The influence of pupils' socio-economic background on achievements in reading and writing skills

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Abstract

A national research programme "Evaluation of Pupils' Achievements" was launched in 2002 and continues at the present time. The main aims of this research are to scrutinise pupils' achievements, identify problems and discover the main factors that influence pupils' results and achievements, and to estimate the increase in results and achievements so that the quality of education may be improved. One of the areas in which this research is being conducted is the Lithuanian language as L1, with particular regard to reading and writing skills.

One of the premises in this attempt to identify what influences pupils' reading and writing skills was that the socio-economical status (or background) of the pupil's family could determine his or her achievements. A socio-economic status construct was devised and the variables chosen: the number of books at home; the number of books at home which belong to the pupil; home educational resources (encyclopaedias, dictionaries, computers, Internet access); the amount of pocket-money parents give to the pupil each week; free breakfast at school (available for pupils from poor and socially disadvantaged families); parents' employment situation and educational background.

The general conclusion is that there is a rather strong relationship between a pupil's socio-economic background and his or her achievements in reading and writing skills: pupils with higher SES achieve better results. The correlation coefficient is 0,4. The linear regression analysis of the variables of the socio-economic construct shows that the socio-economic factor can explain about 12 % of a pupil's results and achievements in reading and writing skills.

National research programme "Evaluation of Pupils' Achievements"

A long-term national research programme on pupils' achievements in Lithuania was launched more than a decade ago, signalling the beginning of education reform. It was to bring about changes in the education system and educational management, changes in the aims and targets set, curricula, teaching and learning methods, and changes in the development of concepts concerning the assessment and evaluation of pupils' achievements. This national research programme, "Evaluation of Pupils' Achievements", started in 2002 as a subcomponent of the "Schools' Improvement Programme" and continues today. The main aims of this research programme are:

- to scrutinise and evaluate pupils' achievements in certain areas of education and development,

- to check the levels of pupils' achievements and the quality of education,

- identify problems and discover the factors which have the greatest influence on pupils' results and achievements,

- assess pupils' results and achievements in order to improve the quality of education.

This research is ongoing, so the effectiveness and influence of some of the activities implemented may already be observed.

Every two years, a representative sample of 4th, 6th, 8th and 10th grade pupils is tested (the sample is taken from each age group on a rotating basis: 4th and 8th grade pupils one year and 6th and 10th grade pupils the next). The national research sampling model and the composition of samples in this research are similar to those used in IEA (International Association of the Evaluation of Educational Achievement) research. The pupils are chosen using random sampling. The main sampling method used in this research is nested (two stage) random sampling, where classes are chosen at random and all the pupils in these classes take part in the research (not selected pupils). A random sampling procedure was applied in accordance with the SPSS programming environment (SPSS Base, 11.5).

This study is based on the data obtained from the performance of 8th grade pupils' in the 2005 national research on pupils' achievements. The sample used for this research was 2 118 pupils aged 14 years old from 149 schools (165 classes).

Special materials were prepared for the research: task notebooks (or Test Papers) and detailed questionnaires for pupils and teachers. All the information on the pupils' best performance and all the information from the questionnaires was carefully collected and added to the database so that a full-scale statistical analysis could be carried out. This involved analysing the data and results for a certain year and evaluating education conditions, variations in education quality and equal opportunities for acquiring education.

The reliability of the tests prepared for the research was assessed using the reliability rates of Cronbach's alpha (α) and Guttman (Split-half). They were used to calculate the coefficients of skewness, the difficulty of the test questions and the correlation coefficients. In this study, the results are presented using the following statistical characteristics: average score, mean average score, mean average score as a percentage and standardised points. During the national research on pupils' achievements, the scales of measurement were equalised in such a way that the national average mark (in standardised points) was equal to 100 marks and the standard deviation was 30. This makes it possible to compare results more visually and is convenient for linking the results of all the questions or fields in a particular test and drawing conclusions.

The Lithuanian Language (as L1) was selected as one of the domains for this research. The national research programme on pupils' achievements was based on the fundamental requirements of the *National General Curriculum* and *Education Standards*, and all tests and tasks were designed in such a way that it was possible to evaluate pupils' achievements in relation to the essential descriptions of standards in the main areas of language-education.

The *General Curriculum Guidelines* is a general document that outlines the ways in which public education objectives and needs are met. It sets out teaching aims and objectives and didactic principles, and gives a general description of curriculum content. The education standards define the expected education targets and indicate how students should achieve them. These documents describe the development of pupils' skills and knowledge.

