PRIME PETE

PRIMARY EDUCATION PHYSICAL EDUCATION TEACHER EDUCATION

Overview on Primary Physical Education Teacher Education in Europe

Dana Masarykova, Claude Scheuer, Alina Lemling, Manolis Adamakis, Sandra Heck, Richard Bailey, Marcos Onofre, João Martins, Nuno Ferro, António Rodrigues, Attilio Carraro, Patrizia Tortella & Tamás Csányi

Co-funded by the Erasmus+ Programme of the European Union

Technical sheet

Title: Overview on Primary Physical Education Teacher Education in Europe

Authors: Dana Masarykova, Claude Scheuer, Alina Lemling, Manolis Adamakis, Sandra Heck, Richard Bailey, Marcos Onofre, João Martins, Nuno Ferro, António Rodrigues, Attilio Carraro, Patrizia Tortella & Tamás Csányi

Number of pages: 41

Year: 2023

Cite as: Masarykova, D., Scheuer, C., Lemling, A., Adamakis, M., Heck, S., Bailey, R., Onofre, M., Martins, J., Ferro, N., Rodrigues, A., Carraro, A., Tortella, P., & Csányi, T. (2023). Overview on Primary Physical Education Teacher Education in Europe [PRIME PETE Project - Report Intellectual Output #1]. https://doi.org/10.5281/zenodo.10028606

Project: Primary Education Physical Education Teacher Education

Project Coordinator: Claude Scheuer (until February 2023), Alina Lemling (from February 2023)

Funder: European Commission

Programme: Erasmus+ Key Action 2: Cooperation for innovation and the exchange of good practices 2020

Action Type: Strategic Partnerships for Higher Education

Reference: 2020-1-LU01-KA203-063257

Timeline: December 2020 – August 2023

Project Sheet: https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2020-1-LU01-KA203-063257

For further information on the PRIME PETE Project please follow the link:

Website: https://www.primepete.com/

Project partners:

The authors wish to acknowledge the contribution of the Primary Education Physical Education Teacher Education (PRIME PETE) project team for the development of the outputs here referenced for PRIME PETE (2023).

No.	Institution	Involved researchers
1	University of Luxembourg, Luxembourg	Claude Scheuer (until February 23), Alina Lemling (from Feb 23), Manolis Adamakis (from June 21), Richard Bailey (May-December 21), Sandra Heck (until June 22)
2	Libera Universita di Bolzano, Italy	Attilio Carraro, Partizia Tortella (until March 21), Giampaolo Santi (from December 21)
3	Universidad de Sevilla	Francis Ries, Matilde Mora Fernández (until March 22)
4	Faculdade de Motricidade Humana (FMH), Universidade de Lisboa, Portugal	Marcos Onofre, Nuno Ferro, António Rodrigues, João Martins
5	Dublin City University, Ireland	Susan Marron, Frances Murphy
6	Trnavska Univerzita v Trnave, Slovakia	Dana Masarykova, Jana Labudova
7	European Physical Education Association [EUPEA], Luxembourg	Tamas Csanyi, Yiannis Gryparis (until September 21), Martin Holzweg, Rose-Marie Repond

Table of Contents

Technical sheet 2
1. Introduction 5
2. The Landscape of Physical Education Teacher Education in Europe 6
2.1 Teachers' Qualification Level 6
2.2 Initial teacher education 7
2.2.1 Admission 7
2.2.2 Study programme content 8
2.2.3 Number of European Credit Transfers (ECTS) 11
2.2.4 School placement 14
2.3 Induction phase 14
2.4 In-service Teacher Education 15
2.5 Conclusion of the Landscape of Physical Education Teacher Education in Europe 15
3. Review of Literature related to Primary Physical Education Teacher Education 17
3.1 Dimension 1: Knowledge, Management and Creation 17
3.2 Dimension 2: Design and Management of Process of Learning, Teaching and Assessment 19
3.3 Dimension 3: Learner Empowerment, Potential and Creativity supporting Learner Holistic Growth and Development 20
3.4 Dimension 4: Values and Social Leadership: Ethics and Social Commitment 21
3.5 Dimension 5: Communication with Different Actors and in Different Contexts 22
3.6 Dimension 6: Development as Professionals and Life-Long Learners 23
3.7 Conclusion of the literature review 24
4. The Delphi Study - Knowledge, Skills, Abilities and Competencies of Primary Physical Education Teachers 24
4.1 Dimension 1: Knowledge Development and Management 26
4.2 Dimension 2: Teaching, Learning and Assessment 28
4.3 Dimension 3: Learner Empowerment, Potential, Diversity and Creativity 30
4.4 Dimension 4: Values, Social Leadership, and Communication 31
4.5 Dimension 5: Development as Reflective Professionals and Life-long Learners 33
4.6 Conclusion of the Delphi study 35
5. Summary 35
6. Conclusion 35
5. References 36

1. Introduction

Physical Education (PE) contributes significantly to all children in physical, social and cognitive domains. Quality programmes of physical education are crucial to contribute to the holistic development of the child and to the development of physical literacy in particular. Primary physical education is generally taught by generalist teachers or PE specialist teachers. A generalist primary school teacher teaches most subjects that a child studies in school while a specialist teacher is a teacher with expertise in a major subject area working with children, a specialist teacher may also teach a minor subject. In some cases, sport coaches may be invited to lead PE classes by teaching element and skills of specific sports. However, the scope of the present document and project is to focus on the training of generalist and specialist teachers. Literature highlights the challenges teachers experience teaching PE, particularly as non-specialist (generalist) teachers. Therefore, adequate PE teacher education (PETE) programmes (initial teacher education; induction; in-service education) preparing for the delivery of quality PE (QPE) are crucial.

The objectives of the PRIME PETE project are:

- to bring together European HEI and other stakeholders active in Primary PETE and to foster their cooperation in PETE and mobility exchange
- to provide an overview of Primary PETE in Europe
- to compile a profile of a primary PE teacher and a modular curriculum for Primary PETE based on this profile and core principles
- to make this modular curriculum available for any interested stakeholders
- to foster the delivery of QPE in primary education by strengthening the primary PE teacher profession.

Several intellectual outputs (IO) were planned for this project. The *Overview on Primary Physical Education Teacher Education in Europe* is the first IO and it should provide general information on the current situation in primary PETE in Europe.

The project partners complied an overview of Primary PE teacher education in Europe focusing on the following aspects:

- Existing profiles for primary teachers teaching PE in Europe
- Existing concepts, models and curricula for Primary PETE in Europe

A general analysis was carried out for 25 European countries, as far as the respective documents and information were available. For this, results from a previous Erasmus+ project were taken into consideration, called “Identifying best practice across physical education teacher education programmes: A European perspective”. The results of this project were made available in a book “European Physical

Education Teacher Education Practice" (MacPhail, Tannehill, & Avşar 2019). A specific, deeper analysis comparing the respective national systems was carried out for the project partner countries (see the following section 2).

For a more detailed and comprehensive information on PETE in Europe, a Literature Review (see section 3) and a Delphi Consensus Study (see section 4) were also carried out. These methods and their results are described more in detail in the respective sections of this overview.

2. The Landscape of Physical Education Teacher Education in Europe

The project partners analysed information on PETE in 25 countries through available literature as well as their own knowledge and institutional documents describing the current situations in the different countries. The information provided in the book "European Physical Education Teacher Education Practice" was refined by the project partners through their own knowledge and experience on the respective countries. The partners shared specific information about the primary PETE during the first Learning, teaching and training activity in February 2021 in Luxembourg with partners' online participation, so that the information presented on the countries is more accurate. The findings were updated according to changes in the respective countries related to legislation, curricula, education, etc. Analysis of information from MacPhail et al., (2019) and partner information is organised using the following categories and sub categories to provide an overview on PETE in Europe:

- Teachers' Qualification Level
- Initial Teacher Education
- Induction Phase
- In-service Provision

2.1 Teachers' Qualification Level

The teachers' qualification[1] for teaching primary PE varies across the European countries. There are either requirements for obtaining a Bachelor's or Master's degree to teach primary PE in different study programmes (tab. 1, 2). Out of the 25 analysed countries, only 7 countries require a Master's degree (Croatia, France, Italy, Germany, Portugal, Slovakia and the Czech Republic). All the other countries require a Bachelor's degree of either 3 or 4 years, although some of them are considering replacing it with a Master's degree. (Austria, Lithuania).

[1] These are the lowest qualification criteria to teach primary PE. Various master programmes are offered in many countries with the focus on PE. These programmes are presented more in detail in the Section II Initial teacher education.

Table 1. Countries with a Bachelor's degree as a qualification requirement to teach primary PE

Number	Country	Teachers' qualification	Generalist or specialist teachers
Bachelor's degree - Generalist teachers			
1	Austria	Bachelor's degree	Generalist teachers
2	Bulgaria	Bachelor's degree	Generalist teachers
3	Germany (Bavaria)	Bachelor's degree	Generalist teachers
4	Hungary	Bachelor's degree	Generalist teachers
5	Ireland	Bachelor's degree	Generalist teachers
6	Lithuania	Bachelor's degree	Generalist teachers
7	Luxembourg	Bachelor's degree	Generalist teachers
8	Malta	Bachelor's degree	Generalist teachers
9	Netherlands	Bachelor's degree	Generalist teachers
10	North Macedonia	Bachelor's degree	Generalist teachers
11	Poland	Bachelor's degree	Generalist teachers
12	Sweden	Bachelor's degree	Generalist teachers
13	Switzerland	Bachelor's degree	Generalist teachers
Bachelor's degree – Specialist teachers			
1	Belgium (Flanders)	Bachelor's degree	Specialist teachers
2	Greece	Bachelor's degree	Specialist teachers
3	Norway	Bachelor's degree	Specialist teachers
4	Spain	Bachelor's degree	Specialist teachers
5	Turkey	Bachelor's degree	Specialist teachers

Table 2. Countries with a Master's degree as a qualification requirement to teach primary PE

Number	Country	Teachers' qualification	Generalist or specialist teachers
Master's degree - Generalist teachers			
1	Croatia	Master's degree	Generalist teachers
2	France	Master's degree	Generalist teachers
3	Italy	Master's degree	Generalist teachers
4	Portugal	Master's degree	Generalist teachers
5	Slovakia	Master's degree	Generalist teachers
6	The Czech Republic	Master's degree	Generalist teachers
Master's degree - Specialist teachers			
1	Germany	Master's degree	Specialist teachers

2.2 Initial teacher education

2.2.1 Admission

Countries have different admission processes to their study programmes at their institutions. The most common criteria for admission are from secondary school examination results. Some of the universities include motor aptitudes fitness tests in their admission process (Hungary, Sweden). Luxembourg requires admissions in languages (Luxembourgish, German, English and French), but also in math and natural

science. In Ireland competency in the Irish language is required. The form of the admissions is either as written test or an interview.

