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What Is the Place of Physical Education among the Teaching Priorities of Primary School Teachers? An Empirical Study on Importance, Qualification and Perceived Teachers' Competence

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Abstract: The education of children is important because it determines the future of the world. Teachers have a great responsibility for this, which applies to every subject taught. In this regard, teachers usually specialize in a specific area and greatly influence how the subject is taught and how students gain a view of the subject. The present study aimed to investigate teachers' attitudes about subjects in primary school, with a particular focus on physical education. The sample of participants (N = 111) included Croatian female primary school teachers with a mean age of 47.88 (±8.11 SD) years and a mean teaching experience of 21.83 (±10.24 SD) years. The variable sample consisted of a three-criteria questionnaire for the assessment of classroom subjects: (i) the importance of a subject (importance); (ii) the level of qualifications obtained during study for a subject (qualification); and (iii) the teacher's competence for teaching (competence). Significant differences were found in the assessment of classroom subjects. The group of core academic subjects has noticeably higher assessments than the group of practical and artistic subjects. The assessment of teachers' competence in PE teaching is the lowest of all the classroom subjects. Further research of classroom teachers' attitudes towards the implementation of physical education is advised, with an increased number of participants and the inclusion of new measures.

Keywords: physical education; teaching; teacher qualification; child development; child education

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1. Introduction

A classroom teacher is a person who educates and raises children from first to fourth grade of primary school, teaches all prescribed subjects, and nurtures pupils' holistic development. Holistic development is described as a person's social, emotional, physical, mental, and intellectual growth [1]. A holistic approach to education means considering all aspects of a child's development, not just their votes. In this regard, physical education and physical exercise also play a decisive role because they influence body, emotional, and cognitive growth [2,3]. Teachers implement knowledge in psychology, pedagogy, communication science, and related scientific disciplines to organize classes in the best possible way and to motivate children to work. They must respect each child's developmental characteristics and systematically monitor their progress [4].

Teachers have a huge responsibility in child education, and it is expected of them to teach all subjects with the same criteria. However, some individuals who specialize in a specific area can greatly influence how the subject is taught and how students eventually gain a view of the subject [5]. A classroom teacher should be a person who is motivated for the teaching profession, who shows love for working with children, patience, and acceptance of differences. Moreover, it is also desirable for a teacher to be creative because many

situations encountered in the classroom require unique actions and solutions, regardless of the subject taught [6].

A child's attention span, cognitive control, and processing speed can all be improved by regular involvement in physical activity through physical education (PE) classes. This is particularly important in lower primary school grades, with the aim of optimal development and perfection of those skills, abilities, and characteristics important for pupils [7]. PE is a unique school subject that develops physical activity in children and youth [8]. It is characterized by acquiring theoretical and motor knowledge, skills, and habits that contribute to creating a positive attitude towards physical exercise, health, and lifestyle [9]. It positively affects the morphological characteristics, psycho-pedagogical and neurological development of children, which teachers should both know and implement in their practice [10]. PE should be one of the foundations for the development of the whole population's health. Moreover, it is important to create a rounded personality and a healthy and happy pupil [11]. UNESCO [9] described PE as the most efficient way to provide all children and youth with the abilities, attitudes, values, knowledge, and comprehension necessary for lifelong engagement in society.

For many children, school is the main environment for physical activity [12]. Numerous studies have shown that physical activity positively affects the learning of different school subjects [13] and academic achievement [14–16]. Furthermore, physical activity has a positive impact on both physical and mental health [17,18], which is also visible in people with intellectual disabilities [19]. Concurrently, PE efficiently changes traits and develops skills, directly ensuring health promotion as an irreplaceable factor of all human activities [20].

