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# Comparative Analysis of the Transition from Early Childhood Education to Primary Education: Factors Affecting Continuity between Stages

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**Abstract:** The educational transition between early childhood education and primary education is a complex moment of change with repercussions throughout the academic life of the students. For this reason, it is important to seek continuity between both educational stages. A successful transition produces for the social, cognitive and emotional well-being of the student. The aim of this study is to find out how transition-related factors apply in ten European Union (EU) countries. The factors analyzed are the age of onset of transition, the teacher–student ratio, types of clustering, financing of the stage, responsibility, and both initial and in-service teacher training. The methodology followed in this study is documentary analysis and the main source of data search has been the European Commission's Eurydice portal. The results show differences in stage change within each country, especially in the explicit consideration of a transition period. The main conclusion is that there is a great difference between the northern and southern countries. The main differences between countries in the transitions from early childhood education to primary education in the EU are in the years of compulsory education, the teacher/student/unit ratio, the initial teacher training, and the decentralization of education.

**Keywords:** *Transition, early childhood education, preprimary, primary education, school preparation.*

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## Introduction

The transition between the stages of Early Childhood Education (ECE) and Primary Education (PE) has been a topic of interest for research in the last decade. Most of these studies focused on the continuities and disruptions experienced by students at that period (Ackesjö, 2017; Babić, 2017; Dockett & Perry, 2014; Gairín, 2005; Kartal & Guner, 2018; Lillejord et al., 2015; Sierra, 2018; Woodhead & Oates, 2007). The problems associated with continuity in transition are complex. Already in 1987, Watt (as cited in Argos et al., 2019) indicated that this educational transition involves different organisational and curricular dimensions which affects political, social, family and individual contexts. Years later, Bowman (1993), mentioned that the care and training that should be given to children throughout this period prior to primary school ("pre-school") is within the same developmental stage as in the first years of primary school and, therefore, both stages should share common principles and practice. This continuity should not involve "preparation for primary school" by anticipating content or methodology, but it must involve the development of a common curriculum by both educational stages (Manini, 1992, as cited in Argos et al., 2019). The education provided during this period is more than preparation for primary school. It aims to develop the social, emotional, cognitive, and physical needs of the child to build a strong and comprehensive foundation for learning and well-being throughout life (United Nations Educational, scientific and Cultural Organization [UNESCO], 2020).

The transition from ECE to PE represents one of the greatest challenges for children in their first years of life. It can also be a key to future educational success (Gairín, 2005; Tao et al., 2019). Children who have a positive transition are likely to have positive expectations of their ability to learn and succeed within the education system (Wallis & Dockett, 2015). The transition process may involve experiences of advancement and educational momentum or moments of risk and exclusion (Sierra, 2018; Woodhead & Oates, 2007).

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Early childhood education (ECE), defined as the stage prior to primary education, has been designated as its own entity within the educational world. In spite of this, it has always been related to a less standardized and formally educational idea than primary education (PE). ECE was associated with a context of care and assistance, including preparation for PE. However, in recent years, despite not being compulsory, the European Union (EU) has had pre-school education attendance rates of 95.4% (2017) (European Statistical Office [EUROSTAT], 2019). This means that almost all students who are going to start primary school have attended an ECE.

This transition is associated with changes that directly affect the agents involved: the student, the teaching staff, and the family. The student is considered the main agent in the transition and can be affected at different levels: personal, social, academic, and methodological (Argos et al., 2019; Bakken et al., 2017; Castro et al., 2018; Lin et al., 2003; Margetts, 2005; Parent et al., 2019; Sierra, 2018; Tamayo, 2014; Wong & Power, 2019).

First, on a personal level, changes occur for the student as an individual. The stress of change, in addition to the challenges of starting school, can manifest itself in maladaptive or problematic behavior in children (Parent et al., 2019; Wong & Power, 2019). Research has shown that problem behaviors at these early ages, such as extreme hyperactivity, inability to sit still, inattention, emotional difficulties, and negative attitudes, are predictive of lower levels of academic achievement, progress, and behavioral problems in adolescence (Margetts, 2005).

Second, at a social level, relationships with adults are beginning to be based more on learning and formal outcomes than on care and attention (Lehrer et al., 2017; Rimm-kaufman et al., 2000). In family relationships, the role of families will depend on their type of parenting, the information they have about the transition, and what they expect from the new stage (Gairín, 2005; Tamayo, 2014). Students seek acceptance into a new group of peers. Students have a hard time maintaining old friendships because it is common to move to other schools or classrooms. In this regard, peer relationships also deserve care in the transition to school (Quinn & Hennessy, 2010).

Third, at an academic level, problems in the transition to primary school predict possible educational and social problems in a range of up to ten or twelve years, lasting through schooling and adolescence. This implies that the transition from ECE to PE affects further transitions academically (Cubillos Padilla et al., 2017; Margetts & Phatudi, 2013; Tamayo, 2014). This issue is of interest in the EU given its high rate of early school leaving (ESL), especially in countries such as Spain which has the highest rate in the Union (17.3%,), Malta (16.7%), and Italy (13.5%) (EUROSTAT, 2020). ESL may be focusing the analysis on the transition to secondary education and therefore this transition has been studied in depth by locating variables that affect it (González-Rodríguez et al., 2019). The transition from ECE to PE is key to working on student academic success. A proper adaptation of the compulsory education system will contribute to the student's own perception of the education system (Gairín, 2005; Sayers et al., 2012; Tamayo, 2014; Tao et al., 2019).