Table 3. Admission criteria in the selected European countries

Admission criteria			
Results from secondary schools	**Motor competence, fitness tests**	**Written test (language, math, science or other)**	**Oral test/interview**
Austria Bulgaria Croatia Hungary Ireland Lithuania North Macedonia Norway Poland Portugal Slovakia Switzerland The Czech Republic Turkey	Austria Hungary Germany-Bavaria Germany-North Rhine Westphalia Malta Netherlands Sweden	Greece Italy Luxembourg	Italy Ireland (for students over 23 years) Lithuania Netherlands Hungary

2.2.2 Study programme content

The study programmes' contents aimed at preparing a teacher to teach primary physical education are not only different for specialist PE teachers and generalist teachers, but according to the project partners' statements vary considerably also among the HEIs in one country. Therefore, it would be very challenging to describe the similarities and differences among the respective European countries. Also, as the number of ECTS is very different (see Number of ECTS, p. 10), in some modules the content (especially in generalist teacher modules) is restricted. In table 4, we present just the contents presented by the country's representative HEI to offer an overview of the variability in contents.

Table 4. Content of the PE modules

Country	**Study programme content related to PE (PE courses/modules)**
Belgium Flanders	• General pedagogy and didactics • Didactics (theory and practice) • School placement • Research • Advanced and elective courses (theory and practice)
Bulgaria	• theory of physical education and methodology of physical education in preschool and elementary schools
Croatia	• General content in kinesiology: methodology of kinesiology (competences to conduct the kinesiology activities) • Kinesiology culture (competences in understanding students motor skills acquisition, and elective subjects).
France	• PE didactics • Pedagogical competencies, planning and implementation • Analysing of learning environments, assessment and evaluation • Health education

Germany	• Movement and corporeality in culture • Society and individual acting • Movement and sport as an educational process • Movement theories • Biological basis of movement and training • Didactics of movement and sport • Competencies in movement and sport
Germany - Bavaria	• Sport didactics • Exercise physiology • Sports medicine • Sports and health • Sports pedagogy • Movement science • Diagnostics • Supporting and formation • Leadership and organisation
Greece	• Motor development in childhood • Sport psychology, Sport sociology, Sport history • Sport Pedagogy and practice in primary school • Methodology and didactics in PE • Adapted physical activity • Sex issues in sport
Hungary	Generalists: • Physical education subjects pedagogy I. • Physical education subjects pedagogy II. • Physical education subjects pedagogy III. • Movement games and its methodology Specialists: • Physical education subjects pedagogy I. • Physical education subjects pedagogy II. • Physical education subjects pedagogy III. • Movement games and its methodology • Anatomy and physiology • Calisthenics and gymnastics I. and II. • Ball games methodology I. II. • Track and Field Methodology I. II • Alternative physical activities
Ireland	• Module 1 - The development of pedagogy through practical engagement with content, lesson planning and resources within each strand of the primary PE curriculum • Module 2- Builds on and advances students understanding of the instructional and additional models related to movement and with a focus on assessment
Lithuania	• PE • Dance • Healthy lifestyle
Luxembourg	• Physical activity and motor development in childhood • Primary PE and Didactics and methods in primary PE • Foundations of the competence area “Moving in water” (swimming) • Active schools • Inclusion in PE Support measures in PE • Pedagogical project in PE • PE can be chosen as the topic of the bachelor thesis

Malta	• Primary curriculum • Pedagogy, educational gymnastics and dance • Physical Literacy, Fundamental Motor Skills, • Health related fitness, mini games content • Class management, issues in PE, • Behaviour management, motivating children, • Assessment in PE, Adapted PE, Creativity and Innovation
Netherlands	• Perspectives on humanity, physicality, education and society • Relation between physical activity, active lifestyles and health; Dutch educational system and legal frameworks • Views on PE and its place and function within the school • Intra-and extracurricular sports and physical activity; Current (scientific) insights and international developments in PE • Curriculum development; • Theory on motor skill learning and (physical) development
North Macedonia	• Sport and recreation • Physical education with methods 1 • Physical education with methods 2 • Movement games • Different sports in each semester • Didactics of PE in the 7th semester
Norway	• Curriculum • Promotion of child development, resources and activities, • Instructional methods, implementing content • Play, promotion of movement skills in various contexts
Poland	• Anatomy, biology, physiology, pedagogy, psychology • Growth, motor skill learning, physical activity promotion • IT in sports and PE • Practical areas: aquatics, athletics, dance, gymnastics, team games, combat sports, health related activity, adventure activity
Portugal	• Physical education I • Physical education II
Slovakia	• Pedagogy and didactics of primary PE • Physiology of exercises • Theory and didactics of sports • PE curriculum and policy
Spain	• Fundamentals and Curriculum of Physical Education at Primary Level • Didactics of PE Additionally 5 elective courses: • Physical Fitness at School • Physical Recreational Activities in Nature • Biological fundamentals of movement • Sports Initiation in School • Body Expression
Sweden	• Didactics in play, ball games, gymnastics movement, dance and outdoors • Sport pedagogy • Human biology • Health
Switzerland	• Disciplinary knowledge and introduction to the didactics of PES 1 • Disciplinary knowledge in PES • Didactic in PES • Motor learning in PE: relation with languages and spatial capacities and/or arithmetic

	• Wellbeing in PE: Emotions and perspectives • Psychomotor development and motor disorders • Didactic of PE and Sport • Live your PE and Sport differently
The Czech Republic	• Health oriented PE • Swimming, motion and sports games • Gymnastics, athletics • First aid • Basic physical exercise
Turkey	• Basic skills • Classroom management, measurement and evaluation • Preparing and applying lesson plans, working plans • Examples for educational and musical games • Modern and folk dances • Definition of the game and general characteristics, game teaching

2.2.3 Number of European Credit Transfers (ECTS)

The number of European Credit Transfers credits (ECTS) is related to the level of study programme and it follows the Bologna Process applied in the countries related to the adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification. The second cycle should lead to the master and/or doctorate degree as in many European countries (The Bologna Declaration, 1999). The Europe-wide use of the student workload based ECTS not only allows student mobility across Europe but also to other countries; it can also facilitate programme design and development, particularly with respect to coordinating and rationalising the demands made on students by concurrent course units. In other words, ECTS permits us to plan how best to use students' time to achieve the aims of the educational process, rather than considering teachers' time as the primary constraint and students' time as basically limitless. As most of the countries have the qualification level of a Bachelor's degree, the number of credits is mostly 240 ECTS (in case of 4 years of study). The Master's degree usually consists of 120 ECTS, but there is the condition to complete bachelor studies usually as 3-years-studies with 180 ECTS.

Generalist teachers
Bachelor degree 4 years, 240 ECTS

Austria, Bulgaria, Hungary, Ireland, Lithuania, Luxembourg, Malta, Netherlands, North Macedonia, Poland

Generalist teachers
Master degree 2 years 120 ECTS (condition is to complete bachelor 180 ECTS)

Croatia, France, Italy (single-cycle 300 ECTS), Portugal, Slovakia, The Czech Republic

Generalist teachers
Bachelor degree 3 years, 180 ECTS

Generalist teachers, Post graduate qualification in PE
Master Education with Specialism in PE

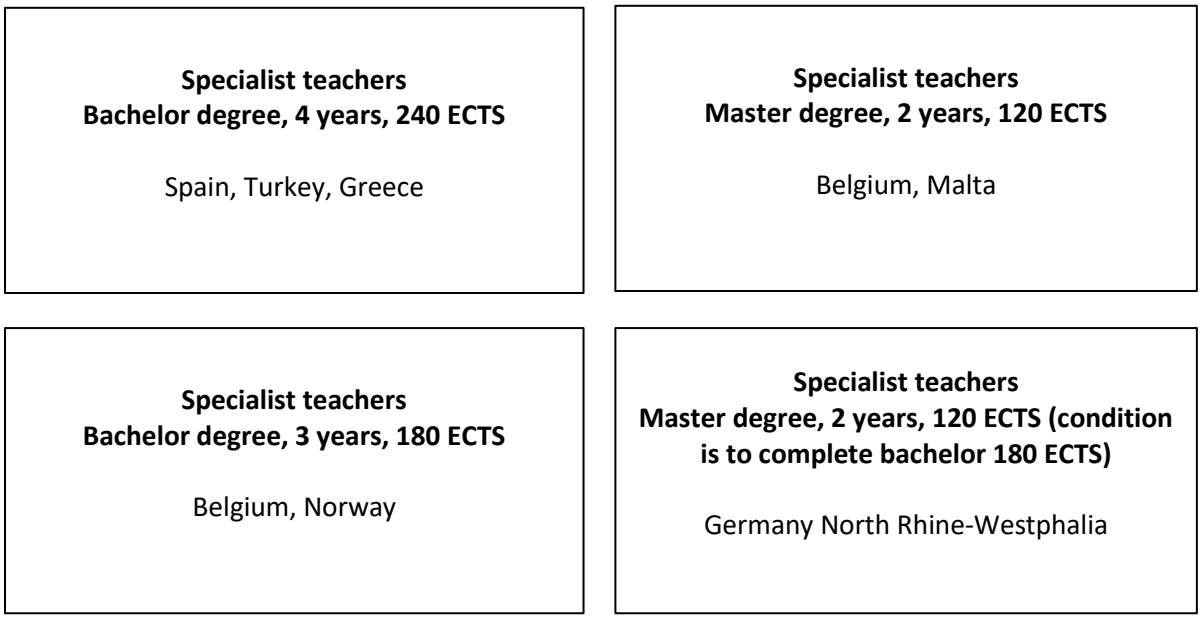


Figure 1. Number of ECTS in generalist and specialist primary PETE programmes

The study programmes are similar with their number of credits, however, there are large differences in the number of credits for modules related to PE. The number of credits starts with 3 ECTS (Germany-Bavaria) for PE modules and increases to 75 ECTS (German North-Rhine Westphalia)[2]. In Spain and Hungary, there is a specialist primary PE programme which offers a larger amount of credits to PE modules in comparison to countries with generalist teachers teaching primary PE. The average amount of credits offered to PE modules in case of generalist teachers is 8 ECTS. In case of specialist teachers, the average number of credits is 36 ECTS. When we compare the number of credits for PE modules in the study programmes, the generalist teachers receive on average 28 ECTS less than the teachers in specialist programmes.

[2] The number of ECTS does not include the school placement and the bachelor or master thesis.

