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Study on PE Teachers' Perception Regarding the Theoretical Component of the PE Lesson

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Abstract: *The knowledge-based approach of the PE subject involves the achievement of a mix between a theoretical and a practical component. This approach aims to provide the student with the necessary theoretical notions for an in-depth understanding of the role that practical activity plays in maintaining health. In this way, PE becomes a meaningful school subject for the student.* ***Aim:*** *This paper aims at testing the following hypotheses, built on the conclusions of previous studies: (1) PE teachers consider the theoretical content as less important than the practical one; (2) teachers would rather not deal with the implementation of theoretical content.* ***Method:*** *A data collection tool was devised taking as reference a group of 210 PE teachers, selected by mixed randomization from 7 counties of Romania. The obtained data were then analysed using the statistical programming language R (see 4.1.3).* ***Results and discussions:*** *Teachers value practical content more (4.948) than theoretical content (4.082). And we find this difference even after analysing the data according to the seniority of the teachers within the department. The lowest value is recorded when teachers were asked for their opinion related to the necessity of a PE textbook (3.063).* ***Conclusions and future implications:*** *The two components (theoretical and practical) are not equally appreciated by specialized teachers. This fact highlights the need to emphasise the role of theoretical knowledge within the PE lesson in the training of future teachers.*

Keywords: *knowledge-based approach; theoretical notions; physical education; teachers; education; pedagogy.*

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INTRODUCTION

The way people perceive PE is one that involves a wide range of perspectives (Metzler et. all, 2013; Kirk, 2010; Paechter, 2000). The two opposing views are: (1) the old view that considers PE only as a child's play - even harmful to the educational process (Jura, 1999); and (2) the modern view, supported by the indisputable arguments of science – and which places PE among the school subjects with benefits on a multitude of levels (Minnesota Department of Health, 2020; Warburton & Bredin, 2017; Kohl et al., 2013).

The transition of each society from one perspective to another occurs at a rate directly proportional to the activity of PE researchers and practitioners. Therefore, the main objective of these two categories of people is to develop and implement the most effective methodological approaches in order to obtain the best possible results. If we look at the transformations that PE went through over time, we may notice three periods: (1) the first one, characterized by well-established exercises, specific to gymnastics (Parck, 1989; Gulick, 1890); (2) the second one, known as the sport-based approach, whose aim is to develop the competitive spirit (Corbin, 2021; Mierzwinski & Velija, 2019; Dunning & Sheard, 2005); (3) and a third one, which is in full development, known as the knowledge-based approach. This latter approach focuses on providing systematized knowledge, critical thinking, and the ability to make logical connections and see interdependencies (Iconomescu et al., 2021; Kirk, 2010; Hargreaves, 2003; Parck, 1989).

Our paper aims at contributing to the implementation activity of the knowledge-based approach. But before explaining how we propose to do this, we consider it important to say a few words about the knowledge-based approach.

Knowledge-based is the approach in which the teaching-learning process in PE is planned, scheduled and taught in such a way as to achieve a mix between the theoretical and the practical component. Charles Corbin is the author who first proposed this type of approach in 1967, which he calls conceptual physical education CPE (Zhu, 2018). He describes it as an approach that uses a textbook or printed material to teach and understand the concepts, principles and techniques of independent physical activity (Corbin 2020). But, as shown in a review paper by Iconomescu et al. (2021) – the theoretical component within PE can be taught in other forms as well - not only with the help of a textbook or printed material.

Starting from the conclusions of some previous works stating that PE teachers in Romania infer the need for theoretical knowledge within the school subject they teach, but do not integrate the elements of theory because there is great confusion related to the content of these notions and the way they are transmitted to students (Talaghir et al., 2021; Iconomescu et al., 2022), we formulate the following hypotheses: (1) PE teachers consider that the theoretical content is not as important as the practical one; (2) teachers would prefer not to deal with the implementation of the theoretical content – which will make them consider useful the existence of a digital application that uses theoretical notions and which they can use to teach the theoretical component. In this way, the involvement of teachers in the lesson is reduced.

