

SHORT THESIS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (PHD)

**Factors influencing student performance
in Hungarian minority education in Romania**

by **Barabás Andrea**

Supervisor: Dr. Bacskai Katinka



**UNIVERSITY OF DEBRECEN
DOCTORAL SCHOOL OF EDUCATIONAL SCIENCES
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Objectives of the doctoral dissertation

The cornerstone of modern education policy is efficiency, effectiveness and fairness. The scientifically proven, evidence based education policy (Halász 2013) contributes to the development of these three aspects, one of the key research areas of which is student performance measurement. The data obtained during international performance measurements provide an opportunity to analyze student performance within a country's educational system, to explore background factors, and at the same time, they are suitable for comparing the results of different countries. The results also indicate that the countries participating in the survey are able to compensate to different extents for differences arising from socio-cultural and economic background. The results of the examination of low-performing students and schools can greatly contribute to uncovering the reasons for failure and/or the obstacles to catching up.

International student performance measurements create an excellent opportunity for educational policy to contribute to fact-based decision-making. The different countries' own measurements or local measurements serve to provide teachers/schools with more detailed and specific opportunities to analysis. In addition to providing feedback on student development, the results of the measurements can also be important starting points for analyses that try to reveal the impact of school characteristics on student performance. Suggestions formed as a result of this can later become part of public education practice and can greatly contribute to improving the level of effectiveness (Balázs et al, 2014).

When examining student performance, some researchers analyze the student's personal characteristics, his attitude to learning, and the effect of motivation on academic results (Balogh, 1998; 2000; Csapó, 1998, 2004; Pintrich & De Groot, 1990; Cohen et al., 2009; Ceglédi & Máth, 2013; Fejes & Józsa, 2005), others try to explore the influencing factors of students' family background. (Bourdieu, 1978; Coleman et al, 1966, Bacskai, 2015; Bray, 1999, 2017; Bray et al, 2020; Fehérvári, 2016; Fehérvári et al, 2018; Garami, 2014; Pusztai, 2004, 2009, 2015, 2020; Széll, 2015, 2018). According to research based on the results of international performance measurements and Hungarian competence measurements, there is a strong correlation between students' school performance and their socio-economic status (Bradley & Corwyn, 2002; Róbert, 2004; Pusztai, 2004, 2009, 2020). Many studies deal with the influence of family background

(Bourdieu, 1986, 1999; Andor & Liskó, 2000; Pusztai, 2004, 2008, 2009, 2015), and research also highlights that the characteristics of regions and settlements also have an effect on the development of students' results (Garami, 2014). The characteristics of the school and the teachers, the school's learning environment can also determine the students' performance (Pusztai, 2009; Bacskai, 2007, 2015; Széll, 2015, 2018; Fehérvári, 2015, 2016).

International research and the results of various countries' own measurements both highlight the fact that student performance is determined by many factors. During the international performance measurements, this is also revealed in Romania (Singer, 2013; Kiss & Toró, 2024), but when examining the data of the national measurements in Romania, it is not possible to examine the influencing factors (Kitchen et al, 2017). Romanian educational policy completely ignores the fact that school performance is greatly influenced by family background. Educational institutions are seen as providing equal opportunities for all children and opportunities to progress based on ability, skills and effort. The school's responsibility for the child's failure is considered rather unimportant in the system (Țoc, 2016).

In our dissertation, we analyze the macro-, meso-, and micro-level factors that can influence the results achieved by Hungarian students in Romania on national competency tests. We consider our choice of topic to be of outstanding importance, because while in the case of international performance measurements and the Hungarian National Competence Measurements, the influencing background factors are also examined during the analysis of the students' measurement results, in Romania this can be recorded as a deficiency. In our dissertation, we analyze the macro-, meso-, and micro-level factors affecting student performance in the light of cultural, economic, and social theories.