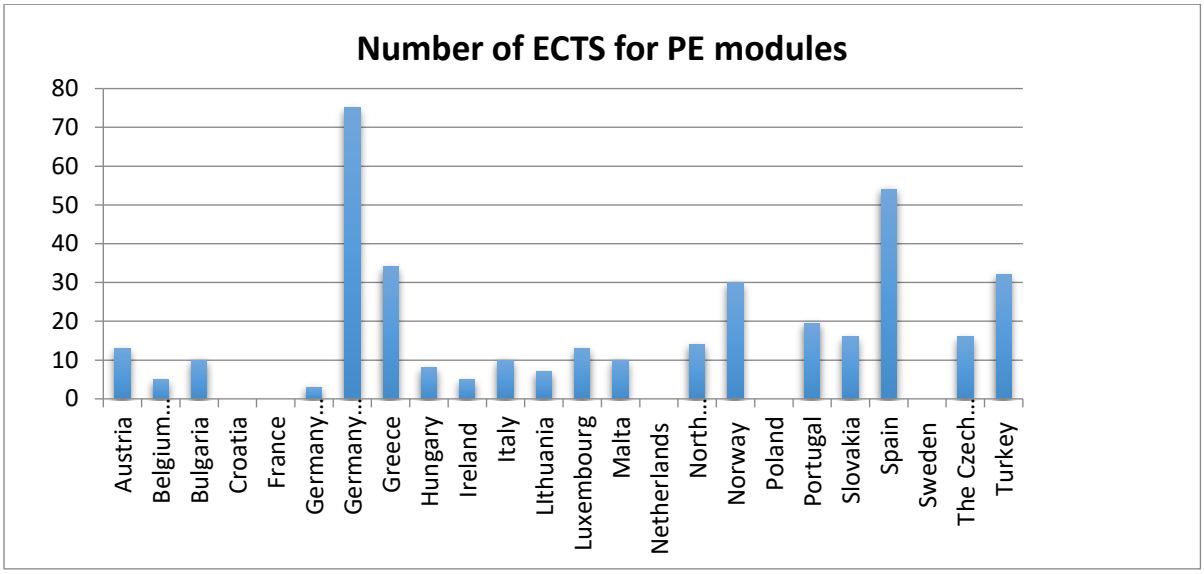


Figure 2. Number of ECTS for PE modules in both generalist teacher and specialist teacher programmes

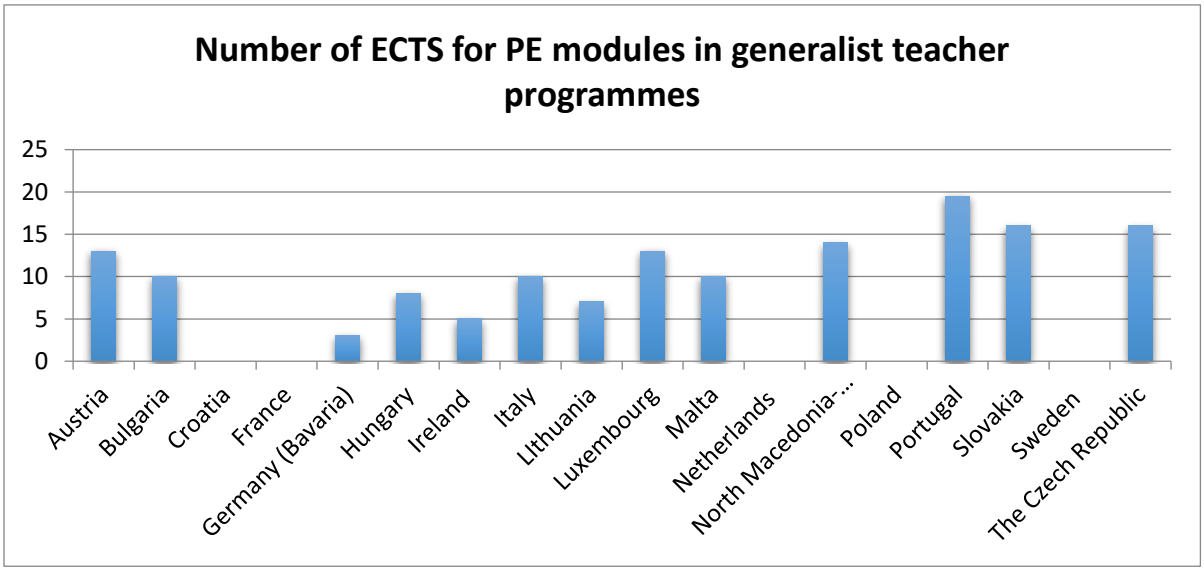


Figure 3. Number of ECTS for PE modules in generalist teacher programmes

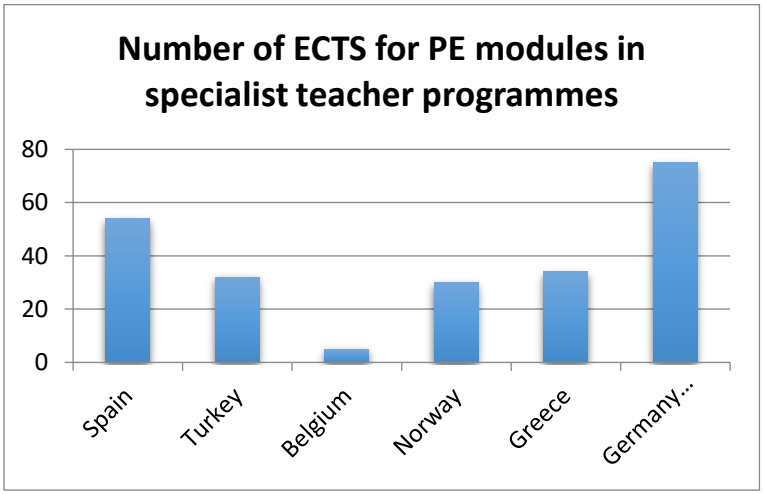


Figure 4. Number of ECTS for PE modules in specialist teacher programmes

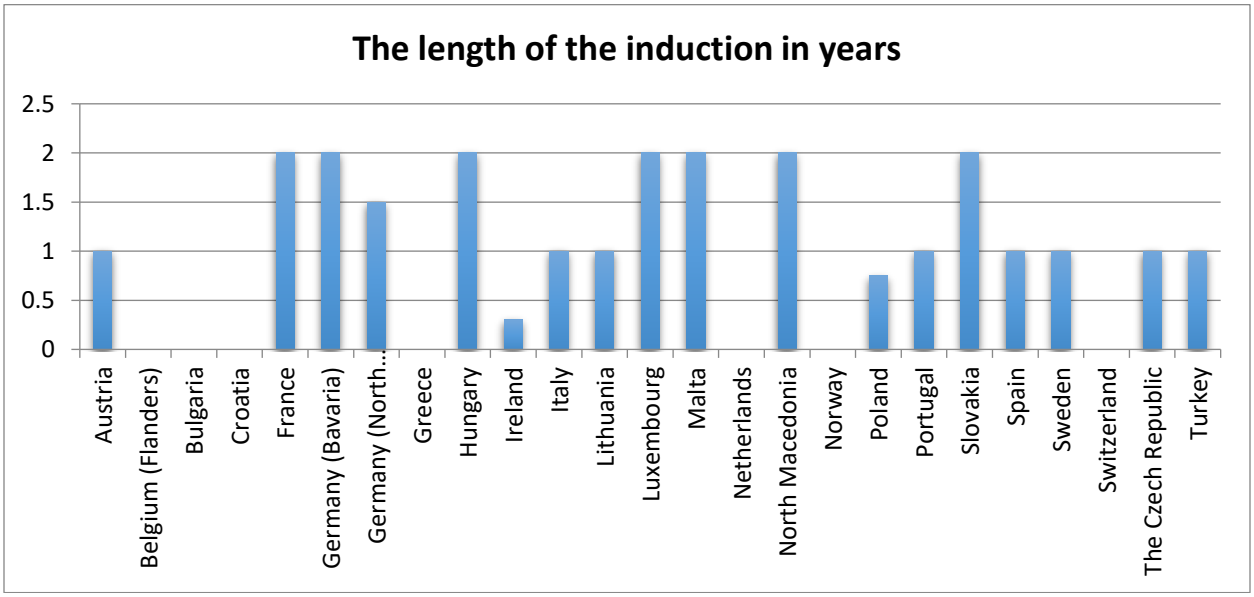
Co-funded by the Erasmus+ Programme of the European Union

2.2.4 School placement

School placement is considered a crucial element for achieving quality teaching. In the sample of European countries that were analysed within the project, the school placement was organised in various ways. In most of the cases, there were no specific recommendations or rules for school placement related to PE. Many countries stated that the school placement is not subject specific (Italy, Portugal or Ireland) in case of generalist teachers. Only Luxembourg, North Macedonia, Hungary and Slovakia had specific recommendations for school placement also related to PE lessons, so the students are required to participate in either PE observations or teaching PE lessons. A detailed description of school placement related to PE was also available in countries with specialist teachers delivering primary PE. All the other countries either did not have regulations or the regulations were not strict.

2.3 Induction phase

Similar to initial teacher education also the induction phase varies across the European countries. There are countries with very specific and concrete description of induction with advantages for novice teachers, as for example less teaching hours during the week with having more spare time for development of own competencies (Luxembourg, Germany). The length of the induction phase ranges from 0.3 to 2 years in the selected European countries. In some countries there are no regulations related to the length of the induction. Some project partners stated that the prescribed form of induction phase is not always followed in practice and it is still an issue to be resolved. (Spain). In some countries the induction is formally accomplished after passing exams, defending portfolio or assessment by a special committee (Hungary, France, Turkey).



Co-funded by the Erasmus+ Programme of the European Union

Figure 5. The length of the induction phase in years

The form of the induction phase is in many countries similar as it is usually based on tutorship or mentoring of experienced teachers in schools. It is assumed that there are differences in the financial support for induction of teachers, as for example in Belgium the induction was abolished in 2011 due to financial reasons.

2.4 In-service Teacher Education

There are numerous providers of in-service teacher education in the European countries that were included in this overview. To sum up, this phase of teacher education is supported by Universities, schools, teacher associations, governmental organisations, NGOs, accredited agencies, Ministries of Education and any other providers with accredited programmes or certificates. The in-service teacher education is in some countries compulsory for teachers and in other countries it is not (fig. 6). For example in Ireland while not compulsory, the generalist teachers can undertake a 2-year part-time Master in Education programme with a specialist option in PE.

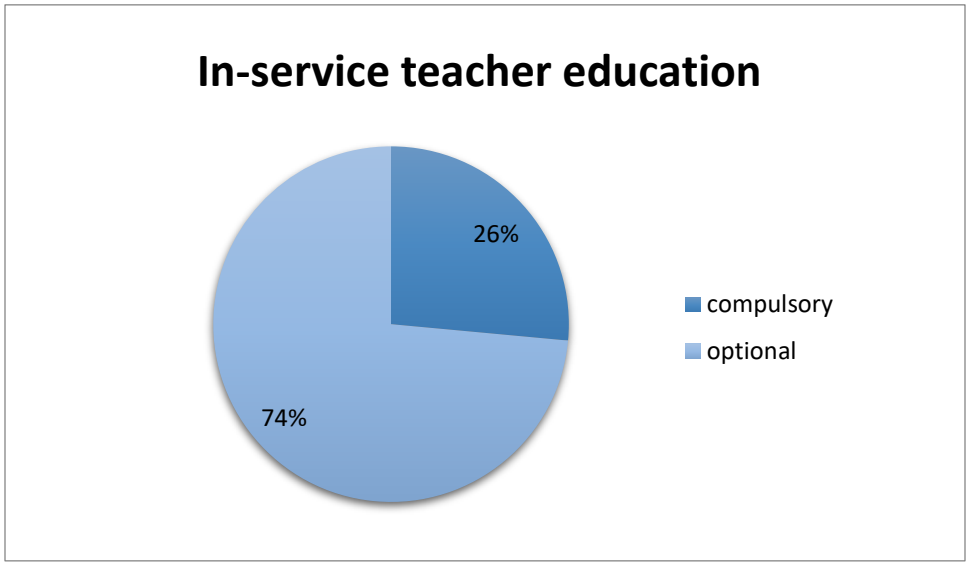


Figure 6. The ratio between compulsory and optional in-service teacher education

2.5 Conclusion of the Landscape of Physical Education Teacher Education in Europe

The book analysis complemented by further detailed contributions from the project partners showed similarities as well as differences in providing primary PETE in Europe. The Bologna process enabled larger coherence of the study programmes at the Higher Education Institutions, however in terms of Primary

PETE the number of ECTS, content or provision of school placement vary considerably among the European countries. The comparison of Initial Teacher Education showed especially differences among the ECTS for the PE modules. The number of ECTS varied from 3 ECTS in generalist programme in Germany Bavaria to 75 ECTS in specialist programme in Germany North Rhine-Westphalia. The induction phase starts with zero years in some countries and the longest period of induction in the countries' sample is 2 years. In-service teacher education as an important part of teacher's professional development is in most of the participating countries optional (74%). Also the providers of in-service teacher education are very different from one country to another, however, in most of the countries the Higher Education Institutions are very much involved.

