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The Impact of Exogenous Urban Factors on Absenteeism and Dropout Rates

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Abstract

In the last decade, observation of the negative influence of various factors on the education system and their mutual interaction, attracted the special attention of scientists all over the world. Subjects of major interest are dropout rates (early leavers from the education system), correlation between school absenteeism and overall education outcomes. This makes the whole concept of “Equality of Educational Opportunity” questionable, including the role that the government and private sectors should play in reaching the goal. Without ignoring the school or the reality of the current education system, it is necessary to identify exogenous factors and understand the role they play in the problem expansion process because the loss is multiplied and felt by parents, schools, pupils and society. Poorly educated people limit economies’ capacity to produce, grow and innovate. Failure in school damages social cohesion and mobility, and imposes additional costs on public budgets to deal with the consequences of higher spending on public health and social support and greater criminality, among others. Exogenous factors influencing school attainment are not under direct jurisdiction of policy makers, and since capital investment creating the educational system context makes a significant impact on the disposable budget, they should be able to deliver visible improvement to the system and create lasting, countable positive effect on the users, in order to reach effectiveness. For that matter, it is necessary to explore their hidden influence to form a more holistic approach to enhance education attainment level rates and quality of overall output.

1. Preamble

The wider context of interest in the present issue stems from recent globalization-driven change within economies. Globalization presupposes deregulation, liberalization and privatization, leading to increasing economic integration between countries with a series of negative phenomena. Since global competition is changing the rules of the market playground within each industry, the key to successful competition no longer lies in the establishment of an economy of scale, low cost production and/or cheap labor force input, but rather switches the focus to new technologies and innovations that create products and services of higher added value. Such products and services have a relatively small share of material components (raw materials, energy, physical labor etc.) and a large percentage of knowledge-based capital, improving better resource allocation that adds a new value to the final product. The economies thus are becoming less raw material and energy-dependent. With respect to products and services belonging to high and generic technologies underlying research and development, scientific activity and education, they are becoming strategic resources of the national economy. In other words, intangible factors, such as research and development, and education or human capital, stem out of the factors of consumption, to be the fundamental raw material and production resources.

The most common example referred to for illustration of the impact of knowledge on economic development is a comparison of the development of South Korea and Ghana. Both countries had the same GDP per capita in 1960s, around $700 U.S. dollars, and they were on the verge of starvation. In 2015, just about fifty years later, South Korea had $28871.57 U.S. dollars per capita, achieved through the high speed industrialization process, technological transfers and investments in research and development. In 2013, Korea ranked second in terms of R&D investments, and 80% of the budget came from investments by large enterprises (cheabols like Samsung, Hyundai, LG), while 20% came from the state.

With economic growth comes economic development of society. Strategic and economic development policies of highly developed countries contribute to knowledge and intellectual capital formation.

2. Education

Since the education system provides the knowledge necessarily needed to each and every sector of the economy, it must participate in the redistribution of the economy’s newly created value. There is a manageable difficulty in idea procurement and this is because education always plays the “middle-phase product” role and monetary expression of the output created is not easily defined. Therefore, the assessment of its real value, as well as the allocation of related resources from the Gross Domestic Product, stem from the decisions of competent authority-holders of educational policies.

In the process of formation of education policy, special attention is given to quantification of size and impact of relevant, system defining elements at the micro level. Those elements tend to be influential, accountable and relevant indicators of a system’s endogenous and exogenous factors and instrumental elements of its inputs.

Direct control or manageability of endogenous factors is disabled by the fact that they are acting and are formed outside the system. In order to mitigate their negative impacts on educational achievements, it is crucial to establish and implement a holistic system policy based on the conclusions derived from considerations and analyses of their operating trends.

The exceptional significance of exogenous factors, in turn, is highlighted by the direct (running) jurisdiction of educational policymakers on top of most of them. Setting up a basic scientific question from the aspect of effectiveness, what makes education policy implementation inside one country more effective when compared to another, if both of them have a similar system setup
and their funding is almost the same? Is it the influence of factors grouped by specific attributes at the country level, or are those groups formed at the lower levels—city, schools and/or students? This seems to be an extremely important factor to consider from the aspect of joint investment in improvement of the system.

