Socioeconomic and cultural factors of low sholastic achievement of roma children

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SOCIOECONOMIC AND CULTURAL FACTORS OF LOW SHOLASTIC ACHIEVEMENT OF ROMA CHILDREN[1]

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This study investigated environmental influences on scholastic achievement of first-grade elementary school students. A total of 149 (average age 81 months) first-grade children were classified in three groups. The first group comprised of 52 Roma children. Two other groups consisted of 48 non-Roma children classified as children belonging to an average socioeconomic status (SES) group and 49 non-Roma children classified as children belonging to a below-average SES group. All 52 Roma children belonged to a below-average SES group. Children's intellectual abilities were assessed by Test of School Maturity; their scholastic achievement was assessed by teachers, while data on SES and family's educational climate were obtained through a semi structured interview with their parents. Intellectual abilities – strongly influenced by family's SES and family's educational climate – were most predictive of scholastic achievement. Our structural model suggests that family's educational climate, defined by unfavorable educational stimulation and low parents' ambition concerning education of their children, moderates effects of low SES on inferior scholastic achievement. This model may be especially relevant for Roma children, since Roma children are most affected by the lack of adequate educational climate within their families.

__Key words__: Roma children, socioeconomic status, intelligence, scholastic achievement

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Academic failure of Roma children has been a matter of dispute for number of years (Ginsburg, 1986; McLeod & Nonnemaker, 2000; Biro et al., 2006). Qualitative studies point at numerous problems encountered by Roma throughout their education (Kresoja, 2007). Some of these problems are a direct consequence of poverty and other unfavorable socioeconomic conditions. Another related set of problems stems from inability of uneducated and often illiterate Roma parents to buttress academic efforts of their children. In addition, research has also identified problems that were caused by low motivation of Roma students and lack of appreciation for education on behalf of their parents. Consequently, Roma children are prone to quit school and look for work.

Data on education level of Serbian Roma are disheartening (Ćuk, 2009). Approximately 80% of Roma living in Serbia are illiterate or functionally illiterate. Only 28% of Roma in Serbia have completed elementary education, only 8% have finished high school, and only 0.3% has graduated college or university. Currently, fewer than 20% of Roma children aged 7-15 are enrolled in Serbian elementary schools and fewer than 10% of Roma children attend kindergarten. In addition, recent data clearly indicate that Roma children are overrepresented in Serbian schools for special education (Stojanović & Baucal, 2007; Kočić-Rakočević & Miljević, 2003).

Why do Roma children fail at school?

The data can be approached from two opposing interpretation perspectives. The first interpretation perspective is undoubtedly based on presumed racial differences between Roma and non-Roma population, claiming that *inferior* and intellectually *deficient* functioning of Roma children is responsible for their failure. This nativistic explanation of wide discrepancy between academic achievement of children from lower economic strata and their respective peers states that this gap is best explained by genetic factors causing specific cognitive deficits in the affected children (Jensen, 1969; Herrnstein & Murray, 1994). Adherence to this point of view has some obviously harmful practical implications. For one thing, poverty-stricken children will almost automatically be funneled to special education programs, thus irreversibly directing their education towards minimization of their cognitive potentials (Bracken, 2004). Another destructive implication of this nativistic approach claims that early intervention programs aimed at improvement of poverty stricken children are useless waste of time and money (Herrnstein & Murray, 1994).

The second, and currently predominant, interpretation perspective integrates contemporary understanding of human intelligence and interaction of genetic and environmental factors that are responsible for cognitive development. This approach insists on *specificity* and *diversity* in manifestation of intelligence in children from educationally- and socially-deprived groups (Ginsburg, 1986). According to this view, poverty-stricken children are not intellectually inferior; their observed 'cognitive deficit' is an artifact resulting from use of psychometric instruments that are inadequate for assessment of their intellectual capacities. Those instruments often overlook the importance of context and other general environmental effects (such as school, culture and interpersonal interactions) for development and

manifestation of intelligent behavior (Ceci, 1990; Smith et al., 1997; Gardner et al., 1999; Bradley & Corwyn, 2002).