3. Review of Literature related to Primary Physical Education Teacher Education

The focus of the literature review was to identify and highlight findings from the published literature that can inform the development of the PRIME PETE programme. This meant reading the available documents, and extracting relevant information for the programme. This process included:

- explicit recommendations ('teacher trainers should …')
- implicit ideas (e.g., 'teacher education seems to be effective when it …')
- empirical findings (e.g., 'a combination of direct instruction and guided problem solving resulted in …')

The following approaches were used to analyse the literature: All the relevant findings were placed under the relevant sub-dimension (e.g., sub-dimension 3.1 Dimension 1: Knowledge, Management and Creation), followed by the citation to the source article or book. Information gleaned from the literature was presented either as direct quotations from the literature or key information was summarised. If an author described a finding very well, quoting made sense. If not, or the text was very long, the information was shortly summarised. Some comments were added throughout to reflect how the literature linked to the work of PRIME PETE. Where original text was not in English, it was provided in the original along with English translation, if it was considered useful. Additional scoping of literature was undertaken by the partners of the project, in case they were able to analyse sources from other languages (German resources, Czech resources, etc.). Any literature sourced in this way was subsequently included where deemed relevant. Findings of the literature review are presented below, they were grouped in six dimensions, based on the content of the CALOHEE framework – Qualifications Reference Framework of General Descriptors in the Subject Area of Teacher Education (González & Yarosh, 2018).

3.1 Dimension 1: Knowledge, Management and Creation

- Physical education teacher knowledge can be enhanced through an increase in the allocated time to physical education, making links to broader pedagogical principles (e.g., numeracy and literacy), and the development of stronger partnerships with schools and professional bodies (Bailey, 2001; Randall, 2020);
- Well-designed school experiences should be included in teacher education programmes to help participants to become familiar with the realities of teaching the curriculum and feel more empowered to teach physical education in a meaningful manner (Tsangaridou, 2012);

- During school experiences, teacher educators should systematically supervise teachers when teaching and should provide them with opportunities to reflect on critically teaching and schooling (Tsangaridou, 2012);
- During both initial teacher education and professional development programmes, reflective approaches should be used in helping to challenge teachers' conservative ideologies and transform their beliefs (Garrett and Wrench, 2008; Fletcher & Mandigo, 2012; O'Sullivan, 2005; Tsangaridou, 2005, 2006);
- Educational methods should be viewed from a modular perspective, encouraging physical education teacher educators to work in teams (Asún, Chivite, & Romero, 2020);
- Teacher educators should acknowledge, address and, where necessary, challenge students' attitudes and beliefs to ensure that the key messages of their teacher education programmes translate into teacher practices (Coulter & Ní Chróinín, 2013);
- An increase in physical education ECTS-load within the degrees preparing prospective physical education teachers is necessary (Lynch & Soukup, 2017);
- Another approach is to create opportunities for pre-service teachers to become generalist classroom teachers who specialise in physical education (Lynch & Soukup, 2017);
- The importance of lifelong learning of generalist teachers teaching primary physical education is also a crucial component (Jess, Carse, & Keay, 2017);
- Primary physical education teacher education should increase teachers' knowledge about the national guidelines related to the physical education curriculum (Raiola, 2019);
- Primary physical education teachers should develop specialised knowledge, ability and competences related to physical education, to be able to teach effectively (Raiola, 2019);
- Primary physical education teacher education should enable primary teachers to develop competences to inform both pupils and parents and raise their awareness about the importance of health-related outcomes (Maulini, Migliorati, Isidori, & Miatto, 2016);
- Basic competences related to teaching physical education in primary education by non-specialist teachers should implement a safe and diverse physical education at primary schools and sensitise students to the importance of physical activity and movement in everyday life (Liebl & Sygusch, 2020);
- Programmes should show how to allow individual learning tasks and learning ways adapted to individual needs and learning requirements in shared learning opportunities (Feyerer, 2015);

- Emphasise a respective attitude based on mutual appreciation despite difference, tolerance against weaker performances or the permanent reflection of one's own values (Casolo & Lipoma, 2018);
- Future generalist teachers should consider the child's natural disposition towards movement and perspectives of his/her cognitive development through movement, such as maintaining a certain level of well-being and health (Casolo & Lipoma, 2018);
- It is crucial to propose advocacy for physical education to counteract biases towards other curriculum priorities (Fletcher & Mandigo, 2012);
- There should be an investment in physical education equipment, facilities and advocacy to influence administrators/policymakers (Fletcher & Mandigo, 2012);
- Teacher education programmes convey a message consistent with the curriculum based on a broad and balanced curriculum and support new teachers to deliver physical education within an educational ideology (Coulter & Ní Chróinín, 2013).

3.2 Dimension 2: Design and Management of Process of Learning, Teaching and Assessment

- Curricula enhancement is desirable, especially towards the creation of adequate learning situations and positive learning climates, as well as a towards competence-orientation in physical education (Balz et al, 2013; Vogler, Messmer, & Allemann, 2017);
- Understanding the elements of instructional quality is an asset for future physical education teachers (Herrmann, Seiler, & Niederkofler, 2016; Künzell & Reuker, 2014);
- Among particular curricula contents, a special role is addressed to digitalisation, inclusion and experiential education (Coulter et al, 2020; Pögl and Scheid, 2020; Wendeborn & Langer, 2020);
- Routines are an essential aspect related to group/classroom management (Straub, 2015);
- Modules should relate to pre-service teachers learning to work collaboratively with external providers, families and significant others (D'Elia, 2020);
- Students should teach physical education activities frequently in classes within their initial teacher education, and physical education school experience should be part of teaching and learning for pre-service teachers (Ní Chróinín, Mitchell, Kenny, Murtagh, Vaughan, 2013);
- The design, management and processes of learning, teaching and assessment should include ungraded assessments in the area of physical education teaching experience, where possible. Mentoring by physical education teacher educators is crucial to this process as well as critical reflection and peer feedback from pre-service teachers. Thus, more emphasis should be put on

learning from observing peers teaching, from co-teaching, and from receiving feedback from teacher educators and peers (Albert, Scheid, & Julius, 2016; Murphy, Marron, & Coulter, 2021);

- Self-reflection on aspects of learning from 'practical' modules towards the pre-service teachers' future teaching should be an element in module assessments (Ní Chróinín, Mitchell, Kenny, Murtagh, & Vaughan, 2013);
- Creating a positive attitude towards physical education with future generalist teachers is a necessary base to ensure later quality implementation (Scheuer & Thill, 2020).

3.3 Dimension 3: Learner Empowerment, Potential and Creativity supporting Learner Holistic Growth and Development

- The development of a teacher's knowledge is an iterative process; anyone involved in the education of young people must be mindful that knowledge needs reviewing (Fischer & Holzamer, 2016);
- Future teachers should reflect on their personality and dispositions, and it is recommended that future physical educators reflect on their prerequisites (Fischer & Holzamer, 2016);
- Sports experiences at school are an opportunity for primary teachers to experience motor skills through content and activities that mobilise the psycho-affective and social areas and assist the individual growth of the teacher (Seclì & Ceciliani, 2014);
- Training courses for generalist teachers should providing adequate time to teach physical education teaching methods, and promote a holistic vision of this subject that affects physical, social, health development, as well as cognitive and emotional development (D'Elia, 2020);
- Physical education teacher educators should support pre-service teachers to get positive attitudes and to develop self-efficacy beliefs towards physical education (Weigelt, Lex, Wunsch, Kämpfe, & Klingsieck, 2016);
- Acquiring psychological knowledge during studies strengthens the ability to deal with the job-related tasks of future physical education teachers. Therefore, Bachelor's and Master's degree programmes should integrate targeted measures to strengthen mental health at an early stage in the first training phase and take appropriate psychological content into account in the curriculum (Weigelt, Lex, Wunsch, Kämpfe, & Klingsieck, 2016);
- Teacher educators should support a healthy work-related behavioural and experience development (Weigelt, Lex, Kämpfe, & Klingsieck, 2016);
- Professional biography support is needed in the initial teacher training phase (Meier, 2014);

- Emphasis should be placed on the health and wellbeing of physical education teachers by supporting active reflection about their job (Meier, 2014; Weigelt, Lohbreier, Wunsch, Kämpfe, & Klingsieck, 2014).

3.4 Dimension 4: Values and Social Leadership: Ethics and Social Commitment

- There is an urgent need to reinforce the workload in the physical education area by changing the current curriculum matrix (Neves, 2019);
- It is imperative to reflect on sustainable physical education teaching models in the organisation of school groups (Neves, 2019);
- It is necessary and fundamental to involve all teachers in the sustainability of physical education for students (Neves, 2019);
- There is an urgent need to profit from forms of collaborative work between teachers within physical activity, which contribute to the regularity and increasing quality of physical education at this level of education (Neves, 2019);
- It is imperative to respect the local dynamics of each physical activity, in the context of the organisation's culture as a promoter of physical activity (Neves, 2019);
- It is essential to clarify the educational purposes of each activity (physical education and physical activity) and expand the benefits of its complementarity in favour of student learning (Neves, 2019);
- It is desirable to articulate with school groups/projects and local dynamics in the promotion of physical activity and sports development, in a global logic of social promotion of a motor culture (Neves, 2019);
- It would be useful to encourage teachers to engage with a more collaborative teaching approach that takes into account the contribution of physical education and physical education teacher in the entire educational process (D'Elia, 2020);
- There is a call for a standards-based approach to beginning teacher standards to improve the status of physical education both in university and school contexts and to allow accountability and quality assurance (Ní Chróinín, Tormey, & O' Sullivan, 2012);
- In the preparation of future physical education teachers, a university seminar combining didactics with practical parts is recommended; the relation between knowledge of inclusive theories and practical examples is fruitful (Friedrich, Gräfe, Pögl, & Scheid, 2017);
- The current aims should be reflection and modification of attitudes and partly also enlarging knowledge (Erhorn, Moeller, & Langer, 2020);

- There should be a focus on the demands placed on physical education teachers, learning to implement in case studies already during initial teacher education (Erhorn, Moeller, & Langer, 2020);
- Inclusive physical education should be incorporated in the qualification of physical education teachers (Friedrich, Gräfe, Pögl, & Scheid, 2017);
- Friendly, supportive, and inclusive environments should be developed because they are likely to promote physical activity, especially for groups who are traditionally marginalised, such as girls or overweight children (Bailey et al., 2020);
- Future teachers (and other school staff) are vitally important in creating this climate, by promoting and enforcing relevant rules and norms, promoting positive peer relationships, and celebrating diversity (Bailey et al., 2020);
- Individualisation, diversity, and special educational needs of the practical proposals that future physical education teacher educators should implement in teachers' professional contexts, are highlighted as an area in which future training needs should be influenced (Asún et al., 2020);
- Training programmes should be provided regularly for teachers (Kurniawati, 2014);
- As future teachers, it is essential to propose group playful motor activities in the classroom aimed at discovering values such as collaboration and trust in others and mutually help (Casolo & Coco, 2019);
- Teaching must be oriented towards learning and encouraging fair play and respect for the rules and others (Casolo & Coco, 2019).

