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FACTORS AFFECTING EDUCATIONAL
ACHIEVEMENTS OF STUDENTS
FROM ECONOMICALLY
DISADVANTAGED FAMILIES
IN LATVIA

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CONTENT

Abbreviations Used in the Summary	4
1. THE TOPIC OF THE DISSERTATION	5
1.1. Importance of the Research Topic	5
1.2. Target and Tasks of the Dissertation	10
1.3. The Theoretical Framework of the Dissertation	11
1.4. Data Sources and Methodology of Empirical Analysis	19
1.5. The Main Hypothetical Assumptions	24
1.6. Structure of the Dissertation	25
2. RESULTS AND CONCLUSIONS	27
2.1. The Main Results of the Analysis and the Proven Hypotheses	27
2.2. Suggestions for improving Social Resilience – the Achievement of High Educational Outcomes.....	37
2.3. The Scientific Novelty and the Practical Significance of the Study.....	41
2.4. Approbation of the Doctoral Thesis – Author’s Scientific Publications and Presentations	46
References Used in the Summary	51
Annex. Main Results of the Analysis. Tables	58

ABBREVIATIONS USED IN THE SUMMARY

- CSP – Central Statistical Bureau of Latvia (*Latvijas Republikas Centrālā Statistikas pārvalde*)
- EU – European Union
- Latvija2030 – Sustainable development strategy of Latvia until 2030 (*Latvijas ilgtspējīgas attīstības stratēģija 2030. gadam*)
- MK – The Cabinet of Ministers of the Republic of Latvia (*Latvijas Republikas Ministru kabinets*)
- NAP2020 – National Development Plan of Latvia for 2014-2020 (*Latvijas Nacionālais attīstības plāns 2014. – 2020. gadam*)
- OECD – Organisation for Economic Co-operation and Development
- OECD PISA – OECD's Programme for International Student Assessment
- ICER – international comparative education research

1. THE TOPIC OF THE DISSERTATION

1.1. Importance of the Research Topic

Nowadays one of the main challenges for national educational systems in improving students' educational achievements is the necessity to reduce the gap between those students with high educational achievements and those who are academically less successful. Therefore, one of the main priorities is to increase the level of educational achievement, especially for those students who are at high risk of education failure that can be caused by health issues, poverty, and other social problems. The inability to provide the possibilities for all students to fully realize their educational potential within the basic education level could leave a critical impact on the future economic development of the country and create an unsurpassable circle of low educational achievements and deprivation for the coming decades.

Fewer than 15% of students who have low educational achievements in reading, mathematics, and the sciences in the last grade of basic education (at the age of 15), and fewer than 10% of students who prematurely drop out of education: these are among the European Union's (further in the text – also EU) targets for education for the year 2020. These targets have been chosen in the process of planning of how to achieve one of the main priorities in education within Europe – smart, sustainable and inclusive growth. For Latvia, as a member state of the EU, these targets are binding and included within the higher level national medium-term planning document “National Development Plan of Latvia for years 2014–2020”. The “development of competencies” is set as one of the objectives for activities that should be effectively implemented to provide qualitative and competitive basic and secondary education for all children and youth, as well as to provide access to trainings and activities outside of the scope of formal education” (NAP2020 2012: 43). In this way it is planned to reduce the number of those students who have low basic educational

skills and, at the same time, to increase the number of those students who show a high level of competencies.

As it is shown by research results, there is a direct correlation between the educational achievements of students and their socioeconomic background – students from families that are more socially and economically stable are more successful in school than those students who come from economically disadvantaged families (Coleman 1966; Baker et al. 2002; OECD 2007, 2011 etc.). This linkage was proved in the 1960ties of the last century in the work of James Samuel Coleman “*Equality of Educational Opportunity*”, also known as the “Coleman report” (Coleman et. al. 1966), that received wide international recognition. Many similar contemporary studies at both international and national levels confirm this half century old presumption and highlight the social and economic situation as one of the most accurate indicators that predict educational achievements of students (OECD 2007, 2010, 2011 etc.).

Students from families that are economically better-situated possess more economic resources and, accordingly, can acquire better educational and cultural resources (e.g., buy books, computers, and other communication technologies). Compared to students who come from families with a lower level of socioeconomic status, students from well-off families more often have a wider circle of non-formal ties with friends and relatives (Coleman et al. 1966; Coleman 1988). Thus, these students are more likely to attain a better education and higher qualifications which provide the basis for upward social mobility and prestigious professional positions in the future (Bourdieu 1977; Bourdieu, Passeron 1977; Coleman 1988). Contrary, students from economically disadvantaged families with limited financial well-being have a reduced access to resources necessary for education, accompanied by poor living conditions and some individual risk factors developed during the socialization of the personality (Sameroff et al. 1993; Evans 2004).

Statistics show that Latvia has one of the highest rates of material deprivation and the highest proportion of children living on the threshold of poverty and social exclusion in the EU (CSP 2010; Frazer, Marlier 2012). As indicated in the Latvian Sustainable Development Strategy for 2030, the high level of children and youth poverty shows that poverty and social exclusion have a highly structural nature in Latvia: they are not dependent on the individual abilities or skills of those in poverty but rather on the different life opportunities available for them (Latvija2030, 2010: 25). Research results reveal Latvia as a country of sharp contrasts: in the last decade Latvia has always been among the EU countries with the widest income gap between the poor and the wealthy part of the society – if the total household income is for a significant majority (90%) of Latvian families is 425 LVL, the 1% of wealthiest families can spend seven times more – 3 018 LVL per month¹. And, if in the region near to the capital city Riga the rate of poor people does not exceed 2%, then in several districts of Latgale almost every fourth person lives in poverty².

Currently, the participation of Latvian schools in internationally comparative educational research (hereinafter - ICER) shows that achievements of students who come from the economically more developed areas are significantly higher than of those who come from less developed geographical units. Significant differences in students' achievements were found comparing results from the Trends in International Mathematics and Science Study (TIMSS), conducted in 1995 and 1999: “the achievements of the best schools in Latvia are equal to or even higher than in countries take the highest positions in the rating. The lowest achievements are at the level of African and poorest Asian countries” (Geske 2000: 53). Although results of ICERs conducted in more recent years did not show such wide differences of achievements, a high

¹ Sprinģe, I. (2012). Kādēļ Latvija nav bagātāka valsts? Re:Baltica. http://www.rebaltica.lv/lv/petijumi/latvijas_veiksmes_stasta_slepta_puse/a/792/kadel_la_tvija_nav_bagataka_valsts.html (sk. 15.01.2013.)

² Diena (31.03.2013.). Vainode – “rekordiste” trūcīgo skaitā. <http://www.diena.lv/diena-tv/de-facto/vainode-rekordiste-trucigo-skaita-14001085> (sk. 31.03.2013.)

degree of segregation of students' achievements according to the urbanization factor can be observed (Geske et al. 2007). In addition, as pointed out by the researchers, this discrepancy is most directly related to the fact that rural schools have a higher proportion of students who come from families with a relatively lower socioeconomic status. These figures indicate that the establishment of a school system that is able to provide equally high quality education for all groups of students, independent of the school which provides the educational activities, has to be among the major challenges for Latvian politicians and educators (OECD 2000).

At the same time, studies have shown that a certain number of economically disadvantaged students are capable to positively adapt to critical situations and to earn high educational achievements despite all difficulties and problems caused by material deprivation (Rutter 1990; Masten, Coatsworth 1998; Masten, Powell 2003; Murray 2003). Definitions of social resilience within the scientific literature differ in some details, but they share a common understanding of the concept. Two dimensions are distinguished: on the one hand, the highly critical situation, on the other, the ability to positively adapt despite the critical situation (Luthar et al. 2000).

As students' educational achievements are not produced in a vacuum and do not depend only on educational policies and activities in the school, also a multi-dimensional analysis of the influence of family is important. Furthermore, ways of improving school-level factors to further equally high achievements for students from families with different socioeconomic status, and thus minimizing inequalities in the education system should be looked at (OECD 2010). ICER has played an important role in the consolidation of this information and, most likely, ICER will continue to be one of the major "players", offering nationally standardized and internationally comparable data that is very important for educational researchers and policy makers (OECD 2010). Within the doctoral thesis "social resilience" is interpreted as a result of

interaction among factors that facilitate high educational achievements for students from economically disadvantaged families in Latvia. In turn, “socially resilient students” means students at the basic level of education in Latvia who have gained the relatively highest achievements in the Sciences – the main content area of cognitive tests – in the Programme for International Student Assessment by the Economic Co-operation and Development (hereafter – the OECD PISA). However, at the same time this group of students is characterized by the lowest scores in the OECD PISA 2006 family socioeconomic status and cultural index.

