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**The Relationship Between Early Childhood Teachers’ Professional Development in Physical Education and Children’s Fundamental Movement Skills. *Early Education and Development*, *35*(5), 950–963. <https://doi.org/10.1080/10409289.2023.2221766>**

**Abstract**

Physical education in early childhood physical education is key to children's overall development. It is taught by early childhood teachers, so an in-depth study of their professional development is of great relevance. A previously validated five-dimensional model (initial and continuous training, resources, motivation and beliefs about physical education, contextual perspective and social recognition) has been used to improve the understanding of the relationship between motivations, professional competences and recognition of physical education teachers. A mixed methods approach was used, applying and analyzing interviews and focus groups (n = 20) and an ad hoc questionnaire (n = 468) with teachers. The results showed the relevance of personal and material assets, as well as an adequate initial and continuous training. Teachers recognized the importance of these curricular contents at this stage and expressed motivation not only to teach physical education but also to updating their knowledge. However, it is still a challenge to achieve social recognition of physical education, especially among families. In short, the initial and continuous training of those who teach physical education in early childhood education is necessary but not sufficient. It must be accompanied by resources, and internal and external recognition of the professional activity that enables teachers to continue working on the social, cognitive, and physical development of children through physical education.

***Keywords***: Early childhood education, teacher, physical education, professional development

**Introduction**

Physical education (hereafter, PE) enhances children's learning experience in unique ways and has been linked to social, cognitive, and physical development (Bailey, 2018; Ross, 2013). In addition, children's personality development gains a lot from PE, probably due to its relationship with play. The main goals of PE in Early Childhood Education (hereafter, ECE) are to foster the progress of affective, cognitive, and social skills and behaviours, to aid the development of essential motor skills and physical competence, and to instil lifelong physical exercise habits in children (Freire et al., 2018; McEvilly et al., 2013; Ross, 2013). However, there is a lack of research on the professional development of PE teachers in early childhood schools (Tsangaridou, 2017).

***Early childhood physical education in Spain***

The Organic Law on Education (LOE, 2006) defines ECE as an educational stage with its own identity, which is divided into two cycles (0-3 years and 3-6 years). The aim is to contribute to the physical, affective, social, and intellectual development of the infant, as well as to lay the foundations for personal and social development through the integration of learning. This legal framework establishes the objectives, contents, methodology and assessment process. Indeed, given its global nature, three main areas are established: (1) self-knowledge and personal autonomy, (2) knowledge of the environment and (3) languages (communication and representation).

Regarding PE in ECE, a global work perspective is established to improve the child's development (Soria & López-Pastor, 2017) in whick three major factors or axes are considered: perceptual-motor, physical-motor, and affective-relational (Gil-Madrona et al., 2008).

The pedagogical methods used to teach PE in ECE are diverse. For instance, the stations, in which different learning areas are distributed in space; or the motor story, which is a story told and played, with its own characteristics and objectives, and which allows the development of basic motor skills and certain conceptual and attitudinal contents. Likewise, motor games deserve special consideration since they are based on cooperative, playful, and inclusive experiences, and activities (Gil-Madrona et al., 2008). The daily organization of the classes is based on sequences of lessons, without a fixed order, since they are determined by the teacher according to the nature of the activities and the needs, abilities, and interests of the children. This flexibility is possible because the curriculum does not specify the minimum minutes needed for PE. Likewise, it highlights the fact that PE is a coeducational lesson, which contributes to the objectives of other areas within the framework of unified learning.

Precisely, this interest in achieving unified learning is also glimpsed in the fact that ECE teachers have general training, which includes PE (Arufe, 2020). The implementation of the European Higher Education Area or Bologna Process in 1999 has led to a reconfiguration of teacher training, to adapt it to the labour market. In the case of PE in children, it is the ECE Teacher who has the competence to carry out this task (Arufe, 2020). Regarding this training, of a total of 240 ECTS, there are a total of 12 credits that are directly linked to the PE contents (equivalent to two subjects of 6 ECTS each). There are also four optional courses that a student teacher may attend (30 credits).