3.5 Dimension 5: Communication with Different Actors and in Different Contexts

- Teacher education should consider the importance of using effectively both ways of communication, meaning verbal and non-verbal (Casolo & Coco, 2019);
- The use of the body as non-verbal communication should be encouraged in physical education lessons (Valentini et al., 2019a, 2018a in D'Elia, 2020, p. 283);
- Regular professional exchanges, and lesson observation are desirable (Möhwald & Okade, 2020);
- Collaborations between schools and universities should be established to allow bilateral (school – university) support for physical education students (Bayo, 2014; Martínez-Álvarez, 2009);
- Fruitful dialogue between future teachers and pupils is especially supportive to co-construct curricula or when it comes to inclusive physical education (it allows to consider the child's view) (Petrie, Devcich & Fitzgerald (n.d.));

- Communication should be increased between teachers and parents, as well as between general teachers and specialist teachers of extracurricular physical activity (Bayo, 2014; Scheuer & Heck, 2020);
- The use of social media and communication technologies may be beneficial for exchange between teachers acting as reflective practitioners (Antala, 2016; Isidori, 2018; Lane, 2018).

3.6 Dimension 6: Development as Professionals and Life-Long Learners

- Professional development is one of the central competences of effective teacher educators and should, therefore, be an essential component of professional life (Colella et al., 2015; Lawrence, 2017);
- It is desirable to build communities of learners as they constitute a form of (informal and formal) professional development (Scanlon et al., 2020);
- The requirement for life-long learning is independent of the level of a teacher's experience (even an experienced teacher may be required to return to learning and (re-)define future professional learning needs) (Randell, 2018);
- Class-swapping has a potential to positively influence physical education provision and should, therefore, be increased in school practice (Clohessy at al., 2020);
- With regard to innovation in schools, informal physical education leadership with a shared approach should be prioritised in comparison to hierarchical forms of leadership (Clohessy at al., 2020);
- Generally, professional development should be always considered as a long-term process requiring time and space (Carse, 2015);
- Based on a reflection of past and current practices, professional development should lead to a visible improvement of future practice; thus, transferring learning into teachers' daily work situation is required (Murphy & O'Leary, 2012);
- In physical education teacher education, emphasis should be put on the ability of continuous self-reflection on lessons and teaching quality (Pachurka, 2013);
- Teacher educators should remain open to students' questions and ideas and constructively use them (Hericks, 2015);
- Diminishing potential stress factors that are supposed to lead to burnout in physical education teachers should also be an important part of the teacher formation (Schneider & Ziemainz, 2015);
- Publishing and disseminating studies and their results on learning and professional development of physical education teachers is an asset to legitimise a curricular area (Neves, 2018);

- Besides regional and national collaborations, also the international level should be included through studies and research, but also through international collaborations (Brooks & DinanThompson (2013); Colella et al., 2015);
- Establishing precise criteria to control and evaluate future teachers should be developed (increase the quality of teaching staff) (Egido Gálvez, 2014);
- State examinations for accessing the profession of physical education teachers should put a high weight on the applicant's teaching capacities and skills and focus on the demands that society has of them (Egido Gálvez, 2014);
- It should be ensured that all primary teachers have a clear understanding of the concept and aims of physical education (not to be confused with break-time opportunities for physical activity and sport) (Murphy & McEvoy, 2020);
- Beginning teachers should also be provided with time and space to reflect on what is the nature and purpose of physical education and where their role is positioned accordingly (Fletcher & Mandigo, 2012);
- Pre-services teachers should have occasion to exchange and reflect alongside with experienced teachers (Murphy and McEvoy, 2020).

3.7 Conclusion of the literature review

The literature review offered us a vast range of information on the specific topic of primary physical education teacher education. Some of the dimensions were more examined in the research publications than the others, but altogether we gathered interesting statements from the national and international perspective. These insights form the foundation for the further project and serve as the basis for the forthcoming IOs.

4. The Delphi Study - Knowledge, Skills, Abilities and Competencies of Primary Physical Education Teachers

38 groups with 220 PE experts from 36 countries performed a Delphi Consensus Study on the six dimensions of the CALOHEE framework, adapted previously for Primary PETE. After rewording the descriptors to a specific PE context and after the three rounds of the Delphi Study (the rounds are presented under the following subheadings more in detail), a total of 13 descriptors were retained into five dimensions (D1-D5) from the initial CALOHEE framework. These descriptors in the five dimensions

clearly define the knowledge, skills, abilities, and competences which are expected from prospective Primary PE teachers and became the Prime Pete Programme dimensions.

The PRIME-PETE Delphi consensus study aimed to adapt and reword each of the CALOHEE dimensions and statements to a PETE-specific content. A group of project internal (PRIME-PETE experts) and external experts (Expert Advisory Group) was asked to suggest contents (statements) for each of the dimensions and subdimensions. Based on the results of the Delphi consensus study, the PRIME-PETE dimensions are identified in Table 1 below:

Table 1.: Original CALOHEE Dimensions and their modification to the PRIME-PETE project

ORIGINAL CALOHEE DIMENSIONS	**PRIME-PETE DIMENSIONS**
DIMENSION 1. KNOWLEDGE MANAGEMENT AND CREATION	**DIMENSION 1.** KNOWLEDGE DEVELOPMENT AND MANAGEMENT
DIMENSION 2. DESIGN AND MANAGEMENT OF PROCESSES OF LEARNING, TEACHING AND ASSESSMENT	**DIMENSION 2.** TEACHING, LEARNING AND ASSESSMENT
DIMENSION 3. LEARNER EMPOWERMENT, POTENTIAL AND CREATIVITY: Supporting learner holistic growth and development	**DIMENSION 3.** LEARNER EMPOWERMENT, POTENTIAL, DIVERSITY AND CREATIVITY
DIMENSION 4. VALUES AND SOCIAL LEADERSHIP: Ethics and social commitment	**DIMENSION 4.** VALUES, SOCIAL LEADERSHIP AND COMMUNICATION
DIMENSION 5. COMMUNICATION: Communication with different actors and in different contexts	
DIMENSION 6. DEVELOPMENT AS PROFESSIONALS AND LIFE-LONG LEARNERS	**DIMENSION 5.** DEVELOPMENT AS REFLECTIVE PROFESSIONALS AND LIFE-LONG LEARNERS

D1: Knowledge Development and Management

- Advanced knowledge and understanding of the development of fundamental movement skills
- Knowledge about children's overall development
- Knowledge of PA recommendations for children and young people

D2: Teaching, Learning and Assessment

- Ability to plan and teach QPE lessons
- Ability to provide a positive and safe learning environment in PE
- Ability to plan long and short-term PE programmes based on students' developmental level and readiness

D3: Learner Empowerment, Potential, Diversity and Creativity

- Capacity and commitment to support the learning and development of all students regardless of their ability levels
- Capacity and commitment to motivate, inspire learners and support their empowerment
- Capacity and commitment to create situations and climates in which learners increase their self-esteem and confidence

D4: Values, Social Leadership and Communication

- Capacity and commitment to the healthy development of primary school students
- Ability to communicate effectively both verbally and non-verbally
- Ability to promote ethical behaviour in learners and foster a culture of valuing diversity within the classroom setting in PE

D5: Development as Reflective Professionals and Life-long Learners

- Capacity and commitment to actively advocate for PE in the school and beyond

4.1 Dimension 1: Knowledge Development and Management

Round 1

Score indicates the cumulative percentage of participants who rated the respective item as 'important' or 'extremely important' (in a 5-level Likert scale). The threshold was drawn at 85%. The coloured marker shows the items that have reached this threshold and have thus been included in round two.

Dimension	Item	Score
1	Knowledge about children's overall development	100.00%
1 (-> 4)	Capacity and commitment to adhere to children's rights*	97.43%
1	Advanced pedagogical content knowledge as a core component of professional competence	94.88%
1	Advanced knowledge and understanding of the role and significance of the body as a means of creative expression and artistic communication through exploration of a wide range of content within physical education	94.87%
1	Ability to arrange pedagogical work in line with policies of an education system and educational theories	92.31%
1	Capacity and autonomy to modify and adapt core educational and curricular policies to pedagogical practice	92.31%

1	Knowledge and understanding of the cultures of physical activity, physical education, and sport	92.31%
1	Advanced knowledge and understanding of the development of fundamental movement skills	92.31%
1	Knowledge of physical activity recommendations for children and young people	92.31%
1	Ability to use basic educational research, and applying existing theories and educational methods, to enhance teaching	89.75%
1	Advanced knowledge and understanding of holistic and learner-focused educational approaches to physical education and health education	89.74%
1	Knowledge of key developmental milestone and expectations	89.74%
1	Ability to use evidence-based educational theories and practices and ignore pseudoscientific claims and programmes	87.18%
1	Advanced knowledge and a critical understanding of objectives, principles and policies of an educational system and potential connections to educational theories	84.62%
1	Advanced knowledge and critical understanding of sociological, philosophical, psychological and pedagogical theories in education and physical education	84.62%
1	Capacity and responsibility to integrate key competency development to the physical education programme	84.61%
1 (-> 5)	Capacity and commitment to critically reflect on educational policies**	82.05%
1	Capacity and commitment to using physical education specific concepts and terminology appropriately	82.05%
1	Ability to link aspects of physical education specific discourse with aspects of interdisciplinary discourse	79.49%
1	Capacity and commitment to respond to the curricular needs within an educational institution based on the subject knowledge	79.49%
1	Advanced academic knowledge of physical education	74.36%
1 (-> 5)	Capacity and commitment to influence the educational direction of an institution, having in consideration desirable impacts**	74.36%
1	Knowledge of scientific theories on the primary school children's personality development	74.36%
1	Knowledge of societal-historical relationship and significance of primary teachers' work, informed about the national and European values	33.33%

Based on the discussions of the research team, items: * were moved from Dimension 1 to 4; ** were moved from Dimension 1 to 5.

Round 2

Score indicates the cumulative percentage of participants who rated the respective item as 'important' or 'extremely important' (in a 9-level Likert scale). The threshold was drawn at 85%. The coloured marker shows the items that have reached this threshold and have thus been included in round three.