Within the strategic development documents of Latvia an educated person is named as the main driver of development and growth of the country. However, due to the fact that a large part of the students, especially in rural areas, come from families whose economic resources are very limited and the state is unable to provide all families with the necessary resources for free-of-charge basic and secondary education, the success of sustainable development for Latvia is questionable. Identification of the factors that contribute to the opportunities of students from economically disadvantaged families and help them to overcome the negative impact of insufficient family economic capital and to reach high achievements could help pedagogical staff to better understand the situation and achieve a higher quality of education. Many large and single parent families would benefit from targeted support for students from economically disadvantaged families; it would increase the opportunities for economically disadvantaged low-achievers, improve their educational performance, prevent them from dropping out of the educational system, as well as promote further education that could provide a higher quality of life in the long term.

1.2. Target and Tasks of the Dissertation

The target of the dissertation study: to investigate family, school and individual level factors that affect educational achievements of students from economically disadvantaged families with the aim to strengthen the improvement of this group of students' educational performance.

Research **tasks** set for achieving the main research target are the following:

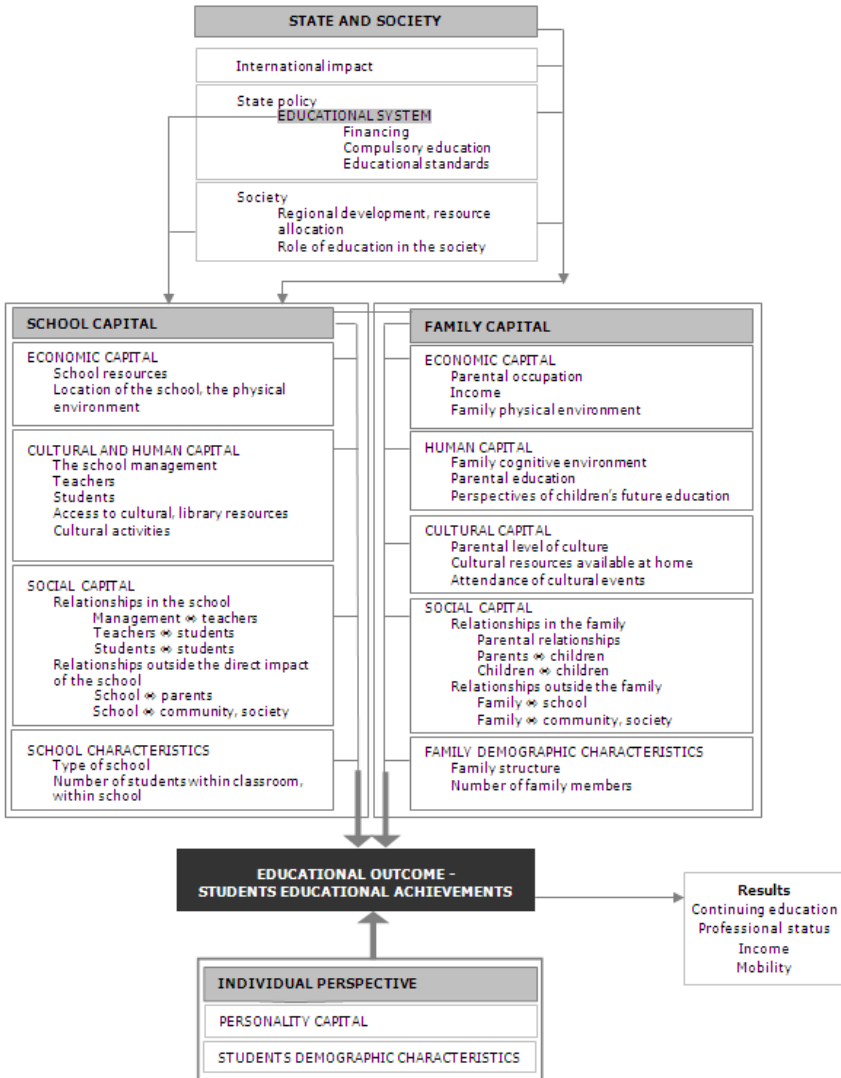
1. To develop the theoretical model for the analysis of factors that affect the education achievements and social resilience of students from economically disadvantaged families;
2. To investigate the history, objectives, and functions of internationally comparative education research and to understand the criticism of these studies to substantiate the usage of OECD PISA 2006 data within the dissertation;
3. Using information obtained from interviews with economically disadvantaged family representatives to characterize the life situation of economically disadvantaged families in Latvia and to gain understanding of conversions of various forms of family capital that are used by the family members to improve their quality of life and to provide their children with resources necessary for education;
4. Using the data base of the internationally comparative education study OECD PISA 2006 to establish social resilience indicators for students from economically disadvantaged families in Latvia;
5. To compare the elements of family, school, and individual capital between groups of socially resilient and socially non-resilient students;
6. To identify the opportunities for improving the educational achievements of students from economically disadvantaged families in Latvia.

The **object of this study** is the educational achievements of economically disadvantaged students.

The **research question** put forward in the thesis: which factors need to change for Latvia's socially non-resilient students (low-achievers from economically disadvantaged families) to improve their educational achievements and to enter the group of socially resilient students (high-achievers from economically disadvantaged families)?

1.3. The Theoretical Framework of the Dissertation

The 1960s of the 20th century are characterized by a paradigm shift in the sociology of education. If before educational researchers had focused on the innate cognitive capabilities of students as the major determinant of educational outcomes, now they begun paying more attention to the impact of interactions between a range of micro and macro level factors on the educational performance (Coleman et al. 1966; Geske et al. 1997, 2001; OECD 2007). The doctoral thesis follows this approach and the theoretical focus of the dissertation is directed to an evaluation of the multi-dimensional impact of different level factors on the achievements of students from economically disadvantaged families. Based on a summary of the knowledge from theoretical literature as well as results obtained in international and national-level studies, during the theoretical research of the doctoral thesis a research model of factors affecting educational achievements of students from economically disadvantaged families has been constructed. It outlines the institutional, macro-level of the educational system (state level), the meso-level (regional - local), as well as the micro-level perspectives of family, school and the individual (see Fig. 1.1.).



Source: scheme developed by the author of the doctoral thesis, based on Buchmann, Hannum, 2001; Zepa et al. 2007; Meņšikovs 2008, 2009.

Figure 1.1. Factors affecting educational achievements of students from economically disadvantaged families, a research model

Research in the sociology of education convincingly reveals pronounced differences in the achievements of students according to their family socio-economic status, and the fact that students from economically disadvantaged families are more likely to fail academically than their peers from economically better-off backgrounds, has been confirmed in many studies over the past fifty years (e.g., Coleman et al. 1966; Barton 2003, 2004; Geske et al. 2007, 2010; OECD 2007, 2011). However, the fact that not all economically disadvantaged students are also academically unsuccessful points to the necessity to research the factors that have helped the successful students to overcome the constraints imposed by their economic deprivation and, by the means of analyzing this group of students, to identify ways of helping as many economically deprived students as possible to overcome the restrictions created by the socio-economic conditions in the family (OECD 2010, 2011).

The doctoral study is based on the framework of the capital theory and the fact that both family and school - the two social systems nearest to the student – have a certain capital that is not limited to the economic capital, but also includes other resources – human capital, social capital, and cultural capital – which can be used for reaching different goals, including higher educational achievements and a better quality of life.

Family capital, including its interaction with school capital and the impact of individual level factors, has been interpreted through the perspective of capital theories by Pierre Bourdieu (Bourdieu, Passeron 1977; Bourdieu 1986) and Coleman (Coleman 1988), along with the approaches to interpreting cultural capital by British sociologist Basil Bernstein (Bernstein 1977) and Anette Lareau, a researcher of French origin (Lareau 1997, 2003). A significant contribution to empirical implementation of the capital theory in Latvia has been provided by professor Vladimirs Meņšikovs who has adapted Bourdieu's approach to studying young people's life strategies in Latvia. According to his observations, the conversion of different types of capital is carried out with the

support of a special exchange rate that depends on the culture of the society, conditions of the market, and the demand of certain types of capital within it (Meņšikovs 2008, 2009). Within the doctoral thesis social capital is approached less as a collective benefit but rather as an individual benefit more precisely, as a benefit of families as small groups, with a greater focus on family social networks and their size. This approach follows the views of such social capital theorists as Nan Lin, Ronald Burt, Alejandro Portes, Xavier de Souza Briggs, and Wendy Stone among others (Bourdieu, Passeron 1977; Bourdieu 1986; Coleman 1988; Erickson 1996; Briggs 1998; Flap 1999, 2004; Putnam 2000; Portes 2000; Stone 2001; Dominguez, Watkins 2003).