In this sense, knowing that ECE teachers play a crucial role in the teaching and learning environment (Tannehill & MacPhail, 2014), and that PE training represents a key axis in child development in the early stages of life, different studies in the Spanish context have concluded that this training is not enough to teach PE in ECE (Arufe, 2020)

***The importance of continuous professional development and initial teacher training***

Initial teacher training is necessary, but not enough to adapt to the demands of a changing environment, especially in educational one. An additional difficulty for PE teachers in the early stages of school is tailoring their undergraduate training -general and scarce in specific PE content- to the school challenges (Arufe, 2020; Lander et al., 2020).

The focus on Continuing Professional Development (hereafter, CDP) has emerged as a response to the need to improve initial training (Freak & Miller, 2017). In the case of the early childhood teacher, the continuous training model does not seem to adapt to the demands of new and experienced teachers and may generate some rejection by these professionals (Ward & van der Mars, 2020; Lander et al., 2020). The use of short courses (approximately 20 hours), online and with optional participation (Castilla La Mancha Ministry of Education, 2020) seems to discourage many teachers from taking this training, generally offered by the Ministry of Education and universities during the summer.

Alternative approaches based on active and continuous methodologies that enhance the CPD of teachers are called for in the literature (Randall, 2020; Ward & van der Mars, 2020). This type of training would have a greater place among PE teachers, as it would allow the teacher not only to be nourished by the content, but also by examples of effective professional development programs that emphasize experiential learning, interactive sessions, training in the site and group reflection. Achieving the change in the way of continuously instructing PE teachers requires not only interest and good will, but also the involvement of government and academic institutions. These are the ones responsible for investigating the possible solutions for an improvement in the CDP of ECE teachers (Brown & Englehardt, 2016) and, consequently, formulating policies and programs of continuous education in the needs, expectations, and impact of CDP in their local contexts (Fleet & Patterson, 2001). By doing so, professional development can be addressed globally and would have a direct impact on the work methodology that the teacher himself can use in the classroom with the children (Bautista et al., 2018) and on the results he achieves with them (Egert et al., 2018); that is, attending to innovation and reflection through practice and theory (Ferraz et al., 2021; Rainer & Harvis, 2020; Semivli-Celik, 2020).

***How is early childhood teacher motivation?***

There are few studies in ECE where the focus is on the teacher and on the requirements for continuous training which “allows transferring [of] their knowledge and skills to practice” (Sheridan et al., 2009, p. 396). The literature has shown that insufficient and inadequate training of PE can reduce their motivation and confidence (Mcveagh et al., 2020). Thus, to the demotivation that has been evidenced in generalist teachers (Brennan et al., 2021; Randall, 2020; Griggs & Randall, 2019, Truelove et al., 2019), is added, in the case of the PE teacher, the knowledge limitations, which for Mcveagh et al. (2020) and Petrie (2010) represent important barriers for the effective teaching of PE in this educational stage.

Professional development could also be conditioned by the availability of equipment, facilities, spaces, and personal resources (McCaughtry et al., 2006; Morgan & Hansen, 2008; Tsangaridou, 2016, 2017) that are essential for the development of content. of learning (Gil-Madrona et al., 2008). An increase in equipment and facilities can also have an effect on the motivation of teachers to teach PE (Fackler & Malmberg, 2016), although having them without sufficient training may not serve to improve their practice or their level of motivation (Mcveagh et al., 2020).

***What affects how teachers value physical education?***

The perceptions of the PE teacher himself towards his professional activity may be conditioned by internal and external factors.

On the one hand, personal characteristics, as well as initial and continuous training may have weight in their sense of self-efficacy. Various studies reported this fact, although they reveal that this negative perception improves after participation in practice-based courses (Semivli-Celik, 2020), that is, having more active, participatory and in-depth training on specific content of EF at this stage (Harris et al., 2012).