Dimension	Item	Score
1	Knowledge about children's overall development	94.12%
1	Advanced knowledge and understanding of the development of fundamental movement skills	85.29%
1	Knowledge of physical activity recommendations for children and young people	85.29%
1	Advanced pedagogical content knowledge as a core component of professional competence	82.36%
1	Ability to use basic educational research, and applying existing theories and educational methods, to enhance teaching	79.41%

1	Capacity and autonomy to modify and adapt core educational and curricular policies to pedagogical practice	76.47%
1	Advanced knowledge and understanding of holistic and learner-focused educational approaches to physical education and health education	73.53%
1	Knowledge of key developmental milestone and expectations	73.53%
1	Ability to arrange pedagogical work in line with policies of an education system and educational theories	70.59%
1	Ability to use evidence-based educational theories and practices and ignore pseudoscientific claims and programmes	67.65%
1	Knowledge and understanding of the cultures of physical activity, physical education, and sport	58.83%
1	Advanced knowledge and understanding of the role and significance of the body as a means of creative expression and artistic communication through exploration of a wide range of content within physical education	58.82%

Round 3

For the third round, the mean value (Score) was taken for the respective items and the three highest rated items (coloured marker) were taken (Friedman analysis).

Dimension	Item	Score
1	Advanced knowledge and understanding of the development of fundamental movement skills	1.77
1	Knowledge about children's overall development	1.91
1	Knowledge of physical activity recommendations for children and young people	2.31

4.2 Dimension 2: Teaching, Learning and Assessment

Round 1

Dimension	Item	Score
2	Ability to design and apply assessment tasks and transparent criteria for measurement and evaluation	97.44%
2	Ability to implement a culture of feedback	97.44%
2	Ability to use observation, self- and peer-assessment in physical education lessons and programmes	97.44%
2	Advanced knowledge of group dynamics (including conflict management) and student-centred strategies	97.44%
2	Ability to support students' learning processes by providing differentiated pathways and resources	97.43%
2	Advanced knowledge for developing basic rules and routines for physical education lessons	97.43%
2	Ability to plan and teach quality physical education lessons	97.43%
2	Ability to plan long-term and short-term physical education programmes based on students' developmental level and readiness	94.87%
2	Ability to provide a positive and safe learning environment	94.87%
2	Ability to use teaching skills to support learning in different learning environments	94.87%
2	Ability to promote efficient use of movement time	92.31%
2	Capacity and commitment to cooperate with other teachers and develop school curricula based on reflection	92.31%

2	Ability to formulate learning outcomes for different types educational programmes & apply constructive alignment in designing syllabi	92.31%
2	Advanced knowledge of the national curriculum	92.30%
2	Capacity and commitment to using different teaching strategies and model-based teaching in physical education lessons	87.18%
2	Ability to demonstrate correctly, or provide a correct demonstration through a third party, of all major skills and tactics central to the relevant curriculum	87.18%
2	Advanced knowledge and understanding of different motor learning theories, and typical and atypical motor development, and practical consequences	84.62%
2	Advanced knowledge and understanding of advantages and disadvantages of different grouping practices	82.05%
2	Advanced knowledge of the key principles of designing, aligning and revising / enhancing teaching, learning and assessment at course unit/syllabus level	82.05%
2	Advanced knowledge and understanding for cross-thematic and interdisciplinary teaching in physical education	79.48%
2	Advanced knowledge on how to measure, reflect and evaluate physical education programmes	76.93%
2	Analyse and critique playgrounds, outdoor areas and parks as places for learning in physical education	76.93%
2	Ability to using digital technology for learning and assessment	61.54%

Round 2

Dimension	Item	Score
2	Ability to plan long-term and short-term physical education programmes based on students' developmental level and readiness	97.06%
2	Ability to provide a positive and safe learning environment	97.06%
2	Ability to plan and teach quality physical education lessons	97.05%
2	Ability to implement a culture of feedback	91.18%
2	Ability to support students' learning processes by providing differentiated pathways and resources	88.23%
2	Ability to use teaching skills to support learning in different learning environments	85.29%
2	Advanced knowledge for developing basic rules and routines for physical education lessons	82.35%
2	Ability to design and apply assessment tasks and transparent criteria for measurement and evaluation	79.42%
2	Capacity and commitment to cooperate with other teachers and develop school curricula based on reflection	79.42%
2	Ability to promote efficient use of movement time	79.41%
2	Ability to use observation, self- and peer-assessment in physical education lessons and programmes	79.41%
2	Ability to demonstrate correctly, or provide a correct demonstration through a third party, of all major skills and tactics central to the curriculum	76.47%
2	Advanced knowledge of group dynamics (including conflict management) and student-centred strategies	76.47%
2	Capacity and commitment to using different teaching strategies and model-based teaching in physical education lessons	76.47%
2	Ability to formulate learning outcomes for different types educational programmes and apply constructive alignment in designing syllabi and schemes	73.53%
2	Advanced knowledge of the national curriculum	70.59%

Round 3

Dimension	Item	Score
2	Ability to plan and teach quality physical education lessons	1.63
2	Ability to provide a positive and safe learning environment	3.03
2	Ability to plan long-term and short-term physical education programmes based on students' developmental level and readiness	3.51
2	Ability to support students' learning processes by providing differentiated pathways and resources	4.11
2	Ability to use teaching skills to support learning in different learning environments	4.34
2	Ability to implement a culture of feedback	4.37

4.3 Dimension 3: Learner Empowerment, Potential, Diversity and Creativity

Round 1

Dimension	Item	Score
3	Ability to build upon students' previous experiences, active participation, and creativity	100.00%
3	Capacity and commitment to create situations and climates in which learners increase their self-esteem and confidence	97.44%
3	Capacity and commitment to support the learning and development of all students regardless of their ability levels	97.44%
3	Ability to work together with special education professional, and adapt learning tasks to the individual needs of the students	94.88%
3	Capacity and commitment to motivate, inspire learners and support their empowerment	94.88%
3	Ability to design autonomy supported learning environment, and mastery learning	94.87%
3	Advanced knowledge of inclusion principles and practices	94.87%
3	Advanced knowledge of how to support learner self-esteem and confidence	94.87%
3	Ability to organise learning tasks for strengthening cooperation and communication between students to develop self- and social responsibility	94.87%
3	Ability to support learners in identifying own strengths and setting goals to build on these	94.87%
3	Advanced knowledge and commitment to the application of the concept of the student as an active learner, thinker, mover and problem solver engaging with the content of the physical education curriculum	89.75%
3	Ability to motivate students to practice sport activities in collaboration with peers, families and sport coaches	89.74%
3	Advanced knowledge and understanding to recognise and differentiate healthy competitive and non-competitive concepts	76.93%
3	Ability to support students learning through an examination of a range of resources and equipment related to teaching physical education	76.92%
3	Advanced knowledge and understanding of relevant motivational theories	69.23%
3	Advanced knowledge of school counselling processes and of how to advise students (and their families/guardians) to develop learners' resources	56.41%

Round 2

Dimension	Item	Score
3	Capacity and commitment to create situations and climates in which learners increase their self-esteem and confidence	94.12%

3	Capacity and commitment to support the learning and development of all students regardless of their ability levels	94.12%
3	Ability to build upon students' previous experiences, active participation, and creativity	91.18%
3	Ability to support learners in identifying own strengths and setting goals to build on these	91.18%
3	Ability to organise learning tasks for strengthening cooperation and communication between students to develop self- and social responsibility	88.24%
3	Capacity and commitment to motivate, inspire learners and support their empowerment	85.30%
3	Ability to work together with special education professionals, and adapt learning tasks to the individual needs of the students	85.29%
3	Advanced knowledge and commitment to the application of the concept of the student as an active learner, thinker, mover and problem solver engaging with the content of the physical education curriculum	82.35%
3	Ability to design autonomy supported learning environment, and mastery learning	79.42%
3	Advanced knowledge of how to support learner self-esteem and confidence	79.41%
3	Ability to motivate students to practice sport activities in collaboration with peers, families and sport coaches	76.47%
3	Advanced knowledge of inclusion principles and practices	76.47%

Round 3

Dimension	Item	Score
3	Capacity and commitment to support the learning and development of all students regardless of their ability levels	3.26
3	Capacity and commitment to motivate, inspire learners and support their empowerment	3.34
3	Capacity and commitment to create situations and climates in which learners increase their self-esteem and confidence	3.51
3	Ability to support learners in identifying own strengths and setting goals to build on these	3.94
3	Ability to organise learning tasks for strengthening cooperation and communication between students to develop self- and social responsibility	4.11
3	Ability to build upon students' previous experiences, active participation, and creativity	4.40
3	Ability to work together with special education professionals, and adapt learning tasks to the individual needs of the students	5.43

4.4 Dimension 4: Values, Social Leadership, and Communication

Round 1 – Dimension 4a: Values and social leadership

Dimension	Item	Score
4a	Ability to create situations for recognising and understanding fair-play	100.00%
4a	Advanced knowledge and understanding as to how physical activity can be promoted in the whole-school context	97.44%
4a	Capacity and commitment to the healthy development of primary school students	94.87%
4a (-> 5)	Capacity and commitment to actively advocate for physical education in the school and beyond*	94.87%
4a	Capacity and commitment to critically reflect and work on consistency of own personal and professional identity	92.31%

4a	Ability to reflect on personal capacity, qualities and competencies as a subject leader in physical education	92.30%
4a	Ability to think and reflect upon their views and values concerning teaching and schooling	89.75%
4a	Capacity and commitment to respect different values, when interacting with people in contexts of diversity (social, ethnic, economic, political) and learn from that diversity	89.75%
4a	Ability to fight against the cultural and gender stereotypes	89.74%
4a	Ability to promote ethical behaviour in learners and foster a culture of valuing diversity within the classroom setting	87.18%
4a (-> 5)	Awareness and consideration of own prior experiences with regard to practice as teachers*	84.62%
4a	Advanced knowledge of the principles of professional ethics	84.62%
4a	Advanced knowledge of ethical and professional standards, including knowledge about the constitution of appropriate relationships with learners	82.06%
4a (-> 5)	Critical understanding of the teaching profession (mission) as a public service and its impact/significance in a local context*	82.06%
4a	Ability to transmit community values	82.05%
4a	Ability to organise extracurricular activities, and other educational events in response to social needs	82.05%
4a	Critical understanding of potential tensions due to the existence of different value systems	79.49%
4a	Capacity and commitment to work with external providers to support learning in physical education	76.93%
4a	Ability to identify needs and strengths in different socio-educational contexts, as well as leadership actions, as required	76.92%
4a (-> 5)	Commitment to the profession by actively participating in the professional communities*	69.23%
4a	Advanced knowledge of socio-educational needs and trends, as well as principles of social leadership	69.23%

Based on the discussions of the research team, items: * were moved from Dimension 4a to 5.