The *National General Curriculum* and *Education Standards* are divided into 2-year cycles. This helps to guarantee continuity of teaching and learning, and to plan and monitor the progress of individual students as they move up to a higher grade. In keeping with the 2-year sampling cycle, pupils are tested for research purposes over 2-year periods.

An appropriate balance in language skills is one of the preconditions for the successful development of communicative competence, which is extremely important in L1. But it is impossible to test all linguistic skills and abilities in pencil/paper tests, so in this context two main fields were chosen – reading and writing skills.

Two types of text were chosen to test pupils' reading skills for research purposes: fiction and non-fiction. The pupils were asked to answer questions which required different levels of skills and abilities in reading comprehension. They had to find direct information in the text, draw simple conclusions from fragments of the text, interpret the text and make summary conclusions from the whole text, and reflect on the content and form of the text. In order to demonstrate their writing skills pupils were asked to write an essay – to produce a reasoned text. The pupils were thus given three types of questions: multiple choice, full answer and essay. Both reproductive and productive skills were covered in designing the tests.

Special questionnaires were prepared for pupils and teachers separately. The first part of the questionnaire for pupils consisted of general questions designed to obtain information on the pupil's character, home background, family 'education', educational background and conditions of schooling. The second part of the questionnaire for pupils was designed to obtain specific information related to the pupil's attitude towards the Lithuanian Language (as a subject), reading and writing skills and knowledge, autonomous language use, the teaching and learning methods used in the lessons, the evaluation methods used in the education process, and the learning strategies formulated.

The 'Special Subject' section of the questionnaire for teachers contained questions on the kinds of activities teachers organise to develop reading skills, the methods they use to develop reading and writing skills, and the evaluation methods and practice used in teaching process. The data collected from the pupils' and teachers' questionnaires were added to the database and used to compare and evaluate different teaching methods.

The main aim of this study is to highlight the influence of the socio-economic status (SES) of a pupil's family on his or her results and achievements. The premise for the research was that the higher the pupil's family socio-economic status (or background), the higher his or her reading and writing achievements. Accordingly, a special construct was formed to measure this factor. It should be pointed out that there is no visible immigration problem in Lithuania as yet, so the socio-economic construct developed did not cover the particular problematic of migrant pupils.

Variables of the socio-economic status construct were chosen to take account of the context in Lithuania:

- the number of books at home;

- the number of books at home which belong to the pupil;

- home educational resources (encyclopaedia, dictionaries, computer, internet);

- amount of pocket-money parents give to the pupil each week;

- free breakfast at school (such breakfast is provided for pupils from poor and socially disadvantaged families, i.e. families with an income of less than 232.5 Lt (about 67.4 Euro) per person per month);

- employment of parents (parents working full time with a high salary; parents not working full time; parents with no earned income);

- parents' level of education (university degree, post-upper secondary education (college), professional education or vocational education, upper secondary education, lower secondary education, primary education, did not complete primary education).

The pupils had to tick appropriate answers and points were awarded for each answer: the more advantageous the socio-economic status (SES) rate, the higher the score, and vice versa. For example, a pupil's answer to a question about his/her mother's education was encoded as follows: university degree or degree in another higher-education establishment – 4 points, post upper secondary education (college) – 3 points, professional education or vocational education – 2, upper secondary education – 1, lower secondary education – 0, primary education – 0, did not complete primary education – 0, don't know - 0 points. The answers to the question "Do you get free breakfast at school?" was encoded as follows: yes – 0 and no – 1 point. All questions were encoded in this way creating a scale from 0 to 32 to evaluate the SES factor. However, in actual fact the scale went from 2 to 28 points. The sample of pupils was divided into three equal parts and the groups were provisionally referred to as Low SES, Medium SES and High SES groups. Pupils who got less then 14 points were put in the Low SES group, those who got 15-19 points in the Medium SES group, and those who got 20 points or more were put in the High SES group. The whole sample divided into the SES groups is given in the figure 1.

