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**EFFECTS OF ACCELERATION ON SCHOOL SUCCESS
AND SOCIO-EMOTIONAL ADAPTATION OF GIFTED STUDENTS**

Introduction

Early enrolment of children in school as a form of acceleration of the gifted is a multidimensional problem of educational practice. Thus, due to the possible multiple implications on society, school, family and an individual, it is now on the pedestal of phenomenological treatment.

Nowadays, parents often turn to professionals with the question of when and whether the early enrolment (earlier than the child reaches the age prescribed for school) of their child is beneficial. Obviously, seeking advice and even help is more intensely expressed in months preceding the children's enrolment in school. Given the recent actuality of the problem, the paper is focused on this issue, and based on theoretical and empirical analyses and their results, as well as some practical dilemmas are explained. Some of them are: a) when the child is ready for early enrolment; b) what the factors influencing early enrolment are; c) whether early enrolment affects children's success and their socio-emotional adaptation; d) what the opinion of school on this matter is; e) how parents feel about this matter; f) and other issues that are directly related to the basic problem. Why is this problem so topical nowadays? The author will state some of the basic assumptions that he believes contribute the fact that the problem of early enrolment of children in school is so topical for both parents, and school and society as well as its effects on the future development of the child.

First, the obvious improvement of schools in terms of space, staff and other components increases the possibility of including children of younger ages. This means that spatial conditions have allowed realizing the premise of school that says that students of younger ages can also be enrolled provided that specific spatial conditions are met.

Second, the increased interest in school acceleration may be justified from a scientific point of view, which is confirmed by research in this area showing that today's children mature faster in every respect, which is a result of improved health, medical, economic, educational, socio-cultural and other conditions of living. In other words, there is an apparent qualitative leap in the overall standard of living in all its aspects. As a result, "if we compare the today's generation of children with the previous generation, the previous one with the generation before and so on, we can see that the pace of physical development of the present generation is faster than the pace of physical development of past generations (Furlan & Kobola, 1971). In this context, we can say that the pace,

level and quality of physical, emotional and social development of today's children is faster than that of the past generation and the generation before. This fact is confirmed by the research of J. W. Tanner and others. This new reality in research gives us an obligation to move towards the implementation of a new concept in understanding the proper age of maturity to be enrolled in school.

Third, the increase in qualitative-educational, socio-cultural and other levels of family structure is one of the conditions for students' success.

Fourth, all of the above findings were perceived by education authorities that have accepted and legalized this opportunity. This means that the decision to enrol children at the age of seven has been softened by regulations allowing children born before the first of September of the specific year also to be enrolled in the first grade, provided that specific room and staff related requirements are met and that their intellectual abilities are proven.

In the last three decades this field of research was intensively investigated both in quantitative and qualitative aspects, and certain empirical arguments are discussed in contemporary world literature, particularly in the research of Reynolds, Birch & Tuseth 1962, Gallagher 1969, Kulik & Kulik 1984, 1992, VanTassel Baske 1986, 1992, Benbow 1991; Southern & Jones 1991, Gross 1992, Kulik 1992, Brown 1993, White 1995; Cronbach 1996; Feldhusen 1996, Gallagher 1996, Johnson & Ryser 1996, Passow 1996, by: Lynne Mackenzie - Sykes, 1999.

The importance of studying this problem can be seen through a three-dimensional context, which provides a satisfactory answer to the following questions: 1) How does the society treat the problem?; 2) How is early enrolment manifested schools?; 3) What is the extent to which individuals are moving at all costs towards an idealized construct of mediocrity?

From social aspect, the significance of studying this field is certainly theoretical and empirical; the results are landmarks showing the direction society should take in terms of early enrolment. For schools, results of this work would certainly lead to a novelty or innovation, related to its specific educational, legal and other procedures. For the family, results of this research are useful as answers to questions like: when is a child mature to be enrolled in school, should it be enrolled earlier than the due time, and so on.

Bearing in mind that talented students in our country are still on the periphery of public interest and without good operational and institutional mechanisms, this research represents one of the initial ideas that, after all, they need our attention. This study and its results will certainly be landmarks indicating where and when changes are necessary, and how to implement them. The basic idea is to change some elements of the rigid legal framework that hinder the practical implementation of this concept. This is probably the basis of deriving the idea of compiling a set of rules that should take into account modern tendencies in this field of research. This investigation offers a clearer picture of longitudinal effects of early enrolment in school, making it one of the first works of this type in this geographic area. In any case, this study opens certain dilemmas related to the effects of early enrolment toward some personality traits of students.

The importance and role of school and the family cannot be ignored or minimized for several reasons. Among the other things, we point out the role of teachers, pedagogues and psychologists who directly or indirectly have access and participate the implementation of this process of educational practice. On the other hand, their profession and position requires taking correct scientific and methodological approach while treating this problem. Research results certainly provide a basis on which teachers, parents and other within and those around the school are able to anticipate, prevent and mitigate any difficulties occurring as a result of treating this problem in an inadequate manner. The importance of early enrolment of children will be further operationalized through the three-dimensional unity of social, institutional and individual functions.

In the upbringing and educational practice there is an apparent need for theoretical redefinition of concept of maturity, whereby it is necessary to operationalize all influential aspects of maturity into a process of early school enrolment using an analytic and synthetic approach.

On the other hand, the achievement of practical value affirmation in our society sets the phenomenon of talent on the periphery, which is implicitly assumed in the process of acceleration. Concern that the acceleration is now more concerned with our schools and families, because it is increasingly treated as administrative, technical and mechanical problem of institutions (which comes from its nature), a potential threat is in existing vulgarization and distortion of the essence of this concept.

