

FAMILY ENVIRONMENT, EARLY EDUCATION AND THE SKILLS ACQUIRED AT THE END OF PRIMARY SCHOOL

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ABSTRACT

Our study targeted the relationships between parents status, their early educational practices, the period spent by the child in kindergarten, some of his intellectual acquisitions that facilitate the integration in compulsory education and, finally, school performances acquired later, in 4th grade. The research was realized by analyzing some statistics obtained under the auspices of IEA (International Association for the Evaluation of Educational Achievement) by TIMSS and PIRLS research centers that perform, at certain intervals, international comparative studies evaluating the educational skills of young people at the end of different education cycles. In consequence, we were constrained to restrict our study only to the aspects of early education that were previously selected by the research teams of the IEA. So, there weren't information on forms of education / early childhood care from first years of children life or about the ones used by parents as a possible alternative to kindergarten. International comparability of data allowed us to reveal significant Romanian features which are related especially to kindergarten participation rate, parental involvement in early childhood education and children "school readiness" at the beginning of first grade (and, not at least, of the skills acquired in primary school). Child kindergarten participation and parent involvement in early education depend on their status (as well as the readiness of children to start primary school). The inequality of educational opportunity (in relation to parents training), is intense even in primary and this inequality is mediated probably by early education (more adequate for children having parents with higher education). Growth of the participation rate in kindergarten, over time, was not accompanied by improving the skills of students in grade IV, which suggests that those who most need formal early education are still deprived of it. Are needed, perhaps, educational centers aiming to "equalize opportunities" for these children.

KEYWORDS: early education, family background, skills assessment, unequal education opportunities

1. INTRODUCTION

Principally, we were interested, in our study, by two aspects: the unequal access to early education (parental and / or formal) depending on family background and, also, by the inequality of opportunities regarding later school performances. The secondary aspect that has been analyzed only in a very general manner was the relation between the rise of kindergarten participation and possible changes of skills acquired by students at the end of primary school.

We proposed this topic because we think that an essential problem of all societies and all educational systems is the fact that an important number of children cannot develop their entire genetic endowment because they don't have equal access to cultural and material resources. We believe that early care and education, starting with the moment of the birth and until the child starts primary school, have the highest importance for the equality or inequality of opportunities in achieving the later professional career.

Our assumption is that readiness for primary school has an important influence on intellectual achievements since the first until the last day spent in the educational system. If we wish to live in a society where all children would have real chances to develop themselves depending on their natural aptitudes and not according to the family's status, we must act to reduce disparities in the quality of early education.

An important question for scientists, but, also, for policy makers within school system is the following: only simple enlargement of the formal early education is enough for reducing inequalities of chances regarding readiness for school? And, more, another closely linked problem to the previous (to which we tried only to suggest an answer): higher kindergarten participation rate would increase the global level of the students' intellectual skills during school time?

In the scientific literature that we consulted (e.g. Jstor database articles that contain words „early education” in their title, published in the last decade), we found neither theoretical support nor results of scientific research concerning an important part of aspects targeted in our study.

Before clarifying the issues that we had analyzed in our paper, we must ask ourselves about the exact meaning of "early education" concept, because it seems to include different kind of activities, practices, social actors acting in specific environments (at home or in different types of institutions), and, not at least, in distinct periods of child life.

Here are some possible interrogations: everybody can offer early education or there are minimum quality standards which must be reached? We are talking about kindergarten teachers, staff of day care centres, other specialists in educational science, parents, grandparents, siblings, other relatives, persons hired to "take care" or, why not, to offer professional educational services at home? Is early education a tool for reducing disparities regarding the opportunity to harness resources provided by school at the start of compulsory education? If so, we must help only the young that are culturally deprived? Or, more probably, the topic refers to all the children, who should benefit by such an education that allows the maximum development of their native potential? Not at least, social policy makers must meditate if early education should be coordinated at a central level or, perhaps, local communities in partnership with non-governmental organizations can provide better opportunities for social and intellectual development of preschoolers (culturally deprived or not).

It is obvious that our article can't review the scientific literature about such enormous number of problems related to early education. So, we shall try to identify an operational definition which is suitable for the methodology used in the research whose data we are using in our study.

Magnuson and Waldfogel [1] consider that early child education can be categorized in three principal kinds: parental education, informal (non parental) care (by a relative, nanny, or babysitter in the child's own home or where day care providers inhabit), and care/education centres or pre-school institutions (day care centres, nursery school, pre-kindergarten, kindergarten, early education programs, like Head Start).

Rosenberg and Chagas [2] described the concept of early child care and education (ECCE) from the perspective of the need for administrative integration of preschools and day care centres, both institutions intending to educate and care for small children. The concept of ECCE, consider the authors, sets a new role for the educator or caretaker and new targets for the child care centres, having at least three dimensions: the physical protection of the child, the accent on the child's individuality, and providing complementary care services as support for families where the mother works outside home.