Fourth, at a methodological level, there is a change in the educational, global, multifunctional, and dynamic consideration of ECE, which is losing importance in the PE stage (Argos et al., 2011; Castro et al., 2012; Cubillos et al., 2017). This means that there is not always continuity in children's learning (Margetts, 2002). The transition to the next stage abandons the game as a key methodology and loses its pedagogical value (Argos et al., 2011; Karila & Rantavuori, 2014; Tamayo, 2014). In addition, there are changes in the organization of time. Spaces also become less flexible, in a structure with fewer learning opportunities and oriented to more controlled learning (Castro et al., 2012; Cubillos Padilla et al., 2017).

Another group of agents involved in this educational transition are the teachers, highlighting their training at both the initial and permanent levels as a key point within this transition (Argos et al., 2011; Castro et al., 2018; Huf, 2013; Kartal & Guner, 2018; McDermott et al., 2016; Pestano Pérez, 2016). This transition involves teachers from two different educational stages, which should be coordinated and have common points in their training for work in this process of change (Castro et al., 2012, 2018; Gairín, 2005; Margetts, 2002, 2005; Sierra, 2018; Tamayo, 2014). This collaboration between ECE and PE teachers is time and resource intensive, but key to avoiding inaccurate information based on personal opinions (Karila & Rantavuori, 2014). There are often discrepancies between the guidelines and actions established in each course for ECE and PE teachers (Tamayo, 2014). Teachers consider their own ways of working to be superior to those teachers in the other stage (Dockett & Perry, 2014; Lillejord et al., 2015; Peters & Roberts, 2015). Another topic of discussion among ECE and PE teachers is early reading and writing skills in which there does not seem to be a point of agreement between the two professional groups (Lin et al., 2003; Tamayo, 2014).

This educational transition process can be analyzed at three levels (Tomaszewska-Pękała et al., 2017). First, at the micro-level which takes place in different scenarios formed by family, friends, teachers, classmates, and the school. Second, the macro-level consists largely of the broader context where educational institutions and individuals define and operate, such as the education system. These policies have an impact on all educational stages (Khelifi, 2019). Third, the meso-level is the interaction of the macro and micro levels and focusses on the relationships that individuals establish between different groups and the broader context. Using this multi-level approach allows for a broad view of this transition. The responsible education administrations determine, at a national level, elements that differentiate countries in terms of management of the stages of ECE and PE, and their own guidelines for teacher training (Tomaszewska-Pękała et al., 2017). The macro-level regulates, on the one hand, the factors that facilitate the continuity

of the transition: the teacher–student ratio (class size and student-teacher ratio) (Chan, 2010; Lehrer, 2018), the type of groupings (Huf, 2013; Margetts, 2002; Quinn & Hennessy, 2010), the funding of each stage (Greenberg, 2018), and the institutional responsibility for each stage (Arndt et al., 2013). On the other hand, the macro-level also regulates the factors related to teacher training, both for initial and lifelong learning.

## Methodology

*Research Goal*

The aim of this research is to analyze the transition from ECE to PE in the EU based on the variables related to the macro-level. This analysis compares the two levels in the same country as well as in different countries.

*Sample and Data Collection*

This study is qualitative and based on the methodology of documentary analysis. The search for information for analysis has been carried out through the European Commission's Eurydice portal (third quarter of 2019). In this portal we can find information provided by the governments of each country of the EU in relation to the characteristics and lines of action of their educational system. This information is accessible in English and in the country's own language; it has links to the countries' regulations and to the websites of the Ministries of Education for more information.

The EU countries selected for the sample belong to continental Europe and are the largest: Spain (ES), France (FR), Italy (IT), and Germany (DE). Portugal (PT) is included to complete the Iberian Peninsula. Finland (FI), Sweden (SE), Norway (NO), Denmark (DK), and the Netherlands (NL) are included because of their educational prestige (Organization for Economic Co-operation and Development [OECD], 2020). These selected countries provide a general and representative view of the educational system in the EU.

*Analyzing of Data*

The macro-level analysis consisted of a search for information on seven factors related to continuity or discontinuity in the transition. These factors are mentioned in the literature as being important for a continuous transition of students and are part of the macro level (see introduction). This analysis is carried out for the two stages that comprise this transition (ECE and PE). The seven factors that will allow us to analyze the macro-level are age limits, teacher-student ratio; type of clustering; funding; institutional responsibility; initial teacher training, and lifelong learning.

For the initial teacher training factor, we analyze the duration of studies and the level. These two variables would help us to describe the professional profile of teachers at both stages and between different EU countries.

For the factor of lifelong learning for teachers we analyze the structural elements of this training: compulsory training, incentives received, how it is financed, who organizes it, and what are the priority issues for the EU governments. We have developed five variables of analysis to analyze the factor of permanent teacher training.