Round 1 – Dimension 4b: Communication

Dimension	Item	Score
4b	Ability to cooperate with other actors of the education process, and to communicate and discuss ideas	97.44%
4b	Capacity and commitment to take responsibility to promote and/or initiate teamwork among learners	97.44%
4b	Ability to communicate effectively both verbally and non-verbally	97.43%
4b	Ability to listen actively and to communicate thoughts, attitudes and personal perspectives	94.87%
4b	Adopt a broad subject-specific vocabulary for the appropriate age of learners	92.31%
4b	Ability to develop mutual respect and trustful connections with the students' families	89.74%
4b	Advanced knowledge of group communication methods and strategies in educational processes	89.74%
4b	Capacity and commitment to contribute to transparency, trust and personal engagement in interpersonal communicative encounters	87.18%
4b	Advanced knowledge of elements essential for developing and maintaining good interpersonal communication	82.05%
4b	Capacity and commitment to promoting responsible and critical use of social media and communication technologies among learners	76.92%
4b	Ability to use social media and communication technologies and stay updated with current developments in physical education	74.35%

Round 2 – Combined Dimension 4 (4a + 4b)

Dimension	Item	Score
4	Capacity and commitment to adhere to children's rights	88.24%
4	Capacity and commitment to the healthy development of primary school students	88.24%
4	Capacity and commitment to respect different values, when interacting with people in contexts of diversity (social, ethnic, economic, political) and learn from that diversity	88.23%
4	Ability to communicate effectively both verbally and non-verbally	85.30%
4	Ability to promote ethical behaviour in learners and foster a culture of valuing diversity within the classroom setting	85.29%
4	Ability to listen actively and to communicate thoughts, attitudes and personal perspectives	82.36%
4	Ability to fight against cultural and gender stereotypes	82.35%
4	Ability to reflect on personal capacity, qualities and competencies as a subject leader in physical education	82.35%
4	Ability to create situations for recognising and understanding fair-play	79.41%
4	Adopt a broad subject-specific vocabulary for the appropriate age of learners	79.41%
4	Advanced knowledge and understanding as to how physical activity can be promoted in the whole-school context	79.41%
4	Capacity and commitment to contribute to transparency, trust and personal engagement in interpersonal communicative encounters	79.41%
4	Capacity and commitment to critically reflect and work on consistency of own personal and professional identity	79.41%
4	Capacity and commitment to take responsibility to promote and/or initiate teamwork among learners	76.47%
4	Ability to think and reflect upon their views and values concerning teaching and schooling	73.53%
4	Ability to cooperate with other actors of the education process, and to communicate and discuss ideas	67.65%
4	Ability to develop mutual respect and trustful connections with the students' families	67.65%
4	Advanced knowledge of group communication methods and strategies in educational processes	52.94%

Round 3

Dimension	Item	Score
4	Capacity and commitment to the healthy development of primary school students	2.46
4	Ability to communicate effectively both verbally and non-verbally	2.80
4	Ability to promote ethical behaviour in learners and foster a culture of valuing diversity within the classroom setting	3.09
4	Capacity and commitment to respect different values, when interacting with people in contexts of diversity (social, ethnic, economic, political) and learn from that diversity	3.23
4	Capacity and commitment to adhere to children's rights	3.43

4.5 Dimension 5: Development as Reflective Professionals and Life-long Learners

Round 1

Dimension	Item	Score

5	Capacity and commitment to ongoing professional development through the design of a professional development plan to guide growth as a physical education teacher	94.87%
5	Capacity and commitment to make use of colleagues, professional organisations and resources to develop as a reflective practitioner	94.87%
5	Ability to critically examine educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced in own classroom	92.31%
5	Capacity and commitment to identify opportunities for collaboration and professional dialogue where teachers can develop networks, undertake peer observations and engage in collaborative professional learning	92.31%
5	Ability to develop adequate coping strategies, social support or preventive identification and influencing of stressors in the private and professional context	89.75%
5	Advanced knowledge of main sources of information that permit teachers to stay updated with general and physical education-related educational research and developments	87.18%
5	Capacity and commitment to "cultural literacy" to support students coming from other cultures	84.62%
5	Capacity and commitment to reflect on practice in reference to relevant findings from educational research and developments	84.62%
5	Capacity and commitment to critique readings related to physical education pedagogical content knowledge	84.61%
5	Advanced knowledge of and ability to debate current educational issues related to physical activity	82.05%
5	Ability to use educational research to identify the qualities and competencies of a subject leader of physical education	79.49%
5	Advanced knowledge of the main trends in the profession at the international level	71.80%
5	Advanced knowledge of selected educational research methods	64.11%
5	Ability to use other languages, particularly English, for continuous professional development	64.10%
5	Capacity and commitment to foster an atmosphere of development where learners can begin to feel and act as global citizens	61.54%

Round 2

Dimension	Item	Score
5	Capacity and commitment to actively advocate for physical education in the school and beyond	85.30%
5	Capacity and commitment to identify opportunities for collaboration and professional dialogue where teachers can develop networks, undertake peer observations and engage in collaborative professional learning	76.48%
5	Capacity and commitment to ongoing professional development through the design of a professional development plan to guide growth as a physical education teacher	73.53%
5	Ability to critically examine educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced in own classroom	67.65%
5	Ability to develop adequate coping strategies, social support or preventive identification and influencing of stressors in the private and professional context	67.65%
5	Capacity and commitment to make use of colleagues, professional organisations and resources to develop as a reflective practitioner	67.65%
5	Advanced knowledge of main sources of information that permit teachers to stay updated with general and physical education-related educational research and developments	67.64%

Round 3

Dimension	Item	Score
5	Capacity and commitment to actively advocate for physical education in the school and beyond	1

4.6 Conclusion of the Delphi study

After the physical education-specific adaptation of the CALOHEE framework, a total of 109 statements entered the Delphi study. Through Round 1 and Round 2, a large proportion was reduced by the threshold of 85%. From round three, only the top 3 were included, so that in the end 5 dimensions with a total of 13 statements were specific to physical education.

5. Summary

The Landscape of Physical Education Teacher Education in Europe provided insights into the current physical education teacher education in different countries in Europe. Here facts could be gathered highlighting similarities and differences. The literature research also provided us with information on the topic of physical education teacher education. Recommendations, implicit ideas and empirical findings were collected to get a broad overview of the state of research. In order to structure the findings found, the literature was categorised into the CALOHEE framework on general teacher education.

These dimensions in turn formed the basis for the Delphi study in the next step. From this, 13 statements in five dimensions specific to physical education emerged.

6. Conclusion

In the next steps of the project, this overview will serve as a basis for mapping the current situation on the one hand, and on the other hand, it will also form the foundation for an aspirational physical education teacher training. Based on this output, *Recommendations on Primary Physical Education Teacher Education* (IO2) will be formulated and a *Primary Physical Education Teacher Profile* (IO3) will be developed. Finally, this will result in the *Theoretical and Methodological Framework for Primary Physical Education Teacher Education* (IO4) on the basis of which a comprehensive *Modular primary PETE programme consisting of course modules and micro-modules* (IO5) can be created.

5. References

Albert, A., Scheid, V., & Julius, P. (2016). Reflexion in der schulpraktischen Ausbildung im Sportstudium: Eine empirische Untersuchung zum Einfluss von Videografie auf die Unterrichtsbeurteilung. *Zeitschrift für sportpädagogische Forschung, 4*(2), 61-83.

Antala, B. (2016). Lifelong education of primary schools' teachers in physical education and new technologies. Global forum 2016. *Physical education pedagogy "Technology, networking and best practice in physical education and health: local to global"*.

Asún, S., Chivite, M.T., & Romero, M.R. (2020). Perceptions of professional competences in Physical Education Teacher Education (PETE). *Sustainability, 12*(9), 3812. DOI: 10.3390/su12093812

Bailey, R. (2001). *Teaching Physical Education: A Handbook for Primary and Secondary School Teachers* (1st ed.). London, UK: Routledge. https://doi.org/10.4324/9781315042466

Bailey, R., Vašíčková, J., Vlček, P., Raya Demidoff, A., Pühse, U., Heck, S., & Scheuer, C. (2022). *An international review of the contributions of school-based physical activity, physical education, and school sport to the promotion of health-enhancing physical activity*. Zenodo. https://doi.org/10.5281/zenodo.5899571

Balz, E., & Neumann, P. (2013). Mehrperspektivischer Sportunterricht. *Didaktische Konzepte für den Schulsport*, *21*, 148.

Bayo, I. (2014). *Crenças e práticas acerca da educação física e da actividade física e desportiva no 1º ciclo do ensino básico* (Beliefs and practices about physical education and physical activity and sport in primary school). PhD Thesis. Faculdade de Motricidade Humana, University of Lisbon.

Brooks, C., & DinanThompson, M. (2013). Professional insiders/outsiders? Teacher professionalism and the primary school Physical Education specialist, *Asia-Pacific Journal of Health, Sport and Physical Education, 4*(3), 235-248, doi:10.1080/18377122.2013.836767.

Calderón Luquin, A., & Martínez de Ojeda Pérez, D. (2014). La formación permanente del profesorado de Educación Física. Propuesta de enseñanza del modelo de educación deportiva. Training in-service teachers in Physical Education. A proposal to teach the sport education model. *Revista de Educación, 363*, 128-153.Carse, N. (2015). Primary teachers as physical education curriculum change agents. *European Physical Education Review*, *21*(3), 309-324.

Casolo, F., & Coco, D. (2019). Educazione motoria nella scuola primaria: Quali competenze per il docente?. *Formazione & Insegnamento, 17*(3), 37-46. doi: 10.7346/-feis-XVII-03-19_04

Casolo, F., & Lipoma, M. (2018). I settori M-EDF nella formazione degli insegnanti primari. In S. Ulivieri (Ed.), *Le emergenze educative della società contemporanea. Progetti e proposte per il cambiamento*. Lecce: Pensa Multimedia.

Clohessy L., Bowles, R., & Ní Chróinín, D. (2020). Playing to our strengths: Generalist teachers' experiences of class swapping for primary physical education. *European Physical Education Review, 26*(2):571-586. doi:10.1177/1356336X19877195

Colella, D., Tinto, A., & Cazzoli, S. (2015). The Physical Education in primary school in Italy from the program to the national guidelines and Physical Education Teacher Training (PETE). In N. Zivanovic, P. Pavlovic, B. Antala & K.P. Babic (Eds), *History of Physical Education in Europe* (pp. 114-142). Leposavic: University of Pristina, Faculty of sport and physical education in Leposavic.

Coulter, M., & Ní Chróinín, D. (2013). What is PE? *Sport, Education and Society, 18*(6), 825-841. http://dx.doi.org.dcu.idm.oclc.org/10.1080/13573322.2011.613924

D'Elia, F. (2020). Teachers' perspectives about contents and learning aim of physical education in Italian primary school. *Journal of Human Sport and Exercise, 15*(2proc), S279-S288. doi:https://doi.org/10.14198/jhse.2020.15.Proc2.19

ECTS User Guide. (2015). https://education.ec.europa.eu/sites/default/files/document-library-docs/ects-users-guide_en.pdf

Egido Gálvez, I. (2010). El acceso a la profesión docente en España en perspectiva europea. Algunas reflexiones orientadas a la mejora de la selección del profesorado (Access to teaching profession in Spain in a European perspective. Some reflections to improve the selection of teachers). *Educación XXI*(13), 47-67.

Erhorn, J., Moeller, L., & Langer, W. (2020). Hochschuldidaktische lehrkonzepte zur vorbereitung angehender sportlehrkräfte auf einen inklusiven sportunterricht: Eine kritische bestandsaufnahme des forschungsstandes. *German Journal of Exercise and Sport Research, 50*(4), 487-500.

Feyerer, E. (2015). Inklusion in bewegung & sport - eine grundlegung [Inclusion in movement & sports - a foundation]. *Bewegung & Sport, 69*(3), 4-9.