Brown [3] debate the problem of integration the practices of early childhood education into elementary school. He claims that prekindergarten (pre-k) programs become more and more present as a support for elementary schools from the United States. The author shows that a lot of aspects like the high interest (in terms of social and political) for increasing school achievements, the studies about cognitive development, diachronic research that argue the direct relation between pre-k programs on children's social and academic acquisitions have generated the expansion of pre-k education. The reason for the growing access rate in pre-k programs is to provide for young children the learning opportunities needed for readiness regarding the start of compulsory school.

We will end now this brief selection among descriptions of early education (care) and of some issues related to it because, on one hand, the significance of the concept is frequently took for granted and, on the other hand, when the content of the notion is specified, the differences, at this level, between societies / educational systems seems to be important (as a last example, Restuccia and Urrutia [4], in a econometric model of intergenerational transmission of earnings, refer to early education in a very broad sense, including primary school and lower secondary).

In these circumstances, we preferred to refer at the Romanian specificity of early child education, as it is defined in the official Government documents, including the formal aspects stipulated by the education law.

In 2008, Ministry of Education, Research and Youth established the general frame for early education of children with ages between born moment and 6/7 years and elaborated a guidance material designed to stimulate child

development from birth to 3 years (which is currently valid) [5]. According to this document, early education refers to the pedagogical approach covering the period of life from birth to 6/7 years old, when the child starts school and also when significant changes occur in the development area of child. These are, according to the Romanian Ministry of Education, Research and Youth, the goals, which must be fulfilled through the early education:

- The free, full and harmonious development of the child's personality, according to its own rhythm and its general needs, supporting his independent and creative formation;
- Developing the ability to interact with other children, with adults and with the environment to acquire new knowledge, skills, attitudes and conducts;
- Encouraging the exploration, exercises, tests and experiments, as an independent experiences of learning;
- Discovery by each child of its own identity, of personal autonomy and the development of a positive self-image;
- Supporting the child in the acquisition of knowledge, capacities, skills and attitudes necessary for his entry into school and lifelong

Speaking, further, about Romanian model of early child education, we must interrogate National Education Law [6] to reveal the general frame of formal organization of preschool and primary system:

- Early education (0-6 years), consisting of the ante-preschool (0-3 years) and preschool (3-6 years), which includes little group, middle group and big group;
- Primary, which includes preparatory class and classes I-IV;

We highlight that early education is not compulsory in Romania (only preparatory class, which make the transition between preschool and primary education). About the structures through which early education is made, the law stipulates rules for both ante-preschool and preschool education:

- Ante-preschool education is organized in nurseries and, where appropriate, in kindergartens and day care centres.
- The organization of early education ante-preschool units, educational content, quality standards and organizational methodology is determined by the Ministry of Education
- Teachers from ante-preschool education must perform the quality standards set by law.
- Preschool education is organized in kindergartens with normal schedule, extended and weekly
- County and local authorities the must provide the conditions to progressively generalize the preschool education.

Day Centers for Early Education and Care can have a formal structure, under the auspices of Education Ministry, as shows a fragment from

Organization regulation and functioning of this kind of institution [7]:

(1) The Centre of Early Education and Care is a public facility specialized in social, medical and educational services, meant to sustain growth, care and early education for children aged between 3 months and 4 years.

(2) The mission of the Centre for Early Care and Education is to provide care, supervision for children attending nursery and to develop early educational programs appropriate to children age, their needs and developmental potential and own characteristics.

(3) Nurseries of the Centre for Early Care and Education operate as centres with daily work schedule.

In addition to exclusive government-financed centres, in Romania there is a certain number of Centres for Early Education and Care, established by partnership between state institutions and international bodies (and EU funded) [8] or carried out by NGOs through projects supported also by the European Union.

We stop here the brief tentative to identify the modalities in which early education (care) is realized in Romania, with the observation that non-formal aspects are very important, both as a substitute and as a support for ante-preschool institutions, kindergartens or Day Centres. Being in the worst situation, an important part of Romanian children under 7 years benefit only by the intellectual stimulation provided by parents, grandparents, brothers or other relatives who, frequently, don't have elementary knowledge about the developmental needs of a young child.

2. METHODOLOGICAL ASPECTS

Our research was based on secondary analysis of the results obtained under the auspices of IEA (International Association for the Evaluation of educational skills, Boston College) [9] within TIMSS [10] and PIRLS [11] research centers. Due to this, only a limited number of aspects of early education were available: the importance of participation in kindergarten, a part of the parental educational practices along preschool period and certain intellectual acquisitions of children at school entry.