The objectives of the research focus on three directions: (1) highlighting the PE teachers' perception regarding the two components (i.e. theoretical and practical); (2) differentiating the perceptions of these two components according to the years of experience in teaching this subject; (3) determining the perceptions regarding the usefulness of digital applications that interactively integrate theoretical notions within PE and (4) testing the consistency of putting into practice the proposed items in order to measure teacher perception.

METHOD

We designed a quantitative assessment tool for the collection of primary data from a sample of respondents with socio-demographic characteristics which are representative for the studied population, selected by mixed randomization. The results were consolidated by means of the digital services offered by the Google Forms platform. We delivered and applied the assessment tool through digital survey channels and data aggregation questionnaires. The questionnaire has two sections, the first of which fulfils the rigors regarding consent and the description of the research in which the respondents express their agreement to participate and provides a series of sociodemographic information necessary to confirm the probabilistic selection of the sample. In the body of the first section, the breakdown of the respondents is presented according to the county where they teach and their seniority in teaching PE: between 0 and 5 years; between 5 and 10 years; 10-15 years; 15-20 years and more than 20 years of experience.

In the second section, the questionnaire was designed with a quadrilateral structure: (1) the perception of PE teachers regarding the school subject they teach – viewed as a whole; (2) the perception of PE teachers regarding the practical component within PE; (3) the perception of

PE teachers regarding the theoretical component within PE; and (4) the perception of PE teachers related to the need for a digital application that uses theoretical knowledge when teaching this school subject. We chose to talk about the 4th factor separately from the 3rd one, even though the two could have been merged. We chose to do this in order to observe teachers' openness towards using a digital application, in the context of the digitization process taking place in the contemporary period. The operationalization of these factors can be seen in table 1. The 4th factor is operationalized with a single item because we consider that its weight is sufficient in relation to the information that can be provided by the respondents in this regard.

Table 1 The factors monitored and the items by means of which they were put into practice

Factor no. 1	Factor no. 2	Factor no. 3	Factor no. 4
The perception regarding the importance of PE	The perception regarding the practical component within PE	The perception regarding the theoretical component within PE	The perception regarding the usefulness of an application that uses theoretical notions in PE
I1. The Physical Education and Sport lesson is needed in the school curriculum. **I2.** Student participation in the Physical Education and Sport lesson is important. **I3.** Practising physical exercises influences the development of the student. **I4.** The content of the Physical Education and Sport lesson is needed in the education process.	**I5.** In the Physical Education and Sport lesson, the practical content is needed. **I8.** The evaluation of motor performance is relevant in the final grade obtained in the Physical Education and Sport school subject.	**I6.** In the Physical Education and Sport school subject, the theoretical content is needed. **I7.** It is necessary to use a textbook in the Physical Education and Sport lesson in order to complement the practical content. **I9.** The theoretical evaluation can represent a criterion for success in the Physical Education and Sport school subject.	**I10.** The existence of applications that use theoretical notions would be useful for the Physical Education and Sport school subject.

To answer each of the 10 items of our questionnaire, the teachers had to choose from 5 answer options, presented as exclusive, equidistant, gradual and linear options, built on the basis of the Likert scale: <Not at all>, <A little >, <Enough>, <Much> or <Very much>. In the data analysis stage, each of these 5 answer options was given a score from 1 to 5 - so 5 points were assigned to the answer <Very much> and 1 point to <Not at all>, but the number value of responses was not disclosed to respondents.

The questionnaire was given to teachers selected by mixed randomization (systemic, stratified and aggregate-based) from 7 counties, based on an administrative estimate of the studied population as being below 50,000 potential respondents, and by distributing the invitation to participate in a survey by means of professional communication networks (forums, social media) to the entire studied population, because the sociodemographic characteristics of the studied population vary significantly from year to year. With regard to the subject group, we aimed at obtaining a representativeness that was as balanced as possible regarding each level of experience from the five requested ones in the first section of the questionnaire. (0-5 years, 5-10 years, 10-15 years, etc.) Thus, between January 2022 and June 2022, the questionnaires were distributed to the teachers. Then the data obtained were collected, processed and analysed using Google Sheets, Microsoft Excel, the statistical programming language R (v. 4.1.3), the Quarto extensions and the tidyverse, corrplot, ggplot2 libraries (R Core Team, 2021).