Many studies have been conducted in order to form a relevant answer to the question above, but none of them takes a holistic view. That’s firstly because they use differently defined set of data, in different time periods, including varying elements.

2.1. Negative Impact of Exogenous Factors on the Education System

In the last decade, observation of the negative influence of various factors on the education system and their mutual interaction attracted the special attention of scientists all over the world. Subjects of major interest are dropout rates (in EU referred to as early leavers from the education system), correlation between school absenteeism and overall education outcomes. This makes the whole concept of “Equality of Educational Opportunity” questionable, including the role that the government and private sectors should play in reaching the goal.

2.1.1. Dropout Rates

Since the dropout rates have been on a rising trend over the past decade in a significant number of elementary and high schools, this problem has been placed as the focal point of the future challenges of international education policy consideration. While some countries such as the United States and Canada have found and have successfully implemented dropout rate reduction policies, a significant number of countries over the last five years, including Romania, have not been productive yet. According to Eurostat data, every year, nearly 6 million pupils (in EU countries) leave the school for unknown reasons, which makes almost 14% of the entire population. That is the leading reason for listing the 10% dropout rate as the goal of the strategic development plan made for the period up to 2020.

Looking at the dropout rates in schools of Republic of Croatia, it is evident that they are very low, around 4%. But on the other hand, comparing their levels in 2008 and 2013, the increasing trend is evident, above the limit prescribed by the 2020 strategic development EU plan. The Eurostat database contains a note that states that the interpretation of the data for Croatia requires caution, because the data was collected using a methodology significantly different than those used among other Member countries. New methodological plans in Croatia has not been realized yet.1

2.1.2. School Absenteeism

Another important negative and significant aspect of the educational system is represented by rising rates of school absenteeism. The correlation between school absenteeism rates and poor educational achievements is strong and positive. There are many ways scientists tend to explain the phenomenon, but very few of them offer some solution. Research has outlined that the highest measured absenteeism frequencies are those of the first year of high school pupils2, while the absenteeism rates continuously grow through the schooling period till the last grade, but slowly3. One other important reason for students to skip classes can be found in the school environment, often significantly associated with fear of school, feelings of incompetence, dissatisfaction with choice of school program and the perception of inappropriate teacher behavior4.

Without ignoring the school or the reality of the current education system, it is necessary to identify exogenous factors and understand the role they play in the problem expansion process because the loss is multiplied and felt by parents, schools, pupils and society. Poorly educated people limit economies’ capacity to produce, grow and innovate. Failure in school damages social cohesion and mobility, and imposes additional costs on public budgets to deal with the consequences of higher spending on public health and social support and greater criminality, among others.

2.2. Identification of Influential Exogenous Factors

As Adam Smith already outlined, there is something naïve about the mere usage and consideration of correlation of education budget, its supply and demand, with educational achievements, school absenteeism and/or dropout rates, since correlation is not necessarily causality (Rumberger and Lamb, 2003; Business Council of Australia, 2002)5.

In this context, it is possible to set a hypothesis that pupils dropping out of the educational system or having a low educational achievement have not been recognized as part of bigger social issue, but as individuals with family issues, implying that weak economic, cultural or educational family attributes create bad circumstances for growth and education of the pupil (Coleman, J.C.
1988; Coleman. 1966; Ma Wilkins, 2009; Rubin Balow, 1979; Sutton Soderstorm, 2001; White, 1982, Sirin, 2005). Background data used as affirmation rely on the fact that those families are often socially marginalized, and their problems do not become the subject of wider public interest.

2.2.1. Socio-economic Factors that Affect the Characteristics of the Education System

Numerous studies looking into the source of distinction between schools have generated a conclusion suggesting that the backbone to educational achievement arises from family, socio-economic backgrounds, thereby forming different atmosphere in different schools. Since the families with stronger background enjoy better reputation, they have support of the local community, contact with enhanced professors, professors with higher ethics, improved cooperation with teacher and an environment surrounded by minor disciplinary problems, a higher level of competence and cooperation among pupils, and schools with better atmosphere directly affecting chances for educational achievement and success.6

However, such interpretation of a strong correlation requires more and more explanations of causality today, since worse educational outcomes, such as the decision to quit schooling, may be influenced by exogenous factors of school environment, or even be produced directly by failure of the system, and not exclusively by the factors inherent to population of individuals who have dropped schooling.7

Dropping out of school, as the phrase suggests, is a process. It cannot be observed as a separate moment or event in which the pupil drops out of school, because it comes as the result of overall dynamics of the development of aggravating circumstances, composed of unfavorable factors on pupils at the personal, social and institutional levels. More importantly, the constant growth of absenteeism rates, which have been attributed to lower educational achievements, initiates “significant impulse” that helps develop the trend.