The information search process was systematic because Eurydice has a detailed index to search in each educational system of the member countries. This made it possible to identify clearly the variables to be analyzed.

The analysis of priority lifelong learning topics for governments involved a different procedure. Due to the number of different topics, the process analysis was done with MAXQDA2020. All the themes mentioned in Eurydice were exported and initial classification of the topics of this training was made. In a first phase, an initial classification was carried out which provided nine different topical categories for the lifelong learning of teachers. In a second phase, two more researchers reviewed these categories and a final classification was made of six categories for the teacher training factor. The degree of consensus between the initial classification and the final classification establishes a high degree of reliability based on the fact that the synthesized content does not generate major doubts due to its simple and clear wording (McMillan & Schumacher, 2008).

## Results

*Table 1. Macro-level structure in the transition in the EU (countries shorted from North to South)*

| | NO | SE | FI | DK | NL | DE | FR | IT | ES | PT |
|---|---|---|---|---|---|---|---|---|---|---|
| The end of ECE is compulsory | | ▪ | ▪ | | ▪ | | ▪ | | | |
| Teacher/Student Ratio in ECE > 20 | | | | | | | | ▪ | ▪ | ▪ |
| Teacher/Student Ratio in PE > 20 | PT | PT | | | PT/** | PT | PT | ▪ | ▪ | ▪ |
| Same age clustering in ECE | | | | | | | ▪ | ▪ | ▪ | ▪ |
| Same age clustering in PE | | | | ▪ | | | ▪ | ▪ | ▪ | ▪ |
| Last year of ECE is free | | ▪ | ▪ | | | | ▪ | ▪ | ▪ | ▪ |
| Master's degree for ECE teachers | | | | | | | ▪ | ▪ | | ▪ |
| Master's degree for PE teachers | | | ▪ | | | ▪ | ▪ | ▪ | | ▪ |
| Same duration (years) of studies for teachers of ECE and PE | | | | | ▪ | | ▪ | ▪ | ▪ | |

*PT: Pedagogically Justifiable **: 3.5m/student

*Age limits*

The beginning of educational stages does not take place simultaneously throughout the EU. It is true that the criterion for starting PE at age six is fairly consistent (Norway, Denmark, The Netherlands, Germany, France, Italy, Spain, and Portugal) and in many cases, this is also the beginning of compulsory education. In the case of Sweden, Finland, the Netherlands, and France, the last year of ECE is already within compulsory education (Table 1). However, there are exceptions, the most recent being France, which since 2019 has joined those countries where compulsory education includes ECE and has lowered the beginning of compulsory schooling from six to three years old.

In the case of the Netherlands, compulsory education begins one year before the start of PE, so children begin compulsory education at the age of five. Compulsory education also begins during ECE in Sweden and Finland, which consider seven years to be the most appropriate age to start PE, but both make the previous year of ECE compulsory. In addition, this transition year to PE is specifically named *Esikoulu* and *Förskoleklass* in Finnish and Swedish, respectively. This shows that they give this transition an identity of its own, differentiating the importance of this step.

*The teacher/student ratio*

The variable teacher–student ratio is analyzed taking into account the last year of ECE and the first year of PE. There are more differences between countries than differences between the two stages within each country.

Southern European countries range from a maximum of 25 (Spain) to 26 (Portugal and Italy) for each teacher and unit in both stages. In these cases, there is only one teacher in each classroom. In the case of Italy, this may vary according to the different timetable models. In some cases, Italy may be an exception because families decide the number of hours that children spend in the centers, between 24, 27, 30, or 40 hours per week. In the case of children who have 40 hours a week, they have two teachers, although not at the same time.

In most Nordic countries (Norway, Finland, the Netherlands) for ECE the legislation does not regulate the size of the group but the ratio of children to teachers. This means that there can be more than one teacher in the same unit (classroom) and that this depends on a pedagogically justifiable size. In Finland and the Netherlands, it is stipulated that there is a maximum of eight students per teacher. In the case of Finland, legislation on PE class sizes is only provided for in special education.

The Netherlands takes into account the size of the spaces in relation to the number of children, with the minimum space per child being 3.5 square meters.

In Norway, this is embodied in at least one pedagogical leader/qualified kindergarten teacher for every 14 children. The legislation provides for the presence of one or two assistants for each teacher. It is estimated that there are about five to six students for each adult. In PE, Norway, like France and Sweden, refer to a pedagogically justifiable size at both stages, and both make it clear that they can also appoint two teachers with the same qualifications in the same classroom. In the case of Norway and Sweden this is decided by the schools, and in the case of France, the ratio is decided by the inspector.

In the case of Denmark, there are three to four students per professional in the ECE classrooms and there are up to four teachers or assistants per classroom. In the case of PE, up to 20 students in the classroom is recommended and maximum of 28 students (30 in special circumstances).

In the case of Germany for ECE, the regulations do not mention a ratio. However, in PE they mention a pedagogically justifiable size, just like the Nordic countries, since the early years of PE are in mixed age groups and the ratio becomes more flexible.