It has been demonstrated that quality of education is of primary importance and can affect late-life cognition [21]. To enhance the educational system, various acts have been adopted that create preconditions for designing and implementing more profound interventions in the educational system on the national level [9]. The quality of classes, plans, and PE programs has been evaluated in our country and worldwide [22,23]. The status of PE is underestimated in 57% of the countries investigated; it is perceived as a "less important" subject [24]. However, most students express positive attitudes towards the PE program and classes, which is certainly also due to the subject teacher [25]. Teachers consider the contents of the Croatian language to be the most important, whereas creativity is expressed in science classes. PE classes are ranked fourth in terms of importance. Teachers rank PE classes first in assessing load where increased effort is required [26]. Teachers should conclude their programs with a solid theoretical basis that is founded on optimistic, strength-based perspectives on the connection between lifestyle and health. This should be complemented by the ability to engage with a variety of people and the capacity to create and put into practice policies and initiatives that put wellness at their center. Any public PE plan should emphasize teaching staff's continuing professional development (CPD) through mandatory, organized, regular CPD or In-Service Training (INSET) programs [9].

It can be seen that it is of great importance for children to have regular and appropriate content in PE classes which represents the key factor for the development of motivation to increase the likelihood of maintaining physical activity habits as an adult [27]. To implement the classes correctly, teachers must be experts in their work and be familiar with the basic principles of kinesiology. Excellence in teaching, including PE, is frequently acknowledged to be the most significant influence shaping school attainment [28]. Therefore, due to the importance of PE on children's development and the fact that teachers have a strong influence both on the subjects itself and on the development of student attitudes, the present study aimed to investigate teachers' attitudes—in particular importance, qualification, and competence—about subjects in primary school, with a particular focus on PE.

2. Materials and Methods

2.1. Study Design and Participants

This cross-sectional study used a survey method to assess 'teachers' attitudes. Participants were teachers at primary schools from the broader area of the city of Split that were randomly selected from a list of schools available on the official county website. The principal investigator distributed the questionnaires as a hard copy during the second semester of the academic year. In total, 129 questionnaires were collected during the investigation days; eighteen questionnaires were excluded due to missing values. Therefore, the final sample consisted of 111 female primary teachers with a mean age of 47.88 ($\pm$8.11 SD) years and a mean teaching experience of 21.83 ($\pm$10.24 SD). Three groups were formulated to determine the possible differences in the assessments of classroom subjects between teachers of different length of teaching experience: TE1 (1–16 years), TE2 (17–28 years), and TE3 (29 years or more). Additionally, teachers were also divided into two groups according to the length of their education: ED1 (two years) and ED2 (four or five years). Before the introduction of the Bologna process in higher education, the length of study for primary school was four years; therefore, the ED2 group had teachers with four or five years of higher education.

2.2. Measures

Teachers were asked to rate each of six subjects (Croatian language, Math, Science, Art, Music, and PE) on a 5-point Likert scale (Very Low = 1, Below Average = 2, Average = 3, Above Average = 4, Very High = 5) according to three criteria of assessment of classroom subjects that primary teachers teach: (i) the importance of a subject (importance); (ii) the level of qualifications obtained during study for a subject (qualification); and (iii) teacher's competence for teaching (competence). The importance and qualification were assessed with one item each, while competence was assessed with two items. To determine the importance, teachers were asked the following question: "Please rate the importance of subjects in the teaching process". To determine qualification, teachers were asked the following question: "Please rate the degree of acquired competence for a subject during your education". Teachers were asked two questions to determine their competence of a subject. The first one asked about the teacher's knowledge and expertise level for teaching a classroom subject: "Please rate the level of knowledge and expertise for subject". The second one asked about teacher confidence in teaching a classroom subject: "Please rate the confidence for teaching a subject". For the overall assessment of competence, these two items were averaged. In addition, two social–educational variables were also included: (i) overall teaching experience and (ii) the length of their education; both variables were expressed in the number of years.

The statements' structure, grammar, syntax, and logical flow were examined in order to determine whether the questionnaire was appropriate for the intended use [29]. The questionnaire was sent to a panel of three experts in accordance with established guidelines [30], who were asked to assess the clarity, substance, appropriateness, and relevance of each question. Additionally, experts were asked for their thoughts and recommendations on certain issues. These questions were rated as suitable (face validity) and consistent with the research questions of this study (content validity) and thus provide good measures for investigating general trends related to 'teachers' importance, qualification, and competence. The testing was anonymous. Before the testing, the teachers were introduced to the aim of the study.

