



**A case study about regional differences of  
Hungarian pupils' achievement**

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**Proposal Information**

The sociocultural and socioeconomic background of pupils is determinant for their learning process (Torgyik, 2015) and it also has an effect on their learning success (Oswald & Krappman, 2004; Rolff, Leucht, & Rösner, 2008). The parents' qualification is important as well and it is of great importance, for example, in the conversation and in its elaboration (Bernstein, 2003) because this determinates the used vocabulary too. This knowledge has an effect on how easily the pupils can acquire the school curriculum and how they can perform on different measuring tasks. This is the reason why we compare in our paper the reading and mathematics results of the National Competence Measurement (NCM) 2013 with the English and German language results of the secondary school-leaving exams in foreign languages on middle level regarding the same pupils.

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The NCM is a longitudinal measurement, the little brother of Programme for International Student Assessment (PISA), and it is typical only for Hungary. All pupils of the classes of 6th, 8th, and 10th grade write NCM in every spring. There are two competence fields: mathematics and reading in Hungarian. The other database provides us the results of the secondary school-leaving exams in foreign languages on middle level. There are two levels of the Hungarian school-leaving exams: middle and high. The middle level is obligatory for all pupils in Hungarian, Mathematics, History, one foreign language, and one more eligible one (it is chosen by the pupils). The high level is available for pupils who would like to study in higher education. We analyze only the results of the two most popular foreign languages in Hungary (English and German) and only on middle level in our paper.

Before we present the analysis, readers should know that according to the PISA results the family background has significantly bigger influence on pupils than in other countries (Arató & Varga, 2004). In addition, the integration and inclusion are significantly lower than in other countries. Therefore, there is no chance for pupils with lower achievement that they can get motivation from the other pupils with better results and achievement (Csapó, Molnár, & Kinyó, 2009). A school has a huge role in compensating the disadvantages of pupils (Imre, 2002) but in most of the cases schools cannot meet the requirements (Bourdieu, 1983; Gogolin, 2014).

Our research introduces the effects of pupils' social background, the interactions of different subjects, and their regional projections as well (Linberg & Wenz, 2017). It has an effect on the motivation of choosing a secondary school or higher education institution and on the motivation of choosing a workplace as well (Fekete, Hegedűs, & Sebestyén, 2016; Veroszta, 2010). The financial status of the family is important in these cases as well. The pupils/students with lower socioeconomical status choose institutions that are located near them (Denzler & Wolter, 2010; Fekete et al., 2016), which means that people can stay in their own regions.

We know from earlier studies and researches that the regional differences in pupils' achievement correlate with the economical differences of regions (Bronzini & Piselli, 2009; Pereira & Reis, 2012). The situation is the same in Hungary (Hegedűs, 2016): the best performing areas are located in the western part of Hungary; those are near to the Austrian border. The capital of Hungary and county centers has good scores as well (Garami, 2009). The peripheral areas have the worst pupils' achievement results (Garami, 2014).

## **Methods**

We analyzed the database of NCM of 2013 and a database of secondary school-leaving exam on middle level between 2013 and 2015 using Statistical Package for Social Science (SPSS; USA) program. We analyzed only the results from 10th grade because

these pupils are closer to the school-leaving exam. We used only the data of pupils who could make a school-leaving exam at the end of secondary school and who had scores of the family background index, mathematical, and reading competence. Therefore, we can use the results of 55,156 pupils in this database. The second database contains the results of pupils who passed the school-leaving exams in English and/or German between 2013 and 2015 because we think that they were in 10th grade of secondary schools in 2013. If a pupil made more exams at this time, he/she is in the database more than one time. Therefore, we analyzed the results of 49,732 pupils in these databases.

The same point was the regionality between the databases. We could characterize the Hungarian districts according to the results of mathematical and reading competence in NCM and English and German school-leaving exams on middle level. We analyzed these data according to the family background and the school types (secondary grammar school or secondary vocational school). First, we calculated the average of all districts and later we conducted a non-parametric test. We saw that our data divided was normal, so we made a Spearman's correlation and then we analyzed the relations between the variables.

In the second step, we made clusters from the 175 regional districts of Hungary. To the clusters, we used the following variables: pupils' achievement, family background, and the proportion of pupils in the secondary grammar schools and secondary vocational schools. We created five clusters: outstripped, going to be outstripped, "on the way," developing, and developed. We presented the results using MapInfo program and we could realize the differences between several areas of Hungary.

At the end, we analyzed the differences between the pupils' achievement and the socioeconomical status of the families in different types of secondary schools. We counted averages to compare the results and we used compare means in SPSS as well.

## **Conclusions**

We analyzed the database of NCM and English and German secondary school-leaving exam on middle level. NCM is from 2013 and the other database contains the pupils' results who were in the 10th grade of secondary grammar schools or secondary vocational schools in 2013. We analyzed the results of all areas from Hungary, so we could see the territorial differences as well. There are high correlations between all of analyzed variables. That means, if the family background index is higher in an area, then the pupils' achievement is higher as well. If the pupils' achievement is higher, there are well-educated parents and higher socioeconomical status of families. It is valid for the data of NCM and school-leaving exam in medium level too. It means that, in one area of

Hungary, if a high student performance can be measured in a test, then there will be higher test results in other tests in the same area as well.

We divided Hungary's 175 districts into 5 clusters based on the pupils' achievement. The pupils' achievements show the same pattern in Hungary as the development patterns of different geographical areas in the country. The undeveloped parts of Hungary had worse results and the best results came from the well-developed areas. There is a cluster "on the way" because we do not know yet that it will develop or its result will be getting worse. It depends on its neighbors' districts too.

The data showed that well-educated parents chose secondary grammar school for their children and the pupils of parents with lower qualifications went to secondary vocational schools. There was a big difference in the pupils' achievement in these school types. The pupils in the secondary grammar schools had better results in the mathematical competence and in the language school-leaving exam on middle level.

**Keywords:** National Competence Measurement, results of the secondary school-leaving exam, family background, regionality, Hungary

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