2.2.2. School Factors that Affect the Characteristics of the Education System

In the analysis of educational achievements, an important place is occupied by school attributes. As third of the four most important social institutions—State (national economy), family, school and church—it has a significant impact on the formation of “Equality of Educational Opportunities” and overall social inclusion.

Table 1. List of Influencing Factors

<table>
<thead>
<tr>
<th>School Type (including the pupil group composition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If pupils are selective and independent with a high ability to execute tasks and overbear difficulties, the dropout rate is low.</td>
</tr>
<tr>
<td>Scientific contribution was made by: Okpala et al. (2001), Balfanz and Legters (2005), Smith and Naylor (2005), Dustmann and van Soeast (2008), Dalton et. al. (2009)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher the pupil to teacher ratio and more pupils in class, the higher the risk of dropping out.</td>
</tr>
<tr>
<td>Scientific contribution was made by: Pittman (1993), Balfanz and Legters (2005), Rumberger (2004a)</td>
</tr>
<tr>
<td>No effect independent of, for example, teaching practice and pupils’ age</td>
</tr>
<tr>
<td>Scientific contribution was made by: Smeyers (2006)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School Politics and Practice</th>
</tr>
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<tbody>
<tr>
<td>The experience of teachers, expectations, support and the quality of class teaching: the higher they are, the lower the risk of students giving up/dropping out</td>
</tr>
<tr>
<td>Scientific contribution was made by: Finn (1989), Adams and Becker (1990), Herbert and Reis (1999), Blue and Cook (2004), Dalton and Ostali (2009)</td>
</tr>
<tr>
<td>School social capital: if it is positive and has a strong cohesion, the risk of students giving up/dropping out is low.</td>
</tr>
</tbody>
</table>

Source: composed by author, based on literature reviewed and read

According to push-out theorists, students’ individual attributes do not completely account for the decision to leave school. Instead, a combination of individual and school attributes influences them to leave.

2.2.3. Effects that Arise from Pupils’ Nationality

In Europe, the year 2015 will arguably be remembered as the year of the ‘refugee crisis’ when more than 1 million people (100,000 children) entered the European Union (EU) in search of safety and a better life. And it was only the beginning. An estimated 362,000 refugees and migrants risked their lives crossing the Mediterranean Sea in 2016 and over 105,000 in the first half of 2017. The first consequences of the “shock” started to manifest and change the social environment. The EU started to analyze and anticipate the consequences. Historical case studies are being revisited in order to find appropriate answers and to avoid unnecessary problems.
Substantial and continuous influx of refugees and asylum-seekers is likely to increase the number of students with migrant background in European classrooms, at least in the short to medium term. A necessary consequence of the growing student body, in the long term, will be high pressure on the education system (mostly because it requires investment of additional efforts in the teaching process, requiring the teaching of new foreign languages). In addition, the educational achievements of students with an immigrant background tend to be lower than those of native students in most OECD countries and the difference in some countries became equivalent to 1.5 years of schooling. At the same time, the immigration crisis has offered a number of significant opportunities to European higher education since it has increased diversity and created a new opportunity to achieve higher rates of inclusiveness, creativity and openness.

The results of the previous surveys (such as the European Social Survey/ESS/and Citizenship, Involvement, Democracy/CID/) show that in most countries a substantial number of respondents consider their ideal neighborhood as one that does not have residents who are ethnic minorities. Multilevel regression analysis performed by Moshe Semyonov, Anya Glikman and Maria Krysan on resulting data, reveals that preference for place of residence as a response to its ethnic composition is significantly affected by both individual-level and country-level characteristics. At the individual level, preference for ethnically homogeneous residence tends to be more pronounced among socioeconomically weak and vulnerable populations, conservative populations, and individuals who reside in communities without ethnic minorities. The country-level analysis demonstrates that preference to live in neighborhoods without ethnic minorities tends to increase with the relative size of the non-European ethnic population and to decrease with economic prosperity. Impact of such attitudes, especially in European countries (EU states), results in the perception that immigration is a threat to national integrity and economic development. Immigrants tend to get credited for the subversive role, a negative presentation and get stereotyped (Quillian, 1995; Citrin i dr., 1997; McLaren, 2003; Sniderman, Hagendoorn i Prior, 2004; Sides i Citrin, 2007).