Figure 1.
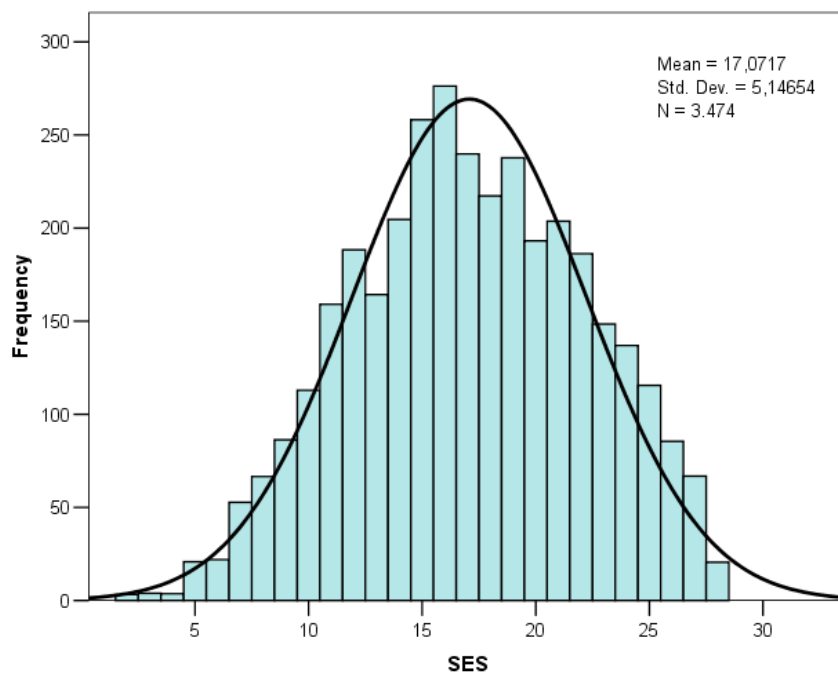
A look at the answers of the Low SES group in detail shows that the group is composed of pupils who have limited educational resources at home. 70.5 % of the pupils in this group indicated that they have up to 25 books of their own at home (in comparison 36.4 % in the Medium SES group and 8.4 % in the High SES group gave the same answer). 1.7 % of pupils in the Low SES group indicated that they have more than 200 books at home against 25.3 % of the pupils in the High SES group. 22.7 % of pupils in the Low SES group answered that they have no books at home at all compared with 7.6 % in the High SES . 77.8 % of pupils in the Low SES group answered that they did not have an

encyclopaedia at home Low SES (High SES group – 17.1 %.) and 49.5 % did not have a dictionary at home (High SES group 6.6 %). 64.9 % of pupils in the Low SES group indicated that there was no computer at home (High SES group 7.9 %) and 90.9 % that they were not able to use the Internet at home (High SES group 39.6 %). All the examples given above are statistically significant.

All the differences in the pupils' answers on education and parents' occupation are statistically significant. 6.1 % of the Low SES group pupils answered that their mother had a university degree (Medium SES group 18.8 %, High SES group 65.5 %) and 3.4 % that their father had a university degree (Medium SES group –10.2 %, High SES group 46.3 %). It should be pointed out that a direct relation between the mother's education and the pupil's results and achievements was established: the higher the mother's education, the higher the pupil's chances of achieving better results. The answers to the questionnaire show that only some parents of Low SES group pupils work full time.

Comparing the home educational resources of all three SES groups, the conclusion could be drawn that Low SES group pupils have quite disadvantageous home educational resources. This conclusion was supported by an analysis of the answers to one further question. The pupils were asked if anyone had read books to them or told them fairytales in their early childhood. This question had not been included in the SES construct, *but it was essential to characterise the home educational environment*. An analysis of the research data revealed a direct correlation between the pupil's results and the parents' activities: where a pupil's parents often read him or her stories or fairytales during early childhood, the pupil achieved better results. The pupils' answers showed that 39.2 % in the Low SES group were often read or told stories in their childhood (High SES group 67.9 %), 49.3 % were sometimes told stories (High SES 29.1 %); and 11,5 % had never had such an experience (High SES group 2.9 %). This example is statistically significant.

A comparison of the results of the achievements of pupils from all three SES groups with the differences of the pupils' average points is eloquent (Figure 2). The highest average marks are achieved by the pupils in the High SES group and the lowest by those in the Low SES group. The difference of these results is statistically significant and the correlation coefficient is 0.4.