Over the last few years, there has been a clear sway of focus in research aimed at discerning the relative contributions of genetic end environmental for intellectual development. Currently, researchers are investing more effort to identify specific environmental factors shaping cognitive development and are less interested in figuring the exact proportion of contribution that can be ascribed either to genetic or environmental factors. A practical consequence of this approach becomes visible in prioritization of pre-school programs for poverty-stricken children (Sawhill, 2006) and advance of early intervention strategies for enhancement of children's cognitive development (Ramey & Ramey, 1998).

Attempts to precisely define relative contribution of genetic and environmental factors (expressed in terms of proportion of the explained variance) rest on the rather naïve assumption that this nature vs. nurture relationship is permanent and not subject to change. Outcomes of numerous studies indicate that relative contribution of genetic and environmental factors is age-dependant; it is not the same in children and in the adults (Plomin et al., 2001). Separating genetic and environmental factors is an unnatural exercise: gene expression is environment-dependant. Our genetic potential is materialized through a sequence of interactions with our physical, social and symbolic environments (Bronfenbrenner & Ceci, 1994). Obvious differences in the upbringing, parenting styles, quality of stimulation etc. all affect realization of our inborn intellectual capacities. On the other hand, environment of the developing child is in turn, and to a degree, determined by child's genetic predispositions since it is created and modified by child's genetic predispositions. For instance, a child may take a keen interest in mathematics or music because of its innate inclinations towards either of them. Of course, an exceptionally rich or poor environment can readily interfere with full realization of child's intelligence, independently from its genetic potentials (Sternberg & Grigorenko, 1997). Even the most desirable genetic potentials will be wasted without an adequate support from the environment.

Consequently, even if the intelligence was confirmed to be 100% genetically transmitted it still would not imply that it could not be modified by the environment (Anastazi & Urbina, 1997; Wahlsten, 1997). Futility of endeavor to establish the exact proportion of genetic control of intelligence is best demonstrated by the statement pointing that this fact alone does not say anything about educational, fostering and medical interventions aimed at enhancing intelligence.

Poverty and cognitive development

Poverty is an environmental factor highly predictive of intellectual impairment and academic failure. Relative to their peers, poverty-stricken children constantly underperform on intelligence tests and in academic achievement, by at least one standard deviation (Burchinal et al., 1997). Given that substantial parts of Roma population live in

extreme chronic poverty, it is worth noting that effects of chronic poverty on children's cognitive development were found to be far more debilitating than the effects of transient poverty (Duncan & Brooks-Gunn, 1997; McLeod & Nonnemaker, 2000). Also, it is well known that growing up in extreme poverty is almost invariably associated with poorest grades and lowest IQ scores (Smith et al., 1997).

Poverty is accompanied with a series of physical and psychosocial characteristics exerting negative influence on cognitive development. Wanting household and family surroundings of poverty-stricken children (characterized by meager living conditions and inadequate parent-child interactions) is the leading mechanism explaining the intimate connection between poverty and impaired cognitive development (Duncan & Brooks-Gunn, 2000).

Children growing in poverty receive little cognitive stimulation (Evans, 2004) and/or parents' help in mastering of basic intellectual skills (Duncan et al., 1994; Smith et al., 1997). In addition, they are deprived of objects and activities that stimulate intellectual growth, such as toys, books, computers and visits to museums, theatres and libraries (Bradley et al., 2001).

Contemporary cognitive neuroscience - using behavioral, electrophysiological and neuroimaging methods - has provided some exciting evidence by characterizing effects of SES and poverty on development of brain structures underlying intellectual functioning (Hackman & Farah, 2009). Children from families with low SES underperform in neurocognitive performance, particularly of language and executive function (Farah et al., 2005). These data indicate at the neural mechanism by which SES exerts its influence on brain development. Language development is most affected by cognitive stimulation (toys, books, coloring), while memory is most affected by socio-emotional wellbeing of a child (Farah et al., 2006).

Family environment and cognitive achievement

Family context is the single most influential environmental factor affecting child's intellectual development during the first few years of its life. Numerous studies have demonstrated that different aspects of family environment (SES, parent education, parenting and parent-child interaction, the overall quality of relationships among family members etc.) are all contributing to child's cognitive development and academic success (Bradley, 1993; Bradley et al., 1993; Espy et al., 2001).