*The type of clustering*

In ECE, the EU situation shows mixed age groups in the Nordic countries (Finland, Sweden, Norway, and the Netherlands). In these cases, the grouping is not necessarily by age group, but by maturity, to take into account the pace of each child and the skills they have acquired. The educational team, in agreement with the parents, may decide to place the child in the section that best suits his or her needs, even if it does not exactly correspond to his or her age.

In the French ECE system families are free to decide, although it is usual to group by age. In PE it is always by age. This distribution can take flexible forms in order to take into account the pace of each child, their maturity, and the skills they have acquired.

In the case of countries such as Denmark, Germany, or France, the schools decide what type of grouping they want in ECE. This decision falls within the freedom of organization of the school. In Denmark and Italy, although the school works with same-age groups, the school also respects a time for working with mixed-age groups.

This situation changes with the transition to PE, where most of the work is done by age (Spain, Sweden, Denmark, Portugal, Italy, France, and Norway). Despite this, there are cases such as Italy, where the groups are organized by age, but also by time, since Italian families can decide the number of hours their children spend in the school. At the central level, the government designates the minimum and maximum amount that a student can spend in the school and these range from 24 hours a week to 40 hours, including the time spent in the school cafeteria. The parents or legal guardians choose the student's schedule when registering and the schools make up the classes according to these schedules. The minimum requirement of students per classroom must always be met and the availability of timetables will depend on the human resources available at the school.

In France, despite the fact that age groups are divided, it is very common to form well-known multiple levels. In this case, the idea of class is lost and children from two consecutive ages can form the same group. This decision is not carried out due to a lack of material or human resources but as a learning strategy in some schools.

In Germany, in the first two years of PE, in addition to lessons according to age group, the Länder provide education for mixed age groups during the first two years of school in particular. In these cases, students can complete the first two years of school in one or three years, depending on their own individual progress.

In the Netherlands, the formation of groups depends on the school, they are free to decide on their own internal organization and the groupings provided for their students. Although in most cases it is an age cluster, there are also mixed age clusters since there are schools that prioritize the level of development or skills. They even divide the school into junior sections (four to eight years old) and senior sections (nine to twelve years old), with the school deciding to create an intermediate section (seven to nine years old).

In Finland, teaching groups are composed according to grades. The country's local autonomy allows for different arrangements and there may be, for example, different types of combined classes.

In the case of small localities with very few students, in all of the countries analyzed special groupings are made, adapting to the low human resources, in order to cater for different levels of education. These exceptional cases are not those analyzed in this study.

*The financing of the stages*

There are differences in funding between ECE and PE in the countries analyzed (in the case of publicly funded schools). The PE is free for families across the EU, but ECE is not free in all cases.

On the one hand, there are countries that provide the last three years of the stage, as is the case of the southern European countries (Spain, Portugal, Italy, and France). On the other hand, there are countries where ECE is subsidized, such as Denmark, Germany, Norway, and the Netherlands. The financing comes partly from the families and partly from the regions, municipalities, and/or the state. The reasons for giving more or less funding usually vary depending on the schools and the family's economy, but in the case of the Netherlands, subsidies are given according to the educational level of the parents and the location of the school, despite the fact that ECE is compulsory here.

Sweden, Finland, and France, where the final year of ECE is also compulsory, is a free year for families.

Norway clarifies that there are legal regulations regarding the fees that families contribute to the schools but despite these contributions, the municipalities are the ones that finance 75–80% of the educational costs. There are countries that combine both types of financing within the stage, as is the case in Finland. In this country, ECE from one to six years is subsidized, but the last year (from six to seven years) is free. Another case is Sweden, where ECE from the age of three is offered as a subsidy and from six to seven years (the last year of ECE) is free.

*The responsibility of the stages*

Responsibility for education is always shared between a state-level department and a regional or local type system. The difference lies, on the one hand, in the fact that both stages belong to the same ministry and, on the other, in the level of independence given to the schools.

Since there is always a responsible figure at the state level, its representation is not the same in all countries (Fig. 1). Thus, there are cases where municipalities or schools are the main organizers of the school system as is the case in all Nordic countries (Sweden, Finland, Denmark, Norway, and the Netherlands). In these cases, the educational responsibility of the municipalities is very strong. Although municipalities and schools are the main organizational bodies of the school system, there are agencies such as the National Agency for Education in Sweden (a central administrative authority within the Ministry of Education and Research) whose only purpose is to assess the achievement of the proposed objectives. These agencies monitor and evaluate schools, enabling them to improve the quality of their results. This provides an important independence to schools while evaluating their action directly.