On the other hand, the literature has underlined that the value that teachers attach to PE. Therefore, is not only conditioned by individual factors, but it is also a complex process where the "relational aspect of professional development" should be emphasized. (Fleet & Patterson, 2001, p. 6). In this regard, the external evaluations and social recognition of the profession can influence their professional development. The PE is socially and politically marginalized (Tsangaridou, 2016, 2017). The low status it presents in all educational states is notorious, not only in ECE (Tsangaridou, 2016). Indeed, research evidence reveals that PE is the first subject to be dropped to reduce pressure on the curriculum or catch up on lost ground in so-called academic subjects (Mcveagh et al., 2020; Bautista et al., 2018). The social context of ECE teachers consists of children, fellow professionals, and families and relationships with them. The opinions expressed by them can influence how teachers percieve PE (Hesketh et al., 2017). For instance, the disinterest of families towards the implementation and delivery of PE (Hesketh et al., 2017; Wilke et al., 2013) can lead to a lack of motivation and decreased value that is granted by teachers towards PE (Gagne & Harnois, 2014).

In short, major scientific literature in Spain has focused on the professional development of PE teachers by studying their initial and continuous training (Diaz & Sosa, 2016; Pons & Arufe-Giráldez, 2016). Further research is needed to delve into the relationship between teacher professional development and other variables such as teacher motivation and concerns, as well as the individual and social perception of the profession.

The purpose of this study is to achieve greater knowledge about teacher professional development through the study of their initial and continuous training, the resources available to them, their motivation, and beliefs about PE, as well as the contextual perspective and social recognition. Likewise, it is intended to deepen the experiences of some active teachers, listening to their assessments of professional activity and how it can be improved in relation to PE. Therefore, the objectives of this research are to examine the relationship between motivation and CPD, to identify the main motivational concerns that PE teachers have in ECE regarding the teaching of this subject area, and how these concerns can be addressed.

**Method**

A mixed method approach is used based on a convergent parallel mixed methods design (Creswell & Clark, 2017), through which work is done with quantitative and qualitative data whose results can be corroborated with each other (Creswell & Clark, 2017). Methodological triangulation (quantitative and qualitative) and data (questionnaire, interviews, and focus groups) are used. The use of this methodology represents an innovation in the field of study, as there are no previous referents that jointly use these data sources, nor is there extensive use of focus groups to address the issue.

***Participants***

Since data was collected through several instruments, it is necessary to refer to several samples, related to the application of the questionnaires, the interviews and the focus groups.

On the one hand, for the application of the questionnaire, there was the participation of N = 468 active early childhood teachers who worked in the province of Albacete (Autonomous Community of Castilla-La Mancha, Spain). Thirty-six (7.7%) of them were men and 431 (92.3%) women, aged between 26 and 65 years (M= 43.35, SD= 10.35). Most of them (n = 427) worked in state-funded schools, and the remainder (n = 41) worked in private institutions. Regarding the educational cycle, 112 teachers (23.9%) worked with children from 0 to 3 years old, teaching only in this first cycle 0-3, and 356 (76.1%) worked with children from 3 to 6 years old.

On the other hand, ten of them participated in the interviews, and another ten did so in the focus groups. Two focus groups were held, each one made up of five teachers. These twenty participants were randomly chosen from among the 468 teachers to participate in interviews and focus groups.

***Instruments***

*Quantitative instrument*

The questionnaire used to collect data was the "Questionnaire for the assessment of teachers'professional development in relation to Physical Education” (QPD-IPE, Autores, 2020), a questionnaire designed ad hoc by the researchers. It is made up of 24 items, measured through a 5-point Likert-type scale, and grouped into seven factors: (1) Training and professional development (TPD), referring to the quality of initial and continuing training in PE in ECE, the knowledge acquired through books, conferences, and workshops about PE, and the mastery of content and pedagogical knowledge (2) a personal perspective (PP); (3) a contextual perspective (CP) based on the value given to physical education by families; (4) social recognition (SR) based on the recognition obtained from families when teaching physical education sessions; (5) external perception of PE (EP); (6) internal perception of PE (IP), and (7) formative value of PE (FV) Presents some properties excellent psychometric data, with a high level of general internal consistency (α = .836) and its dimensions (TDP, α = .80; PP, α = .82; PC; α = .95; SR, α = .87; PS, α = .90; IP, α = .85), as well as a consistent structure (χ2/gl = 1.635, GFI = 0.929, CFI = 0.963, RMSEA = 0.039) (Authors., 2020)

*Qualitative instruments*

***Semi-structured interviews.***  The interviews provided an in-depth understanding of thoughts and opinions on the phenomenon. Ten interviews were conducted at each teacher's school.