Parents' own education has a major effect on many parenting behaviors that can be related with education and academic achievements of their children (Englud et al., 2004). Parents' education is a significant predictor of parents' involvement (Keith et al., 1998; Shumow and Miller, 2001), and their expectations (Gill and Reynolds, 1999; Singh et al., 1995). Highly educated parents have higher levels of expectation regarding academic achievement of their children. They are also more involved in education of their children. Research suggests that active and supportive parenting behaviors are especially important for academic achievement of their

children during the first few years of formal education (Englud et al., 2004). Mothers, who create stimulating conditions, enabling novel perceptive experiences with symbols and objects, permanently enhance cognitive development of their children (Ramey & Ramey, 1998). This beneficial effect of specific influences from family environment on cognitive development is best illustrated by the finding that reading aloud to your children is one of the most important factors contributing to development of reading skills. In addition, it was demonstrated that parent-child joint reading activities significantly enhance spelling and word- and sentence comprehension (Rashid et al., 2005).

The quality of parent-child interaction is another factor central to development of intellectual abilities. Longitudinal study by Hess and McDevitt (1984, cf. Perkins, 1992) has demonstrated significance of mother-child relationship on child's cognitive efficacy. Children of mothers who spend more time talking to them, help them understand the nature of various natural phenomena, direct their attention to important aspects of cognitive problems confronting them and encourage them to solve those problems achieve higher IQ scores and do better at school relative to their peers whose mothers do not demonstrate such parenting behaviors. This study has shown that unstimulating conditions for cognitive development are mostly created by mothers from low socioeconomic strata.

This is in line with findings from a recent Brazilian study indicating that qualitative of cognitive stimulation (e.g. access to age-appropriate toys) is one of the most formative factors of cognitive development (Andrade et al., 2005). Most importantly, quality of cognitive stimulation was more adequate in families consisting of better educated working mothers and a father who is also involved in parenting activities (Andrade et al., 2005).

Primary objective of this study was to examine the effect of environmental factors on academic achievement of Roma and non-Roma children. Discerning of environmental factors that affect cognitive efficiency has clear practical implications since it is used as a guideline for design of intervention strategies aimed at improvement of intellectual abilities of children who are growing in poverty-stricken, educationally- and socially deprived environment.

METHOD

Sample

A total of 149 children (72 boys and 77 girls aged 74-90 months, mean age of 81 months) were recruited from three towns and three villages from the Vojvodina region of Serbia. The sample was divided in three groups. The first group comprised of 52 Roma children. Two other groups consisted of 48 non-Roma children classified as children belonging to an average SES group and 49 non-Roma children

classified as belonging to a below-average SES group. A child was classified as belonging to a below-average SES group if his/her family met two of the following three criteria: inadequate housing conditions, recipients of social welfare and monthly income not exceeding 50 Euros per member of household. All 52 Roma children belonged to a below-average SES group.

Research variables and instruments

Test of School Maturity (TSM; Novović, Biro, Baucal, & Tovilović, 2008) is a psychometric instrument for assessing child's intellectual development and its readiness to enroll to elementary school. A special effort was invested in design of TSM in order to facilitate its use with educationally-deprived children. TSM comprises of five subscales. The first subscale, ***Information*** assesses practical knowledge and social skills. The second subscale ***Visual Memory***, measures memory and attention. The third, ***Block Design***, is similar to Kohs' test in assessment of visual-motor coordination, perceptual organization and planning. The fourth subscale, ***Coding***, evaluates visual-motor coordination, episodic learning and mental focusing. The fifth, ***Vocabulary***, is a test of linguistic competence.

Family assessment questionnaire was designed for this study in order to assess family's SES, parents' education and family's educational climate. Categorical data obtained from this questionnaire were subjected to homogeneity analysis (HOMALS) extracting four relevant dimensions: ***Parents' education*** (information about parents' formal training and occupation); ***Family size*** (number of family members and number of children in the family)*; **Financial status*** (housing conditions, reception of social assistance and the average income per family member); and ***Stimulation*** (information on educational climate within the family, whether the child has access to proper writing/drawing devices; does it possess books and a computer and whether the child has been exposed to stimulating toys during its intellectual development).