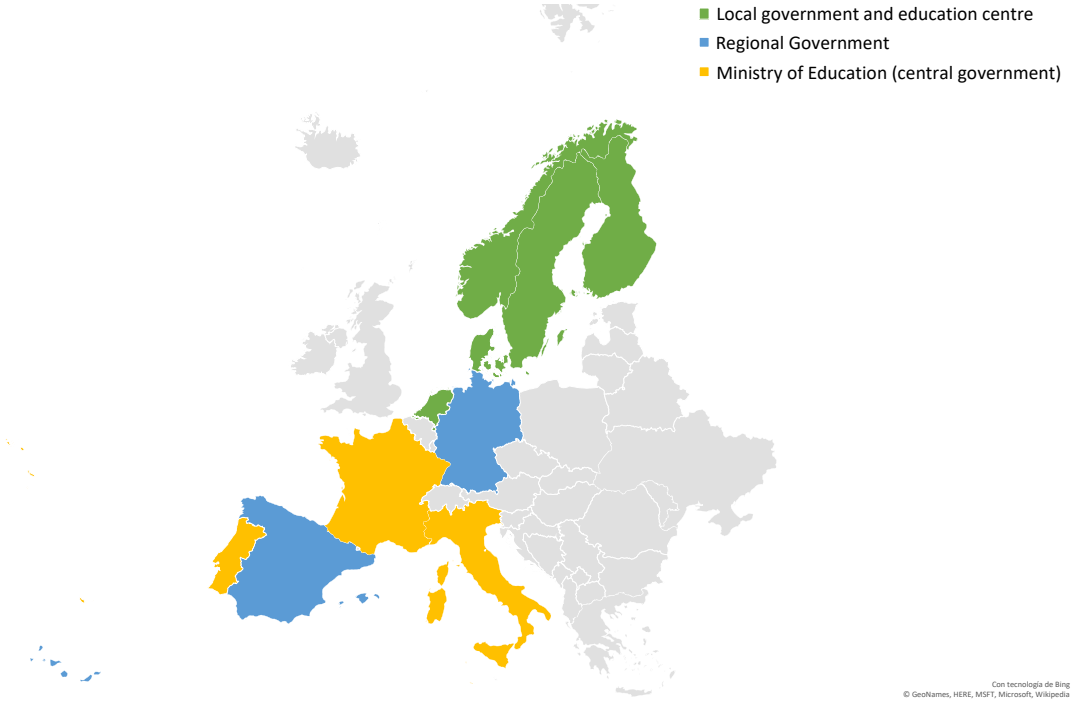


*Figure 1. Responsibility for the primary education stage*

In the Netherlands, the Ministry of Education, Culture, and Science sets legal requirements for education since there is no national curriculum, but there are objectives in general education. The role of the provincial authorities in education is limited to supervisory and legal tasks. However, the School Board is responsible for the school and the quality of education, including the achievement of the goals.

Denmark is the only country among those analyzed where the ECE stage is overseen by the Danish Ministry of Children and Social Affairs, and not by the Ministry of Education. In addition, the head of the institution is responsible for the administrative and pedagogical management of the institution and is accountable to the School Board and the Municipal Council for the activities carried out in the institution. A childcare board is established between parents and staff employed at each institution (municipal or private). The board has the right to make recommendations to the municipal council regarding the appointment of new staff. In the case of PE, the school management also carries weight, as it is responsible for the supervision of work tasks and their distribution among the school staff. Furthermore, the school management can make concrete decisions regarding the pupils at each school. Even so, a pedagogical council is established to carry out advisory functions, made up of all personnel with educational and pedagogical functions in the school. In addition to its advisory function, the most important function of the pedagogical council is to provide a forum for discussion of educational issues and innovation in the school.

In the south of the EU we find the countries with more centralized features: namely France, Italy, and Portugal. In the case of France, the main responsibility lies with the Department of National Education, Higher Education, and Research. The State defines the curricula and content, is responsible for organizing the admission procedure for teachers and trains the inspectors who will be responsible for monitoring the quality of the education system. Local authorities have been occupying a role more related to construction, the maintenance of school buildings, school transport, or provision of educational materials. The Portuguese education system is highly centralized in terms of organization and funding. However, schools of ECE and PE in both Portugal and Italy have a certain amount of autonomy, particularly at the pedagogical level, as well as in terms of timetables and management of non-teaching staff.

In Spain and Germany, the decentralized political characteristics are also reflected in education. The regions (Autonomous Communities and Länders) have educational authority, so each one establishes its own legislation.

*Teacher training*

We must differentiate between two key concepts in teacher training: initial training and lifelong learning. On the one hand, initial training is understood as the path to becoming a teacher, consisting of pedagogical and didactic training, as well as a practical period (Ministry of Education, Culture and Sport [MECD], 2014). Depending on the country, this training varies in structure, content, and duration (European Commission, 2013; MECD, 2014). On the other hand, lifelong learning *'refers to training activities, formal or non-formal, including (...) training in certain subjects or pedagogical training*' (European Commission, 2013, p. 61).

*Initial training*

In relation to initial training, the duration of studies and the level of these studies have been analyzed. The results show that there are only differences in the level of training between stages in two EU countries: Finland and Germany (Table 1). These countries are the only ones in PE that require more training than ECE training. Germany is the country with the greatest internal differences in the training of both types of teacher. In order to work in the final years of ECE in Germany, it is not necessary to have a degree or similar level of education. This is in contrast to the master's level that is required in some Länder for PE teachers in Germany. The Länder decide whether teacher training curricula are concluded with a state examination (two parts) or not. In those Länder where a master's degree is not required, the teaching staff who take the master's degree are exempt from taking the first part of these tests. However, the second state examination must be taken afterwards for work in any educational institution, whether public or private. In all the countries analyzed, except Germany, all teachers in the last year of ECE have a bachelor´s degree or similar level of education.