Figure 2.
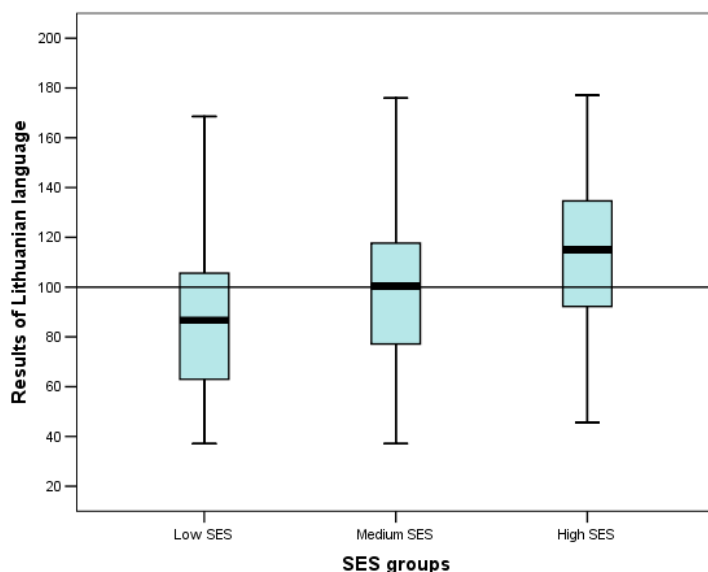
1. Similar differences were observed when comparing the results of the separate fields of reading and writing (Figure 3). The pupils in the Low SES group achieved lower results in both reading and writing than pupils in the Medium SES group or the High SES group.

Figure 3.
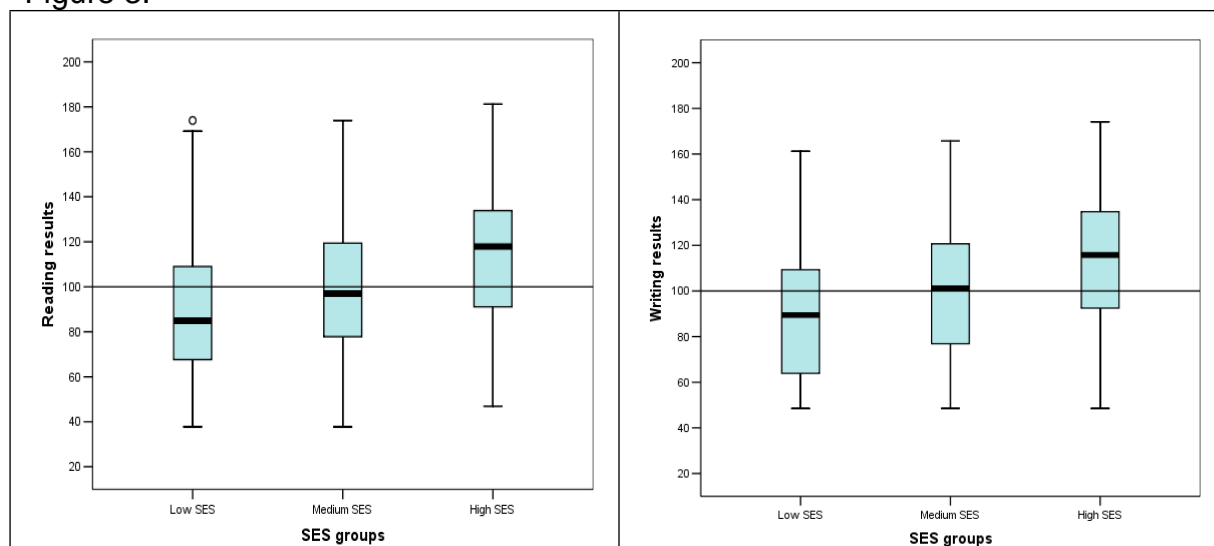
Going into detail, a number of differences in the attitudes and standpoints of pupils in the Low SES group stand out. Pupils in the Low SES group feel less self-reliant when learning the Lithuanian language and there are fewer pupils in the Low SES group who think they are gifted for the language. The pupils in this group are less motivated as readers compared to the pupils in the other two groups.

One aspect of this research was to try and find out how pupils' results and achievements are influenced not only by the socio-economic status of the family, but also by other variables, such as school type, the degree of urbanisation of the school's locality, pupils' gender and so on.