In line with the insights mentioned above, it can be assumed that all families have a family capital, the only question is the awareness of this capital and the family's willingness and ability to use it (i.e., family capacity) (Tisenkopfs 2005; Boroņenko 2008; Gofen 2009). In the context of this study, capital is seen as a contribution that can be made for future benefit – parents can influence their children's human capital, social capital and economic capital in the future by making present-day investments in their skills, health, education, motivation, and many other aspects of their life (Becker, Tomes 1986; Lin 2001).

The main topic of the dissertation is an analysis of the group of students who overcome negative expectations regarding their education and are able to become academically successful despite a relatively low family socioeconomic status which has traditionally been associated with a low level of educational achievement. Students whose families are in a similar socioeconomic situation and who confirm the negative expectations regarding their educational achievement – are academically unsuccessful – serve as a reference group.

In the dissertation the theoretical framework of the **social resilience** concept has been analyzed, linking it with the interactions between state, schools, family capital, and individual factors which contribute to the

opportunities of students from economically disadvantaged families to reach high educational outcomes. It should be noted that within the social sciences and the public discourse in Latvia there have been several versions of translating 'resilience' into Latvian. Based on a critical review of the existing translations, a new translation of the concept of resilience is implemented in the doctoral thesis – '*sociālais elastīgums*' in Latvian; according to the evaluation of the author, it offers the most precise characterisation of the meaning of the concept of resilience. Examples of other translations are: in psychology – '*dzīvesspēks*'³, in politics – '*drošumspēja*'⁴, in environmental anthropology – '*elastīgums*'⁵.

Social resilience was initially considered as a distinctly individual characteristic, the ability to positively adapt to the critical circumstances and to succeed (Werner et al. 1971; Anthony 1974; Masten, Coatsworth 1998). In forty years of research the concept of social resilience has evolved into a model characteristic to the constructivist approach, which explains social resilience as the result of interaction between micro-level (individual abilities) and macro-level (processes) factors (Luthar et al. 2000; Bronfenbrenner 2005; Masten 2011) in a specific context and subject to individual interpretations (Ungar et al. 2007; Ungar 2008). What has remained unchanged during this time is the understanding of social resilience as a phenomenon with two dimensions: on the one hand, it is connected to a highly critical situation, on the other – with

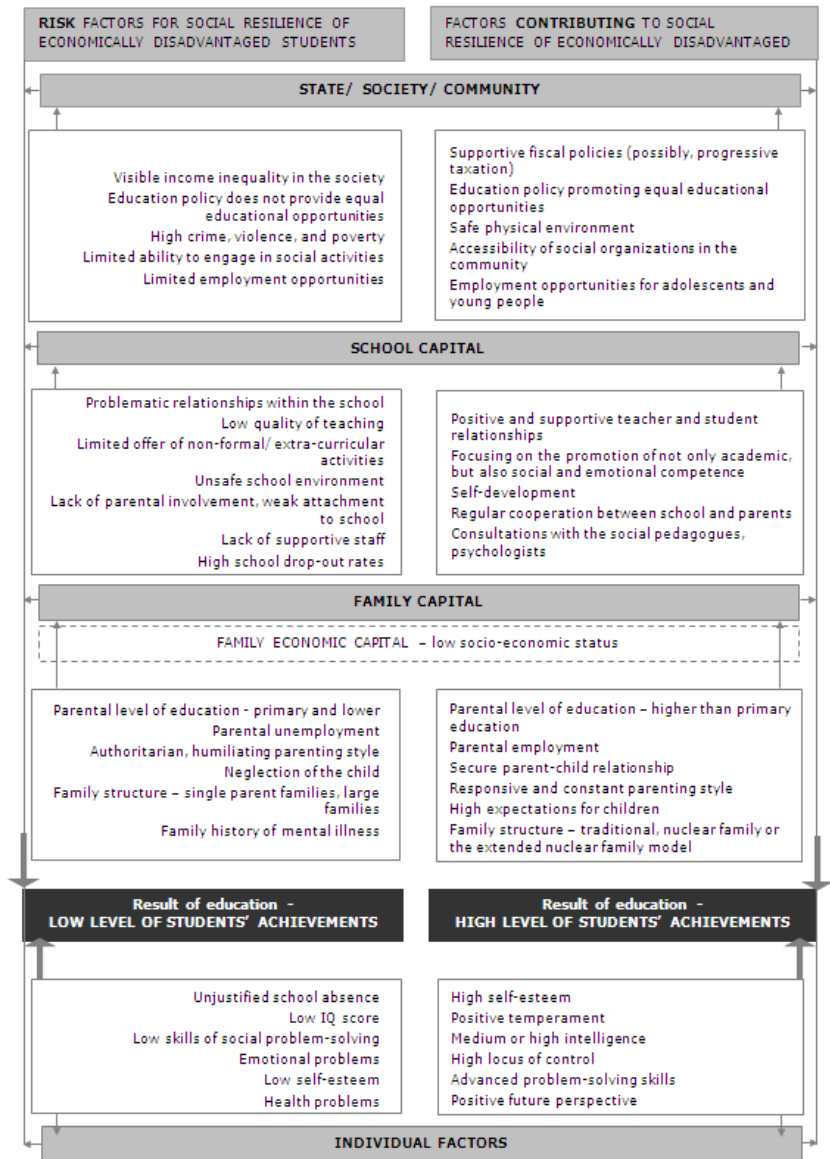
³ Piemēram, Sebre, S., Krūmiņa, I. (2012). "Dzīvesspēks" kā resurss Latvijas laukos. No Cimdiņa, A., Raubiško, I. (sast.) *Dzīve, attīstība, labbūtība Latvijas laukos*. Rīga: Zinātne, 55–66 lpp.; Svence, G. (2012). Jauna pozitīvās psiholoģijas koncepta „dzīvesspēks” aprobācija RPIVA psiholoģijas studentu pētījumos. No *Teorija praksei mūsdienīgu sabiedrības izglītībā. VI Starptautiskā zinātniskā konference. Zinātnisko rakstu krājums*. Rīga: Rīgas Pedagoģijas un izglītības vadības akadēmija.

⁴ Latvijas Nacionālais attīstības plāns 2014. – 2020. gadam (NAP2020). Apstiprināts ar 20.12.2012. Latvijas Republikas Saeimas lēmumu. http://nap.lv/images/20121220_NAP2020_Saeimā_apstiprināts.pdf (sk. 22.12.2012.)

⁵ Aistara, G. (2012). "Visinteresantākās vietas": robežjoslas sociālekoloģiskās mijiedarbes veicināšanai Latvijas laukos. No: Cimdiņa, A., Raubiško, I. (Sast.) *Dzīve, attīstība, labbūtība Latvijas laukos*. Rīga: Zinātne, 203–218 lpp.

the ability to positively adapt to this situation despite the high risk. Thus, the potential for social resilience can be identified only by measuring both dimensions. This two-dimensional approach within the social resilience research has been supported by all of the most prominent researchers who use the concept, including prof. Jelena Obradovic (Masten, Obradovic 2006), prof. Ann S. Masten (Masten, Gewirtz 2006; Masten, Coatsworth 1998; Masten 2011), and prof. Suniya S. Luthar (Luthar 1991). The author of the doctoral thesis finds the view of prof. Michael Rutter, who outlines the high risk situation as the aspect that distinguishes the potential of social resilience from the normal or normative development, the most engaging (Rutter 1990; 2005). The dominant theoretical perspective chosen in the dissertation for the interpretation of social resilience is the approach of prof. Michael Ungar that explains social resilience as a concept construed in a certain society and culture – a result of interaction between factors facilitating positive changes (Ungar et al. 2007; Ungar 2004, 2008, 2011).

Studies have shown that the factors that have a positive impact on students' educational outcomes could also increase the educational achievements of economically disadvantaged students, promoting their social resilience in education (Angelocci 2007). Consequently, the research model developed by the author of the dissertation that defines the factors affecting educational achievements of students from economically disadvantaged families can be successfully applied for the exploration of determinants of social resilience; identifying factors that influence social resilience in each group of capital (see Fig. 1.2.).