The prevailing psychometric approach in opting to early enrolment in school obviously concerns authors who prefer taking integrative approach to the problem, because the current practice of segmentation and partiality in approaching this problem challenges the validity of prognostic assessment of intellectual, emotional, social and other adaptation of early enrolled children.

The problem

In the process of making the society, school and parents aware of the problem of early enrolment, we can speak of two antagonistic tendencies and orientations, which, of course, are having different theoretical or empirical (in)feasibilities. One of these is related to the conclusion that stems from personal, scientific and other insights and experiences, claiming that children need early enrolment. Those who advocate this position primarily believe that children are maturing earlier so that they also can be enrolled earlier, and that it does not affect their intellectual, emotional and social adaptation. Thus, this category considers it useful and necessary to start with the education of children earlier than prescribed by regulations, given that differences between children of six and those of seven are rather minor, that the development path up to the age of six is very rich, substantial and diverse, and even that the child of seven has overcome the curriculum presented in the first year of school.

Others from this category believe that earlier enrolment of children in school has a beneficial effect on their independence and that it highly facilitates their qualitative development path.

In contrast to the previous statement and arguments, others believe that children should not be sent to school before the due time. Those who advocate this position believe that children of younger ages are not sufficiently mature and that it will impact their intellectual, emotional, social and other adaptations in negative manner. Some of them believe that the early enrolled children are overloaded because the curriculum is too difficult and voluminous, even uninteresting, and that obligations imposed by the school are too heavy to bear. Early enrolled children could find it difficult to cope with the school environment, and they could also have emotional difficulties resulting from the separation from family, especially mother. On the other hand, they believe that children should be allowed to have an additional period of carelessness, games and 'freedom'.

Previous research and studies of school acceleration were more focused on studying the type of acceleration which is expressed through skipping grades. All these studies have aimed at identifying the ways school acceleration affects the success of students using numerical quantification. Another form of acceleration is the early enrolment. This theoretical and empirical composition is focused on repercussions of this form of acceleration to the success of students and their socio-emotional status and connection with personality traits. Dealing with this phenomenon in the theoretical and empirical studies, the children's success was too long overemphasized as the single and dominant criterion of acceleration efficiency. This overemphasis has led to neglecting other structural components of children's personality and its thorough integrative understanding. We can say that professionals in this field have reached a *common research platform* and some kind of consensus when it comes to the impact of this type of acceleration on student achievement.

In a number of studies, several authors state that early enrolment does not affect the success of students (Kamenov, E., Đorđević, D., Furlan, I., Juhasz, M., Kobil, A., Đorđević, B., Maksić, S., Vukas, Ferbežer, I., Hitrec, Smiljanić, etc.). This can be confirmed in studies conducted by foreign authors (Terman, Ellis, Stanley, Fox & Washington, Janos & Robinson, Riben, etc.). Attempts to valorise the efficiency of acceleration merely on the basis of success proved to be one-sided and incomplete. This indicates the absence or marginalization of objective and subjective determinants by which success and overall socio-psychological adaptation are strongly defined. This means that most researchers focused their energy on manifested and observable variables of assessment. We have to admit that there is an evident need resulting from these limitations to include other relevant determinants when assessing the efficiency of acceleration and study its repercussions. This primarily refers to the types of repercussions produced by this type of acceleration on success, socio-emotional adaptation of students and their relation to specific personality traits. This is the attitude basically expressed by the above authors, especially Maksić, B. Đorđević and I. Ferbežer. One of the great proponents of such attitudes is the well-known Australian author Mackenzie-Sykes and the conception of this study will rely on her theoretical and empirical research. Understanding or involving other institutional and non-institutional variables will certainly allow introducing some educational and other interventions.

This primarily refers to introducing innovations to institutional procedures in implementation of acceleration, employing new or modified psycho-diagnostic

instruments for assessing various aspects of maturity, redefining the terms of maturity for early school enrolment, etc.

This paper makes an attempt of subjecting acceleration as a complex and multifaceted pedagogical-psychological phenomenon to systematic, scientific and theoretical-empirical analysis, which has been rarely encountered in existing studies. For clarification of the core problem, i.e. effects of repercussions on this phenomenon, we will be moving mainly within the boundaries of medico-psychological, socio-psychological, pedagogical-psychological conceptual-theoretical and methodological framework. We believe that the lack of longitudinal monitoring of impacts of acceleration on student's achievement, the lack of empirical knowledge about repercussions observed in the socio-emotional domain of students and the way this relates to personality traits is behind this research, theoretical and empirical construction. Consequently, the ultimate goal of this research is to provoke some social, institutional and individual observations in practicing this issue. Based on this, some legislative solutions will be proposed, some prejudices will be corrected regarding parents, teachers and even professionals, accelerated students will receive proper treatment; in other words, these issues will receive treatment in line with current trends in the field.

Research subject

In opting for the research subject, we started from several theoretical and practical reasons significantly affecting the issue of early enrolment in school practice and educational process. These are aimed at determining the following:

- repercussions related to student achievement;
- repercussions related to the socio-emotional adaptation of students;
- correlations between some personality traits of students and their success in socio-emotional adaptation.

Research objectives and tasks

The main objective of this research is to determine the degree of correlation between success, socio-emotional status and specific personality traits of the early enrolled students. The primary objective of this study leads to specific objectives and tasks that are specific to any research problem.