Assimilation of immigrants is a particularly delicate issue when considering the most vulnerable groups—children. Conclusions of scientific papers that have been focused on educational achievements of immigrants and racial minorities report contradictory findings. Studies in the US and Australia especially suggest that being black, Hispanic/Latino or indigenous, rather than Caucasian, increases the likelihood that one leaves education early. On the other hand, in this context it has been suggested that hailing from the Asian/Pacific descent decreases this probability (e.g., Bynum and Thompson, 1983; Ekstrom et al., 1983; Business Council of Australia, 2003b; Ishitani and Snider, 2006). Over the past few years the gap between white and non-white youths has closed, albeit slowly and rather more among females than males (Kaufman et al., 2004; Dalton et al., 2009; Cataldi et al., 2009). However, other scholars contend that race and/or ethnicity do not have a significant effect which once accounted for factors such as family background and student characteristics (e.g., Rumberger, 1983; Balfanz and Legters, 2004; Plank DeLuca and Estacion, 2005; Entwisle et al., 2004 and 2005; DesJardins et al., 2006).

Of course, a greater concentration of immigrants and racial minorities in certain geographical locations raises the risk of lower educational achievements. Confirmation of such an effect has been established by the scientific research of William Julius Wilson (1987) in the U.S.A. The aim of the study was to investigate the differences between the educational accomplishments of blacks and whites, and the results highlighted the importance of the environment individuals live in. Black people, due to lower educational achievement, have lower disposable income and are living in poorer urban areas (among other things, because of lower apartment rents) which typically show a greater tendency towards criminal activities, high unemployment, low activity rates and consequently enjoy lower quality of life conditions. On the other hand, white people living in heterogeneous surroundings in coexistence with the poor as “members of the lower middle class”, who were richer and lived in pleasant atmosphere, saw better educational outcomes.

Last but not the least, scientific research considers the time elapsed since immigration as a key variable. For example, Brisboll (1999) and Vizcain (2005) conducted research analyzing NELS: 88 data, and the conclusion denied a greater chance of early dropout of pupils who recently immigrated (Hispano-Americans, Latinos) emphasizing a higher chance of early education dropout, surprisingly, for the third generation of immigrants. In contrast, Blue and Cook (2004), Cataldi and others (2009) pointed out that the rates of giving up education are lower and better educational results are achieved by the minority groups of pupils who were born in the U.S. than from those who are of the second generation or beyond.

But in reality, the so-called refugee crisis offers a significant number of opportunities and challenges to the European higher education system. Huge numbers of young people thirsty for higher education and knowledge can significantly boost student numbers in their host countries.

2.2.4. Urban Factors Influencing the Educational System

In the educational system, spatial distribution of educational institutions has become the subject of particular interest. Due to the fact that costs of construction are quite high, decision regarding building of institutions takes into account a number of parameters like the population density, current existence of similar or complementary objects, complexity of basic infrastructure construction work, etc.

Measured by the Legatum Prosperity Index (2015), the Republic of Croatia has been ranked as 41st out of 142 countries of the world, in the indicator that measures the efficiency of the education system through three categories: availability, quality of education and human capital. Only availability can provide the chance for the enhancement of personal potentials and development and finally, for overall social productivity. In addition to the ten new EU Member States, only Bulgaria and Romania have achieved...
a lower index. It is an obvious indicator that a lot can and should be done in order to improve the efficiency and effectiveness of the educational system that should be considered a permanent task in social improvement.