Source: scheme developed by the author of the dissertation, adapting McMillan, Reed 1994; Murray, 2003; Masten 2011.

Figure 1.2. Factors affecting the social resilience of children from economically disadvantaged families

The factors affecting the educational achievements of economically disadvantaged students, in other words the determinants of social resilience, can be divided into two opposite groups: contributing factors and risk factors. This division illuminates how some characteristics and practices within the same domain - community, family, school, or the individual - can develop the potential of social resilience, while others – reduce it significantly, increasing the level of economically disadvantaged low-achievers and the proportion of students dropping out from the education system (McMillan, Reed 1994; Bernard 1995, 1999; Masten 2011).

In line with the aim of the thesis to study opportunities for improving the educational achievements of economically disadvantaged students, an in-depth analysis of the factors contributing to social resilience has been carried out. Through this analysis the dissertation follows the currently most frequently implemented approach in social resilience research: the so-called solution directed approach, that pays greater attention to social factors promoting resilience research than the so-called pathological approach that was more popular in the early research on social resilience when the majority of the studies were focused on the risk or hindering factors of social resilience (Ungar 2004; 2011).

As mentioned above, the family has an extremely important role in the lives of those students who have achieved high results in education despite a low family socio-economic status. At the same time, the education system (and the school as a key element of it) can contribute to the social resilience of economically disadvantaged students both by providing materials and technical resources required for learning and thus compensating for the lack of family economic capital, and by giving opportunities not only for cognitive, but also for social and emotional development through active interaction and thus to reducing the impact of undeveloped social and human capital of the family. As a result, the school is becoming a public instrument through which it is possible

to reach children from economically disadvantaged families and to compensate for the negative impact of critical family socio-economic situation. Initially high educational achievements are an individual achievement of each child, but in the long term they result in a precondition necessary for a sustainable development of the society – an education person. The attainment of education promotes social mobility (Hout, Beller 2006), reduces poverty and social exclusion (Trapenciere et al. 2000; Trapenciere 2006; Rungule, Kārkliņa 2009), therefore education can serve as a very important tool for breaking the cycle of poverty and providing a positive impact not only on the individual, but also on the quality of life of the next generation (OECD 2007, 2011).

1.4. Data Sources and Methodology of Empirical Analysis

In-depth analysis of secondary data from two research projects was carried out to achieve the objective of the dissertation – to analyse family, school and individual-level factors affecting educational achievements of students from economically disadvantaged families in Latvia with the aim to improve the educational performance of this group of students.

The empirical research of the doctoral study used data from the following research projects:

1. Information from semi-structured interviews with representatives of economically disadvantaged families from the European Union Structural Fund National Programme Research “Causes and Duration of Unemployment and Social Exclusion” (Rungule et al. 2007);
2. Data from the OECD PISA 2006: results of student cognitive tests and surveys of students and school management (OECD 2009).

Secondary Analysis of Information Obtained in Interviews with Representatives from Economically Disadvantaged Families

The primary research aim of the interview analysis in the dissertation was to highlight the situation of economically disadvantaged families - the context that influences the formation of children's educational achievements. To achieve this, the interview analysis was looking for answers to the following research questions: What are the opportunities of economically disadvantaged families to provide their children with all the necessities for a wholesome quality of life and education? Are there differences with regards to intervention strategies that are used to compensate for insufficient financial resources? How have family social, cultural, and human capitals been implemented to compensate for the inadequate economic capital?

At the same time, the qualitative data analysis was focused on the examination of the hypothetical assumption stated at the beginning of the dissertation that economically disadvantaged families in Latvia are not a homogenous group – they share a similar economic situation, but are differentiated by the diverse human capital, social and cultural capital as well as by the ability to use it.

The total number of interviews included in the analysis: $n = 35$. The target group of the interviews: persons whose families corresponded to the following criteria: (1) at least one of the parents is unemployed, it is a single and/or large family (with at least three children); (2) the family has at least one school age child (6-18 years), (3) isolated families who do not receive any support from relatives or friends, who have insufficient accessibility to electricity, telephone connections, or transportation that substantially limits their access to information and services, and impede their integration into society.

The qualitative data analysis was carried out on the basis of the Research model of factors affecting educational achievements of students from

economically disadvantaged families that was developed by the author of the doctoral thesis. The analysis of information obtained in the interviews with economically disadvantaged, single-parent families and large families were carried out according to the principles of qualitative content analysis (Miles, Huberman 1994; Mayring 2000; Berg 2001), and following the approach to qualitative data analysis developed by Anselm Strauss' and Juliet Corbin' (Strauss, Corbin 2008)⁶.

The so-called approach of "content-driven analysis" was chosen within the framework of analysis realising the initial coding on the basis of a pre-developed theoretical framework and adding new themes to the established coding scheme during the further analysis of the data with the aim to verify and to expand on the conceptual framework of the research (Zhang, Wildemuth 2009).

Secondary Analysis of OECD PISA 2006 Data

The secondary analysis of the OECD PISA 2006 quantitative survey of students and schools gives numerically accurate indicators on the educational achievements of students from economically disadvantaged families and on the differences between the two groups of economically disadvantaged students—the socially resilient and the socially non-resilient students – as well as provides with information about opportunities to improve the educational achievements.

The quantitative analysis was carried out following the approach of Suniya S. Luthar, who emphasizes two dimensions of the social resilience concept: the highly critical situation on the one hand, and the positive

⁶ Although results of the study "Causes and Duration of Unemployment and Social Exclusion " have been published and the situation of large and single parent families has been characterized using the perspective of social exclusion (Rungule et al. 2007: 279-295), the research conducted in this doctoral thesis – an in-depth analysis of the aspects related to the availability of education – does not in any way duplicate the analysis carried out before. The study of the doctoral thesis is based on another theoretical framework and the analysis of research data has been carried out using the primary source of information - transcripts of the interviews.

adaptation on the other. According to Luthar, it is necessary to realise measurements on both dimensions to fully evaluate the potential of social resilience (Luthar 1991; Yates et al. 2003; Masten 2011). In order to avoid the common criticism about a lack of exact criteria for measuring the concept of social resilience, two PISA measurements were used for determining the level of social resilience in line with the developed theoretical framework for data analysis: (1) PISA 2006 ESCS index that defines family economic, social and cultural status and includes measures of durable items and books in the family, parental occupation, and parental highest level of education, and (2) PISA 2006 science achievement scale that provides information about students' achievements in Science.

In order to assess the indicators of students' social resilience, calculations were done in two stages: (1) educational achievements of students for each country were broken down into three equal groups – low, average, and high achievements; (2) the index of economic, social and cultural status of students' families for each country was broken down into three equal groups – low, average and high. Thus, within the doctoral study, the proportion of resilient students for each country is composed of the one third of students who have the relatively lowest scores in the index of family economic, social and cultural status and have the highest achievements. To achieve a more detailed comparison, the group of non-resilient students was characterized as the ones who share the same socioeconomic background, but do not have high educational achievements. This group was composed of the one third of students who have the relatively lowest scores in the index of family economic, social and cultural status and have the lowest achievements.

The approach used for calculating social resilience in the doctoral thesis has been derived from the PISA methodology experts (OECD 2011), but adapted for national-level analysis. The method chosen for calculation of social resilience (dividing the index of family social, economic and cultural status and

the scores of students' achievements in three equal parts) can be evaluated as optimal, as it corresponds both to the theoretical framework (i.e., that determination of strict borders of measurement are critical for calculations of such groups) and to the requirement of having a sufficiently large sample size for reliable statistical analysis. Furthermore, it is associated and fully compatible with the first scientific findings on social resilience, arrived to by the development psychologist Emily Werner, who concluded that one third of all children from disadvantaged backgrounds who have undergone multiple challenges within the family and the community were able to break away from the track of negative development (Werner et al. 1971; Werner et al. 2001).

The comparative analysis of the two groups of students was begun with the help of descriptive statistical methods. Further analysis implemented the method of binomial logistic regression to predict the possibility of non-resilient students to enter the group of socially resilient students.

The method was chosen according to the specifics of the dependent variable and the need to compare the two opposing groups. Binomial logistic regression modeling has been used in cases where the dependent variable is dichotomous – both when the variable is dichotomous originally, and when a nominal or ordinal measurement categories are recoded as dichotomous variables (Kleinbaum 1994; Hosmer, Lemeshow 2000; Garson 2011). In total, 25 complex features – PISA 2006 indices that characterize a student's family, school, and their individual characteristics – were selected for creating a regression model with the goal of determining the extent to which each independent variable affects the belonging to one the two groups, as well as which changes in variables can lead to switching between the groups (OECD 2009).