We examine student achievement among fourth-grade students studying Hungarian. We would like to point out that similar research has not been done either at the national level or in our county. Our exploratory research can provide a detailed picture of the results of students studying Hungarian in Kovászna County. In order to find out the factors influencing the results of the competence measurements in Kovászna County, we use a self-made background questionnaire. The student questionnaire contains questions about the student's age, school life, extracurricular activities, reading habits, and family background.

Summary of the research methods

The location of our research is the smallest county in Romania, mostly inhabited by Hungarians. Our study is based on quantitative data sources: questionnaire data collection and the results of national measurements. We have scrutinized the results of 1,054 fourth-grade students studying Hungarian in the competence areas of Mathematics, Hungarian and Romanian, and the influencing factors. We present the results of the measurements for the 2016-17 school year. Our goal is to reveal and analyze the background factors that have an impact on the development of student performance already in lower levels.

After careful consideration, we decided to conduct a comprehensive data collection in Kovászna County. Among the macro-level factors, we examine the significance of the preparatory class introduced as a result of educational policy decisions. In the case of meso-level factors, we examine various aspects of school extracurricular activities and supplementary education, as well as discuss the differences in effectiveness related to the type of settlement. We also look at how the performance of students in schools operating in cities and small towns develops in the three competence measurement areas. In the case of micro-level factors, we focus on aspects of the family's socio-economic situation that show a correlation with student achievement

Following the model of the Hungarian National Competence Assessments, we try to reveal and analyze the background factors that have an impact on the development of student performance already in the lower grades. The empirical analysis is carried out using the SPSS22 program. In our research, we use cross-tab analysis (chi-square test) and logistic regression analysis. In order to explain the factors affecting the effectiveness of competence measurement, we use a multi-stage logistic regression analysis. With the help of logistic regression, we examine which of the factors showing significant correlations increase the chance of being in the above-average efficiency category.

In order to calculate the student's relative effectiveness, we need to take into account the student's results on the competency test, as well as the indicators of his socio-economic background. During the regression analysis of the two variables, we formed the residual that shows us the deviation from the expected value. The deviation from the expected value therefore means the difference (in a positive or negative direction) that can be experienced in the case of the given

student compared to the regression line (expected value) fitted to the relationship between the family background and performance of the entire population. Educational resilience can be characterized based on different indicators, with different indicators, and it develops differently if the results of different measurements and tests are taken as a basis (Tóth et al., 2016). The literature defines as resilient those students who perform very well despite their disadvantage, who belong to the lowest group based on family background and the highest group based on performance (Ceglédi, 2017, 2020). In our case, we consider a resilient student to be the one who, based on his socio-economic status, belongs to the bottom quartile, but at the same time, based on his results, to the top third in terms of residuals. The fact that the cut-off point did not fall into quarters in the case of effectiveness is explained by the use of the residual, since this is a corrected and not an absolute indicator of effectiveness (Bacsikai & Ceglédi, 2022). Social, economic and cultural factors are decisive in the development of resilience (Ungar, 2015).

Our database (KOV-ET-OM-2017 database), which we created based on the data of the self-made background questionnaire and the results of the competence measurements, enables the analysis of the students' effectiveness and the influencing factors. The competence measurement is evaluated based on codes. We assigned point values to the codes to enable statistical analysis of the results.

Summary of the research and presentation of the hypothesis

Based on the literature and our preliminary research, we formulated the following hypotheses:

1. We assume that the students who attended the preparatory class achieve higher than average results on the competency tests. The preparatory school provides a longer transition between kindergarten and school, leaving more time to get used to the school's performance-oriented way of working. Early institutional education greatly influences later school results (Ball, 1994; Mihály, 2001; Melhuish et al., 2002, 2008; Barabás, 2019a, 2019b, Sylva et al., 2004, 2013).
2. We assume that student performance varies depending on the type of settlement: the proportion of students who can be classified as having a higher performance category is lower in smaller settlements (Ball, 2003; Bacsikai, 2015; Barabás & Bacsikai, 2020; Behtoui

& Neergaard, 2016; Imre, 2004; Forry, 1988; Forry & Kozma, 1992, 2010; Garami, 2014).

