

WHAT DOES ENROLMENT INTO A FIRST-CHOICE PROGRAMME OF STUDY DEPEND ON? COMPARISON OF THE ORIGINAL AND REPLICATED STUDY RESULTS

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Abstract

The research carried out by Rogošić (2016) shows that the social capital of high school has a stronger impact on the enrolment into a first-choice programme of study than the socio-economic status of the student which affirms the Coleman's theory of social mobility. On the other hand, numerous studies in Croatia mostly find that the socio-economic status is the strongest predictor of educational success on higher educational level which confirms Bourdieu's theory of social reproduction. Assuming that the research results are highly dependent on the research context and sample used it is considered necessary to verify Rogošić's findings. For establishing confidence in research findings Rogošić's research is replicated using empirical generalization in which the sample was intentionally altered and the research procedures of original study are closely followed. A sample of the repeated study included students in the programme of study Early and Preschool Education at the Faculty of Teacher Education of the University of Zagreb (N=400). The results of the repeated research do not support the theory of social mobility which shows that the findings highly depend on the sample characteristics and contextual factors. The paper clarifies the differences in findings between the repeated and the original study and provides conclusions that can be drawn from the two sets of findings.

Keywords: Probability of Enrolment into a First-Choice Programme of Study, Original Study, Replicated Study

Introduction

Sociology research on academic achievement upon completion of high school is mostly based on examining the relationship between various social factors and academic achievement (grade point average in a particular year or at the end of the programme of study, length of study, etc.). Perna & Thomas (2006) hold that enrolment into university is one of the four important transitions that mark the educational process, therefore enrolment into the desired programme of study (first choice), should be observed as an educational achievement. Individuals who have managed to enrol into a programme of study of their first choice are considered more successful (Hurtado et al., 1997). For instance, students can be interested in studying a subject which was their second choice, however, it is assumed that their intrinsic motivation is greater when their priority study is in question (but they did not manage to enrol). Considering that intrinsic motivation has a positive effect on academic achievement (Guiffreda et al., 2013) it is assumed that individuals who have managed to enrol in their first choice programme of study will be more successful students than the ones who have not enrolled in their first choice programme of study. Furthermore, intrinsic motivation is significantly, positively correlated with effectiveness in performing their professional duties (Gagne & Deci, 2005) and therefore, there is a high probability that such students will be efficient employees. Considering that it represents an

important factor in academic achievement at the level of higher education, and has far-reaching consequences related to work-place efficacy, the probability of enrolment into first choice programme of study in Croatian context should be more researched.

One of the factors that mostly affect enrolment into first choice programme of study is an individual's previous academic achievement (Jackson, 1988) which, in Croatia, primarily implies grade point average from high school and the results of the state Matura exam. Furthermore, international and national research confirm that an individual's socio-economic status, which frequently implies parents' education (human capital) and financial income and family assets (economic capital), significantly and positively correlate with an individual's achievements at different levels of education, from primary school to higher education (Baranović, Jugović & Puzić, 2014; Pavić & Vukelić, 2009; Shavit & Blossfeld, 1993). Therefore, more successful pupils and students mostly come from financially better-standing families and have parents who are, on average, more educated than parents of their less successful colleagues are. Although many research findings imply strong correlations between deciding on choice of programme of study and socioeconomic status (e.g. Betz & Fitzgerald, 1987; Davies & Guppy, 1997; Trusty, Robinson & Plata, 2000; Ware & Lee, 1988) probability of enrolment into a first choice programme of study was mainly excluded from mentioned studies. Anyway, if we consider enrolment into first choice programme of study as an educational achievement (as suggested by Rogošić, 2016) it could be assumed (based on the previous research findings on the relation between educational achievement and socio-economic factors) that students of a higher socio-economic status will more frequently enrol first choice programme of study than their colleagues of a lower socio-economic status.

In addition to socio-economic status, an important factor of an individual's academic achievement is social capital (Etcheverry, Clifton & Roberts, 2001; Israel & Beaulieu, 2004). In educational research, the term social capital implies all relationships in which an individual is involved, and which have an influence on his academic achievement (Israel, Beuleu, Hartless, 2001) which refers to an individual's relationship with classroom peers, with teachers and other employees in a school. The mentioned relationships represent social capital of a high school which is significantly correlated with the decision on programme of study selection (Fletcher, 2006, Lyle, 2007; Mozie-Ross, 2011; Shumba & Naong, 2012) and is a strong predictor of enrolment into first choice programme of study (Rogošić, 2016). Students from eight teaching faculties in Zagreb whose teachers and peers in high school gave more support, counsel and shared useful information enrolled into first choice programme of study more frequently than students who had less support in school (Rogošić, 2016). Components of social capital of a school can further include the number of pupils in a class, teacher-pupil ration, school environment, etc. (Parcel & Dufur, 2001; Parcel, Dufur & Zito, 2010). The results of the mentioned research (Rogošić, 2016) support the thesis that a smaller number of pupils in a class has a positive effect on academic achievement. The results also show that the average grade in high school is a stronger predictor of enrolling first choice programme of study than is social capital of high school, while socio-economic status was least significant of the mentioned predictors (Rogošić, 2016). The results of Rogošić research (2016) support the viewpoint that social capital is a powerful tool for achieving social mobility as the level of possession of social capital influences academic achievement of an individual more than a family's socio-economic status, and therefore influences his/her socio-economic status in the future.