1.5. The Main Hypothetical Assumptions

The study tests several hypothetical assumptions:

1. Economically disadvantaged families in Latvia are not a homogeneous group – they are united by a similar family economic situation, but divergent by their human, social and cultural capital, as well as by their abilities to implement forms of non-economic capital to compensate for insufficient economic capital.

2. The educational achievements of students from economically disadvantaged families in Latvia are different and there is a certain proportion of students with high potential of social resilience – those whose high achievements provide evidence for withstanding the negative impact of critical family economic situation on educational outcomes.

3. Higher family human capital (the educational level of parents and the educational resources available at home) and cultural capital (the cultural resources available at home) has a positive impact on Latvia's economically disadvantaged students whose performance is poor to reach high educational achievements.

4. The acquisition of theoretical knowledge, linking it with practical life situations, discussions, and awareness-raising in the learning process are aspects that affirm teachers' professionalism, as well as important elements of a higher school social, cultural and human capital that strengthen the opportunities for socially non-resilient students to improve their educational performance.

5. Interest in the learning subject, a higher self-confidence about individual capabilities, and linking the future career to Science studies are factors of individual capital that have a positive impact on socially non-resilient students' opportunities to improve their performance and to enter the group of economically disadvantaged but academically successful students.

1.6. Structure of the Dissertation

The dissertation is structured in five chapters. The first two chapters provide the theoretical framework of the research problem. The first chapter of the dissertation describes the micro and macro level factors affecting the achievements of the students from economically disadvantaged families, analyzes the concept of social resilience and investigates the opportunities of overcoming the negative impact of an insufficient family economic situation that has provisionally been associated with low achievements in education.

To verify the adequacy of the ICER OECD PISA 2006 study for solving the research problem of the dissertation, the second chapter summarizes history, objectives, tasks and functions of ICER, as well as describes the most important criticism related to the implementation and interpretation of ICER results. The chapter also describes the participation of Baltic countries in ICER and describes students' achievements, including their performance in the OECD PISA 2006, and characterizes the opportunities to use the PISA 2006 data for the definition and interpretation the social resilience of economically disadvantaged students.

The third chapter describes the methodology of the empirical study, substantiates the choice of the implemented research methods for fulfilling the tasks of the study, and develops the conceptual framework for data analysis.

Within fourth chapter of the dissertation uses the information obtained in the interviews with representatives of economically disadvantaged families to analyze aspects of family capital, considering both the impact of economic constraints, i.e., insufficient family economic capital, and the multiplicity of forms and types of non-economic family capital, as well as their conversion.

The fifth chapter of the doctoral thesis presents the secondary data analysis of the OECD PISA 2006 on both national and Baltic level. First, it estimates the social resilience of students from economically disadvantaged families. Second, it identifies the factors that could have a positive impact for

socially non-resilient students to enter the group of socially resilient students, thus overcoming limitations related to the insufficient financial security within the family and reaching high educational achievements.

Conclusions are formulated at the end of each chapter. The dissertation is concluded with the overall findings and recommendations for raising the educational achievements of children from economically disadvantaged families. The dissertation has four annexes and is a total of 212 pages long, excluding the list of literature sources and 5 annexes.

2. RESULTS AND CONCLUSIONS

The doctoral thesis study examines the opportunities to reduce the significant impact of socioeconomic background on students' educational outcomes which result in highly divergent student achievements depending on their family economic capital and the distinctly diverse life opportunities provided by it. The study is based on the information about economically disadvantaged families in Latvia and the educational achievements of students from such families who are at the final stage of basic education.

2.1. The Main Results of the Analysis and the Proven Hypotheses

1. Information obtained in the interviews confirms the multidimensional impact of a limited family economic capital on the economically disadvantaged families in Latvia, and reveals risk factors that influence low educational achievements for children from such families, e.g., limited opportunities for parents to meet the basic needs of them and their children, to purchase all the necessary items for school, to bring their children to school, or to pay for their children's school lunch.
2. Through an in-depth analysis of the information obtained for the thesis, the author has concluded that economically disadvantaged families in Latvia cannot be considered a unified, homogenous group. In accordance to the theoretical and methodological perspectives of the doctoral thesis, it is possible to distinguish between two types of economically disadvantaged families who share a similar economic situation, but whose family social, cultural and human capital, as well as the ability to convert them is completely different:
 - First, economically disadvantaged families who enhance children's social resilience – families with low economic capital, but high capacity – representatives from these families have significant non-economic resources and different manifestations of social, cultural and

human capital; the interaction of these qualities significantly compensates for the restrictions of the economic capital.

- Second, the economically disadvantaged families who do not enhance children's social resilience – families with low economic capital and low capacity – representatives of these families are characterized by lower human capital, they do not have the ability, interest and/or motivation to use family non-material capital to improve the quality of life and the development of social, cultural and human capital to compensate for the lack of economic capital.
3. Information obtained in the study shows that the ability of individuals to fulfil their goals increases with a broader awareness of and interaction between various types of family capital. Thus it can be considered that socially resilient students mostly come from socially resilient families that are characterized by the following qualities:
- Context: a short history of limited family economic capital (the status of poverty is relatively recent), a higher level of parental education;
 - Investments: firstly, in cultural and human capital – search of free-of-charge opportunities to attend cultural events and educational activities, dedication of finances to educational purposes (e.g., purchasing a computer with the help of a consumer credit), high expectations for children's education, an active involvement in children's continuing education planning, and the strengthening of children's self-esteem despite the limited financial resources. Secondly, investments in social capital - strengthening of the children's sense of national belonging, the attendance of religious activities, as well as an active interest in networking not only within the community and with families who are at the same level of economic capital and provide horizontal mobility, but also the formation of so-called bridging social capital that encourages the vertical mobility of young people and the opportunity to get out of the

poverty trap. According to the information obtained in the interviews, children are thinking about opportunities of continuing education, are motivated and interested in learning and social life despite the low level of family economic capital and constrains that arise from it.

4. A strong correlation exists also between factors that negatively affect student achievements. One of the most important is families with both low economic capital and low capacity, even passivity, to use non-economic family capital to compensate for insufficient economic capital. Thus, it can be concluded that a large proportion of socially non-resilient students come from socially non-resilient families that can be characterised by:

- Context: a long-term experience of poverty, often accompanied by alcohol abuse, and a lower education level of the parents;
- Lack of investment: characterized by a passivity and inability to use the non-economic family capital to improve the quality of life (and indirectly – to improve the children's educational achievements). A lack of investment is highlighted in two spheres: firstly, in cultural and human capital – a low self-esteem, pessimistic predictions for the future, as well as a lack of expectations and distancing oneself from the planning of children's future education; secondly, in social capital – a lack of interest in societal and cultural novelties, networking limited only to the nearest neighbours who are in a similar socioeconomic situation and which is sometimes related to excessive alcohol use. As shown by the analysis of information obtained through the interviews, children of these families are often characterized by behavioural problems, as well as a lack of interest and motivation to continue learning.

Thus, the first of five hypotheses has proven to be true: economically disadvantaged families in Latvia are not a homogeneous group – they are united by similar family economic situation, but are differentiated by

diverse human, social and cultural capital, and by their abilities to implement forms of non-economic capital to compensate for insufficient economic capital.

5. More precisely, the first argument is supported by data obtained through the quantitative data analysis of the OECD PISA 2006 study. The study reveals that there is a limited number of students who could positively adapt to the critical situation created by the economic deprivation in their family and were able to reach high educational achievements in spite of the difficulties and challenges related to insufficient family economic capital. In the doctoral thesis these students are described through the conceptual framework of social resilience and they confirm that a certain proportion of economically disadvantaged families are able to convert non-economic resources to compensate for insufficient economic capital.
6. According to the methodology for calculating students' social resilience index implemented in the thesis, the author has found that 23% of economically disadvantaged students, or 7.4% of all students in Latvia at the age of 15, can be defined as socially resilient – these are the students who come from economically disadvantaged families but have been able to reach educational achievement equivalent to the average of OECD PISA 2006 study leaders.
7. There are twice as many socially non-resilient students who have been unable to cope with the impact of a critical economic situation in the family and who have the lowest ratings within the PISA 2006 tests – nearly half (47%) of economically disadvantaged students, or 15.6% of all students in Latvia at the age of 15. Achievements of socially non-resilient students are significantly lower statistically than the OECD PISA 2006 average figures and they show that at least half of the economically disadvantaged students in Latvia have got insufficient level of knowledge at the point of graduating from basic education that limits their opportunities to continue education

and successfully integrate in the labour market, creating a high level of reproduction of social exclusion and poverty and, consequently, impede the fulfilment of at least one of the Europe2020 targets for Latvia: the reduction of the proportion of 15-year-olds with low achievements in Science below 15 percentage points.