2.3. Statistical Analysis

An a priori analysis of effect size and the sample size was calculated using the G*Power 3 software [31] and unpublished pilot data. Power calculations reveal that a sample size of 97 (84 + 84 $\times$ 0.15 [added 15% for non-parametric sample size]) participants is considered appropriate ($p < 0.05$; 80% power) to the estimation provided by the Kruskal–Wallis test. Also, this sample size would be adequate to detect statistical significance in

the Friedman test (sample size: 17, $p < 0.05$; 80% power). Basic descriptive average values (median [M], mean rank [MR], mean, and standard deviation [SD]) were calculated for all variables. As expected, due to the contents of the assessment criteria, all result distributions deviated significantly from the normal distribution. The differences in assessments between classroom subjects were determined by applying the non-parametric Friedman test for dependent samples. Although the parametric one-way repeated measures ANOVA tends to be relatively robust to violations of normality, some variables had skew > |2.0| and kurtosis > |9.0|. In the case of a significant Friedman's test, post-hoc comparisons were performed with the Benjamini–Hochberg method for p-values correction [32]. As effect sizes cannot be calculated directly for a Friedman test, they were calculated with the following partial η^2 formula: $\eta^2 = \chi^2$ Friedman/(N(k − 1)). To determine the differences in assessment criteria between the groups of participants with different overall teaching experience and study duration, a Kruskal–Wallis test for independent samples and Mann–Whitney U test were applied, respectively. 'Dunn's test was used for multiple comparisons in the case of the significant Kruskal–Wallis test. Effect sizes were estimated through partial η^2 using the following formula: $\eta^2 = \chi^2/N - 1$. 'Cohen's interpretation of effect sizes was used: |0.1| represents a "small" effect size, |0.3| represents a "medium" effect size, and |0.5| represents a "large" effect size [33]. Standard deviations (SD) of ratings were calculated for all subjects with the aim of assessing the degree to which teachers could be considered a generalist or non-generalist [34]. A small SD would indicate a teacher who considers that importance, qualification, and competence for all subjects are relatively the same (e.g., ratings 5, 5, 5, 5, 5, 5; SD = 0). On the contrary, a large SD indicates that importance, qualification, and competence across subjects are not the same (e.g., ratings 5, 4, 3, 4, 3, 3; SD = 0.81). 'Teachers' level as a generalist was compared by groups of different teaching experiences and study duration using one-way ANOVA and t-test for independent samples, respectively. The significance level was set at $p < 0.05$. All data were analyzed using SPSS 28.0 statistical software (SPSS, Chicago, IL, USA) and GraphPad Prism 9 (GraphPad Software, Inc., San Diego, CA, USA).

3. Results

Rank and median values of three criteria of assessment of each classroom subject are shown in Table 1. The Croatian language was first ranked for all three assessment criteria, followed by Math and Science. The lowest ranking had PE in qualification and competence criteria, while Art was in last place for importance.

Table 1. Rank and median values of the importance, qualification, and competence criteria of assessment of classroom subjects.

Subject	Importance		Qualification		Competence	
	MR (Rank)	M	MR (Rank)	M	MR (Rank)	M
Croatian language	4.36 (1)	5	4.3 (1)	4	4.33 (1)	5
Math	4.13 (2)	5	4.19 (2)	4	4.16 (3)	5
Science	3.74 (3)	5	3.61 (3)	4	4.18 (2)	5
PE	3.41 (4)	5	2.9 (6)	4	2.26 (6)	4
Music	2.74 (5)	4	3.07 (4)	4	2.91 (5)	4
Art	2.62 (6)	4	2.93 (5)	3	3.17 (4)	4

Legend: MR—mean rank; M—median.