Parents' questionnaire consisted of a 13-question semi standardized interview. The questions were aimed at parents' attitude towards education, their ambitions, their values, etc. Homogeneity analysis yielded one dimension, ***Parents' ambition***, encompassing information on parents' towards education of their children, their appreciation of schooling and what level of education do they expect from their children.

Teachers' questionnaire comprised of 18 questions assessing child's ***scholastic achievement***, based on grades (1-5) for mathematical and literal achievements, as well as ***adjustment to school environment and school expectations*** (attention during the lesson, fulfilling the tasks like doing the homework, etc.).

Procedure

The study was conducted in two consecutive phases. In Phase 1 (April - May 2008) school psychologists collected the data during the regular elementary school enrollment procedure (*Family assessment questionnaire, Parents' questionnaire, TSM*). In Phase 2 (February 2009) following the end of the first semester, the teachers provided information on children's scholastic achievement (*Teachers' questionnaire)*.

Statistical Analysis

Structural equation modeling was used to assess the hypothesized model, including (a) the overall fit of the model, (b) the amount of variability (R^2) of the latent mediating variables and outcome variables accounted for by the predictive variables in the model, and (c) the significance of the direct and indirect structural paths between predictor variables and outcome variables. The goodness-of-fit index (GFI) and the root-mean-square error of approximation (RMSEA) were used to evaluate the overall fit of the model. The goodness-of- fit index assesses the magnitude of discrepancy between the sample and model covariance matrices. The RMSEA assesses absolute fit, taking into account the degrees of freedom in the model. The data analysis was conducted using SEPATH module (StatSoft, 2007).

RESULTS

Differences between groups

Table 1. Results (means and standard deviations) on Test of School Maturity for Roma and non-Roma children

	Roma children	non-Roma children with low SES	non-Roma children with average SES	F	p
Information	7.63 (1.79)	8.57 (1.32)	8.98 (0.99)	11.86	0.001
Memory	5.88 (1.98)	8.00 (2.18)	8.40 (2.11)	21.17	0.001
Block Design	5.71 (3.65)	9.86 (3.16)	9.96 (3.61)	24.58	0.001
Coding	7.35 (3.46)	9.71 (3.12)	10.23 (3.37)	10.84	0.001
Vocabulary	9.15 (2.21)	10.31 (1.16)	10.58 (0.79)	12.38	0.001
TSM total score	35.73 (9.30)	46.45 (6.69)	48.15 (8.14)	34.65	0.001

Table 2. Teachers' assessment of scholastic achievements (means and standard deviations) of Roma and non-Roma children

	Roma children	Non-Roma children with low SES	Non-Roma children with average SES	F	p
Academic achievement (grades)	27.06 (8.08)	35.12 (7.26)	38.44 (5.89)	33.350	0.001
Adjustment to school	10.84 (2.75)	12.20 (2.13)	13.35 (1.88)	14.866	0.001

Table 3. Average scores on HOMALS dimensions (means and standard deviations) of Roma and non-Roma children

	Roma children	Non-Roma children with low SES	Non-Roma children with average SES	F	p
Parent's education	-0.81 (0.85)	0.09 (0.72)	0.79 (0.69)	55.681	0.001
Family size	0.40 (1.10)	0.18 (0.96)	-0.52 (0.68)	12.335	0.001
Financial Status	-0.51 (1.14)	-0.33 (0.63)	0.86 (0.50)	39.808	0.001
Stimulation	-0.47 (1.07)	0.17 (1.01)	0.57 (0.58)	16.282	0.001
Parent's ambition	-0.70 (1.14)	0.34 (0.74)	0.51 (0.58)	27.599	0.001

Roma children performed poorly on both TSM tasks (Table 1) and on assessment of their scholastic achievement (Table 2) relative to their non-Roma peers. This was evidenced as statistically significant main effect (ANOVA) of group on all 8 dependent variables. The *post hoc* analysis (Schefee test) revealed statistically significant contrasts at $\alpha = 0.001$ for all comparisons of Roma and non-Roma groups, while there were no statistically significant differences between the two non-Roma groups on any of the TSM subscales. However, a marginal statistical difference between the two non-Roma groups in academic achievement ($p = 0.078$) and the adjustments to school expectations ($p = 0.051$) were observed.