In the case of Finland, they require a degree level for their ECE teachers and a master's level for their PE teachers. Therefore, the European countries where a master's level is required to become a teacher are Germany and Finland for PE teachers; and France, Italy and Portugal for both ECE and PE teachers.

The greatest differences between stages and between countries are in the years of training at both levels (ECE and PE). In the Nordic countries, the duration of the degree in ECE is three years (Norway and Finland) or three and a half years (Denmark and Sweden), and in the case of PE it is four years with the exception of Finland where training takes five years. Portugal calls for a qualification above degree level for both types of teacher, but this does not imply the same years of training. The duration is three and a half years for ECE, and it is four years for PE. The only countries where the duration of training is equalized between ECE and PE are the Netherlands, France, Italy, and Spain.

*Lifelong learning*

In the case of lifelong learning, we analyzed whether it is compulsory for teachers, the incentives they receive for doing it, who finances it, and what the subjects are in which the training is carried out. First, this training is compulsory by law in Sweden, Finland, Italy, and Portugal, coinciding at both levels (ECE and PE) and in Germany only in PE (Table 2).

*Table 2. Lifelong learning for teachers in the EU*

| | | NO | SE | FI | DK | NL | DE | FR | IT | ES | PT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Compulsory lifelong learning for teachers | | | ▪ | ▪ | | | * | | ▪ | | ▪ |
| Compulsory | | | 104 hours/school year | 1–5 days/school year | | | | | 5 days/school year | | 50 hours/school year |
| Incentives | Promotion | | | | ▪ | ▪ | ▪ | ▪ | | ▪ | ▪ |
| Incentives | Economic compensation | | | | | | | | | ▪ | ▪ |
| Incentives | Mobility | | | | | | | | ▪ | ▪ | |
| Incentives | Compensation in days | | | | | | | | ▪ | | ▪ |

* Compulsory for PE teachers

It is compulsory in Sweden for 104 hours of training per school year, in Finland for one to five days of training per school year, in Germany (PE) it is different in each Länder, in Italy it is five days per school year and Portugal 50 hours per school year.

Second, whether or not it is compulsory, it is common for teachers to have incentives for continuing education. The Nordic countries do not have explicit incentives in their state legislation, but training is highly valued, and more hours are spent than are formally required. In particular, in the case of Finland, the legislation states that the main motivation of teachers should be professional development, updating and renewal of their own knowledge, and skills, as well as professional welfare.

In the case of German ECE professionals (Erzieherinnen and Erzieher), participation in continuing education programmers is often very limited and very different between the Länder.

In the case of Norway, the 'Competence for Quality - until 2025' requires teachers to meet the new formal competence criteria in English, mathematics, and their mother tongue. If teachers do not meet them, they must attend higher education training in these subjects. In the case of Sweden, individual teacher assessments and their level of responsibility are taken into account when school principals and teachers' union representatives negotiate their salaries.

Thirdly, this whole training process requires a significant economic investment. The ways to finance it are through the central governments, but in some cases directly and in others indirectly, since the local authorities finance the training with the money they receive from the corresponding ministries. To a lesser extent, they are financed by private funds from associations or trade unions.

In the case of Spain, this training is financed with money from the central government and from the autonomous communities that directly finance the teacher training centers in the country. In the case of Germany, the Länder finance the training institutes administered by the state which are mostly subordinated to the Ministries of Education and Cultural Affairs as institutions dependent on the Länder.

In the case of Denmark, Italy, and Portugal it is the central government of the country that finances it. But in the case of Denmark, in spite of being financed by the central government, it has many municipalities, and even specific centers, that have their own training courses for teachers. These courses are often shorter than those run by the state. In the case of France, it is financed by the Department of National Education, Higher Education, and Research from the budget allocated to universities, where teachers have a training account.

In the Nordic countries and the Netherlands, the schools themselves have their own teacher training budget. In particular, in Finland, Sweden, and Norway, their local agencies distribute funds according to the requests of the schools, and the courses are organized at local, regional, and national level. Funding is used according to the training demanded by teachers, schools, or the lines considered a priority by governments.

Fourth, for this reason, the priority lines for training proposed by the governments are analyzed.


*Figure 2. Type of permanent teacher training in each country of the EU*

These topics are those proposed by the governments of each country for the training of their teachers. For this reason, it is essential to highlight the case of Germany as the only country that recognizes the transition from pre-school to primary school as a theme within the training proposed by the government. Some of the proposals to contribute to the development of schools in relation to teacher training speak directly of improving the link between *Kindergarten* (German nursery school) and *Grundschule* (German primary school) and aim to improve the transition process between both stages, making explicit reference to this process.

The countries of the south of the EU (Germany, Italy, Spain, and Portugal) seek to improve their attention to diversity, understood both from an intercultural point of view and from that of specific educational needs. Curriculum and subject-matter issues are of concern to all governments. Teacher training in digital competence is also a topic of general interest (Finland, Denmark, Germany, Italy, and Spain).