8. More than a half of the economically disadvantaged students who had reached relatively high achievements in Science were also academically outstanding in the other two of PISA 2006 study domains - Reading and Mathematics; the vast majority of economically disadvantaged students who had demonstrated high achievements in Science demonstrated social resilience in two of the three subjects. From those economically disadvantaged students in Latvia who received relatively lower assessments in the PISA 2006 Science test, three fourths showed low results in Mathematics and Reading and the significantly largest part of economically disadvantaged low achievers had low results in two out of three subjects. These high rates of interdependence – the overlap of social resilience and, in particular, social non-resilience in different subjects - allow generalizing from the measurements of social resilience determined on the basis of achievements in Science.

Thus, the second of five hypotheses has proven to be true: achievements of students from economically disadvantaged families in Latvia are different and there is a certain proportion of students with high potential for social resilience – those whose high achievements provides evidence that one can withstand the negative impact of a critical family economic situation on educational outcomes.

9. The results of the study show that there are no significant differences between the parental educational level of socially resilient and socially non-resilient students in the country as a whole, but noticeable differences between these two groups of students can be observed in rural areas.

Consequently, the educational level of parents is a crucial factor for the improvement of performance of students from the rural schools in Latvia. If it is higher than primary education, the probability of socially non-resilient students to enter in the group of socially resilient students increases five times. This fact confirms that a higher family human capital for those living in rural areas can help economically disadvantaged students to overcome the critical situation caused by low economic capital and to obtain high educational achievements.

10. Family factors have a much weaker impact on economically disadvantaged students from schools in Riga and other cities; this shows the ability of schools from these territorial entities to better compensate for the impact of low family capital.
11. Economically disadvantaged high achievers have a statistically significantly more frequent access to cultural and educational resources at home than low-achievers; these resources can make the learning process easier and more attractive: they have their own room, a desk for studying, a calculator, a dictionary and a larger number of books - not only ones that are directly provided for learning but also classic literature and poetry collections.
12. A significant difference between the two groups of students has also been found with regards to the responses on information and communication technologies at home. Among the socially resilient students the majority has a computer at home, nearly half – software useful for learning, and one of the three – the internet. In the group of socially non-resilient students the access to information and communication technologies at home is lower by half.
13. According to the calculations of the binomial logistic regression, the availability of educational resources at home could increase the probability of socially non-resilient students to improve their educational achievements and to enter the group of socially resilient students by 80%. Having access

to cultural resources at home could improve their performance by about 40% (see annex 1).

Thus, the third of five theses has proven to be true: a higher family human capital (the educational level of parents and the educational resources available at home) and cultural capital (the cultural resources available at home) have a positive impact on the opportunities of Latvia's economically disadvantaged students whose performance is poor to reach high educational achievements.

14. It should be noted that these correlations have not been observed in Estonia where, in contrast to Latvia and Lithuania, none of the 10 family factors included in the model had any effect on the opportunities of the economically disadvantaged low achievers to enter the group of students with high performance. This demonstrates more equal education opportunities in Estonia – the schools are much better at compensating the restrictions for economically disadvantaged students caused by the critical financial situation in the family (see annex 2).
15. Comparing data on the availability and quality of educational resources as an indicator of the economic capital of schools, it can be concluded that the schools where the socially resilient students learn are not so much different from those where the socially non-resilient students receive their education. According to the opinion of school management, the overall material and technical resources are very low and there is lack of qualified teachers to provide a qualitative training process⁷.
16. Despite an insufficient material and technical base, the vast majority of socially resilient and socially non-resilient students positively evaluate the

⁷ It should be noted that from beginning of the 2011./2012 school year electronic and printed educational materials in biology, physics, chemistry and mathematics for grades seven and nine that significantly improves teaching and learning quality are available for more than 750 educational institutions, prepared by the project “Science and Mathematics”.

work of teachers, noting that they help to learn the basic skills and knowledge that will be needed both in Science-related work and in many other professions. The vast majority of schools in Latvia with economically disadvantaged students organize a variety of activities to promote Science learning and in this respect the two groups of economically disadvantaged students differ only slightly.

17. The results of the study confirm the relationship –higher educational attainments are gained by those students for whom school knowledge is related to daily live experiences. Economically disadvantaged students with high achievements are statistically significantly more likely than students with low achievements to note that science education explains the context of various phenomena, that science concepts are analysed in the context of everyday life, and that their science teacher uses science concepts to help students understand the world outside of the school.
18. According to the calculations of the binomial logistic regression, it was concluded that, in general, none of the ten elements of school capital that were included in the regression model showed any significant impact on the opportunities for rising the achievements of socially non-resilient students.
19. Analysing the results in more detail, it was found that the socially resilient students who attend city schools (with the exception of Riga), have more possibilities to enter the group of socially resilient students if the school has a better provision of information and communication technologies. Meanwhile, the insufficient number of qualified teachers may be the cause that impedes the socially non-resilient students from Riga to raise their educational outcomes.

Thus, the fourth of five theses has proven to be partly true: the acquisition of theoretical knowledge by linking it with practical life situations, discussions, and awareness-raising in the learning process are aspects that

affirm teachers' professionalism, as well as important elements of a higher school social, cultural and human capital: factors that strengthen the opportunities for socially non-resilient students to improve their educational performance. However, according to the research findings, these aspects are not important enough to have a significant impact on the opportunities of the economically disadvantaged low achievers to raise their performance. Also, debates and class discussions that focus on Science learning do not have such impact either.

20. According to the research results about the differences in individual social capital, at first, socially resilient students were more confident about their knowledge of science and indicated statistically significantly more frequently than socially non-resilient students that they could easy or with little effort explain why earthquakes occur in some places more than others, to predict how environmental changes may affect animal survival, as well as to identify a specific scientific question related to a health problem or the issues of waste disposal described in a newspaper article. Secondly, socially resilient students enjoy learning the Sciences more frequently than socially non-resilient students; the vast majority of the economically disadvantaged high-achievers admitted that they like to read about science, and that they are interesting to study. Therefore, the socially resilient students have a greater desire to link their professional careers with science, a higher interest and awareness of their abilities, and they spend more time learning Science.

21. In the binomial logistic regression calculations it was found that five out of ten individual capital elements included in the regression model could increase the probability of socially non-resilient students to enter the group of socially resilient students, at first, the interest in science (especially astronomy) and the desire to associate it with professional development (3 times), secondly, the awareness one's abilities, a perception that they can

answer the test questions on science topics well (3 times), thirdly, the joy to learn science and time dedicated to learning science (by 40%).

Thus, the fifth of five theses has proven to be true: an interest in the learning subject, a higher self-confidence about individual capability and binding the future career to science studies are all factors of individual capital that have a positive impact on the socially non-resilient students' opportunities to improve their performance and to enter the group of economically disadvantaged, academically successful students.

22. The study conducted within the framework of the dissertation answers the initially raised research question: "Which factors need to change for Latvia's socially non-resilient students to improve their educational achievements and to enter the group of socially resilient students?" According to the results of the study, opportunities for socially nonresilient students to improve their educational achievements and to enter the group of socially resilient student can be increased by:

- Elements of family capital– higher parental education level (especially – for rural students), availability of educational and cultural resources at the student's home, as well as family's social capital. The exchange of the latter improves the overall quality of life of the family, provides positive impact on the access to qualitative education, and promotes the improvement of educational achievements;
- Various aspects of personality capital – the achievements of students improve with a greater interest in learning, desire to associate professional development with specific subjects, a higher self-efficacy and awareness of personal ability, and a joy to learn, which result in devoting more time for learning;
- Elements of school capital– in an urban environment (Riga) a sufficient provision of qualified teachers is an important indicator for improving the achievements of non-resilient students, whereas access

to modern information and communication technologies is significant for schools in other cities. At the same time, it has to be taken into account that the school has a high impact on the formation of students' learning motivation.

2.2. Suggestions for Improving Social Resilience – the Achievement of High Educational Outcomes

Based on the results of the conducted study, the author of the doctoral thesis has formulated recommendations the implementation of which could contribute to the social resilience in the education of economically disadvantaged students by reducing the impact of insufficient family economic capital on the students' learning outcomes.