Table 3 shows statistically significant main effect (ANOVA) of group on all HOMALS dimensions, as well. However, Schefee's *post hoc* test showed no statistically significant differences between Roma children and non-Roma group with low SES for HOMALS dimension *size of the family* ($p = 0.219$), and no statistically significant differences for *financial status* ($p = 0.561$). At the same time, no statistically significant differences were found between the two groups of non-Roma children for HOMALS dimensions *parent's ambition* ($p = 0.323$) and for *stimulation* ($p = 0.089$). That is, regardless of the fact that both the Roma and the non-Roma group with low SES were similar with respect to their financial situation and family size, the group of non-Roma children with low SES was exposed to an adequate educationally stimulating atmosphere and had more ambitious parents concerning further education of their children.

Structural model

Structural equation modeling was used in order to further investigate complex relationships among academic achievements, intellectual abilities, SES and family's educational climate. The initial assumption of our confirmatory analysis stipulates that SES and family's educational climate may indirectly affect scholastic achievement through their direct effect on assessment of intellectual development.

Our model specification involved three latent variables affecting the assessment of child's school achievements. The first latent variable was ***social status*** saturated by HOMALS dimensions: parents' education, family size and family's financial status. The second latent dimension was saturated by HOMALS dimensions: stimulation and parents' ambition and was named ***educational climate***. The third latent dimension was ***assessment of intellectual abilities*** comprised by the TSM data. The criterion variable – ***assessment of scholastic achievements*** was based on academic achievement (grades), and the assessment of child's social adjustment to school environment and school expectations.

Table 4. Indices of fit of the Model

Chi-square	Df	p	GFI	RMSEA	RMSSR
40.905	37	0.303	0.954	0.027	0.064

GFI = the goodness-of-fit index; adequate value above 0.90; liberal value above 0.85.
RMSEA = root mean squared error of approximation; adequate value below 0.10.
RMSSR = root mean squared standardized residual; adequate value below 0.08.

The Model was in agreement with our initial assumptions. There was no significant difference between hypothesized and empirically obtained model (Table 4). The relations among variables are presented in Figure 1.

Assessment of scholastic achievements was dominantly influenced by the TSM score (r = 0.74). Scholastic achievements primarily saturated academic achievement (grades, r = 0.80) and moderately saturated adjustments to school expectations (r = 0.54).

Latent dimension *assessment of intellectual abilities* saturated Information subscale (r = 0.73), Block design (r = 0.82), Coding (r = 0.66) and Memory (r = 0.64), and to a lesser degree Vocabulary (r = 0.52). Intellectual development was greatly affected by environmental factors, here operationalized as latent dimensions *social status* (r = 0.53) and *educational climate* (r = 0.73).

Educational climate equally saturated stimulation and parents' ambitions (r = 0.68). Educational climate was highly associated with social status (r = 0.84).