Besides the case of digital competences, other competences are much more present in the southern countries of the EU. The interest of southern governments in training of trainers, presentation techniques, training management, learning environments, among others, is much higher. Northern EU governments do not provide as many priority topics for teacher training.

The case of France is particular since it is the Rector of the University (representing the Minister of Education) who determines the priorities based on teacher training specifications. The Rector together with the academic authorities, defines the National Training Plan (Plan National de Formation- PNF)—which includes the academic plan for lifelong learning, which is derived from the national training plan of the Ministry of Education. With this, they seek continuity between initial training and the university's academic training plan.

## Discussion

The above highlights the diversity of how the transition from ECE to PE is being addressed in the EU. There are very different models between countries. However, there are differences between the northern and southern countries of the EU.

Considering the factors of the macro-level, the Nordic countries include the last year of ECE as compulsory education. In addition, there is a year prior to PE that is designed to take care of this transition to PE. The highest ratios in Europe (student-teacher ratio) (understood as the ratio of students to teachers) are found in the south of the EU, and it is common for only one teacher to be assigned to each classroom. The criteria followed to form the classroom group do not show a change between the countries of the north and the south. Most countries move from mixed age groupings (ECE) to equal age groupings (PE). The independence of schools in the Nordic countries favors adaptation to the needs of students in this transition. This is not the case in systems where the greatest responsibility lies with institutions at regional or state level, in which the procedure is more generalized and not so particular. In relation to teacher training, if it is not the same training, PE teachers always have a higher level of training or a longer duration of training. Governments in the southern EU recommend more lifelong learning topics for teachers and reward this with additional incentives. The issues of greatest concern to southern EU governments are teacher skills, management training, and attention to diversity. The German government is the only one to explicitly recommend transition training from ECE to PE for teachers.

The analysis of macro-level factors in details shows that there is no general criterion for starting PE in the EU. In the south of the EU (Spain, Portugal, Italy, and France), the stage of ECE is not compulsory, as is the case in the Nordic countries (Finland, Denmark, and the Netherlands), with the exception of Norway, where compulsory education begins with *Barnetrinnet* (PE). This does not seem to be a great difference between countries since – despite the fact that it is not compulsory throughout the EU – attendance is over 95% in ECE (EUROSTAT, 2019). The beginning of PE implies a maturation of the student that changes a lot from six to seven years old. In the Nordic countries, the start of the primary stage takes place with a higher level of pupil maturity than in the rest of the EU. Success in high level cognitive processes such as reading and writing is directly linked to the cognitive development of the pupil who is cognitively more prepared at age seven than at age six.

Regarding the ratio of students per teacher, the highest ratio in the EU is in the south of the EU, with more than 20 students per teacher per classroom, with support assistants. The lower teacher–student ratio allows for more individualization of teaching at any stage. But the ratio is not making a difference to children in this transition because within each country there are no major differences between these stages. So, it could be said that the ratio is not producing an inequality between the educational stages (Page et al., 2018).

Regarding groupings, there are different criteria at each stage. Unlike the teacher–student ratio, the criteria for grouping do make a greater difference between the stages. Typical ECE groupings are by ability, development, or mixed-age groupings. However, in PE, age groups are the norm. In the transition to PE, this individual adaptation to the needs or development and maturity of the student is lost. The criteria for forming groups are changed and the grouping becomes more rigid. Although schools can decide, it is much more common to find age groupings. This demonstrates the need to standardize education by seeking to homogenize learning according to the criterion of age, which is what marks the minimum permanence in the education system and the justification for changing the academic year. The new stage (PE) has less flexibility and the contents are more standardized and pigeon-holed to mark subsequent milestones or the very end of the education system (the end of compulsory education)—with the exception of Germany, which provides for the formation of mixed age groups in the first two years of PE. This could be an interesting practice for similar education systems in respect of this adaptation process. There is no mention of criteria for keeping the same classmates as recommended in the literature for this transition (Huf, 2013; Margetts, 2002; Quinn & Hennessy, 2010).

Regarding free education, it does not seem to be a reason for differences between countries with regard to the two stages, as the last year of ECE is mostly free. The responsibility for both stages is usually in the same ministry, which favors continuity and consistency.

Regarding the independence of schools, the Nordic countries have more independence in educational establishments than the south of the EU. The location and characteristics of each school condition the transition process. Therefore, greater independence would allow schools to establish progressive adaptation measures for students in this change of stages. Furthermore, both stages are overseen by the same ministry, which facilitates continuity, and abandons the idea that ECE is a stage that is more about assistance than education.

Regarding teacher training, on the one hand in countries where initial teacher education is not at the same level, teacher education for PE is higher than for ECE. On the other hand, where the duration of such initial training is not the same, teacher training for PE is longer and of a higher standard. In southern EU countries, teacher training involves master's degrees at both stages. However, in Finland and Germany, only the master's level is requested for PE teachers. There does not seem to be any pattern that differentiates between the training of teachers at one stage and that of the next. Despite previous studies in transition, there are discrepancies between the teachers of both stages in terms of

topics such as reading and writing or logic-mathematics (Argos et al., 2011; Castro et al., 2018; Hindman et al., 2013; Puccioni et al., 2020).