RESULTS AND DISCUSSIONS

A number of 210 PE teachers participated in this study, and their distribution according to their seniority in teaching PE is as follows: between 0 and 5 years of experience 23.81% (N=50); between 5 and 10 years of experience 14.76% (N=31); between 10 and 15 years, 21.9% (N=46); between 15 and 20 years, 15.24% (N=32); and teachers with over 20 years of experience, 24.29% (N=51). One may notice that the subject group representativeness objective, established in the method, was met - that of having a representativeness as balanced as possible for each level of experience.

Regarding the teachers' answers to the 10 items, we may notice similar perceptions of the teachers in the 5 levels of experience (Figure 1). This similarity in the responses of teachers with different experience can be attributed to the fact that, in terms of the factors of our questionnaire, universities preparing future PE teachers have the same approach now as they did more than 20 years ago. Corbin et al. all (2020) draws attention to

the fact that, even today, future physical education teachers are prepared to teach only the practical component, on the sports field. We believe that this problem can also be found in Romania where, starting from 2017, PE textbooks were introduced for the 5th and 6th grades. But none of the universities in Romania prepare future teachers concerning a methodology for working with these textbooks.

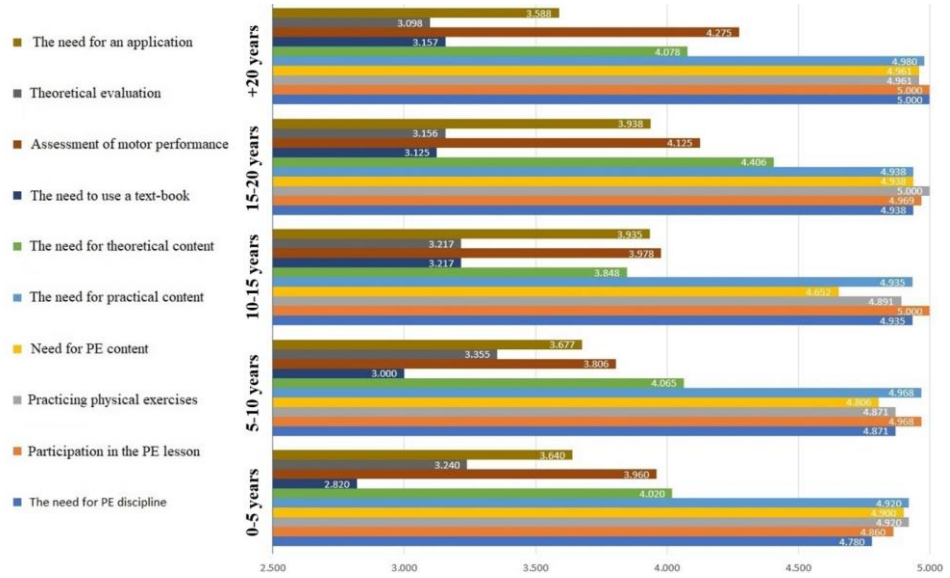


Figure 1 The average assessment of the items according to seniority in the profession

One may notice that the 4 items that made up the first perception factor (the need for PE; participation in the PE; practising physical exercises; the need for PE content) recorded values very close to the maximum. This result was one that, on the one hand, was expected, because it is assumed that all PE teachers have the same perception concerning the topics questioned by these items. But, on the other hand, if the teachers' opinion related to these subjects was different, we could question the relevance of the other answers, given the fact that there were teachers who were not convinced of the importance of the subject they were teaching.

Another item that came close to the maximum score in terms of teachers' appreciation, is the one that asked about the necessity of the practical content in the PE lesson, with an average of 4.948 points. Comparing this result with the item that questioned the need for theoretical content in PE, which obtained an average of 4.082, we may see a significant difference in favour of the practical content. The same difference and

advantage can be found in another pair of complementary items: the one that asked about the relevance of motor performance evaluation (4.028) and the one that asked about theoretical evaluation (3.213). These results highlight the tendency of teachers to appreciate more the necessity of practical content and its evaluation as compared to the same aspects of the theoretical component. But, nevertheless, we notice that the "necessity of the theoretical content" and the "theoretical evaluation" obtained scores expressing the 3rd (Much) and 4th (Enough) answers on the Likert scale – fact which indicates to us that teachers do not completely ignore these two aspects.