***Focus groups.*** Through this tool it was possible to deepen the points of view of various members of a group and their interaction (Bryman, 2016). Previous research (Diaz & Sosa, 2016; Martinez et al., 2016; Pons & Arufe-Giráldez, 2016) on this topic that used a mixed method approach has rarely used a focus group method, which was surprising considering the possible ideas. could give in. Before starting the interviews and focus groups, each topic was explained in depth to the participants. In this case, two focus groups were held, each one made up of five teachers respectively.

Both the script of the interviews and the focus groups were prepared according to the seven factors that make up the professional development model extracted from the analysis of the questionnaire. The questions that were asked were 25.

***Procedure***

The initial contact with the schools was made through telephone calls to the management teams to explain the study. Meetings were scheduled with the teachers of the schools that responded positively, leading to more detailed explanations. Finally, other appointments were made to distribute the questionnaires and arrange the interviews and focus groups.

The ethics of the study is guaranteed by the anonymity and the informed consent of all the actors. Participants completed a paper questionnaire and then 20 teachers who had taught PE, who had completed the questionnaire, were randomly selected to participate in interviews and focus groups. The interviews were conducted at teachers’ schools, while the two focus groups were conducted at the university. The study protocol was reviewed and approved by the lead author's university. After this approval, a simultaneous investigation was carried out in both the quantitative and qualitative phases, giving rise to the integration and triangulation process (Bryman, 2016).

***Data analysis***

*Quantitative data analysis*

Statistical analyses were carried out using the SPSS (Statistical Package for Social Sciences) statistical package v.25. After verifying that the sample was not distributed according to the assumptions of normality, a non-parametric statistical test was used: namely Spearman Rho correlations. The level of significance established was *p* < .05.

*Qualitative analysis*

The interviews were recorded, transcribed and entered into the matrix of the qualitative analysis program at Atlas.ti v. 8. The qualitative analysis procedure exposed by Saldaña (2013) was taken as a reference.

Initially, a deductive precoding of the data was carried out with reference to the key questions and concepts of the bibliographic review (eg, How was your initial training in EF? How do you think your training in EF should be?).

In the first coding cycle, each of the interviews and focus groups was analyzed as unique and independent entities. There were two phases, one descriptive and the other interpretive. The descriptive phase consisted of selecting the most relevant information and coding each statement. In this phase, the data was described and analyzed. In the interpretive phase, the data was divided into several parts for further examination and comparison. Each content block was divided into: initial training and continuous professional development; personal resources, materials and spaces available; teacher motivation in PE; contextual perspective; social recognition; formative value of PE, and internal perception. Subsequently, relationships were established between the codes within each content block and the main codes were differentiated from the secondary ones (or subcodes). This led to the establishment of the main categories or themes. The second cycle aimed to refine the themes. Textual data was analyzed to refine the theoretical constructs following a top-down process.

**Results**

The quantitative and qualitative results are presented together around three main themes. These main themes were first based on an analysis of the statistical relationship between the different preconceived themes in Table 1. Following this analysis, the interviews and focus groups were re-analysed to gauge whether they could provide a deeper explanation of the statistical relationships..

[Table 1 near here]

***Theme 1: Motivation, training and professional development and resources***

Table 1 shows a positive correlation between personal perspective (or motivation) and training and professional development (*r*s = .45; *p* < .01), between external perception (resources) and training and professional development (*r*s = .44; *p* < .01), and personal perspective (*r*s = .41; *p* < .01). The connections between these three features are examined in more detail below.

*Personal perspective*

Five of the 20 teachers were highly motivated towards teaching PE. The benefits that the young children gained through the sessions resulted in a high level of teacher motivation [“I like to work on PE, playing games because I see that children enjoy, socialise and learn” (T4)]. On the other hand, the other 15 participants who thought that their motivation was low, stressed that this was mainly due to inadequate initial and continuous professional development and not having material resources or suitable spaces [“I do not feel comfortable doing motor skills sessions because I think I am not prepared enough” (T20)].

*Training and professional development*

In relation to initial training, all the teachers affirmed that it is insufficient [“only we had two subjects of PE and they were insufficient” (T8)]. All the participants highlighted that methodological training and knowledge about how to teach PE was necessary throughout their teacher training [“it is essential that during our academic training we have subjects where we can learn more about PE at this educational stage” (T14)].

