from different cultural environments; however, Italian teachers scored themselves much lower (Cohen's $d = 0.84$). Ethnicity in Italy is highly relevant, as the population in some areas is significantly multicultural, with the number of immigrants from Africa and Asia increasing each year (Tul et al., 2019). At the same time, it seems that low self-efficacy among Slovenian PE teachers about how to work with students with special needs constitutes the most important pedagogical obstacles for their successful inclusion into regular PE classes (Kovač et al., 2008).

There are also differences in the ability to demonstrate various sport skills, which are a part of the PE curriculum (Cohen's $d = 0.89$), and the ability to use appropriate methodical steps in teaching skills that are not a part of the curriculum (Cohen's $d = 0.84$). Tinning (2010) described this pedagogical expression as demonstrate-explain-practice. Demonstration is the most important teaching method in the PE process, especially in all post-socialistic countries; it seems that Slovenian PE teachers still conceptualize skill-based practice in PE dichotomously (Kovač et al., 2008). Therefore, it is understandable that a high value has been given to the ability to demonstrate all sport skills.

The differences in perception are particularly prominent in successful pedagogical management of PE lessons and in understanding the physical and motor development of children and youth (both Cohen's $d = 0.81$). In a time of increased emphasis on academic results and some behavioural problems of students, Slovenian PE teachers seem to be adequately qualified for the successful pedagogical management of PE lessons. Understanding physical and motor development as

part of a broader (social, cognitive, etc.) development is crucial for planning developmentally appropriate pedagogical approaches and developmentally appropriate activity selection. For more than three decades, Slovenian PE teachers have been able to use the data about physical fitness of students from the SLOfit national surveillance system (Kovač et al., 2011). According to didactic theory, planning needs to be done on the grounds of prior analyses in order to take a child's individual potentials and characteristics into account (Casolo et al., 2019); therefore, it is not surprising that the perception of this competence is higher among Slovenian PE teachers than among the Italian ones.

The results of this study show that the state has the highest impact on differences between both groups of teachers. A higher self-efficacy among Slovenian PE teachers can be explained with cultural, historical, social influences on teacher identity formation, as well as the length of education: Slovenian PE teachers are dominated by those who have completed the pre-Bologna four-year study programme, while most of the Italian teachers completed a three-year study programme. The notion of national identification through sport is an important factor, as top Slovenian athletes' exceptional results have the strongest influence on its formation (Starč, 2010). After Slovenian independence in 1991, and the school reform of 1996, which made PE more important in the education system, the position of PE teachers and, above all, the sports infrastructure have also improved (Kovač et al., 2011). The lower estimations of their competences among Italian PE teachers have probably been influenced by historical events, which have defined both the contents and the etymological categorization of PE in Italy as well as a late Italian response to the Bologna reforms (Vitali & Spoltore, 2010). Only in 1998 did Italy fund faculties of sports and motor sciences, which replaced higher schools for PE. However, the stereotypical image of a former PE teacher educated at the old three-year study programme and the classical perception of PE in Italy remain among Italian PE teachers.

We believe that this cross-cultural research could clarify how efficacy beliefs of PE teachers originate under different social and institutional practices. Even more importantly, the findings can help increase the mobility and employability of graduates from different European countries, inform policy decisions about the main purposes of PE, and the importance of the European approach to PE professions. The additional value of this research is the facilitation of a discussion about how different states can systematically encourage teacher self-reflection, review their curricula, (re)design their PETE programmes, and supplement initial teacher training with high-quality further professional development programmes.

When interpreting the results, a certain degree of care is required. First, PE teachers from only one part of Italy are included in the Italian sample. Second, the cross-sectional design of the study gives a rather static view of the dynamic interaction between teachers and society. In the future, longitudinal studies that account for changes over time and provide adequate explanations would be beneficial.

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