Figure 1 shows the differences between subjects in the assessment of the importance of classroom subjects. A Friedman test was significant (χ^2 (5) = 173.02, $p < 0.001$, $\eta^2 = 0.31$ [medium]) meaning that teachers consider that each subject is not equally important. Post hoc pairwise comparisons with adjusted p-value showed that Art significantly differ from all subjects, except Music ($p = 0.63$). Considering the level of qualifications obtained during study for each subject, a statistically significant differences were also determined (Figure 2:

χ^2 (5) = 122.3, $p < 0.001$, $\eta^2 = 0.22$ [small]). Post hoc pairwise comparisons with adjusted *p*-value showed that PE, Art, and Music were rated lower than Croatian language, Math, and Science. Teachers consider that they had the lowest level of qualification for these three subjects. As for competence, Figure 3 shows that significant results exist between each subject (χ^2 (5) = 172.16, $p < 0.001$, $\eta^2 = 0.31$ [medium]). Post hoc analysis showed that PE is rated statistically lowest when compared with all other subjects.

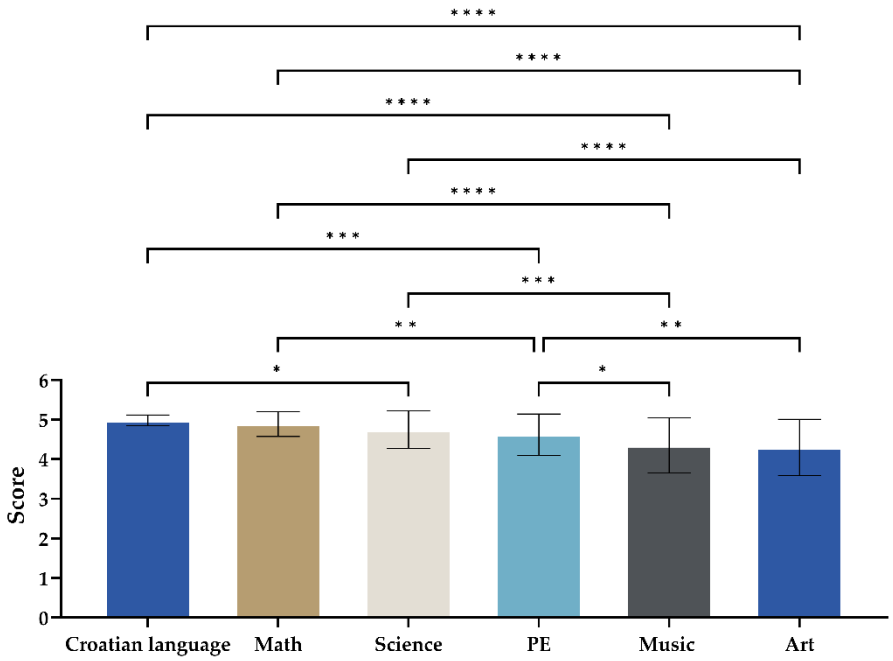

Figure 1. Differences between subjects in assessment of the importance of classroom subjects; values are presented as mean ± SD; subjects are arranged according to mean ranks computed in Friedman test; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.0001$.