Primary education is guaranteed to each individual by Article 26 of The Universal Declaration of Human Rights (UDHR), which was adopted at the General Assembly of the United Nations back in 1948\textsuperscript{12}. The availability of secondary education is characterized by excluding character, burly by its limited presence within each block of the local units and significant differentiation of high school programs, aiming to form educational specializations within the local units and countries. The direct consequence is higher exposure of pupils’ educational achievements, their absenteeism and dropout rates to the influence of exogenous urban factors. Records of evidence and a defined impact of such factors, with enabled management properties at local governmental level (governor of decentralized function of secondary school system), present the realistic predisposition for affecting the overall educational system and achievement (of economic) efficiency.

Scientific literary opus shows that local units’ blocks or geo-location of residence of pupils’ families, considering the associated potential problems with housing, a lack of playgrounds and green surfaces, either directly or indirectly, have a crucial impact on the educational success of pupils. A poor and unhappy environment stimulates a student into leaving school early\textsuperscript{13}. And just how “degree of urbanity” of local units can be correlated with weaker educational achievements and higher rates of school absenteeism, the entire region in which the pupils live can be associated with higher dropout rates. This was the case, for example, in the South of the USA. In addition, the overall educational attainment according to research is directly related to the “degree of urbanity” of the environment in which the schools are located. These are the findings of scientific research conducted by Aston and McLanahan (1994), Haveman et al. (1991) and Swanson and Schneider (1999), who point out that deterioration of the education system is connected to a higher degree of urbanity of the environment in which the school is located. However, such findings are not unified. On exploring the work of Rumberger and Palardy (2005), we found out that even the correlation of variables was not successfully verified. Then, the results of the quantitative research of McMillana and Marx (2003) demonstrate that educational achievements of pupils in rural areas tend to be significantly weaker.

All these factors together lead to the conclusion that specific surroundings produce specific results. The influence of urban factors on educational attainment (absence, dropout rates) is summarized and shown below:

\textit{Figure 2. Deterministic influence of urban factors on educational attainment and pupils’ achievements}

\begin{center}
\begin{tikzpicture}
\node [circle,fill=blue!30,draw, minimum size=2cm] (A) at (0,0) {Transport};
\node [circle,fill=blue!30,draw, minimum size=2cm] (B) at (4,0) {Urban factors};
\node [circle,fill=blue!30,draw, minimum size=2cm] (C) at (8,0) {Infrastructure};
\draw [->, >=latex] (A) -- (B);
\draw [->, >=latex] (B) -- (C);
\end{tikzpicture}
\end{center}

\textbf{Source:} Author’s own. Data from the U.S. National Center for Education Statistics (NCES)

The influence is determined as follows:

\begin{itemize}
\item When considering the importance of transport infrastructure, first of all, it is important to emphasize that the efficient organization of public transport networks is under the direct jurisdiction of the gravitational part of the local community. Special attention is required and needed for persons with disabilities, who represent over 12\% of the total population of the Croatian society.
\item Physical infrastructure investments, in turn, are mostly related to coverage of construction costs and maintenance of infrastructure facilities. Such investments contribute to desirable local units’ living conditions, attracting existing enterprises and encouraging establishment of new enterprises on their territory. Also, they make a contribution to raise the potential of market land value and improve the overall quality of life in local areas. Effects of that influence manifest through lower emigration numbers, low dropout rates and enhanced development perspective for community. Areas considered as infrastructurally inferior tend to have a higher risk of poverty and social exclusion (i.e., which necessarily links rising dropout rates and/or lower educational achievements).
\end{itemize}

\subsection*{2.3. Imposed Conclusions on Exogenous Factors}

The landscape of education is changing day by day. But some problems seem to be persistent or even getting worse over time. These concern the “Equality of Educational Opportunities”, combined with overall “Equality of Life Chances”. It is widely accepted that educational opportunities for children ought to be equal, and the fundamental significance of educational opportunity to many important social issues today caught the interest of the wide scientific community as well as governments all over the world, trying to devise a good, inclusive, available quality education system. Social scientific advances in recent years have clarified our understanding of the mechanisms behind children’s unequal access to educational opportunities, and the consequences of those inequalities for social mobility (e.g., Chetty et al. 2014; Duncan & Murnane 2011). This knowledge enables policymakers to target interventions and change the approach of system systematization.
As it can be seen, most of the problems with school attainment and overall educational achievements are being born in materially deprived surroundings. Since education is the most effective tool to fight the poverty and social exclusion, there comes the problem of causality. In such surroundings, education attainment rates are lower, final educational achievements are worse, individuals are weaker to fight poverty and continue to develop deprived surroundings.