The 2005 national research programme showed significant differences in pupils' levels of achievement in relation to the degree of urbanisation of the place where the school is located. All the pupils were divided into three groups according to the location of their school: pupils in cities or large towns, pupils in regional administrative centres, and pupils in small towns or villages. The research revealed that the results of pupils in schools in cities or large towns and regional administrative centres achieve higher scores than those in small towns or villages. However, a detailed analysis of these results showed that most of the differences were determined by the pupil's SES. Figure 4 shows that the results of pupils with High SES do not vary according to the location of their school. Therefore, in order to ensure that all pupils achieve as high results as possible, special additional measures (so-called "positive discrimination" instruments) should be introduced or special methods for organising the educational process should be implemented. This could compensate for less advantageous home educational resources and environment.

In order to make this compensation possible, it is essential that the learning content and teaching process should be adapted to pupils' individual needs . The adoption of adapted learning content and teaching processes in Lithuania is usually called "differentiation".

Figure 4.
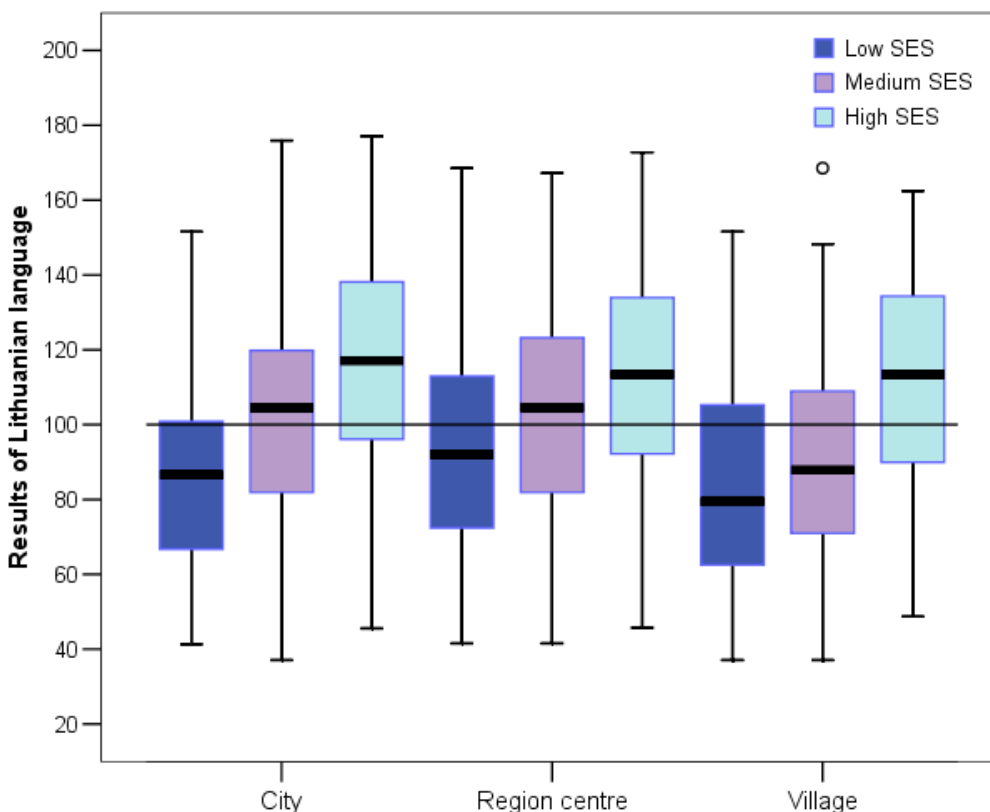
Pupils' answers to the questions concerning the organisation of the teaching process suggest that the teaching process in many cases is not differentiated enough. Pupils in the Low SES group tend to agree that tasks are too difficult for them and deny that their teacher explains new material well. The Low SES pupils point out that teachers only occasionally divide the class into workgroups. Even an analysis of the teachers' questionnaire indicates that school and teachers find it easier to work with pupils with High SES because their parents have a higher education, pay more attention to their children, and so on.

The distribution of the results shows that a proportion of Low SES pupils are able to achieve good results. In an attempt to discover the reasons for this, the group of Low SES pupils was divided into three according to their results: Low SES with low results, Low SES with average results and Low SES with high results. By comparing the answers to the questionnaire given by the two extreme groups, some statistically significant differences were identified. First of all, there were differences in home educational resources: the home educational resources of pupils in the group with Low SES but high results were more advantageous than those in the group with Low SES and low results. Pupils in the Low SES group with high results indicated having more books and more of their own books, and more pupils in this group benefited from being read or told stories in their early childhood. Furthermore, many of them pointed out that even now parents talk

about books their children, or both parents and children, have read compared with the Low SES and low results group. It is also notable that the education of the parents of the pupils in these two group does not differ significantly.