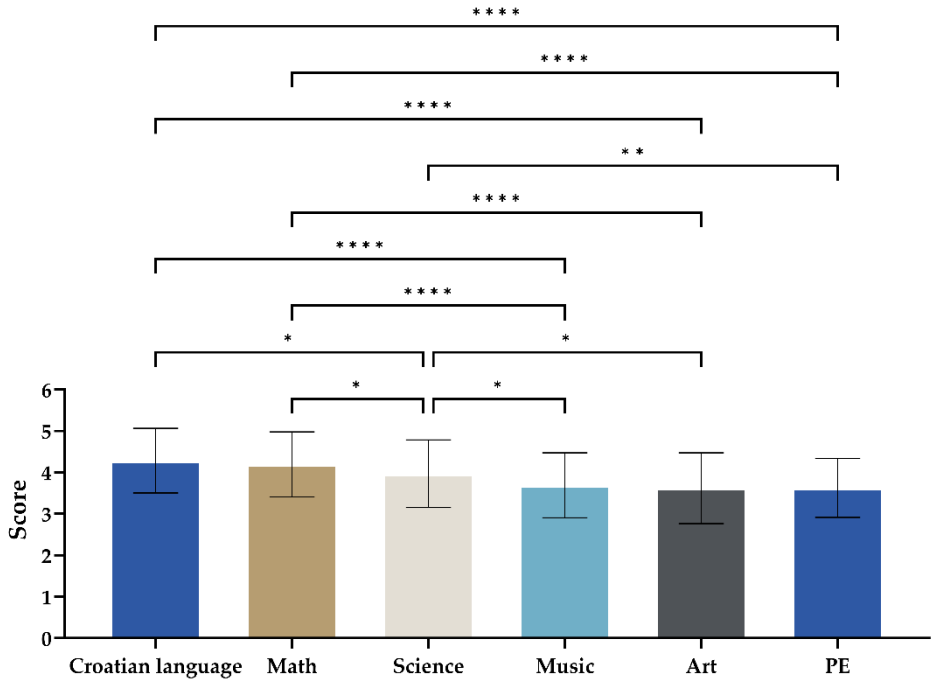

Figure 2. Differences between subjects in assessment of the level of qualifications obtained during study; values are presented as mean ± SD; subjects are arranged according to mean ranks computed in Friedman test; * $p < 0.05$; ** $p < 0.01$; **** $p < 0.0001$.

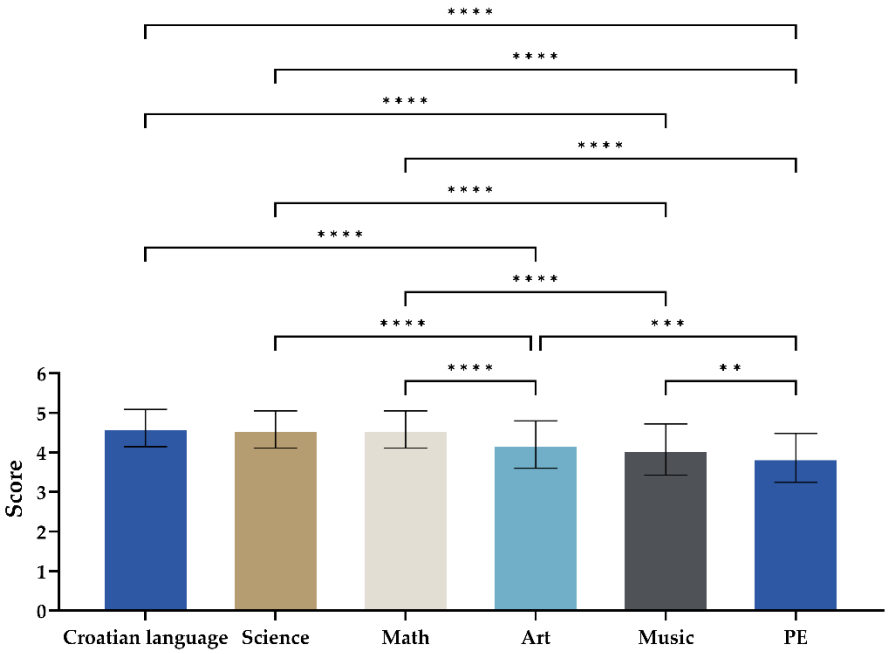

Figure 3. Differences between subjects in assessment of teacher's competence; values are presented as mean ± SD; subjects are arranged according to mean ranks computed in Friedman test; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.0001$.

A Kruskal–Wallis test showed no statistically significant differences between groups in assessments of the importance of classroom subjects rated by teachers (Table 2). Significant differences between groups in rating of level of qualifications were found for Music ($p = 0.03$, $\eta^2 = 0.08$ [small]) and Art ($p = 0.02$, $\eta^2 = 0.06$ [small]) as showed in Table 3. 'Dunn's pairwise comparisons showed that TE1 had higher ratings than TE2 in Music and Group 3 in Art. Considering the teacher's competence, the Kruskal–Wallis test was significant only for Music ($p = 0.02$, $\eta^2 = 0.07$ [small]), where Group 1 had significantly higher ratings than TE3 (Table 4). No significant differences between ED1 and ED2 were found with Mann–Whitney U Test.

Table 2. Differences between groups in assessments of the importance of classroom subjects.