Social status highly saturated parents' education (r = 0.91), while moderately saturating financial status (r = 0.54) and family size (r = -0.53). The effect of social status on family size is negative since families with fewer family members usually have higher SES while families with more family members mostly belong to low or extremely low SES strata.
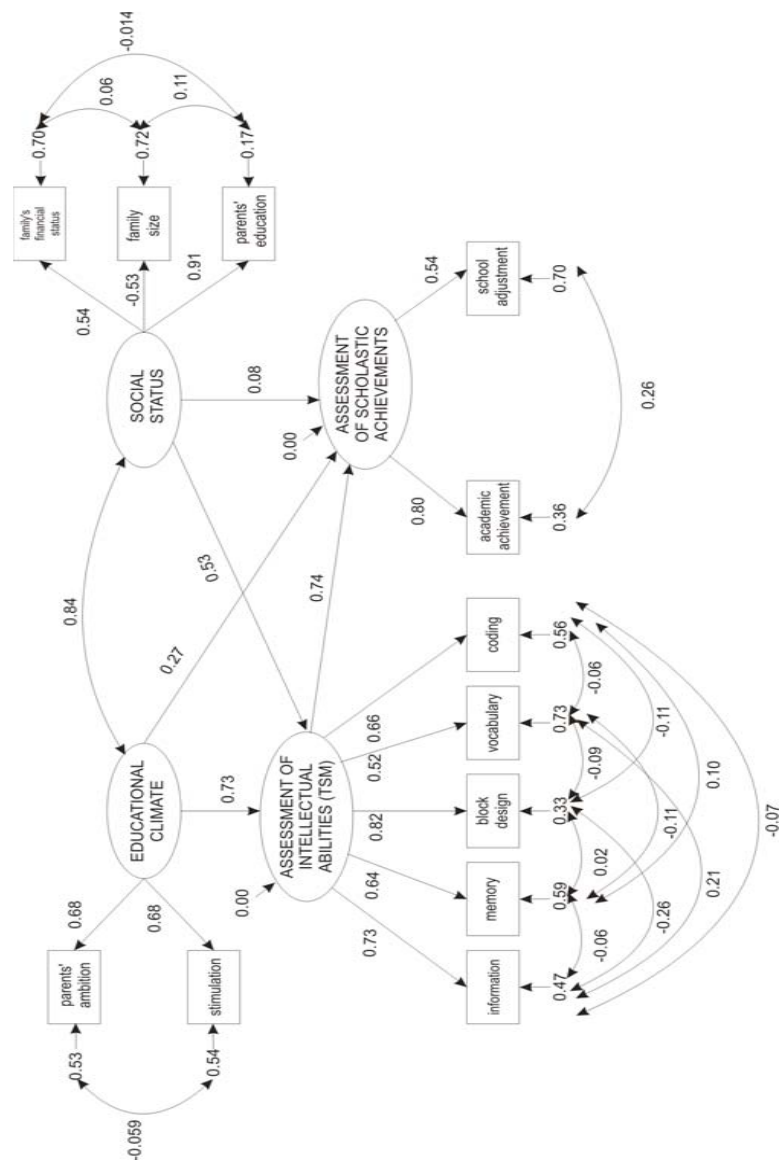
Figure 1. Structural equation model predicting assessment of the scholastic achievement

DISSCUSSION

Understandably, child's score on an IQ test (TSM) is the best predictor of its scholastic achievements; and likewise, this IQ score is closely related to family's SES. Our data also demonstrate that stimulating educational climate is a necessary prerequisite for manifestation of beneficial effect of intelligence on scholastic achievements. Lack of stimulating educational climate was, unfortunately, one of defining characteristics of Roma children from our sample. Recently, it was reported (Save the Children, 2005) that Roma children have very few toys, since procurement of toys occupies a very low position on the list of family priorities, as defined by their parents. The same study also reported that Roma parents have almost no ambitions regarding education of their children. In this study, lack of stimulating family conditions was strongly associated with Roma children. This opens a dilemma: is scholastic failure of Roma children attributable only to SES factors or whether it could also be explained by cultural factors as well?

Of course, before we hurry to a conclusion about cultural hindrances for Roma children, we should keep in mind that direction and strength of associations described in the Model clearly indicates great influence of SES on stimulating educational climate. In other words, it is very difficult to discern whether the unstimulating intellectual climate surrounding Roma children are consequences of specific and unique Roma culture or simply the consequences of extreme poverty. Similarly, is the lack of educational ambitions of their parents consequence of some ethnically specific attitudes or learned helplessness as the result of long term racial discrimination? However, there is no doubt that complexity of environmental factors and their intricate interactions may have especially pronounced effect on Roma families and the wellbeing of their children, since the cumulative effect of negative environmental factors has extremely negative effect on cognitive development (e.g. Evans, 2004). Therefore, cognitive functioning and cognitive efficacy of Roma children should be viewed in a broader context of socioeconomic conditions of their physical and mental development. Unfortunately, these conditions are defined by the worst possible combination of negative influences: poverty + luck of toys and other stimulating objects that are conducive for cognitive development (TV, computer, books) + uneducated parents who are incapable to assist their children in mastering of relevant school-related social and learning skills + racially motivated discrimination extending to the classroom and beyond. Furthermore, positive effects of preschool and school-based intervention programs are significantly less effective if the child is exposed to unstimulating experiences and conditions in its primary setting, the family (Ramey & Blair, 1996). There is no doubt that any promising approach to resolving hindrances of intellectual development of Roma children calls for active involvement of Roma parents, as well; for instance, by fostering more positive attitudes towards education of their children. Enrichment of the physical environment and the improvement of the

overall financial and social conditions surrounding child's cognitive development should be sustained by enhanced parents' aspirations and by promoting the value of education for the future of their children. This seems to be a plausible way out from the wicked circle of poverty, inadequate education and poorly developed intellectual abilities.