Given the subject of this research, the main objective is to determine whether early enrolment of children in the first grade impacts adversely their success and how this type of enrolment leads to the occurrence or differences in socio-emotional adaptation of these students. In accordance with problems and subjects defined in this manner, the following research objectives and tasks were derived:

- determining whether early enrolment of children in school influences significantly their school success;
- determining a decline or changes in success of early enrolled students considered as a result of early enrolment;
- determining whether there are differences in success of regularly and early enrolled students;

- determining whether there are gender related differences in the success of early enrolled students;
- determining how teachers, parents and professionals feel about specific aspects of early enrolment;
- determining the relation between student's intelligence and achievement;
- determining whether some student's personality dimensions and achievement are related and how;
- determining whether early enrolled students have some explicit dimensions that possibly indicate their profile;
- understanding the differences in motives of concentration and achievement between early and regularly enrolled students;
- determining sociometric status of early enrolled students;
- determining whether there are differences in sociometric status between the early and regularly enrolled students.

Research hypotheses

General hypothesis

Early enrolment of gifted children in the school, as well as the occurrence of repercussions are results of fundamental component of maturity and personal traits on one hand, and socio-cultural institutional agents of socialization on the other. Bearing in mind the quality, extent and level of development of institutional and non-institutional assumptions, acceleration of the early enrolled students does not affect significantly their success and changes in their socio-emotional status in school. The success of early enrolled students and their socio-emotional status depends on their abilities and specific personality traits, but also on certain non-institutional determinants in the course of their schooling.

Specific hypotheses

H.1. Hypotheses related to early enrolment of students and their success

- H.1.1. There is no difference between the success of early and regularly enrolled students.
- H.1.2. There is a gender-based difference between the success of early and regularly enrolled students.
- X.1.3. There is a gender-based difference in the success of early enrolled students.
- H.1.4. There is a gender-based difference in the success of regularly enrolled students.
- H.1.5. Early enrolled students with higher parent education structure achieve better results in school.
- H.1.6. Parents' educational structure of regularly enrolled students does not affect their overall school success to a significant degree.
- H.1.7. Early enrolled students from urban areas are more successful than students from rural areas.
- H.1.8. Early enrolled students who attended preschool institutions are more successful than students who have not attended.

H.2. Hypotheses related to early enrolment and some emotional dimensions of student personality

- H.2.1. There are no obvious differences in dimensions of personality between early and regularly enrolled students as measured using the PIE test.
- H.2.1. There is no obvious differences in personality scores between our sample and the standard personality profile presented in the PIE manual.
- H.2.3. There is differences in ego strength between early and regularly enrolled students.

X.3. Hypotheses related to early enrolment and some cognitive dimensions of personality

- H.3.1. There is differences in intellectual abilities between early and regularly enrolled students.
- H.3.2. High intellectual abilities of the early enrolled students do not affect the achievement of better success significantly.
- H.3.3. There are no differences in the quantity or effectiveness of achievement as measured using the TKD test between early and regularly enrolled students.
- H.3.4. School success of early enrolled high IQ students is more a result of motivation for achievement than of their intellectual abilities.

H.4. Hypotheses related to early enrolment and the sociometric status of students

- H.4.1. There is no differences in sociometric status between early and regularly enrolled students.
- H.4.2. Early enrolled students with extra high intellectual potentials have negative sociometric status in the group.

Indicator variables

Dependent variables:

- success of students in the course of their schooling;
- sociometric status of students.

Independent variables:

- Biophysical features: gender and chronological age. Chronological age of students is expressed in years and months.
- Cognitive abilities: intelligence or scores and percentiles achieved on the D-48 and TKD test.
- Emotional-conative properties: dimensions of personality obtained using the PIE test and the EGO strength test of personality.

Methods, techniques, research instruments

Instruments

Several types of psycho-diagnostic instruments were applied in this research process. These can be divided into the following groups: instruments for determining general intellectual abilities, personality tests, and others.

Assessment of intellectual abilities:

- D-48 test for testing general intellectual abilities;
- TKD test for testing concentration and achievements;

- Assessment of emotional dimension of personality;
- PIE – profile, index, emotion;
- Barron's EGO strength scale;
- A specially designed questionnaire for teachers, parents and students for examining their opinions about changes in personality as a result of early enrolment.

Data processing methods

Data obtained using the above questionnaires and tests that were included in our study were first evaluated based on the criteria for each test; this was followed by processing the quantitative data using the adequate mathematical and statistical methods in line with the research tasks.

With the aim of testing the above hypotheses and analyzing the resulting data, they were processed using the following mathematical and statistical procedures:

- measures of central values (M);
- standard deviation (SD);
- percentage of significance and difference (% D);
- T - test to determine differences between the average results;
- X-2.

The data were processed in several stages:

The first stage provided an insight into pedagogical records and documents in order to identify groups of early enrolled students. In this way the experimental group of students was formed and based on it the appropriate group was formed on various grounds. At this stage, based on the pedagogical records, the success of students of various age periods was identified and recorded in corresponding tables.

The second stage was divided in two sub stages, as follows:

- in the first sub stage we analyzed and interpreted the data obtained from questionnaires prepared for teachers, parents and professionals;
- in the second sub stage we evaluated the test material applied in this research, as well as the synthesis of sociometric data.

The third stage consisted of mathematical and statistical data processing.

Research sample

The overall research sample consisted of schools, teachers, professionals, students and parents. We made sure that each category meets the existing criteria to be applied in determining the characteristics of the sample. In this case, these are territorial representation, type of school, number of students, gender, education, success and others.