So, taking into consideration the elements outside the system—urban factors, such as transportation routes, number of active enterprises, social infrastructure concentration, and those defining the “degree of urbanity”, it all comes down to availability. Shorter “to school” distance, higher number of school peers, higher number of business enterprises (related to greater chances to work and earn), better equipped schools, it can be seen that healthier surroundings produce better school outcomes.

3. Policy Recommendations
Since the main obligation of the government is to provide equal chances for each and every citizen, even though there’s no simple or unique solution, there are some measures that should be taken into account.

1. For starters, considering the availability, social services should be equally distributed among the citizens. There are several ways to make education system more (fairly) available to the children—ensured free settlement in high school dormitories, empowered usage of e-learning systems and ensured smarter transportation roots.

High school dormitories help to optimize school institutions distribution. Local units with lower school population density can be grouped and centered on one campus/dormitory, should build and develop stronger pupil culture, create a safe community for high school pupils, providing the structure necessary for higher achievement. Such measures generally reduce costs, and produce better outcomes.

Considering the measures of improvement of the educational system, as any other social policy system, it is important for the government to maintain a close watch on non-school fees payments by parents that have the potential to increase the unsustainable levels of availability by most households, especially in rural areas.

Then there are e-learning programs, affecting the quality of education in many ways. E-learning, considered to be a novel way of learning, encompasses all learning and teaching ways backed by technology (Leybold, Nolting, and Tavangaran, 2004) and includes all definitions related to increasing the availability of sources, flexibility of the learner, and the expansion of skills as well (Lowenthal, Willson, and Parrish, 2009). It rises above the infrastructure availability, increasing the potential to share knowledge fast and easy and to skip the socio-economic, gender, culture, language and other “background” differences among pupils.

Then there are transportation issues. Children traveling to school tend to have less time to study, do not participate in extracurricular activities and focus predominantly on academics, and finally tend to avoid the school and have lower achievements. Therefore, planning the transportation from home to school should be considered at an aggregate level. Sometimes, the cost of transport subventions is higher than the construction of new schools or dormitory buildings, and governments must be able to provide the best solution for each and every child, since the cost of uneducated citizens imposes multiple developing restrictions and costs derivations in the long term.

2. Policies and programs concerning adult education should be encouraged and rolled out by governments in each part of the country. The importance of adult education is envisaged to aid in enhancing attitudinal change among illiterate and ignorant parents in favor of child education.

3. Consider the curriculum quality. A more innovative, authentic and intellectually stimulating curriculum for students in situations of risk is needed. Analysis of successful schools and programs shows that smaller schools can easily target and recognize pupils at a risk of dropout and give special attention to them, while, as Lamborn et al. (1992) emphasize in their work, there is clear evidence that participation in after-school activities encourages pupils to remain engaged no matter what the school size. Perhaps, a way to encourage the engagement of young individuals in high school is to provide them with different alternatives and let them choose part of their educational process. Concentrating on the “core” rather than “all” subjects of curriculum may reduce the feeling of incompetence or lack of interest and additionally make it possible for schools to innovate, and/or meet the community’s special demands.

But, because of the complexity, this is a topic that needs to be discussed further.

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Notes
2. EconStats (2016.) GDP per capita [online]. World Economic Outlook (WEO) data, IMF. http://www.econstats.com/weo/CKOR.htm
Section 4: Where to Begin: Change Needed at the Primary Level

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186. Zakon o financiranju jedinica lokalne i područne (regionalne) samouprave, NN, 87/08, 86/09, 92/10, 105/10, 90/11, 5/12, 16/12, 86/12, 126/12, 94/13, 152/14.
187. Zakon o odgoju i obrazovanju u osnovnoj i srednjoj školi (NN 87/08, 86/09, 92/10, 105/10, 90/11, 5/12, 16/12, 86/12, 126/12, 94/13, 152/14).
188. Zakon o odgoju i obrazovanju u osnovnoj i srednjoj školi (NN 87/08, 86/09, 92/10, 105/10, 90/11, 5/12, 16/12, 86/12, 126/12, 94/13, 152/14).