Regarding CPD, there was a consensus on the part of all teachers that previously this came from short courses (20 hours or less) where theoretical content about PE and the different methodologies were explained without teaching how to use them in a real space like in a gym class. The lack of practice in these courses and of specific professional development content in PE is evident, as well as the time constraints that made it difficult to discuss or exchange ideas. They also emphasized that their needs were not met through these courses [“I want to continue training about motor skills, but the courses currently taught are short and online and when I do them, they include content that I already know” (T19)]. Furthermore, seven of the 20 teachers wanted university experts from the faculties of education, and specifically experts on early childhood and PE, to be in charge of the training since they were considered to be at the forefront of innovative development within PE [“I think that those who train us in the universities during our initial training have to be in charge of continuing professional development due to the fact that they are the ones who investigate the new methodologies” (T3)]. In the same way, it will be essential to achieve greater "collaboration and cooperation between universities and schools to develop projects" (T16). All teachers highlighted that their continuous professional development must be a reflective and critical process, covering an extended period of time. where the practical contents must be put into practice ["I believe that our teacher training must be reflective and lasting over time so that it allows us to acquire the necessary knowledge about PE" (T15)]. There were two other ways in which teachers they developed professionally. One was through reading research journals ["I liked reading journals. about PE because they help me plan activities with our students" (T12)] and the other, attendance at congresses and semesters, so that they could acquire both practical and theoretical knowledge, since they could exchange experiences and resources with other teachers and learn from university experts.

*External perspective*

Regarding material and personal resources, the lack of sufficient resources to develop adequate PE sessions was a notable aspect for more than half of the teachers. Four of them confirmed not only that equipment and facilities were missing, but also that they were in poor condition. Twelve teachers admitted that the PE spaces were too small to hold sessions with all the students. These teachers also found that they did not have access to people who could help them plan lessons in advance. The rest of the teachers said that they did have new and suitable equipment. However, they considered that children needed at least two weekly sessions. There is a positive relationship between teacher motivation, the resources available to teach and the quality of CPD.

***Theme 2: Social recognition***

Table 1 shows a weak positive correlation between social recognition and external perception (resources) (*r*s = .35; *p* < .01), between social recognition and training and professional development (*r*s = .29; *p* < .01), and between social recognition and personal perspective (*r*s = .31; *p* < .01). This would suggest that teachers who receive more training and are better resourced to teach PE are more likely to be recognised by parents for the valuable work that they do, and that the increased value that parents placed on PE could have a positive effect on teacher’s motivation. The inverse is also possibly true, where a lack of recognition by families may be demotivating to teachers.

The demotivational aspect, driven by a lack of social recognition by families, is hinted at by comments from the teachers. Concerning social recognition, 13 of the teachers declared that families did not value their work on PE. For instance, one teacher said that “parents have never told me that I should continue planning more PE sessions” (T14), but it does occur with literacy and numeracy. At the same time, another professional affirmed that she had “never been spoken well of for working on PE, but it has never happened with literacy” (T11). Regarding feedback and engagement from families, teachers feel that “parents are more concerned, for example, about literacy, and I dedicate time to that area or field than to PE” (T9). All the participants declared that parents considered PE less important at this stage than other aspects such as literacy and numeracy. As a result, it was socially marginalized. Moreover, families were not interested in the implementation of more sessions of PE in ECE. Although this does not exactly explain the statistical correlations above, it does highlight the relatively low recognition of the value of PE teaching by parents, and the effect this can have on teachers’ motivation to teach it.

***Theme 3 Internal perception and formative value of PE***

The third theme stands in contrast to the second. Table 3 shows a weak positive correlations between internal perception and formative value (*r*s = .28; *p* < .01) and social recognition and formative value (*r*s = .29; *p* < .01) of PE. Finally, there was a weak positive relationship between personal perspective and formative value (*r*s = .23; *p* < .01). These statistics would indicate that teachers valued the benefits that PE had on children and that this motivated them to teach it.