Recommendations for policy makers

- To provide access to educational resources for students from economically disadvantaged families, firstly, increasing the amount of public funding for educational supplies to a level closer to that of the other two Baltic States whose expenditures for that position are currently at least twice higher, and, secondly, monitoring of the efficiency and practical implementation of the currently defined responsibilities of the state and the local municipalities in the provision of learning resources.
- In order to stimulate the improvement of educational performance for children from economically disadvantaged families, focusing on the development and implementation of a motivation, wage, and work quality assurance program for the teachers.
- To reduce the risk of dropping out of education for socially non-resilient students, it is recommended to develop special programs which would include criteria for early recognition of learning problems and would follow a holistic approach of teaching students from economically disadvantaged families who have learning disabilities.

- In order to encourage the escape of economically disadvantaged families from the poverty trap and to reduce the risk of social exclusion, it is recommended to plan life-long learning activities for parents– to develop their human capital and to offer opportunities for the expansion of their social networks.
- To increase the opportunities of children from economically disadvantaged families to prevent the passing down of poverty culture to the next generations and to provide more opportunities for vertical mobility, it is necessary to plan successive support activities for opening access to higher education for those economically disadvantaged students who are academically successful.
- In order to further the improvement of education quality in Latvia, it is necessary to continue support for the participation of Latvia in internationally comparative education studies in order to be able to track the performance trends at both national and international level.
- At the same time, to enhance the practical application of the international research results and increase the value of cost-effectiveness, policy planning should not only use the primary research data, but also the results of scientific studies, including in-depth analysis of the ICER data (on primary education management for providing more equal opportunities, on state-level factors affecting primary school students' educational achievements in Science, on improvement of boys' literacy rates etc.).

Recommendations for municipalities and local authorities

- To reduce the negative impact of insufficient family capital on children's early development, special attention should be paid to the pre-school education of children from economically disadvantaged, social risk families. It would promote the acquisition of the basic skills which are a prerequisite for successful inclusion in the basic education. Taking into account the lack of provision with pre-primary education institutions,

specific support programs for children from economically disadvantaged families at social risk should be implemented to develop children's basic skills before the compulsory school age.

- In order to achieve an equally high-quality free education on the primary and secondary level, while continuing the optimization of the school network due to the reduced number of students, special attention has to be paid to schools with a high proportion of students who come from economically disadvantaged families. Options to provide additional financial support for these schools should be evaluated in order to renew the school's educational resources and to encourage teachers with higher professional qualifications to join the pedagogical staff of these schools.
- To support the economically disadvantaged families living in the municipality, and to reduce the risk of reproduction of poverty in the next generation, all possible support should be provided for activities that focus on the further education of academically successful students from economically disadvantaged families.
- In addition to providing financial support to economically disadvantaged families for buying children's clothing and footwear, and covering the costs of school lunch and interest education, the support should be expanded and differentiated to include meaningful leisure and recreation activities that also could prevent children's deviant behaviour and the use of drugs.
- Employment opportunities during school holidays and after the graduation from basic education, as well support activities for young people from economically disadvantaged families should be planned to promote their breaking out of the poverty trap.
- Monitoring of the situation and assessment of social support opportunities should be carried out regarding children in those economically disadvantaged families whose parents do not meet the legislative criteria of

a person in poverty, but whose family is nevertheless distinguished by insufficient economic capital.

Recommendations for schools and the pedagogical staff

- Active involvement in national level initiatives and activities of non-governmental organizations (such as “*Mission Possible*”⁸, “*Change Opportunities for Schools*”⁹), as well participation in international activities should be an essential part of school life to promote the school as the centre of the local community on a national level and to provide the experience of transnational cooperation and opportunities to learn new techniques on an international level.
- To promote positive relationships among students, as well as between students and teachers and school leaders, focusing not only on the increase of academic competencies but also on the development of social and emotional competences.
- To reduce the risk of dropping out from education for socially non-resilient students (with low educational achievements) from economically disadvantaged families, activities should be carried out for early recognition of learning problems and a holistic approach should be implemented for teaching students from economically disadvantaged families who have learning disabilities. Programs that focus directly on the target group – the economically disadvantaged students – aimed at increasing their self-esteem and confidence about their academic abilities, as well as programs that are related to practical activities, the adaptation of theoretical knowledge in practice, making contacts with experts from different backgrounds, and mentoring activities are considered to be a successful start.

⁸ For further information – <http://www.iespejamamisija.lv> (homepage in Latvian)

⁹ For further information – <http://www.parmainuskolas.lv> (homepage in Latvian)

- The promotion of cooperation between schools and parents is essential. The interactions between the school and family social capital (teachers visiting families, interviews with parents, family involvement in school activities, etc.) have a positive impact on the educational achievements of children from these families, they foster the quality of education and, consequently, also the future perspectives of children from the economically disadvantaged families.

2.3. The Scientific Novelty and the Practical Significance of the Study

The Scientific Novelty of the Study

In the doctoral thesis the factors influencing educational achievements of students from economically disadvantaged families are analysed according to the theoretical approach of the capital theory with the goal to assess which of the family, school, or individual-level factors have a positive impact on the opportunities for academic low-achievers to enter the group of those students who have been able to obtain high achievements in spite of the negative impact of insufficient family economic capital. The dissertation established a research model of factors affecting educational achievements of students from economically disadvantaged families which ideally fits to and complements foreign and national scientific research in this area.

The novelty of the dissertation is based on the fact that social resilience research is a new paradigm in the sociology of education in the world, as well as in Latvia. The doctoral thesis which includes a definition of this concept, detailed information on the factors affecting social resilience, interpretations of the Latvian translations of social resilience, as well as reasoning for choosing the Latvian translation “*sociālais elastīgums*” provides a significant contribution to the implementation of this concept in Latvian sociology.

Another aspect that outlines the novelty of the thesis is the in-depth sociological analysis that was conducted using data from one of the most comprehensive international comparative education studies – OECD PISA. Up until now sociologists in Latvia have not used internationally comparative education research projects for a detailed sociological analysis, instead they have largely relied on the primary results about students' achievement in Latvia in comparison with other countries.

From an empirical analysis point of view, it is also important that the analysis of students' achievements and the factors that affect them is realized not only on the Latvian, but also on the Baltic level. Previously data from the OECD PISA 2006 have most often been applied to compare the results of Latvia on a national level – to see how the results depend on the level of urbanization – or to compare Latvia with other states participating in the OECD PISA 2006 study.

In the context of sociological research, the novelty of the dissertation is underlined by the fact that the analysis of students' achievements that is based on the results gained from internationally comparative education studies, including the cognitive tests of OECD PISA 2006, has been enriched with data from surveys of students and schools. This information offers highly valuable empirical material because it allows a detailed analysis of the interaction between the achievements of economically disadvantaged students in Latvia and factors on the family, school, and individual-level.

The dissertation provides a comprehensive, in-depth understanding of the situation of economically disadvantaged families and the impact of this situation on children's education. This is achieved by empirical research that includes a quantitative analysis of data from internationally comparative education research and a qualitative analysis of information gained from semi-structured interviews with representatives of economically disadvantaged families.

The analysis of the research results that was carried out in accordance to the framework of capital theory, reveals the possibilities to segment economically disadvantaged families and confirms the hypothetical assumption that these families are not a homogenous group. The dissertation clearly demonstrates examples of families who are facilitating their children's social resilience – these are families whose parents actively use family non-economic resources and positively impact the achievements of their children despite limited economic capital.

The Practical Significance of the Study

The practical significance of the study is underlined by the knowledge gained on the ways how the education system could reduce the limitations caused by insufficient family economic capital, .e.g. by implementing activities that focus on subject-specific learning, by fostering individual capital development for children from economically disadvantaged families and, consequently, by positively influencing their educational performance.

The results obtained can be used in the planning of activities for improving the educational performance of low achievers which would ensure Latvia's compliance with the Europe2020 targets for education, including the criteria that the proportion of 15 year old low-achievers in Reading, Math and Science within the country should be less than 15%.

The knowledge obtained can be used for providing support that is targeted, but at the same time differentiated and based on the diversified needs of both groups of economically disadvantaged students – the socially resilient students and the socially non-resilient students. By providing a basis for positive changes of student achievements in Latvia, it is possible to influence the long-term development of the economically disadvantaged students – a more successful continuing of their education and inclusion in the labour

market – which are essential preconditions for breaking out of the poverty and social exclusion risk group.