3. We assume that students who participate in extracurricular activities provided by the school or in activities found in the field of shadow education are more likely to be in the higher achievement category (Barabás, 2019c, Bourdieu, 1978, 1999, Bray, 1999, 2010, 2017; Bray et al., 2020; Darvas & Kende, 2010; Gordon Györi, 2010, 2020; Imre et al. 2015; Imre, 2016, 2020; Jansen et al., 2021; Pásku & Münnich, 2000; Pusztai, 2004, 2008, 2015; Singer, 2013).
4. We assume that the socio-economic situation of the family shows a correlation with the students' results in all three areas of competence. Correlations can be shown between student performance and parents' education and the family's economic background (Barabás, 2019e, 2019f; Bourdieu, 1978, 1999; Bradley & Corwyn, 2002, Fehérvári et al, 2018; Kitchen et al, 2017; Pusztai, 2004, 2015; Róbert, 2004).

Summary of the results

In our hypothesis related to the exploration of the relationship between the preparatory class and student performance, we assumed that students who attended a preparatory class achieve higher than average results in competence measurements. Early childhood institutional education has an impact on later academic achievement, the duration and quality of institutional experiences, the educational and emotional support have an impact on children's cognitive and social development, especially on socially disadvantaged children who are lagging behind in language skills (Ball, 1994; Hamre & Pianta, 2005; Melhuish et al., 2002; Mihály, 2001; Mullis et al., 2007, 2008; Ressler et al., 2020; Sylva et al, 2004, 2013).

Since preschool education is not compulsory and more than a fifth of Romanian children do not participate in preschool classes (ISE, 2013), the preparatory class fulfills an even more outstanding function. Studies on the introduction of the preparatory class and integrated curriculum-based education have mostly analysed teachers' opinions. While the introduction of the preparatory class divided teachers' opinion in the first period, subsequent analyses indicate that the majority of teachers have a positive perception of its impact (Barabás, 2019a, 2019b; Iftime & Vărășteanu, 2013; ISE, 2013; Langa, 2015; Mandel, 2015, 2017). Our analysis found significant

correlations between the preparatory class and the measurement results in the three competency areas. A higher proportion of pupils who had attended preparatory class than their peers who had not attended preparatory class achieved above average results.

In our second hypothesis, we supposed that student achievement varies by settlement type. There are significant differences in student achievement in all three measurement areas as a function of settlement type. A higher proportion of pupils in small towns were in the low achievement category than in urban schools. Our results are consistent with the research findings discussed in the literature review (Bacsikai, 2015; Farrel et al, 2004; Garami, 2014; Patakfalvi-Cirják et al., 2018). In the three competence areas examined, the proportion of students with resilience varies by type of settlement. A significant correlation was found for pupils from urban schools with a disadvantaged composition for all three competency outcomes. While research in the Hungarian studies suggests that pupils in smaller settlements are more likely to become resilient, in our case this was only confirmed for the Romanian language competence measures.

In our third hypothesis, we assumed that those students who participated in the extracurricular activities provided by the school or in the activities found in the field of shadow education, were in a higher proportion in the higher achievement category. Three achievement categories were defined: high, medium and low achievement. Our hypothesis was partially confirmed, with school-organised extracurricular activities such as talent training and school camps showing a significant correlation with the results of the competency measures. No significant correlation was found between participation in tutoring and remedial activities and student achievement. We found a significant association between the families' cultural and economic background and the participation in extracurricular activities. In line with the results of several research studies, (Bourdieu, 1999; Bray, 1999, 2010, 2017; Gordon Gyóri, 2010, 2020; Kim & Jung, 2019; Leonard, 2005; Mihály, 2004; Pásku & Münnich, 2000; Pusztai, 2009, 2015; Kiss & Toró, 2024), the educational level of parents and the economic situation of the family are determinants of the participation in extracurricular activities. Children of parents with a higher level of education were more likely to participate in activities for gifted children and school camps.