On the other hand, numerous studies in Croatia mostly find that socio-economic status is the strongest predictor of educational success on higher educational level (eg. Doolan, 2009 and 2010; Doolan & Matković, 2008) which confirms the theory of social reproduction (Bourdieu, 1986).

Taking into account Finifter (1972:113) argument that researcher has responsibilities „not only to produce empirical knowledge but also to supply auxiliary criteria to make possible

the determination of the quality of the results” we consider it necessary to carry out a replication of the research conducted by Rogošić, (2016). The need to replicate Rogošić’s research is supported by the fact that sociological studies of the probability of enrolling first-choice programme of study in Croatia have rarely been carried out and that many previous Croatian research projects resulted in findings that do not support the theory of social mobility in higher education.

Tsang & Kwen (1999:759) stated: “Replication involves doing the same study again in order to retest the same hypotheses” and “ term have been used to refer to cases where the repeated study is conducted on different population of subjects, the researcher employs a different method of data collection or uses a different method of data analysis and so on.” As a type of replication we used *empirical generalization* as according to Tsang & Kwen (1999). „by repeating a past study on different population (the term *population* also refers to the context in which a theory is tested) researcher conducting empirical generalization tests how far the results of the study are generalizable to another population“ and the „research procedure of original study are closely followed“. Finifter (1972) argues that replicating means repeating an original study not in the same way but *for all practical purposes* to find out how dependent a research result is on the characteristics of research context and alteration of at least one of the original methodological procedures is required (Finifter,1972). Therefore, in the research described in this paper we used a repeated survey, the same procedure and statistical analysis as Rogošić (2016) except for a change in the sample used (which was drawn from a different population). Participants in the original study were students of (primary and secondary) school teacher education programmes of the University of Zagreb (N=455) and participants in the replicated study were students of preschool teacher education programme of the University of Zagreb (N=400).

Research Aims and Hypotheses

The aim is to establish which of the factors (average grade in high school, socio-economic status, social capital of high school), i.e., their respective variables, represent the most dominating predictor of probability of enrolment into first choice programme of study. Based on the results of the original research the following hypotheses were set:

1. The average grade in high school is the best predictor of enrolment into first choice programme of study.
2. Higher level of social capital available in school (relationships with teachers and other students) increases the ability of student to enrol first-choice programme of study and is stronger predictor of enrolment into first choice programme of study than socioeconomic status of student.

Methodology

Sample of participants

The total number of participants in the research was 400. All of the participants are students in the integrated undergraduate and graduate programme of study Early Childhood and Preschool Education at the Faculty of Teacher Education, University of Zagreb. Two participants were male. The first year of the programme of study is attended by 97 students, second by 164, third 73, the fourth 30 and 36 students are in the final, fifth year of study. The age of the participants in the research was between 18 and 34 years.

Methods of data collection

Data were collected using a questionnaire (Rogošić, 2016) which was distributed to students in all five years of the preschool education programme of study. The participants were informed that

the purpose of the questionnaire was for scientific research and that participating in the research was anonymous and voluntary. Furthermore, it was emphasized that students could withdraw from the research at any time. The survey was conducted in agreement with lecturers at the Faculty of Teacher Education; most frequently at the end of a lesson in particular courses.

Variables and instruments

Academic achievement prior to enrolling into university was measured using the average grade in high school (from satisfactory (2) to excellent (5)). Economic capital of the student was measured using the sum of total monthly income of the family, while the human capital was measured using three questions: *What is your mother's level of education?* (Answers varied from: 1-did not complete primary school to 8-holds a master of science degree or doctoral degree); *What is your father's level of education?* (Answers varied from: 1-did not complete primary school to 8-holds master of science degree or doctoral degree); *How many members of your immediate family have a higher education?* (Answers were not limited and varied from 1 do 6). High school social capital was measured using the *Quality high school relationship scale* containing eight statements based on Rogošić (2016) examining relationships of students with: teachers, peers, and high school support staff (school psychologist and school pedagogue). The mentioned scale is of a Likert type and contains five degrees where the first one is *I entirely disagree with the statement*; and the fifth one *I entirely agree with the statement*. Here is an example of the statement from the questionnaire: *I felt that I could openly communicate with my teachers in school about the choice of my future profession*. The metric characteristics of this scale were tested within the framework of the research carried out by Rogošić (2016) on a sample of 455 students from eight teacher training colleges of the University of Zagreb and the Cronbach coefficient α for the first factor (*Relationship with teachers and pupils*) was 0.74 while for the second factor (*Relationship with support staff of the school*) the Cronbach coefficient α was 0.87. The mentioned subscales have, according to DeVellis (1991) a very good to excellent reliability. The repeated factor analysis on a sample of 400 students in the preschool education programme of study (KMO= 0.696; Bartlett's test of sphericity $\chi^2_{df105}=1898.154$; $p=0.000$) resulted in equal coefficients of reliability (for the subscale *Relationship with the school's support staff* $\alpha=0.87$, and for the subscale *Relationship with teachers and pupils* $\alpha=0.74$).