The scientifically founded information gained in this doctoral dissertation about the differences in various forms of capital of the economically disadvantaged families and the factors that positively affect social resilience can be used for planning sustainable and targeted social support activities at the local level.

At the same time, the information on social resilience from this doctoral thesis can be applied in the study process, e.g., in special courses for students of education management, sociology, and social policy at the Rīga Stradiņš University as well as other educational institutions.

Recommendations for Further Research

To provide counter-arguments to criticism directed towards ICER about imperfections regarding methodology, as well as to ensure the validity and reliability of data from ICER conducted in Latvia, it is crucial to carry out in-depth exploration for evaluating the research process, implementation of the methodology, effectiveness of the sampling procedures, and the applicability of the OECD PISA instruments for schools in Latvia. At present, information about methodological issues of PISA studies carried out in Latvia is very limited.

By measuring the achievements of 15-year-old students, OECD PISA could not provide a complete answer to the question of effectiveness and sustainability of educational policy. The results of the study do not give answers about that how successfully the education system prepares young people for a purposeful transition into adulthood –integration in the higher education and the labour market –, and does not explain which factors have the most significant impact on long-term positive achievements in education and employment throughout their lives. To obtain such information it would be

advisable to continue regular research the life paths of PISA participants. It should be noted that such studies have already been conducted for several years in Canada¹⁰, Australia¹¹ and Switzerland¹².

It has to be taken into account that social resilience is not a fixed indicator: the capacity and potential of social resilience may be reduced if the number of risk factors increases. According to research, even if at a given point in time children from economically disadvantaged families are able to overcome the constraints created by the insufficient economic capital and be successful, many of them can still fail later in life. Because of this, long-term longitudinal studies are often conducted to study social resilience in education, providing evidence on the dynamics of social resilience in young people's lives. The author of the dissertation is interested in this type of studies for planning research activities in the future.

¹⁰ OECD (2010). Pathways to Success – How knowledge and skills at age 15 shape future lives in Canada. <http://www.oecd.org/pisa/pisaproducts/pisa2006/44574748.pdf> (01.09.2013.)

¹¹ Australian Council for Educational Research (2013). Skills for Life? The link between PISA and LSAY <http://www.acer.edu.au/ozpisa/pisa-lsay> (01.09.2013.)

¹² TREE (ed.) (2013). TREE Project Documentation 2000-2012. Basel: TREE. <http://tree.unibas.ch/en/the-project/> (01.09.2013.)

2.4. Approbation of the Doctoral Thesis – Author’s Scientific Publications and Presentations

Scientific Publications on the Theme of the Dissertation

a. Publications in Reviewed Editions

Kārkliņa, I. (2013). Impact of Family non-material capital on educational competitiveness of economically deprived students in Latvia. *Rural Environment. Education. Personality (REEP). Proceedings of the International Scientific Conference, 6, 2013*, LLU, Jelgava, Latvia. p. 349–356.

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- The 11th Conference of the ESA “Crisis, Critique and Change”, Turin, Italy, 28–31 August, 2013. Paper: „To Leave or not to Leave: Economically Deprived High-School Graduates in Latvia” (co-author: Aleksandrovs, A.).
- International scientific conference “Annual Conference of Rīga Stradiņš University 2013”, Rīga, Latvia, Rīga Stradiņš University, March 21–22, 2013. Paper: „Analysis of factors affecting students' educational achievements in Latvia”.
- Institute of Philosophy and sociology, University of Latvia International scientific conference “Youth in Latvia, Europe, Globe: opportunities and risks”, Rīga, Latvia, 1 June, 2012. Paper: „Factors affecting educational achievements of economically disadvantaged students achievements in Baltic” (co-author: Aleksandrovs, A.).
- 70th Conference of University of Latvia, Sociology section "National Identity – Theoretical Challenges and Research Methods", Rīga, Latvia, 17 February, 2012. Paper: “Sense of Territorial belonging and mobility plans of youth from economically disadvantaged families” (co-author: Aleksandrovs, A.).
- Joint 3rd World Congress of Latvian Scientists and 4th Letonica Congress „Science, Society and National Identity”, section „Culture and National Identity”/ Youth in Latvia, Europe and in the World: Challenges, Problems and Perspectives. Research and Youth Policy”, Rīga, Latvia, 24-27 October, 2011. Paper: „Family economic, human and social role in young people's career choices”.
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ANNEX. MAIN RESULTS OF THE ANALYSIS

1st Annex

Binomial logistic regression model on the impact of family, school, and individual factors on social resilience in Latvia

	Latvija	Rīga	Pilsētas	Lauki
	Exp(B)	Exp(B)	Exp(B)	Exp(B)
FAMILY FACTORS:				
Economic capital:				
Resources characterising household welfare				
Human capital:				
Higher reached educational level of student's parents				5.287*
Parents' professional carrier related to science				
Educational resources available in the household	1.766	1.790*		2.405
Cultural capital:				
Cultural resources available in the household	1.380		1.577*	
SCHOOL FACTORS				
Economic capital:				
Quality of educational resources in the school				
Shortage of teachers (negative score)		0.506*		
Number of PC for learning in relation to school size			1.285*	
Cultural and human capital:				
Preparation in the school for science-related careers				
Science teaching with a focus on daily life				
School activities that contribute to Science learning				
Proportion (%) of students in basic education who have repeated a school year	0.911	0.911*		
Social capital:				
Communication, discussions in class during science lessons	0.718			
School characteristics				
School location				
School size			1.002*	
INDIVIDUAL FACTORS				
Personality capital:				
The desire to pursue a profession related to science	3.007		4.408	3.174
Joy to learn science	1.466*			1.762*
The value of science in personal life				
Activities for acquisition of Science outside of the school			0.479	
Instrumental motivation for science learning	0.654			0.504
Awareness of science-oriented careers	0.404	0.376	0.449	0.354
Self-efficacy of science learning	3.143	3.395	3.018	3.403
Time devoted to learning sciences in the school	1.448	1.48	1.468	1.395
Time spent on learning sciences individually				
Student's demographic characteristics:				
Gender	1.444*		2.143*	
Constant	0.264	0.495	0.011	0.052
Cox & Snell R ²	0.334	0.357	0.327	0.368
Nagelkerke R ²	0.467	0.494	0.454	0.519
Prognosis accuracy	79.9%	81.6%	76.9%	81.8%

Statistiskā nozīmība: * p<0,05, visiem pārējiem mērījumiem p<0,001

Avots: Autores aprēķini, izmantojot PISA 2006 datus.

Binomial logistic regression model on the impact of family, school, and individual factors on social resilience in the Baltics

	IGAUNĪJA	LATVIJA	LIETUVA
	Exp(B)	Exp(B)	Exp(B)
FAMILY FACTORS:			
Economic capital:			
Resources characterising household welfare			
Human capital:			
Higher reached educational level of student's parents			
Parents' professional carrier related to science			
Educational resources available in the household		1.766	2.286
Cultural capital:			
Cultural resources available in the household		1.380	1.526
SCHOOL FACTORS			
Economic capital:			
Quality of educational resources in the school			
Shortage of teachers (negative score)			
Number of PC for learning in relation to school size			1.142
Cultural and human capital:			
Preparation in the school for science-related careers			
Science teaching with a focus on daily life			
School activities that contribute to Science learning	1.617*		
Proportion (%) of students in basic education who have repeated a school year		0.911	
Social capital:			
Communication, discussions in class during science lessons	0.735*	0.718	0.473
School characteristics			
School location	0.527*		1.715
School size	1.001*		1.001
INDIVIDUAL FACTORS			
Personality capital:			
The desire to pursue a profession related to science	2.852	3.007	4.523
Joy to learn science		1.466*	1.257*
The value of science in personal life	1.994		1.364
Activities for acquisition of Science outside of the school			0.627
Instrumental motivation for science learning	0.670*	0.654	
Awareness of science-oriented careers	0.475	0.404	0.798*
Self-efficacy of science learning	5.063	3.143	2.314
Time devoted to learning sciences in the school	1.327	1.448	1.317
Time spent on learning sciences individually			0.880*
Student's demographic characteristics:			
Gender		1.444*	
Constant	0.077	0.264	0.043
Cox & Snell R ²	0.368	0.334	0.318
Nagelkerke R ²	0.515	0.467	0.463
Prognosis accuracy	81.5%	79.9%	82.8%

Statistiskā nozīmība: * p<0,05, visiem pārējiem mērījumiem p<0,001

Avots: Autores aprēķini, izmantojot PISA 2006 datus.