Subject	TE1 (n = 34)			TE2 (n = 43)			TE3 (n = 34)			H	Post-Hoc
	Mean	SD	M	Mean	SD	M	Mean	SD	M		
Croatian language	5	0	5	4.98	0.15	5	4.97	0.17	5	0.93	ns
Math	4.91	0.29	5	4.88	0.32	5	4.88	0.33	5	0.2	ns
Science	4.76	0.5	5	4.77	0.48	5	4.71	0.46	5	0.8	ns
PE	4.71	0.52	5	4.63	0.54	5	4.53	0.51	5	2.68	ns
Music	4.44	0.75	5	4.3	0.71	4	4.32	0.64	4	1.3	ns
Art	4.21	0.81	4	4.35	0.72	4	4.32	0.59	4	0.59	ns

Legend: M—median; H—Kruskal Wallis statistic value; ns—non-significant.

The teachers' of degree of generalism across groups of different teaching experience was conducted using one-way ANOVA (Figure 4). No significant group effect was found for all three assessment criteria (importance: $F_{(2,108)} = 0.16$, $p = 0.86$; qualification: $F_{(2,108)} = 1.85$, $p = 0.16$; competence: $F(2,108) = 0.9$, $p = 0.41$). Furthermore, no significant differences between groups of different study duration were found (importance: $t = -0.16$, $p = 0.87$; qualification: $t = -0.355$, $p = 0.71$; competence: $t = -1.472$, $p = 0.07$).

Table 3. Differences between groups in assessments of the level of qualifications obtained during study.

Subject	TE1 (n = 34)			TE2 (n = 43)			TE3 (n = 34)			H	Post-Hoc
	Mean	SD	M	Mean	SD	M	Mean	SD	M		
Croatian language	4.41	0.74	5	4.07	0.8	4	4.44	0.75	5	5.73	ns
Math	4.32	0.73	4	4.02	0.8	4	4.29	0.8	5	3.48	ns
Science	4	0.74	4	3.86	0.86	4	4.09	0.83	4	1.57	ns
PE	3.79	0.73	4	3.56	0.73	4	3.56	0.66	3	2.3	ns
Music	4.00	0.82	4	3.60	0.76	3	3.50	0.71	4	6.75	TE1 > TE3
Art	3.94	0.85	4	3.40	0.85	3	3.59	0.78	3	7.88	TE1 > TE2

Legend: M—median; H—Kruskal–Wallis statistic value; ns—non-significant.

Table 4. Differences between groups in assessments of teacher's competence.

Subject	TE1 (n = 34)			TE2 (n = 43)			TE3 (n = 34)			H	Post-Hoc
	Mean	SD	M	Mean	SD	M	Mean	SD	M		
Croatian language	4.57	0.52	5	4.58	0.46	5	4.72	0.43	5	2.21	ns
Math	4.66	0.5	5	4.53	0.44	5	4.56	0.47	5	2.13	ns
Science	4.59	0.5	5	4.58	0.46	5	4.57	0.46	5	0.05	ns
PE	3.97	0.7	4	3.85	0.6	4	3.78	0.55	4	1.28	ns
Music	4.29	0.7	5	4.06	0.66	4	3.88	0.52	4	8.06	TE1 > TE3
Art	4.35	0.66	5	4.07	0.55	4	4.22	0.58	4	4.51	ns

Legend: M—median; H—Kruskal–Wallis statistic value; ns—non-significant.