Lifelong learning is compulsory in five countries in both the south and north of the EU. The southern EU countries receive various incentives (in addition to their working conditions) for this lifelong learning. However, northern countries do not receive these extra incentives for its realization, but there is an element of responsibility attached to the teacher, and most do. The approach to this training in the Nordic countries starts with the schools that organize and finance it and therefore all their teachers participate in it. The training is therefore more focused on the needs of the school and more effective.

In the case of countries such as Spain or Germany, funding comes from the state as well, but is organized in teacher training centers (in Spain) or training institutes (in Germany) at the regional level, so that they also receive regional funding.

In the south of the EU, it is common for the country's government to recommend topics for lifelong learning for teachers. These provide more uniform and general guidelines for the whole country. In the north of the EU it is common for schools to decide on the subject of lifelong learning for their teachers. Again, this reflects the Nordic countries' decentralization that makes it easier for them to adapt to the needs of individual schools. School management training is a priority issue, especially for governments in the south of the EU.

The topics most demanded by governments for teacher training are digital competencies, which shows the importance of this in teaching methodologies. Attention to diversity and languages is a priority theme in the south of the EU for the lifelong learning of teachers. The only EU country that has transition as a priority element in continuing teacher education is Germany.

## Conclusions

This analysis compares the macro-level factors that affect the continuity of the transition from ECE to PE in the two levels, in the same country as well as in different countries which allowed us to know the situation within each country and the differences between them.

Most European countries start PE at the age of six and with compulsory education. Despite this, the last year of ECE has such high level of attendance throughout the EU that this does not pose a problem for the transition between ECE and PE. In this case, the northern EU countries are taking more care of this transition, designing a transition course between these two stages. As for the teacher-student ratio, the northern and southern countries of the EU are again differentiated, but it is not a point of discontinuity within each country. Those countries that have a low teacher-student ratio maintain it in both stages and vice versa.

PE has less flexibility to form mixed age groups and this point is not taken into account in most EU countries despite research showing the advantage for transition.

Free education as well as the responsibility of the stage are not a factor of discontinuity for the transition. The independence of schools is an issue that highlight differences in the EU. Despite this, it is not a difference between the stage of ECE and PE since both stages have the same independence within each country. The difference lies in the benefits that greater independence of both stages could bring in the transition.

The initial training of teachers at both stages is once more marking two styles in the EU. In this case, the countries with master's degrees in both stages are mostly in southern Europe. In spite of this, within each country the duration of initial training at both stages is fairly similar.

Not all countries make lifelong learning compulsory for teachers. However, teachers are much more involved than is formally required in the countries of the North. The governments of these countries mention that it is a question of motivation to update and renew knowledge, as well as professional welfare. This participation is not related to incentives, as it is more common to receive incentives in southern countries. These common incentives in the south of the EU are financial, mobility or compensation in working days. The transition from ECE to PE is not a priority issue in the continuing education of teachers. This still favors the lack of agreement and collaboration, in many cases, between the teaching staff of the two stages.

The conclusions of this study show that there is no generic model for dealing with the transition from ECE to PE in the EU. The model for dealing with this transition needs to be specific and adapted to each country as a whole.

## Recommendations

All countries must continue to ensure free access to the last year of ECE so that the process of starting primary school is more continuous for pupils at all socio-cultural levels. In addition, policies must contribute to teacher training with projects to raise the visibility of this transition and to raise teacher awareness; consequently, the coordination between the two stages is effective. Two groups of countries are distinguished, the countries of the north of the EU and the

countries of the south. Within the southern countries, it would be recommended to consider lowering the high teacher-student ratio.

Further research is needed on different aspects of this transition from ECE to PE. Firstly, now that we know that two models of transition from ECE to PE are being carried out in the EU, we should know the effect that these have on the performance of students who have just incorporated into the compulsory education system.

Secondly, factors such as the ratio (teacher/student) is not a significant change for students within each country, although, we know that this is a big difference between countries. For this reason, we should study the aspects which are most neglected at this stage with a high ratio, and which involve the lack of individualization of the teaching of these first years.

Thirdly, it is necessary to know if the content of the student's curriculum is well adjusted in aspects such as the acquisition of logic-mathematics (Barham, 2020) or reading and writing (Argos et al., 2019).

## Limitations

On the one hand, the main limitation of our study is related to the content of Eurydice as the primary source of information. The Eurydice platform is a European Union web portal where the governments of each European Union country make available information on their education system along with links to their legislation in their official language. In order to carry out this documentary analysis, only information from this web portal has been collected, allowing us to have a great deal of first-hand information provided by the countries.

On the other hand, the findings from studying the factors affecting the transition from the macro-level show the need to study transition within individual countries. This case study approach will allow us to know which more specific aspects show a discontinuity between the stages and how they can be addressed from the micro-level (composed of families, teachers, peers and the school) and the meso-level (the interaction between the micro and macro level).

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