Analysis and interpretation of results of overall student success

Early enrolled students – 1985

Table 1: Overview of students by gender

Gender	Number	%
Male	110	50
Female	110	50
Total	220	100

Regularly enrolled students – 1984

Table 2: Overview of students by gender

Gender	Number	%
Male	108	49.9
Female	112	50.91
Total	220	100

Overview of student success

Early enrolled – 1984

Table 1: Overview of students by gender

Success	Male		Female		Total	
	Number	%	Number	%	Number	%
5	55	50.00	62	56.36	117	53.18
4	34	30.90	28	25.46	62	28.18
3	15	13.60	11	10.00	26	11.81
2	6	5.45	9	8.18	15	6.81
Total	110	50	110	50	220	100

Regularly enrolled – 1984

Table 2: Overview of student success by gender

	5	%	4	%	3	%	2	%	Total
Male	52	48.14	34	31.48	20	18.51	16	14.81	108
Female	57	50.89	30	26.78	14	12.50	7	6.25	112
Total	109	49.54	64	29.09	34	15.45	23	10.45	220

Success

Table 3

	5	4	3	2	Total
Early enrolled	117 (113)	62 (63)	26 (30)	15 (19)	220
Regularly enrolled	109 (113)	64 (63)	34 (30)	23 (19)	220
Total	226	126	60	38	440

for $df=3$; $X_{0.05}$ $X_{0.01}$ $X=3.06$ $7.8111,3$ $3.06 < 7.81$

$X_2 = 3.06$ is lower than the limit value at the significance level of 0.05 and therefore the hypothesis that there are no differences in school success between regularly and early enrolled students is accepted.

We determined the differences in success between early enrolled students born in January and March and April and June. We have that $F_0 = 0.13$ and $F_{0.05} = 6.08$. Because F_0 is smaller than $F_{0.05}$ for the level of 0.05, this means that there is no difference in school

success between the early enrolled students born in January and March and the early enrolled students born in April and June.

We also compared the early enrolled students born in April and June and students born in the July and September. We obtained the following results: $F_0 = 10.21 > F_{0.01} = 9.42$.

Since F_0 is higher than F , meaning that the group of students born between April and June reached higher mean success than students born in the period from June to September.

Overview of student achievement by gender at different age levels

Early enrolled – 1985

Table 1: Overview of mean success by gender and generation

	first	third	fifth	seventh	first grade	third grade	total
Male	4.74	4.70	4.65	4.61	4.55	4.51	4.62
Female	4.76	4.76	4.70	4.64	4.60	4.56	4.67
Mean	4.75	4.73	4.67	4.62	4.57	4.53	4.64

Regularly enrolled – 1984

Table 2: Overview of mean success by gender and generation

	first	third	fifth	seventh	first grade	third grade	total
Male	4.66	4.65	4.53	4.60	4.51	4.48	4.57
Female	4.75	4.71	4.68	4.65	4.60	4.53	4.65
Mean	4.71	4.68	4.60	4.62	4.55	4.50	4.61

Regularly enrolled – 1984

Table 1: Overview of student success by chronological age

	5	%	4	%	3	%	2	%	Total	%
I-III	71	56.80	9	13.64	10	50.00	4	44.44	94	42.73
IV-VI	27	21.60	37	56.06	6	30.00	3	33.33	73	33.18
VII-IX	27	21.60	20	30.30	4	20.00	2	22.23	53	24.09
Total	125	56.82	66	30.00	20	9.09	9	4.09	220	

Early enrolled – 1985

Table 2: Overview of student success by chronological age

	5	%	4	%	3	%	2	%	Total	%
I-III	75	54.35	11	31.43	6	40.00	6	42.86	98	44.55
IV-VI	55	39.86	5	14.29	5	33.33	5	35.71	71	32.27
VII-IX	33	23.91	3	8.57	4	26.67	2	14.29	51	23.18
Total	138	62.73	35	15.91	15	6.82	14	6.36	220	

1984

Table 3

I-II	IV-VI	VII-IX	Mean
Zx = 449	320	193	962
Zx2 = 2129	1520	917	4566
N = 98	71	51	220
M = 4.58	4.51	3.78	

SSt = 359.44 SSb = 23.21 SSw = 336.23

Anova table

Source	SS	df	MS	F	p
Between groups	23.21	2	11.61	7.49	< 0.01
Within groups	336.23	217	1.55		
Total	359.44	219			

Given that the resulting *F* value is statistically significant at level 0.01, it can be concluded that there is a statistically significant difference between the early and the regularly enrolled students. The comparison refers to students born in January and March and students born in July and September

Regularly enrolled – 1984

Table 1: Overview of student numbers by gender and chronological age

	I-III	IV-VI	VII-IX	Total
Male	48	34	26	108
Female	46	39	27	112
Total	94	73	53	220

Early enrolled – 1985

Table 2: Overview of student numbers by gender and chronological age

	I-III	IV-VI	VII-IX	Total
Male	48	36	26	110
Female	50	35	25	110
Total	98	71	51	220

Student success by their parents' level of education

Early enrolled – 1985

Table 1: Overview of student success by gender and the parents' level of education

	5	%	4	%	3	%	2	%	Total	%
VIII	10	7.69	12	23.53	9	30.00	8	88.89	39	17.73
SE	35	26.92	10	19.61	12	40.00	1	11.11	58	26.36
HE(1)	21	16.15	9	17.65	5	16.67	/	/	35	15.91
HE(2)	63	48.46	17	33.33	3	10.00	/	/	83	37.73
MA	1	0.77	3	5.88	1	3.33	/	/	5	2.27
Total	130	59.09	51	23.18	30	13.64	9	4.09	220	

Regularly enrolled – 1984

Table 2: Overview of student success by gender and the parents' level of education

	5	%	4	%	3	%	2	%	Total	%
VIII	12	9.68	9	16.07	10	40.00	8	53.33	39	17.73
SE	32	25.81	11	19.64	9	36.00	6	40.00	58	26.36
HE(1)	21	16.94	13	23.21	/	/	1	6.67	35	15.91
HE(2)	56	45.16	21	37.50	6	24.00	/	/	83	37.73
MA	3	2.42	2	3.57	/	/	/	/	5	2.27
Total	124	56.36	56	25.45	25	11.36	15	6.82	220	

The arithmetic mean *M* and standard deviation *SD* regarding the success of students coming from parents with college and university education was calculated based on Table 2. Students whose parents hold college, university, master and doctoral degrees are

gathered into a group of high educational structure, while those whose parents hold primary and secondary education are gathered into a group of lower educational structure.