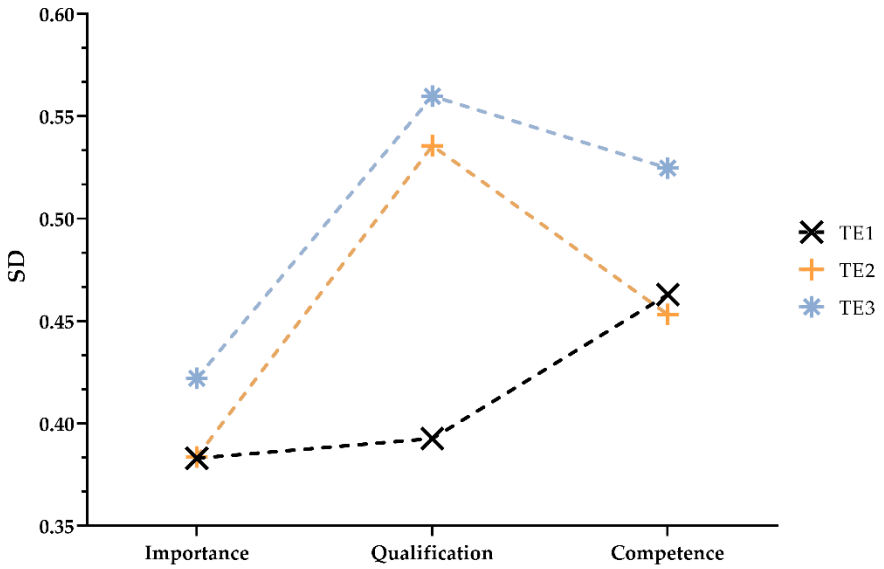

Figure 4. Average standard deviation (SD) for the importance of classroom subjects, the level of qualifications obtained during the study, and 'teacher's competence.

4. Discussion

The current study sought to explore attitudes about importance, qualification, and competence regarding subjects in primary school, particularly PE. In addition, Data suggests that primary school teachers have different attitudes regarding the importance of subjects they teach, level of qualifications obtained during education, and competence acquired for teaching a particular subject. These findings confirm that this study is justified as the determined differences should be precisely determined and explained.

4.1. Differences in Assessment Criteria between Classroom Subjects

All assessments of the importance of classroom subjects are relatively high (all average values are above 4.00), which indicates that teachers recognize (acknowledge) the

significanceof each classroom subject in the curriculum of lower grades of primary school. Teachers consider core academic subjects (Croatian language, Mathematics, and Science) more important than practical and artistic subjects (PE, Music, and Art). PE is ranked fourth, which makes it the closest to the core academic subjects of all the practical and artistic subjects. These findings are confirmed in two studies by Maulini et al. [22,23], where teachers had similar attitudes toward practical and artistic subjects. In comparison, in some countries, PE is ranked much higher where the importance of teaching via movement is shown in certain nations by the fact that PE instruction begins in the first grade of nursery school. This is the case in Denmark and France, where psychomotor training is included in the nursery school curriculum [35].

Practical and artistic subjects are very similar regarding the assessment of qualification. Teachers believe they are better qualified for core academic subjects (Croatian language, Mathematics, and Science) than the practical and artistic subjects after their study, considering the noticeable differences in assessments of qualification between these two groups of subjects. The obtained results could be explained by the fact that the program for practical and artistic subjects is probably harder, and an increased number of classes for their performance during the study should be considered to level the competence for their performance with that of core academic subjects. Thus, additional training in practical and artistic subjects should be continued and intensified for all teachers after their employment. It is not good, neither for the teacher studies nor the pupils in lower grades, that teachers graduate from teacher studies with a sense of low personal competence for the performance of certain classroom subjects [22,23]. Teachers' qualifications are critical, but unfortunately, in countries like Italy, Germany, and France, the quality of preparation is variable, and there are examples of pedagogical and didactic inadequacy, endangering the importance of the PE and the quality of the pupils' learning. Other nations like Bulgaria, Greece, Spain, and Romania only permit qualified teachers to provide PE at the primary level [35].

The lowest competence was determined for PE. For this assessment criteria also, there is a noticeable difference in the assessment level between the core academic subjects and the group of practical and artistic subjects. Moreover, the assessments within the group of practical and artistic subjects differ regarding the level of competence for performance of a classroom subject, from the lowest for PE to the highest (average 4.20) for Art. The possible reason for this could be that the methodology of teaching PE differs greatly from other classroom subjects, which are performed almost entirely in the classroom. It should be pointed out that compared to other disciplines there is a need for specific training for the teaching of PE which, because of its scientific identity and teaching methods, in some cases opposed to other disciplines, has a unique characterization that requires different approaches related to the body and movement and therefore cannot be entrusted to generalist teachers or delegated to external subjects [36].

4.2. Differences in Assessments Criteria between the Groups with Different Teaching Experiences and Study Duration

Regardless of the overall length of service or years of obligatory study, all teachers assess the importance of classroom subjects in the same or in a similar way. It is possible that teachers form or adopt this attitude during study or in their early years of teaching. Moreover, all findings indicate a predominant academic orientation of the educational process in lower grades where teachers have formed an attitude that certain subjects are more important than others. It is not possible to determine from these findings what the basis for these differences in the assessment of the importance of classroom subjects is.