On the other hand, data that we analyzed allowed us not only to reveal certain relationships between early education and later school performance but, also, to make comparisons between Romania and other countries from Europe or around the world (regarding certain early intellectual acquisitions, some parental educational practices and, also, by the effect of this two aspects on children' later school achievements).

Last but not least, we tried to reveal if family background is associated with early parental education practices (and, similarly, with early educational acquisitions of children).

We highlight the fact that Research Centers coordinated by IEA platform are making international assessments for 4th and 8th grade pupils on mathematics and science (TIMSS) respectively for fourth grade on the competence of operating with language (PIRLS), evaluations which were repeated constantly during the last decades and which were designed to allow longitudinal comparisons. For the first research center (TIMSS) the period is 4 years, the first study being conducted in 1995 and for the second (PIRLS), the interval is 5 years, with the startup in 2001 (as such in 2011 were realized both studies and scientists used a methodology in order to build common databases for each of the countries that participated in both assessments).

Our analysis will focus primarily on issues related to early education included in the research of 2011, because those can be related with the skills at math, science and language usage mastered at the end of the primary cycle and, as well, with certain parental behaviors and intellectual acquisitions of the children which might influence the school life of the youngest students (as we already shown, aspects of familial background will be considered, too).

Despite the focus on the transversal perspective, we will try to highlight, for 2001-2011 period, the association between some important transformations that occurred in kindergarten enrollment and the evolution of school performance for 4th grade students.

It is obvious that this longitudinal relation between the two aspects of educational system mentioned above has a limited significance because other variables that may affect school performance are not controlled (governmental investment in kindergartens and primary schools, the quality of education - teacher's qualification and skills, curriculum adequacy, the quality of educational management, and so on).

However, if an important increase of children' participation to preschool education (supposing a significant enlargement of government spending), for a relatively long period, doesn't go along with a rise of school performances, it is very likely that educational system passes through a real crisis. Difficulties that characterize formal education in Romania are strongly argued by all the results obtained by our students at international evaluations, which positioned us on last place or one of the worst places compared to other European countries (we refer to studies realized by prestigious scientific centers, as TIMSS, PIRLS and PISA [12], working under auspices of OECD). Unfortunately, longitudinal data, comparable from one evaluation to another, for the 4th grade students, were available only in PIRLS study (referring at reading skills) because, until 2011, Romania participated only with the 8th grade students at the assessment of mathematic and science abilities made by TIMSS.

We presented the evolution of Romanian Education System (in terms of student's competence level from the 4th grade - as reflected by the assessments made by PIRLS research center from 2001 to 2011) and we compared this

information with the changes of kindergarten participation rate from the same period (data delivered by EUROSTAT) [13]. We underline however, that, essentially, our study has a transversal nature, being focused on analyzing the SPSS databases containing the answers to the joint questionnaires used by PIRLS and TIMSS in 2011, addressed to 4th grade children and their parents (we used also „almanacs” containing the mean levels of scores at mathematic and reading calculated within the categories of answers to items of questionnaires addressed to children and their parents).

3. RESULTS

We start our demarche with the longitudinal approach of Education System which provides a comparative perspective but which has, also, the lowest level of rigor due to the great number of factors that interfere in the relation between kindergarten access and later school performance. We highlight, however, that, concerning reading achievements in the 4th grade, Romania was on the 16th position from 18 European countries in 2001 and on the last place in 2006 and 2011 (data refers only at countries for which exist diachronic information both about reading skills - PIRLS - and kindergarten participation - EUROSTAT).

3.1 Changes in kindergarten enrolment rate and school performance

Of the countries that have experienced an ascendant rate of kindergarten enrolment for children having 3, 4 and 5 years, Poland, Norway, Slovenia and Germany were marked by statistically significant improvement of reading outcomes in the 4th grade. The same participation rate trend which exists in Romania, Lithuania, Austria, Bulgaria and Sweden was associated with a downward of school performance (Germany has shown an increase followed by a decrease). Near-complete participation of children at preschool, in countries as Belgium, Spain, France, has not led to changes in student's acquisitions during 2001-2011 (the same preschool enrolment pattern was accompanied in Italy of an increase then by a decrease and, in Netherlands, by a decrease).

Probable, the extension (even large) of preschool system is not enough for an overall improvement of early education because kindergarten outcomes depends on their global resources and, also, because its efficiency is related to the non-formal education quality – especially, made by parents (in addition, despite preschool enlargement, poor children have low participation rates).

3.2 Participation to kindergarten, early parental education and later school achievements

We specify that our study targeted only the relation between variables, not the construction of a causal model. So, the research has an exploratory nature, at questionnaire item level, due, in part, to the rarity of the field researches regarding early education realized in Romania.