We obtained the following results and scores:

N1=123	N1=97
M1=4.62	M2=4.06
SD=0.62	SD=1.02
DN=0.56	Z=4.67
df=218	4.67>2.58

The statistical conclusion is that the difference of 0.56 is statistically significant at the level of 0.01. At this level, the zero hypothesis is rejected.

Based on this conclusion, we state with 99% certainty that students whose parents have better educational structure have higher achievements comparing with students whose parents have lower educational structure.

Students' success of by their place of living

Early enrolled – 1985

Table 1: Overview of students' success by their place of living

	5	%	4	%	3	%	2	%	Total	%
Urban	96	58.90	7	36.84	5	33.33	3	23.08	111	50.45
Rural	67	41.10	12	63.16	10	66.67	10	76.92	109	49.55
Total	163	74.09	19	8.64	15	6.82	13	5.91	220	

Regularly enrolled – 1984

Table 2: Overview of students' success by their place of living

	5	%	4	%	3	%	2	%	Total	%
Urban	90	56.96	8	25.00	12	63.16	4	36.36	114	51.82
Rural	68	43.04	24	75.00	7	36.84	7	63.64	106	48.18
Total	158	71.82	32	14.55	19	8.64	11	5.00	220	

The success of early enrolled students was compared based on their place of living (urban vs. rural).

Urban	Rural
N1=111	N2= 109
M1=4.77	M2=3.97
SD= 0.66	SD= 1.59
DM=0.80	Z=5.00
df=218	
5.00>2.58	

Overview of students' success based on their enrolment, gender, age levels, success, place of living and generation

Early enrolled – 1985

Table 1: Overview of mean success by generation and place of living

	first	third	fifth	seventh	first grade	third grade	total
Urban	4.67	4.60	4.51	4.40	4.32	4.30	4.46
Rural	4.45	4.56	4.44	4.34	4.25	4.21	4.37
Total	4.56	4.58	4.47	4.37	4.28	4.25	4.41

Regularly enrolled – 1984

Table 2: Overview of mean success by generation and place of living

	first	third	fifth	seventh	first grade	third grade	total
Urban	4.53	4.50	4.54	4.62	4.50	4.51	4.53
Rural	4.41	4.34	4.48	4.38	4.41	4.44	4.41
Total	4.47	4.45	4.51	4.50	4.45	4.47	4.47

Success based on parents' education by generations

Early enrolled – 1985

Table 1: Overview of students' success by generation and their parents' level of education

	first	third	fifth	seventh	first grade	third grade	total
VIII	4.50	4.41	4.35	4.40	4.36	4.40	4.40
SE	4.53	4.50	4.48	4.40	4.47	4.50	4.48
HE(1)	4.52	4.54	4.40	4.48	4.50	4.41	4.47
HE(2)	4.60	4.54	4.56	4.50	4.50	4.42	4.52
MA	4.54	4.50	4.53	4.43	4.50	4.52	4.50
Total	4.48	4.49	4.50	4.42	4.46	4.45	

Regularly enrolled – 1984

Table 2: Overview of students' success by generation and their parents' level of education

	first	third	fifth	seventh	first grade	third grade	total
VIII	4.45	4.39	4.30	4.36	4.30	4.21	4.33
SE	4.50	4.43	4.26	4.31	4.43	4.40	4.38
HE(1)	4.50	4.40	4.49	4.44	4.40	4.32	4.42
HE(2)	4.55	4.49	4.50	4.42	4.39	4.45	4.46
MA	4.50	4.46	4.41	4.50	4.43	4.40	4.45
Total	4.50	4.43	4.47	4.40	4.39	4.35	

Early enrolled

N1=123
M1=4.26
SD=0.62
DM=0.03

regularly enrolled

N=123
M2=4.59
SD= 0.62
0,38<1.96

Here, the statistical conclusion is that the difference $DM = 0.03$ is statistically insignificant and therefore the zero hypothesis is confirmed. We state with 95% certainty that there is no difference in success between early enrolled students and regularly enrolled students whose parents have high educational levels.

1. Analysis and interpretation of test material

Analysis and interpretation of the D-48 test

Results obtained by the research will be presented respectively according to the objectives, tasks and hypotheses. First, there are the results obtained for the experimental and control group on cognitive tests, i.e. D-48 and TKD.

Table 1: Results for early enrolled students obtained using the D-48 test

GENDER						
Score groups	male	%	female	%	total	%
above 34	21	19.09	14	12.73	35	15.91
30-33	33	30.00	25	22.73	58	26.36
25-29	38	34.55	52	47.27	90	40.91
18-24	9	8.18	11	10.00	20	9.09
below 17	9	8.18	8	7.27	17	7.73
Total	110		110		220	

Table 1 shows the results for the early enrolled students obtained using the D-48 test and grouped in standardized norms. From the total of 220 early enrolled students, average intellectual ability has been demonstrated by 90 (40.91%), high intellectual ability by 58 (26.36%), and above average intellectual ability by 35 (15.91%) of them. 20 (9.09%) students demonstrated low intellectual ability, while 17 (7.73%) of them below average intellectual ability.

Results for regularly enrolled students obtained using the D-48 test by gender

Table 2: Results for regularly enrolled students obtained using the D-48 test

Score groups	male	%	female	%	total	%
above 34	9	8.33	6	5.36	15	6.82
30-33	24	22.22	30	26.79	54	24.55
25-29	37	34.26	49	43.75	85	38.64
18-24	20	18.52	21	18.75	41	18.64
below 17	18	16.67	6	5.36	24	10.91
Total	108		112		220	

Table 2 shows the results for the regularly enrolled students obtained using the D-48 test. As indicated by the Table, from the total of 220 regularly enrolled students, average intellectual ability has been demonstrated by 85 (38.64%), high intellectual ability by 54 (24.55%), and above average intellectual ability by 15 (6.82%) of them. 41 (18.46%) respondents demonstrated low intellectual ability, while 24 (10.91%) of them are with below average intellectual ability.