As for the subject of Art, the group of teachers with the shortest overall length of service (1–16 years) believe they obtained higher qualifications for the performance of Music during the study, as opposed to the other two groups of teachers with longer teaching experience.

The assessments of competence for PE are not related to the teaching experience or years of education. Therefore, teachers are unified in their assessments of competence for

PE, which has the lowest rating. It is possible that teachers form or adopt this "attitude" towards the performance of PE classes during study or in their early years of teaching. The assessments of teachers' competence for Music classes differ between groups of participants with different teaching experiences.

The group of teachers with the shortest teaching experience (TE1) considers their competence for Music classes higher than the groups of teachers with longer service (TE2 and TE2). Although it is impossible to determine the reasons for lower competence of some of the teachers with longer teaching experience, based on this finding, it is recommended to orient more attention towards the support and supervision of teachers working for 15 years and more to ensure a better quality of Music classes.

Non-existence of differences for PE between groups could be explained by the fact that PE is in decline [37] and that this problem is universal regardless of teaching experience or years of education. According to a survey conducted by UNESCO [38], in all regions across the globe, PE is being replaced by core subjects such as Mathematics, Science subjects, and Language; PE-allocated curriculum time is being diverted to such core subjects. Moreover, PE has lower esteem and status compared to other subjects. The average time allocated to PE in primary and secondary schools remains low, i.e., 97 and 99 min, as against an ideal of 120 and 180 min in primary and secondary schools, respectively [39]. Moreover, there is a huge problem with essential requirements for maintaining PE classes. Inadequate levels of provision can have a negative impact on the quality of PE classes. Research shows that over a quarter of EU countries (26%) indicate below the average or inadequate quality of equipment and facilities. Additionally, 26% have limited or insufficient quantity of facilities and over 38% have limited or insufficient quantity of equipment [40].

4.3. Future Directions and Limitations

By comparing the assessments for all three criteria, it is noticeable that the highest assessments are those on the importance of a classroom subject, followed by competence for teaching a classroom subject, and the lowest assessments are given for the level of qualifications obtained during the study. Thus, by comparing only the criteria of the level of qualifications obtained during the study and the teacher's competence for the performance of a classroom subject, it can be concluded that the noticeable difference in assessment "in favor of" of current competence is derived from individual practical work during teaching. It is recommended that faculties educating teachers engage more to help them obtain higher qualifications, especially for practical and artistic subjects. Furthermore, PE was ranked fourth by importance, but it had by far the lowest assessments regarding 'teacher's competence for performance. It is recommended to consider the justification of the possibility for masters of kinesiology to take over the teaching of PE from teachers in all lower grades or only in one final grade (as is already done in practice for the subject of Music). Future research should be repeated both on a larger geographical scale and wider sample of participants, as due to the small number of participants in this study, the participants were divided into three subgroups with a very wide range of overall length of service (e.g., the group from 1 to 17 years of the overall length of service). By increasing the number of participants, possible differences could be determined between more groups of participants with different lengths of teaching experience. Finally, it will be important to highlight other comparative variables, such as the school grade teachers teach, a comparison of primary vs. infant school, or the grades obtained by the students.

5. Conclusions

Teachers assess all classroom subjects as highly important and teachers assess lower personal competence and lower level of obtained qualifications during study for the performance of practical and artistic subjects, including PE. Teachers' competence for PE is assessed as the lowest of all classroom subjects. It is recommended to identify in detail the reasons for the teachers' feelings of lower competence and to find and implement measures to improve their sense of competence in teaching PE.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of University of Split, Faculty of Kinesiology (2181-205-02-05-22-031; 2 July 2022) for studies involving humans.

Informed Consent Statement: Participants acknowledged the approval form and consented to participate in this anonymous study investigation by completing the survey voluntarily.

Data Availability Statement: Data supporting this study investigation's findings are available from the corresponding author upon reasonable request.

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