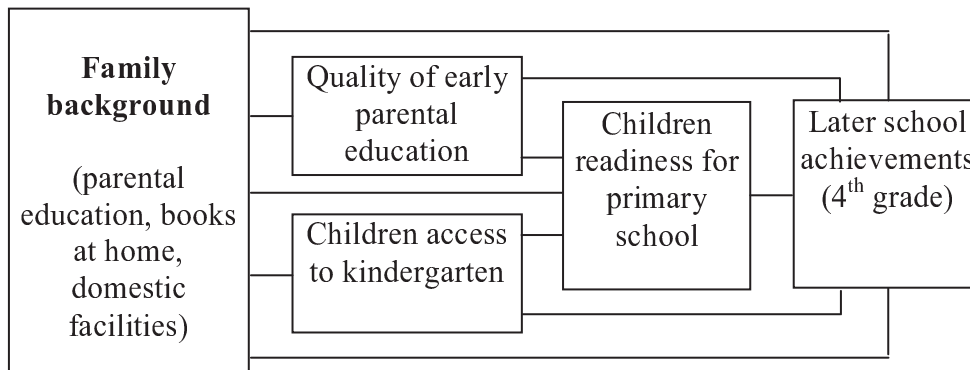


Fig. 1 Variables put into relation within transversal analyze

In every considered country, the number of years spent in kindergarten is directly related to achievements at math, science and reading, in the 4th grade. Concerning the proportion of 4th grade students (from 2011) who spent 3 or more years in preschool, Romania occupy the 14th place from 32 countries of the world (over average level) and the 12th position between 23 European countries.

In Romania, parents' education is strongly related with the number of years spent by their child in preschool (for mother, Gamma = 0.481, for father Gamma = 0.467; for both P = .000). The number of books at home is also associated with early formal education of child (for the total nr. of books Gamma = 0.406 and for child books Gamma = 0.412; for both P = .000).

The home facilities (computer, study desk, internet, books, child's mobile phone, car, lcd TV, child's own room) are all positively associated with time spent in kindergarten (gamma between 0.528 and 0.168, in descending order) and, also, with father's education (gamma between 0.687 and 0.284, in a resembling order).

Mother's education is strongly associated with the answer „frequently” on the incidence of the following early education activities made together with the child: Reading books, Tell stories, Sing songs, Play with alphabet toys, Talk about things done together, Talk about what they had read together, Play word games, Write letters or words, Read aloud signs and labels, Say counting rhymes or sing counting, Play with number toys, Count different things, Play games involving shapes, Play with building blocks or construction toys, Play board or card games (gamma between 0.535 and 0.288; P = .000 for all coefficients).

The frequency of all interactions between mother and child mentioned above are directly related to child's school achievements in the 4th grade in math, science and reading.

Highest school level reached by mothers has, also, a positive relation with readiness for school of the child (in reading skills, especially), expressed by his capacity of doing „very well” following things: Recognize most of the

letters, Read some words, Read sentences, Write letters of the alphabet, Write some words (gamma between .416 and 0.198; $P = .000$ for all coefficients). The same maternal characteristic is in association with all dummy variables denoting the existence of some early acquisitions in math as these: Count by himself up to 100 or more, Recognize more than 4 shapes (e.g. triangles), Recognize all 10 written numbers, Write all 10 numbers, Do simple addition, Do simple subtraction (gamma between 0.612 and 0.381; $P = .000$ for all coefficients).

All variables referring to child's knowledge and skills in math and reading are strongly positive correlated with school abilities evaluated in the 4th grade.

Not at last, items referring at the quality of parental early education and the number of years spent by the child in kindergarten are, both, positively related to the readiness for school.

4. DISCUSSION

At European level, Romania has a average rate of preschool participation, a medium parental implication in early education of their children (who know little about math and reading at the start of primary school) and worst scores at educational skills from 4th grade.

Between Romanian children there are very important inequalities of chances (by reference to family background - in particular parental education) on access to educational resources such as kindergarten participation, early intellectual stimulation in order to achieve school readiness. These unequal opportunities are reflected, further, in children's achievements from the start of primary school and at the end of this educational cycle (ISCED 1). Data suggest that early education is polarized between well educated parents (with a good economic status), who offer high quality early education and children access to preschool and, at the opposite pole, families with low resources, having poor pedagogic skills, who don't consider kindergarten as being an important option for the children school readiness. Inequalities in education opportunities are difficult to be reduced, partly because our society became more polarized in poor and rich people and, also, because structural changes from preschool system don't reach the goal to provide for every little child the intellectual stimulation which would allow him to develop his own native potential. We believe that it's not possible to equalize children's opportunities without a national program on early ante-preschool education, with compulsory nature at least for families where there are culturally deprived children, program which must target not only children but parents' attitudes and practices.

The limits of our study come from its exploratory nature, at item level, without the control of variables; so, we made only a little step in empirical research of early education from Romania.

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