Comparing the results from the two tables shows that when considering early enrolled students there is a greater percentage of respondents who indicate the average, high average and above average intelligence, while the percentage of respondents who indicate low and below-average intelligence is slightly higher than that of early

enrolments. This shows that there is a difference in intellectual abilities between the early and regularly enrolled students, whereby the hypothesis H.3.1 is confirmed.

Comparing the scores of intellectual abilities of early and regularly enrolled students with the 3.06 significance of success obtained based on the H2 test, it can be seen that despite the higher intellectual abilities of early enrolled students, the success difference between the two groups is not statistically significant, so that hypothesis H.3.2 is not confirmed.

2. Analysis of results obtained by examining the concentration and achievement (TKD) of regularly and early enrolled students

Evaluation of quantitative achievements

Early enrolled – 1985

Table 1: Overview of average quantitative achievements

	%
Below-average	20
Average	60
Above-average	20
Total	100

Regularly enrolled – 1984

Table 2: Overview of average quantitative achievements

	%
Below-average	4
Average	76
Above-average	20
Total	100

Evaluation of quantitative achievements

Early enrolled – 1985

Table 1: Overview of quantitative achievements

Error rate	%
Below-average	66
Average	26
Above-average	8
Total	100%

Regularly enrolled – 1984

Table 2: Overview of quantitative achievements

Below-average	80			
Average	8			
Above-average	12			
Total	100%			
Table 3	Results of the concentration and achievement test			
	below-average	average	above-average	total
Early enrolled	145 (160,5)	57 (37,5)	18 (22)	220
Regularly enrolled	176 (160,5)	18 (37,5)	26 (22)	220
	321	75	44	440

$H^2 = 24.74$

df=2

$P.05 < 5.99$

$P.01 < 9.21$

The zero hypothesis is rejected and we can conclude that the two variables (results of the concentration and achievement test and early enrolment) are related.

In this research, we wanted to determine the overall achievement-ability, whereby we sought to include the factor of stimulus (motivation), which participates in the realization of any mental achievement. Thus, we have directly measured the ability to concentrate using the TKD test. Given that the psychological foundation of this test relies on the concept of coordination as the interacting impact of individual abilities on the overall ability, which is essential for the achievement of specific goals, resolving the TKD problems is also typical of what the term coordination implies. Respondents were expected to understand numbers and characters properly, do the calculations accurately, dwell on intermediate results at least for a while and make a decision about operations that they should be performing on intermediate results and make a deliberate decision. This decision assumes the ability of presenting results in imaginative fashion, and this is the reason why we have chosen this test: this type of test-resolving requires the joint action of all of these activities. This ability of concentration is essential in mastering the subject-matter. We selected two major groups of respondents: 25 early and 25 regularly enrolled students who were subsequently subjected to the TKD test. They are all of above-average intellectual abilities (30 or higher on the D-48 score). This was aimed at grabbing solely the stimulus factor that participates in the realization of mental achievements, while reducing the impact of the intellectual factor as much as possible.

Evaluation of impact of quantity on the total number of problems resolved and the quantity of accomplishments

Since the TKD test refers to speed, it was necessary to estimate the quantity of the total number of problems resolved by both groups of respondents. Table 1 and Table 2 indicate that above-average results on the TKD test are achieved by equal number of respondents (20%) from two groups.

As much as 75% of regularly enrolled students have achieved an average quantity; this result is 16 % better than that of the group of early enrolled students. The most evident difference is that of students who showed below-average results in terms of quantity of resolved problems. So in regularly enrolled students 4% show below average results, early enrolled students are represented with 20% of the investigated early enrolments. This research verifies the opinion of the author of the test that there is a tendency towards increasing the quantity, i.e. the total number of problems, in parallel with the age of respondents. Regularly enrolled students of higher chronological ages are more successful in terms of the quantity of resolved problems and the speed of computation for a limited time. Early enrolled respondents are less successful in the quantity of achievements. Given that the quantity or amount of achievements is more a function of stimulus, regularly enrolled students possess and show higher motivation and stimulus to master the subject-matter, as well as in any other activity. Based on previous experience

and research made by numerous authors, the quantity of achievements has a prevailing importance in forecasting students' performance in learning and mastering subject-matter; thus, it can be concluded that regularly enrolled students perform higher. It fails to support hypothesis H.3.3, i.e. that there is no difference in the results for the quantity of resolved problems between the early and regularly enrolled students. Students who achieve above-average results in terms of quantity of achievements can be rated as active in terms of personality traits, meaning that in two groups 20% of students are active, while students with below-average results are passive. The percentage of passive students from the group of early enrolled is 16% higher than that of regularly enrolled students. Active students are strong-willed, persistent, fresh, diligent, faster and more attentive. Passive students are weak-willed, lacking strength, insecure and too careful. School grades are much more dependent on intelligence than on the ability to concentrate. Therefore, a high performance on the TKD test (quantity) examines primarily what the teacher referred to as persistence and willpower; these are the scales on which regularly enrolled students in our study perform much higher.