Fischer, B., & Holzamer, A.-K. (2016). Günstig oder ungünstig? Persönlichkeitseigenschaften angehender sportlehrkräfte aus dem blickwinkel des lernens im studium und der späteren berufstätigkeit [Favorable or unfavorable? Personal characteristics of future physical educators with respect to learning during their University Education and to their later careers]. *Sportunterricht, 65*(4), 98-102.

Fletcher, T., & Mandigo, J. (2012) The primary schoolteacher and physical education: a review of research and implications for Irish physical education, *Irish Educational Studies, 31*(3), 363-376, DOI: 10.1080/03323315.2012.710063

Friedrich, G., Grafe, S., Pogl, B., & Scheid, V. (2017). Lehrerbildung fiir einen inklusiven Sportunterricht - konzeptentwicklung unter beriicksichtigung empirischer befunde [Qualification of physical education teachers in the context of inclusive physical education -The development of an inclusive concept based on empirical evidence]. *Zeitschrift far Sportpiidagogische Forschung, 5*(2), 5-24.

Garrett, R., & Wrench, A. (2008). Connections, pedagogy and alternative possibilities in primary physical education. *Sport, Education and Society, 13*(1), 39-60.

González Ferreras, J. M. & Yarosh, M. (Eds.) (2018). *CALOHEE –Tuning Guidelines and Reference Points for the Design and Delivery of Degree Programmes in Teacher Education*. Groningen: University of Groningen.

Gutiérrez-García, C., & Martínez-Álvarez, L. (2019). Spain. Physical Education Teacher Education in Spain. In A. MacPhail, D. Tannehill, & Z. Avsar (Eds.), *European Physical Education Teacher Education Practices* (pp. 360-379). Maidenhead, UK: Meyer & Meyer Sport. Hericks, U. (2015). Wie werden Lehrerinnen und Lehrer professionell - und was kann universitäre Lehrerbildung dazu beitragen? *Zeitschrift für sportpädagogische Forschung, 3*(2), 5-18.

Herrmann, C., Seiler, S., & Niederkofler, B. (2016). „Was ist guter Sportunterricht?“: Dimensionen der Unterrichtsqualität. *Sportunterricht, 65*(3), 77-82.

Isidori, E. (2018). Problematiche pedagogiche nella formazione degli insegnanti di educazione fisica oggi: tra pedagogia critica e nuove sfide. In S. Ulivieri (Eds.), *Le emergenze educative della società contemporanea. Progetti e proposte per il cambiamento*. Lecce: Pensa Multimedia.

Jess, M., Carse, N., & Keay, J. (2017). The primary teacher, professional development and physical education. In G. Griggs & K. Petrie (Eds.), *Routledge Handbook of Primary Physical Education* (pp. 112-121). London, UK: Routledge.

Künzell, S., & Reuker, S. (2014). Die „Offene Tür“ im Klettern als Chance für eine problemorientierte Wissensvermittlung im Sportunterricht. *Sportunterricht*, *63*(4), 105-110.

Kurniawati, F. (2014). *Teachers' attitudes, knowledge, and teaching strategies towards students with special educational needs in primary inclusive education in Indonesia*. Doctoral Thesis. University of Groningen.

Lane, S. (2018). Why participating in the 'Tweacher Society' is good for reflective practitioners? *Impact* Summer (3).

Lawrence, J. (2017). Teacher Educators in Primary Physical Education. In: Gerald Griggs & Kirsten Petrie (eds.). Routledge Handbook of Primary Physical Education (pp.122-133). Routledge, UK. doi: 10.4324/9781315545257-11.

Liebl, S., & Sygusch, R. (2020). Basic competencies of basic qualified physical education teachers at primary schools. *Zeitschrift für Sportpädagogische Forschung, 8*(1), 87-104.

Lynch, T., & Soukup, G.J.Sr. (2017) Primary physical education (PE): School leader perceptions about classroom teacher quality implementation. *Cogent Education, 4*(1), 1348925. DOI: 10.1080/2331186X.2017.1348925

Macphail, A., Tannehill, Y. & Avşar, Z. (2019). *European Physical Education Teacher Education practices.* Meidenhead: Meyer & Meyer Sport. ISBN: 978-1-78255-177-5

Martínez Álvarez, L. (2009). *Las practicas de los maestros especialistas de Educación Física desde la Perspectiva del coordinador del programa; una aproximación narrativa.* Doctoral Thesis. University of Valladolid. Maulini, C., Migliorati, M., Isidori, E., & Miatto, E. (2016). Educazione motoria nella scuola primaria italiana: un'indagine in una scuola del Veneto. *Formazione & Insegnamento, 14*(2), 251-262.

Meier, S. (2014). Aller Anfang ist schwer?: Unterstützungsangebote in der ersten Phase der Sportlehrerbildung. *Sportunterricht, 63*(8), 227-232.

Möhwald, A., & Okade, Y. (2020). „Lesson Study" als kontinuierliche (Sport-)Lehrerfortbildung in Japan. Anregungen zum kollegialen Austausch an deutschen Schulen. *Sportunterricht, 69*(1), 15-20.

Murphy, F., & McEvoy, E. (2020). Listening to the voices of teachers: Primary physical education in Ireland. *Sport in Society*. https://doiorg.dcu.idm.oclc.org/10.1080/17430437.2020.1769953

Murphy, F., & O'Leary, M. (2012) Supporting primary teachers to teach physical education: continuing the journey, *Irish Educational Studies, 31* (3), 297-310, DOI: 10.1080/03323315.2012.710065

Murphy, F., Marron, S., & Coulter, M. (2021). Primary field experiences: Critical for primary generalist physical education teachers? *European Physical Education Review*, 1–18. DOI: 10.1177/1356336X21991188

Neves, R. (2018). O BOLETIM SPEF e a educação física na escola do 1.o CEB – uma análise do discurso publicado (SPEF bulletin and physical education in primary school – An analysis of the published speech). *Boletim SPEF, 41*, 59-66,

Neves, R. (2019). The models of physical education teaching in the elementary school - views of managers. *Retos, 35*, 107-112.

Ní Chróinín D., Mitchell E., Kenny A., Murtagh E., & Vaughan E. (2013). How can pre-service primary *teachers*' perspectives contribute to a pedagogy that problematises the 'practical' in teacher education? *Irish Educational Studies.* 32(2) 10.1080/03323315.2013.798524

Ní Chróinín, D., Tormey, R., & O' Sullivan, M. (2012). Beginning teacher standards for physical education: Promoting a democratic ideal? *Teaching and Teacher Education, 28*(1), 78-88.

O'Sullivan, M. (2005). Beliefs of teachers and teacher candidates: Implications for teacher rducation. In F. Carreiro Da Costa, M. Cloes & M. Gonzalez Valeiro (Eds.), *The Art and Science of Teaching in Physical Education and Sport* (pp. 149-164). Lisbon: Faculdade de Motricidate Humana.Raiola.

Pachurka, T. (2013). Eine adaptive Lehr-Lernkultur für die zweite Phase der Sportlehrer(aus-)bildung [An adaptive teaching and learning atmosphere for the second phase of physical educators' training]. *Sportunterricht, 62*(11), 336–341.

Petrie, K., Devcich, J., & Fitzgerald, H. (n.d.). Working towards inclusive physical education in a primary school: "some days I just don't get it right." *Physical Education and Sport Pedagogy*, *23*(4), 345–357. https://doi.org/DOI: 10.1080/17408989.2018.1441391

Pögl, B., & Scheid, V. (2020). Erlebnispädagogik in der Ausbildung von Grundschullehrkräften: Evaluation der Fortbildungsmaßnahme „stark bewegt". *Sportunterricht, 69*(5), 194-200.

Randall, V. (2020). Becoming a primary physical educator. *Education 3-13, 48*(2), 133-146. DOI: 10.1080/03004279.2019.1594330

Randell, V. (2018). Reframing Teacher Knowledge: A model for professional knowledge development. *Impact*. Summer (3).

Scanlon, D., Calderón, A., & MacPhail, A. (2020). Teacher agency in enacting physical education in a period of curriculum change and reform in Ireland. The Curriculum Journal, 32(1), 48-66. doi:10.1002/curj.80

Scheuer, C., & Heck, S. (2020). Physically Active and Healthy School, Role of Primary Physical Education Teacher. In: Peters M.A. (eds) Encyclopedia of Teacher Education. Springer, Singapore. https://doi.org/10.1007/978-981-13-1179-6_423-1

Scheuer C., & Thill J.L. (2020). *Ethical Aspects in Teaching Physical Education*. In: Peters M. (eds) Encyclopedia of Teacher Education. Springer, Singapore. doi: 10.1007/978-981-13-1179-6_340-1.

Schneider, M., & Ziemainz, H. (2015). Burnout im Sportlehrerberuf Ursachen und Präventionsmaßnahmen [Burnout of physical educators: Causes and preventive measures]. *Sportunterricht, 64*(1), 15–20.

Seclì, P., & Ceciliani, A. (2014). *Metodi e strumenti per l'insegnamento e l'apprendimento delle scienze motorie. I quaderni della didattica.* Napoli, IT: Edises.

Straub, C. (2015). Die pädagogische Bedeutung von Ritualen [The educational significance of rituals]. *Sportunterricht, 64*(2), 36–40.

The Bologna Declaration. (1999). Joint declaration of the European Ministers of Education. http://ehea.info/Upload/document/ministerial_declarations/1999_Bologna_Declaration_English_553028.pdf

Tsangaridou, N. (2005). Classroom teachers' reflections on teaching physical education. *Journal of Teaching in Physical Education, 24*(1), 24-50.

Tsangaridou, N. (2006). Teachers' beliefs. In D. Kirk, D. Macdonald & M. O'Sullivan (Eds.), *Handbook of Physical Education* (pp. 401-416). London: Sage.

Tsangaridou, N. (2012). Educating primary teachers to teach physical education. *European Physical Education Review, 18*(3), 275-286.

Valentini et al., 2019a, 2018a in D'Elia, 2020, p. 283

Vogler, J., Messmer, R., & Allemann, D. (2017). Das fachdidaktische Wissen und Können von Sportlehrpersonen (PCK-Sport). *German journal of exercise and sport research, 47*(4), 335-347.

Weigelt, M., Lex, H., Wunsch, K., Kämpfe, A., & Klingsieck, K. (2016). Positiver einfluss universitärer ausbildungsinhalte auf die psychische gesundheit von sportreferendarinnen und–referendaren [College educational contents and their positive effects on the psychological health of student teachers]. *Sportunterricht, 65*(1), 10-14.

Weigelt, M., Lohbreier, M., Wunsch, K., Kämpfe, A., & Klingsieck, K. (2014). „An die schule, fertig, los!“ Als wie belastend erleben Referendarinnen und Referendare mit dem Unterrichtsfach Sport den Anfang ihrer Schullaufbahn? [„Ready for school, get set, go!“ How stressful do student teachers in physical education perceive the beginning of their professional careers]. *Sportunterricht, 63*(8), 239-245.

Wendeborn, T., & Langer, J. (2020). Digitale Übergänge im Sportunterricht gestalten, aber wie? Auf die digitalen professionellen Kompetenzen der Sportlehrkräfte kommt es an! *Sportunterricht, 69*(5), 263-268.