Comments by teachers seemed to reinforce the value they placed in teaching PE to this age group. All the teachers underlined the importance of doing PE [“For me, PE is essential at this stage owing to the fact of the benefits children obtain from it. PE is key to promote adequate child development” (T17)]. Regarding the formative value of PE, all the teachers affirmed that PE encourages children to interact socially because students work cooperatively through different PE activities [e.g., “PE improves social relations with games where they have to collaborate for a common purpose” (T8)]. Participants also confirmed that children were able to improve their emotional expression through the motor games developed during PE sessions [“When I carry out PE sessions, my students express joy, amazement ... especially with the motor games that children put into the different characters” (T13)]. All the teachers were sure that PE in the early ages promotes the acquisition of healthy habits as the joy of physical activity is developed through physical activities. In addition, they highlight that for many of their students it is the only opportunity for them to practice structured physical activity.

In terms of the development of personal and collective responsibility, all teachers agreed that PE is the ideal medium for this purpose. They highlighted that during their teaching, this is one of the most significant benefits. All the participants emphasized that the PE sessions are essential to learn about rules because the students must respect turns when they do circuits or make use of stations and corners as pedagogical methodologies. They also learn to look after and be responsible for the equipment used [“It is surprising to see how they take care of the material, collect it and make good use of it” (T3)].

Likewise, all teachers considered that motor development is improved greatly through PE activities [e.g., “a girl who had problems with laterality could be solved with the PE sessions” (T5)]. Finally, almost all of them agreed that PE has a positive influence on the reduction of obesity. However, one teacher stressed that for this to take place, not only must PE be delivered, but “families play a more essential role in this aspect” (T18). Finally, they highlighted than students’ motivation in PE is higher compared to motivation shown in other subjects.

The motivation appears to be positively related to their training and professional development and to how well they were materially resourced. While teachers affirmed that families considered PE to be less important for pre-schoolers, they believed that if teachers had a better knowledge of PE, they would be able to transmit the importance of it to families.

**Discussion and conclusion**

This research aimed at broadening the knowledge about the professional development of ECE teachers who teach in PE. For this, their initial and continuous training, the resources that facilitate their work, their motivations and beliefs towards PE and the contextual elements that support and recognize the work of this educational agent were studied qualitatively and quantitatively. Collecting information from many professionals, added to the deepening of the main concerns of various teachers, has allowed the research to offer a broader overview of the needs, demands and interests of PE teachers in ECE in their professional development.Three main themes were identified from the qualitative and quantitative data analysis, and will be discussed, highlighting how these findings relate to previous research, and presenting some tentative recommendations regarding the practice of PE in ECE in the Spanish context.

Firstly, teachers were positively motivated by the need for better quality initial teacher training and CPD. This was especially the case in the areas of teaching methodology in PE, but less so in the theoretical aspects of initial teacher training. Furthermore, it highlighted that initial teacher training and continuous development should be reflective, collaborative and meaningful, and taught by university experts. By doing so, their professional development may have an impact on children’s PE outcomes (Peleman et al., 2008). Similarly, in the study developed by Bautista et al. (2018) concluded the importance of enhancing teacher preparation to increase “their knowledge, pedagogical skills and confidence” (p.19). Long‐term CPD interventions integrated into practice, such as pedagogical guidance and coaching in reflection groups, may enhance professional development in ECE. Furthermore, involving them in a process of change where they can be *actors of change* not only impacts on their practical knowledge, but also on their professional attitudes and understandings (Peeters & Vandenbroeck, 2011). Contrary to other studies, the teachers’ lack of engagement in their professional development (Peeters & Vandenbroeck, 2011) was not caused by negative perceptions (Harris et al., 2011).

Although their training was perceived to be too theoretical and insufficient, they expressed positive opinions about PE and its benefits. These findings are similar to that of previous literature in different geographical contexts (McLachlan et al., 2017; Tsangaridou, 2017). Despite not being adequately trained in PE, they believed that it was extremely valuable. In research by Tsangandirou and Genethliou (2016), the teachers’ opinions of PE improved significantly after they were trained to implement an alternative PE model in ECE; for instance, the use of innovative pedagogical methodologies such as learning environments, adventures learning, focus of interests like *Disney* or *The Jungle*, motor games, motor songs among others. In ECE, there is increasing evidence for the importance of professional development to assist teachers to encounter the challenges faced in schools (Casbergue et al., 2014).