When analyzing the TKD test results in terms of quantity of achievements which is synonymous in function of stimulus, the analysis of the quality of achievement, which is more a function of the skill of mastering an operation, our analysis indicates that the quality of the respondents' performance is much more conditioned by their disposition and they display stability and profoundness above all in resolving problems. The quality of achievements can be seen from the percentage of errors in resolving problems in the TKD test. Table 2 shows the difference between the error coefficients made by the regularly and early enrolled students. The above average coefficient of errors is higher for regularly enrolled students (12 % of the total number of respondents); the error coefficient is also below-average for a large number of regularly enrolled students. 26 % of the early enrolled students show average level of error coefficient, which is higher than for the regularly enrolled students.

Students displaying quantity in achievements are characterized by perseverance, willpower and diligence. These properties are most prominent among them. The prevailing personality traits of students displaying quality in achievements are sedulity, diligence, perseverance, staying with the matter and orientation towards achievement. It is important to note that thoughtfulness is unlikely a feature of significant impact towards the quality of performance. Also, the quality of performance is less influenced by liveliness, prudence and agility.

The analysis of results obtained by the TKD test fail to confirm the H.3.4 hypothesis which claims that early enrolled students with high intellectual abilities accomplish success driven more by achievement motivation. Since results of this research have shown that motivation for achievements is higher in regularly enrolled students, it fails to match the assumptions of this hypothesis.

Overview of student performance on the D-48 test by the parents' education level

Early enrolled – 1985

Table 1: Overview of student performance on the D-48 test by the parents' education level

	MA, PhD	Higher education – second degree	Higher education – first degree	Secondary education	Primary education	Total
above 34	2	41	18	20	/	81
30-33	4	23	4	7	18	56
25-29	1	16	10	22	16	55
18-24	/	1	2	1	12	16
below 17	/		1	8	3	12
total	7	81	35	57	49	220

Regularly enrolled – 1984

Table 2: Overview of success on the D-48 test of regularly enrolled students by their parents' education level and gender

	MA, PhD	Higher education – second degree	Higher education – first degree	Secondary education	Primary education	Total
above 34	2	24	9	12	5	62
30-33	3	22	10	15	13	53
25-29	/	23	2	11	12	38
18-24	2	10	12	9	9	42
below 17	/	2	2	10	10	24
Total	7	82	35	57	49	220

Overview of student success by the place of living

Table 1: Overview of success of early enrolled students on the D-48 test by their place of living

	Urban	%	Rural	%	Total	%
above 34	13	11.82	4	3.64	17	7.73
30-33	38	34.55	64	58.18	102	46.36
25-29	41	37.27	30	27.27	71	32.27
18-24	8	7.27	12	10.91	20	9.09
below 17	10	9.09	/	/	10	4.55
total	110		110		220	

Table 2: Overview of success of early enrolled students on the D-48 test by their place of living

	Urban	%	Rural	%	Total	%
above 34	40	35.09	22	20.75	62	28.18
30-33	31	27.19	22	20.75	53	24.09
25-29	16	14.04	23	21.70	39	17.73
18-24	24	21.05	18	16.98	42	19.09
below 17	13	11.40	21	19.81	34	15.45
total	114		106		220	

Analysis and interpretation of PIE test results

The PIE test was applied since one of the objectives of this research was to determine specific emotional characteristics of early enrolled students, as well as some differences between them and regularly enrolled students.

For the purpose of conducting the PIE test, a group of 41 early enrolled students has been selected from the third year of high school and a control group of the same number of regularly enrolled respondents. The groups were unified based on the above outlined criteria (see the Research sample section).

When analyzing the results a few circular profiles were created by converting the average scores to percentage scores using tables provided in the PIE manual. These profiles were created for the both groups (experimental and control) separately, which were also differentiated by gender. The analysis of results of the experimental group (early enrolled students) and control group (regularly enrolled students) is shown in the so-called circular profiles 1 and 2. This analysis has shown that the average profiles of both the control and experimental group are almost equal along the relevant characteristics. This statement we received after comparing the average profile of the respondents in both groups. The two profiles (1 and 2) were equal along the characteristics of adolescent age and basically have very small deviations from the standard profile, especially from profile characteristic of the high school population, and neither of profiles shows any psychopathological deviations.

Table 1: Overview of scores on personality dimension

PIE personality dimensions	early			regularly		
	Total	M %	F%	Total	M%	F%
Reproduction	80	67	59	80	45	59
Incorporation	74	50	62	74	43	30
Incontinence	55	44	35	50	36	35
Self-protection	55	49	65	55	49	57
Deprivation	35	79	68	30	62	59
Opposition	33	41	35	30	41	20
Exploration	47	22	25	53	13	48
Aggressiveness	26	53	50	26	63	45
Bias	76	66	70	69	28	60

When comparing circular profiles 3 and 4 (profile 3 refers to the regularly enrolled female respondents, profile 4 refers to the early enrolled female respondents), the differences in average profiles between female respondents from the control and experimental group are the following:

- in relation to the group profile, reproduction in early and regularly enrolled female students is less pronounced, i.e. its 11% lower and ranges in the average level;
- regularly enrolled female respondents show a decrease in incorporation scores which indicates their distrust instead of the ease of acceptance. This negative

correlation with success indicates a high tendency of the female respondents towards success;

- the dimension of incontinence is almost equal, and it is decreasing in both groups, indicating a tendency towards avoiding any temptation and resist to try new things or ruling out new experiences. They are not impulsive (meaning that puberty characteristics are less pronounced for female than male respondents) and tend to withdraw from social contacts;
- there are some differences between two female groups along the dimension of self-protection – it is more pronounced in early enrolled students and it is reflected through higher vigilance and anxiety in comparison with the average for this age group. They are concerned with not getting in trouble and what other people say and think about them;
- the dimension of deprivation is also expressed by the early enrolled female respondents which again coincides with the characteristic profile of this adolescent group of female respondents. This dimension indicates some levels of dissatisfaction with their perspectives, a sense of deprivation and overall pessimistic view.