The item that recorded the lowest score (3.063) is the one that asked about the necessity of using a textbook in the PE lesson. This confirms the opinions of the specialists that believe that the benefits of using a textbook within the PE lesson are not known among PE teachers (Talaghir et al., 2021; Neagu, 2018). But even here, the score of 3.063 leads us to the conclusion that teachers are not against using a textbook, they only do not perceive the theoretical component at the same level as the practical one.

Regarding the item that questioned the usefulness of some applications that use theoretical notions in the PE lesson, a score of 3.755 is noticed, which places this subject close to the 4th answer on the Likert scale (Much). This fact leads us to the statement that teachers feel the need for such applications to help them in teaching theoretical content.

The post hoc analysis concerning the validity of putting into practice the items through factors by the exploratory monitoring of the correlation coefficients.

Further on, we shall present the correlation coefficient matrix (Figure 2), which highlights both the correlations between the 10 items of the questionnaire and the correlations with the 4 factors on the basis of which the questionnaire was devised.

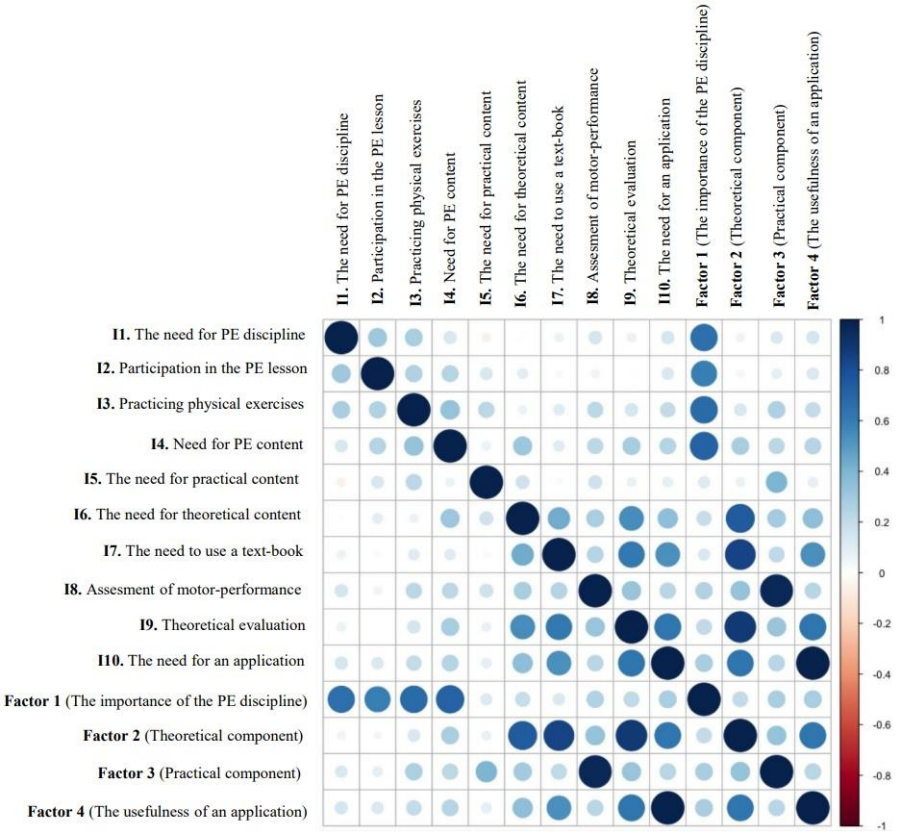


Figure 2 Correlation coefficient matrix between primary and secondary variables

In analysing these results, we first focused our attention on the correlations between the items composing the same factor. The first aspect that stands out is that, between the items that make up factor 3, strong positive correlations are recorded. For example, between the answers of teachers who appreciate the use of a textbook (I7) and those who appreciate the theoretical assessment (I9) (r 0.617 ; $p < .01$); the responses of teachers who appreciate the use of a textbook (I7) and those who appreciate the need for theoretical content in the PE lesson (I6) (r 0.437; $p < .01$); and the third intra-factorial correlation between the responses of teachers who appreciate the necessity of theoretical content (I6) and those who appreciate the theoretical evaluation (I9) (r 0.542; $p < .01$). These results allow us to state that the teachers' perception of the theoretical component (factor 3) is very clear, and those who consider it important in the PE lesson, also consider important all 3 elements that make it up: (1) the theoretical content; (2) the

use of the textbook and (3) the student's grade for PE should be made up of theoretical assessment as well.