Our data have important and direct consequences for future practice of IQ testing of Roma children. Significant saturation of environmental factors depicted in the Model, clearly points that assessment of intellectual abilities of Roma children should always be viewed against the background defined by extremely negative influences of family – and socioeconomic settings. Inferior achievements of Roma children on IQ tests should not *a priori* be classified as a permanent cognitive deficit and mental retardation. Having in mind the environmental context of the developing child, it seems that high IQ scores are a privilege of children from well to do families who are raised by educated and ambitious parents.

Neglect of intellectual climate required for child's mental development may have profoundly negative and enduring consequences throughout her/his education. Research (Baucal, 2006) has shown that teachers have low level of expectations from Roma students, thus additionally minimizing the chance for their academic achievement and additionally restricting their intellectual development. This low level of expectation is fueled not only by negative stereotypes against Roma but also by disregard of the fact that objective obstacles facing Roma children (such as: poor school maturity and learning disabilities) are consequences of their nonstimulating environment and are not the caused by their intellectual inferiority.

Being aware of methodological restraints (absence of group of Roma children from families with higher SES), we can also conclude that our data provide a remarkable support for environmentalistic theories that were discussed in the Introduction. The fact that low SES and poor educational climate have such a profound influence on children's IQ scores and their scholastic achievement strongly supports the conclusion that being Roma is not an *a priori* handicap predisposing for low IQ tests and poor scholastic performance.

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REZIME

EKONOMSKI I KULTURALNI FAKTORI ŠKOLSKOG POTIGNUĆA ROMSKE DECE

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Osnovni cilj ovog istraživanja je bio da se ispita uticaj sredinskih činilaca na školsko postignuće romske i ne-romske dece u prvom razredu. U istraživanju je učestvovalo 149 dece prosečne starosti 81 mesec. Deca su podeljena u tri grupe: prvu grupu sačinjavala su romska deca (52), dok su ne-romska deca podeljena u dve grupe u odnosu na ekonomski status – u grupi sa ispodprosečnim statusom (sličnim romskoj deci) bilo je 49 dece, a u grupi sa prosečnim ekonomskim statusom 48 dece. Procena uspešnosti u školi procenjena je od strane nastavnika putem skale procene, intelektualne sposobnosti dece su procenjivane *Testom zrelosti za školu*, a podaci o socioekonomskom statusu i edukativnoj klimi su dobijeni od roditelja, primenom standardizovanog intervjua. Romska deca su u odnosu na ne-romsku pokazala značajno lošije rezultate i na *TZŠ* i na učiteljskoj proceni školskog postignuća. Što se tiče sredinskih činilaca, romska deca imala su edukativno znatno destimulativnije okruženje i niže roditeljske aspiracije u odnosu na obrazovanje, čak i od ne-romske dece iz porodica sa nižim ekonomskim statusom. Rezultati strukturalnog modeliranja pokazali su da najveći efekat na školsko postignuće dece ima intelektualno postignuće, a na ovo - socijalni status porodice i edukativna stimulacija. Naše istraživanje pokazuje da se, kao moderatorska varijabla, odnosno kao preduslov za testovnu efikasnost i, potom, uspešnost u školi, javljaju stimulativni edukativni uslovi. Implikacije naših rezultata su da u radu sa romskom decom posebnu pažnju treba posvetiti (predškolskim) aktivnostima koje bi doprinosile kognitivnom razvoju, kao i da u cilju podizanja obrazovnog nivoa romske populacije treba raditi na generalnom podizanju njihovih ambicija u odnosu na obrazovanje.

Ključne reči: *romska deca, sredinski činioci, inteligencija, uspeh u školi*