It is also worth noting that the answers concerning the time pupils spend at the computer vary significantly. Most pupils in the group with Low SES and high results indicate that they almost never play computer games, only a few of them saying that they spend time playing computer games each day.

A direct relationship between the results of the Low SES group pupils and the use of certain learning strategies was established. The Low SES pupils who obtained the better results pointed out in their answers to the questionnaire that before reading the text they looked through it for the main ideas, compared the information and ideas in the text with their own knowledge and ideas while reading, and tried to change a number of expressions to be sure that the reader was able to understand it better while writing the text. These strategies indicate the pupils' willingness to search for the sense in the text they are reading and their efforts to control the precision, lucidity and significance of self-expression while writing. This obviously shows that the pupils try to develop their metacognitive skills (learning to learn). This metacognitive aspect is underlined as being essential in the *National Curriculum Guidelines*. This suggests that better metacognitive knowledge would enable pupils with Low SES to achieve better results.

It should be pointed out that the research has shown that the gender factor has an even greater influence on the pupil's results than the SES factor. Figure 5 shows the results of boys and girls with the same SES differ significantly. This problem is very relevant in Lithuania, but to date no special study or research has been conducted. Nevertheless, this problem is crucial from the point of accessibility of education and needs to be studied separately.

Figure 5.
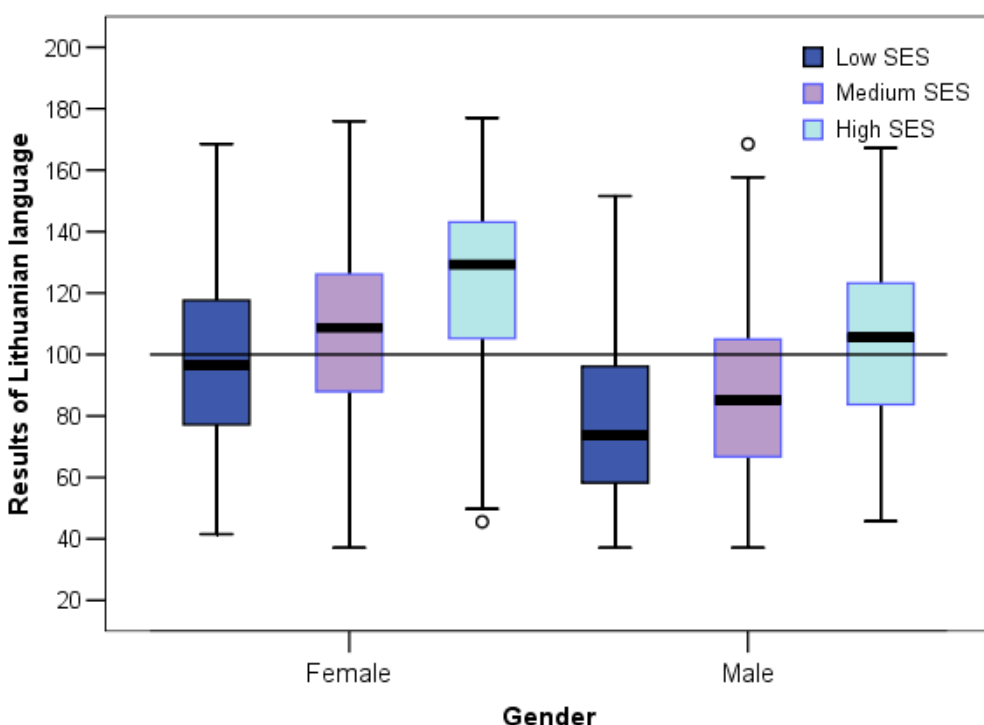
The general conclusion that can be drawn from the above is that there is a rather strong relationship between pupils' socio-economic background and their achievements in reading and writing skills. A linear regression analysis of the variables of the socio-economic construct shows that socio-economic factors can explain about 12 % of the results and achievements of pupil in reading and writing skills.

In order to overcome the influence of a Low SES factor on reading and writing results, ways of compensating for disadvantageous home educational resources and environment should be found. Two solutions could be to adapt the educational process to the specific needs of pupils with Low SES, and to intensify the metacognitive dimension of the teaching process.