If we analyse the correlations between the items that make up the practical component (factor 2), we observe a much weaker correlation (r 0.162 and p <.05) between the answers of teachers who appreciate the necessity of practical content (I5) and those who appreciate the evaluation of motor performance (I8), fact which allows us to state that there is no consensus among teachers as strong as the one regarding the theoretical component. And this situation is supported by the opinion of the specialized literature, which says that the use of practical content is necessary in the PE lesson, but the assessment of motor performance can be contrary to the educational intention of this school subject (Society of Health and Physical Educators, 2021; MacDonald (2011).

Another type of correlations that may lead to debates are those between items that are part of different factors. Within this type of correlations, we are interested in the correlations between the items that make up factors 2, 3 and 4 – because the responses to the items that make up factor 1 are close to the maximum.

Strong positive correlations may be noticed between item 10 (I10), the one that operationalizes factor 4 and which questions the need for applications that use theoretical notions in the PE lesson, and the items that operationalize factor 3: the need for theoretical evaluation (I9) (r 0.640; p<.01); the need to use a textbook (I7) (p 0.537; p<.01) and the need for theoretical content (I6) (r 0.356; p<.01). These strong positive correlations were somewhat expected given that item 10 could easily have been part of factor 3 (the theoretical component), but in this way it can be seen that teachers who value the theoretical component also value the use of an application in order to operate with theoretical notions in the PE lesson. But when we look at the correlations of the same item 10 (I10) with the items that make up factor 2 (the practical component) we notice weak correlations with the need for practical content (I5) (r 0.09; p<.05) and with the assessment of motor-performance (I8) (r 0.231; p<.01).

All this leads us to the opinion that teachers who value the theoretical component also value more the introduction of an application as compared to those who value the practical component. Obviously, the usefulness of a digital application is rated higher by the respondents who appreciate the theoretical component. However, the usefulness appreciation level of a digital application among the respondents who prefer the practical component, although lower, is still significant.

Finally, we have to analyse the correlations between the items that make up factors 2 and 3, the practical and the theoretical component, respectively. Here, we do not find any strong positive ($r > 0.5$) or negative ($r < -0.5$) correlation to report, which allows us to say that the teachers' perspective towards the two components is one that varies quite a lot, the lack of a strong relationship between the two factors suggesting as an interpretation the fact that there could be another factor predetermining the answers given by the subjects: the lack of consensus on the importance of theoretical knowledge. And this situation is due to the fact that, in the training of future PE teachers in Romania, the importance of theoretical knowledge is not emphasized. By way of contrast, in the USA, we find universities that teach future PE teachers courses that, on the one hand, have the role of making them understand the importance of theoretical knowledge in teaching this school subject and, on the other hand, of offering them teaching techniques and a working methodology with the textbook (Corbin et al., 2020).

CONCLUSIONS AND FUTURE IMPLICATIONS

Teachers' opinions are different regarding the need for the theoretical and the practical component within the PE school subject. Even if the practical component enjoys a higher appreciation as compared to the theoretical one, the teachers who participated in our study do not neglect the role of theoretical knowledge to complement the practical activity.

Regarding the usefulness of a digital application using theoretical knowledge, there seems to be an openness to this idea – which highlights the need for such applications to be developed to support the teaching-learning process in PE. Such applications could help a lot in the assimilation of theoretical knowledge, since the affinity that the young generation has for the digital environment is widely known.

This study also highlights the need for universities that train future PE teachers to adapt their training curricula in order to prepare their students to achieve a mix between a theoretical and a practical component when teaching PE to children.

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