In the case of shadow education, music, foreign languages and sports private lessons/activities, as well as various camps, we also found a significant correlation between participation in activities and achievement in the three competences. Our results are in line with

international and national research. The positive effects of sports, music and foreign language activities are confirmed in mathematics and language outcomes (Pusztai, 2015). Urban pupils participated in supplementary education at higher rates (Bray, 1999). Shadow education is present in many parts of the world and its expansion is influenced by a number of micro (family background characteristics, school and community) and macro (country education system characteristics, labour market, and cultural values) factors (Dang & Rogers, 2008; Byun et al, 2018). In addition to the beneficial effects of shadow education, it is also important to note that it greatly increases educational inequalities (Jansen et al, 2021). Schools have a prominent role to play in ensuring that complementary activities to lessons provide effective supplementary and tutoring activities, especially for those from disadvantaged social backgrounds (Imre, 2020).

In formulating our fourth hypothesis, we focused on exploring the relationship between the socio-economic situation of the family and the performance of the children at school. We found a significant correlation between parental education and student achievement in all three competences. Mothers and fathers with higher education have a greater proportion of students in the high achievement category. In the case of parents with primary school as the highest level of education, a higher proportion of pupils fall into the low achievement category.

Looking at the impact of educational level, we also find that the effect of maternal and paternal education varies across the three competence areas. In the case of the Hungarian competency measure, children of mothers with a school degree and fathers with a higher education are more likely to be in the above-average achievement category. We also analysed the parents' workplace and found a significant correlation with student achievement. The results for both parents reflect a higher proportion of pupils in the medium and high achievement categories for families with stable employment, and a higher proportion of pupils in the low achievement category for families with parents without stable employment. The socio-economic situation of the family influences the performance of students. There are significant differences between families with different resources, and family background has a strong influence on student achievement (Györgyi, 2014; Fan, 2014; Li & Qiu, 2018; Kiss & Toró, 2024).

In conclusion, the analysis of the relationships between the factors examined and student achievement brings us closer to a better understanding of the evolution of competency test results. The macro-, meso- and micro-level factors can help to provide an in-depth analysis of the factors

influencing achievement in the light of the interaction between social, cultural and economic background.

Our dissertation is also significant from the point of view that we are the first to highlight the fact that it would be necessary to use background questionnaires during national measurements in Romania. Examining the factors that influence them would be a step forward in the investigation of student achievement in a profound way. Our database also allows an analysis at institutional level, as well as a comparison between student outcomes and results in competency tests, which was not included in the objectives of our thesis but which we intend to explore in the future. The basic institutional level analysis of the competency assessment results of schools in Covasna County and the development of indicators on the student composition of the institutions based on the background questionnaires can play an important role in the development of the educational strategy of the county. Schools with pupils from similar backgrounds can be compared. The valuable work of teachers who teach in communities where the family's economic, cultural and social background is poor can also be demonstrated. Future analyses will also be able to present a kind of county map of educational ecology thanks to the complete data collection.

The novelty of our dissertation is also the exploration of the connections between the preparatory class and student achievement, since very few Romanian researches deal with this topic. The introduction of the preparatory class caused a lot of controversy, and was initially met with suspicion by both parents and teachers. It seems that, despite the initial difficulties, the teachers have now recognized its importance and necessity, and consider it effective in preparing the child to enter the school environment. Our research results confirm that the importance can also be demonstrated in the case of competency measurements: students who attended preparatory classes are more likely to be in the above-average achievement category.

The predictive and prognostic function of our results is also important, as the results provide a range of feedback for educational institutions depending on the characteristics of the types of settlement. Our research can serve as a model for similar studies in other counties and as a starting point for measures aimed at improving the work of Hungarian minority educational institutions.

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List of publications related to the dissertation

List of other publications

Hungarian scientific articles in Hungarian journals (1)

1. Barabás, A.: Kompetenciamérési eredményeket befolyásoló tényezők a romániai kisebbségi magyar oktatásban.
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