The profile of both groups (experimental and control group) are close and even equal to the standard profile along the dimension of deprivation and indicate people who are nevertheless satisfied with their life style.

Dimensions of opposition are within standard limits and they are again less pronounced in female than in male respondents, which is characteristic of puberty. The largest decline in opposition is expressed by regularly enrolled female respondents, which means that the lack of criticism, decisiveness, independence, real entrepreneurship and combativeness is the most prominent in this group.

Regarding the dimensions of exploration, based on the profiles it can be concluded that our respondents experience a general decline in this dimension as compared to the average standard profile. This decline is particularly pronounced in early enrolled female respondents, as well as in two groups of male respondents. This emphasize their tendency to live their life *from day to day* without any special plan for future, further indicating a tendency towards certain disorientation both mentally and in actions, as well as reduced self-control. This decline is particularly notable in regularly enrolled male respondents.

Dimensions of aggressiveness in our average profiles and those of the experimental and control groups again are consistent with the standard personality profile, indicating rather passive personalities, lacking any distinctive vital expansiveness; and when angry, they are unlikely to express it publicly. Differentiated with respect to gender, some individual female profiles show a small and insignificant increase in aggressiveness compared to the standard profile, which is normal for this age of adolescence and coincides with the profile of secondary school students. This increase is even more pronounced in regularly enrolled male respondents, who are prone to argue and rebel, which is again normal for their age.

Early enrolled male respondents are characterized by higher levels of reproduction compared to other individual profiles, which means that they want to behave in a social, friendly and somewhat extravert manner. They enjoy socializing and seek warm friendly relations. These are features also shown by group profiles of two respondent groups. The dimension of deprivation in early enrolled male respondents is also more pronounced, which is again typical of the adolescent population.

Analysis and interpretation of results obtained on the EGO STRENGTH test for the regularly and early enrolled students

Regularly enrolled students

Table 1:

Low	25
Average	70.83
High	4.17
Total	39.96

Early enrolled students

Table 2:

Low	5.88
Average	70.59
High	23.53
Total	42.59

Table 3:

	Results of the EGO-STRENGTH test			Total
	Low	Average	High	
Early enrolled	13 (34)	155 (156.5)	52 (30.5)	220
Regularly enrolled	55 (34)	156 (156.5)	9 (30.5)	220
	68	311	61	440

$X^2 = 56.70$

$df=2$

$P.05 < 5.99$

$P.01 < 9.21$

Given that it has been shown that the two variables (i.e. the ego strength and the time of enrolment) are related, the zero hypothesis is rejected.

Analysis of the results using sociometric method

Sociometric data in this research were collected using a sociometric method constructed by Jakob Moreno. The objective is to determine whether there are any differences in sociometric status of early enrolled students, and what these differences are. Therefore, this method was applied on five parallel comparisons where the number of early enrolled students was the highest and it was about one-third of all students or 10 students. Given the large number of early enrolled students we wanted to identify their social status. Three sociometric criteria were applied: sitting at the school desk, friendship in and out of

school, and learning activity. The number of choices was limited in order to get a higher frequency of their occurrence. The same data were mapped on the sociometric matrix for each comparison. Several sociometric indices were calculated: index of acceptance, index of rejection and index of social status. These indexes we calculated for both groups (early and regularly enrolled students).

Conclusion

Once again it should be emphasized that the giftedness as broader phenomenon that we treated in this paper is an extremely complex phenomenon, both regarding its nature and core. As indicated by this complexity, the early enrolment of children in schools is a multidimensional problem both in theoretical and empirical sense.

This section presents the findings we obtained in the theoretical elaboration of the early enrolment, as well as the data resulting from the research process. Thus, as presented in the theoretical part, and especially in the empirical, it can be concluded that this issue is still on the periphery of the organized social, institutional and individual interest, which is perhaps the reason for the deficient literature in this field. But in a practical sense, the *early enrolment of children in school* as a form of institutional support of the gifted which is being increasingly applied in today's schools is opposed to the type of academic acceleration involving *grade skipping*. This, in turn, motivates professionals to take this issue more seriously and study it more thoroughly.

The analysis of legislation on the issue of early enrolment shows that in certain segments it is rather rigid, generalized and lacks operational approach. In school practice, this in fact leads to superficial and ineffective application. Therefore, new and modified regulations have been proposed due to the need to innovate this segment of education. They are motivated by the school practice of author of this study, as well as from the efforts of Furlan & Kobola (1983) aimed at reducing the possibility of arbitrary interpretation and implementation. Thus, the only way of reducing domination of the intellectual factor as the only dominant issue in this process is stressing the importance and necessity of respecting all the aspects of child's maturity for being early enrolled in school. Replacing this one-sided practice in assessing maturity and readiness for early enrolment is more than necessary.

If we take the previous statement as a landmark of what was positive or what was negative in the context of this research and this issue, then the final conclusion is the following:

- tendency of early enrolment of children in schools receive professional and methodologically correct course in the overall institutional procedure;
- changing or adapting the existing legislation regarding this issue;
- continuous monitoring of the overall adaptation of early enrolled students;
- implementing educational procedures for teachers, parents, professionals and others, enabling them to be effective in this respect;
- respecting the findings and opinions of professionals in the process of implementation of early enrolment of children in schools;

- defining a system of methodological procedures and instruments for assessing the maturity of the child for early enrolment;
- seeking to reduce or eliminate various forms of prejudice that exist among teachers, parents, professionals regarding the early enrolment in schools;
- institutions should not approach the issue of early enrolment in a routine organizational-administrative manner.

Nevertheless these suggestions should not be regarded as a recipe for how to approach this problem; instead, they need to be landmarks indicating where adjustments should be made, aimed at eliminating negative practice in school and family as well.

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