Teacher motivation to teach PE was also affected by available equipment and space. Research carried out by McCaughtry et al. (2006) concluded that equipment, personal resources and available spaces significantly influences professional development. Therefore, an increase in resources allows the teaching of broader content as well as an improvement in the physical activity of the students. Sevimli-Celik (2020) states that teachers need to be provided not only with material and resources, but also quality and long-term CPD, considering the teachers’ demands. In the Spanish context, PE in ECE requires a higher investment in materials, resources, and spaces but also to implement CPD programmes. The involvement of university experts in delivering and implementing these CPD programmes in PE is of utmost importance. According to the teachers, it is the experts who have to give them effective tools and resources to plan PE sessions.

The results also highlighted the link between teacher motivation and family recognition of PE in this educational stage, revealing that a better teacher knowledge of PE could improve families’ opinions as teachers could explain and show the benefits of PE

Finally, the association between internal perception and the formative value of PE was highlighted. Teachers placed a high value on PE at this early stage of education, and the contribution of PE to the social, cognitive, emotional and motor development of young children. This finding is consistent with the study carried out by Tsangaridou (2008) where PE teachers not only believed that PE had multiple benefits, but also that it had the same status as other areas of the curriculum.

**Implications**

The findings have highlighted the importance of adequate initial training and CPD in helping improve the practical knowledge and motivations of ECE teachers. This is in line with the study developed by Torres et al. (2022) who concluded the importance of implementation of CPD in ECE. Focusing the attention on CDP, practitioners demand that it should be reflective, collaborative and meaningful. As teachers stated, CPD should be ongoing because 20 hours or less are not enough to learn the contents and the different methods of evaluating PE in ECE. In these short courses they only learn the theory but do not see the practice as no practical sessions are included in this CPD. They receive information without putting it into practice. For this reason, pedagogical content knowledge is required at both a theoretical and practical level. One of the possible solutions to enhance CPD is that university experts play a role as mentors who guide ECE teachers to develop PE adequately. To do that, it is paramount to develop an active and lasting communication process where the exchange of ideas takes place, thus helping to meet the needs of the teacher. It also highlighted the importance of equipment and space in teacher motivation to teach PE at this stage in education. Finally, although PE is highly valued by teachers, there is still work to be done in reducing the marginal role and perception of PE by families in early years education in Spain. The role of high quality and innovative CPD was seen as being paramount to future success in all these areas.

**Limitations and future lines of research**

This study offers valuable information that shows the relevance of the in-depth study of the professional development of the early childhood teacher who teaches PE. Still, it is not without its limitations. One of the main limitations is the geographical location of the study. This can be considered as an initial study that evidences the existence of a topic of interest and that requires further investigation. Therefore, the results should be taken with caution, pointing to the interest in expanding the number and diversity of participants throughout the Spanish territory. Another aspect that has generated doubts is the level of socialization of teachers and their previous experiences as PE students. It is evident that there are other variables that can lead the way in the professional development of these agents, which is why greater attention is required to other possible determinants of teachers' motivation to develop PE in ECE. Finally, with this study we open a broad line that can deal with the impact of the CPD on the professional early childhood teacher in PE.

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**Table 1**

*Spearman correlations among professional development variables*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | EP | TPD | PP | CP | IP | SR | FV |
| EP |  |  |  |  |  |  |  |
| TDP | .435\*\* |  |  |  |  |  |  |
| PP | .412\*\* | .454\*\* |  |  |  |  |  |
| CP | .015 | .095\* | .006 |  |  |  |  |
| IP | .175\*\* | .179\*\* | .179\*\* | -.118\* |  |  |  |
| SR | .349\*\* | .294\*\* | .314\*\* | -.008 | .196\*\* |  |  |
| FV | .086 | .110\* | .226\*\* | -.079 | .278\*\* | .291\*\* |  |

*Note*: \**p* < .05, \*\**p* < .01

*Note:* EP= External Perception, TPD= Training and Professional development, PP=Personal Perspective, CP=Contextual Perspective, IP=Internal Perception, SR=Social Recognition, FV=Formative value