Statistical analysis of data

The collected data were analyzed using the statistical program SPSS 0.17. Descriptive statistics were measured for all of the variables. Spearman's correlation coefficient was used to test the correlation between variables in the research. Through hierarchical regression analysis, we tested the significance of particular predictors of probability of enrolment into first choice programme of study (average grade in high school, human and financial capital of the family and high school social capital). Furthermore, assumptions for carrying out hierarchical regression analyses according to Tabachnick & Fidell (2007) were met.

Findings

The results show that 36.3% of the students selected the preschool education programme of study as their second or third choice. *Table 1* shows descriptive indicators of variables used in the research. Students most frequently had very good achievement in high school (Mo=4). The sum of monthly family income of students is most frequently between 5 and 10 000 Croatian Kuna (Mo=3). Of the students who participated in the research a total of 22.5% of fathers and 31.8% of mothers completed some professional/university/doctoral study. The largest number of mothers (43.3%) and fathers (41.3%) completed a four-year vocational school, and 60.5% of the students did not have brothers, sisters or other family members who completed a degree of higher education. Students most frequently estimated as average the relationship with teachers and

peers (Mo=3). Furthermore, the participants most frequently marked as poor their relationship with school's support staff (Mo=1). The greatest number of participants went to grammar schools (71%), mostly in Zagreb or in another larger city in the Republic of Croatia (68%) and the number of pupils in a classroom was most frequently between 25 and 30 pupils (Mo=3).

Table 1: Descriptive statistics of variables used in the research

	Range	Min.	Max.	Mod	SD
Grade point average in high school	2-5	3	5	4	.70
Sum of family's monthly income	1-6	1	6	3	1.05
Mother's level of education	1-8	1	8	4	1.64
Father's level of education	1-8	1	8	4	1.69
Number of other family members with a higher education	0-∞	0	6	0	.85
Relationship with teachers and peers	1-5	1	5	3	.87
Relationship with the school's support staff	1-5	1	5	1	1.01
Number of pupils in class	1-∞	1	5	3	.73

Note: The sum of a family's monthly income coded in the following manner: 1= up to 3 000 kn, 2= from 3001 to 5000 kn, 3=from 5001 to 10 000 kn, 4=from 10 001 to 15 000 kn, 5=from 15 001-20 000 kn, 6=more than 20 000 kn; Education of mother (father) was coded in a way that the greater result indicates a higher degree of education; The number of pupils in a classroom was coded as: 1=less than 20, 2=20 to 25, 3=25 to 30, 4=more than 30.

Table 2 shows Spearman's coefficient correlation between variables. The order of choice of programme of study is negatively and significantly correlated with: the level of mother's education ($r_s = -.18$; $p < 0.01$) and type of high school which the participants attended ($r_s = -.15$; $p < 0.01$) which indicates that students who attended grammar schools and whose mothers are more educated enrol into the programme of study of preschool education less frequently as their first choice. The grade point average in high school ($r_s = .117$; $p < 0.05$) is positively and significantly correlated with the order of study selection, i.e. students with a higher grade point average frequently enrol preschool education programme of study as a first choice. *Table 2* shows that the grade point average is correlated with the same variables as the order of study selection where the significance and correlation indicator are the same. However, grade point average in high school, as opposed to the order of selection of study, is correlated not only with parents' education, type of high school and residential status of students (life in the city or smaller town/countryside) but with other aspects of high school social capital. Achievement in high school is positively and significantly correlated with the relationship with teachers and peers ($r_s = .140$; $p < 0.01$), and negatively and significantly with the number of students in the classroom ($r_s = -.122$; $p < 0.05$).

Note: The order of the selection of the study is encoded as follows: 1- I enrolled at the study programme which is my fourth choice, 2-I enrolled at the study programme of my third choice, 3-I enrolled at the study programme which is my second choice, 4- I enrolled at the study programme which is my first choice; Type of high school was coded: 1- non-gymnasium school, 2-gymnasium school. Location of high school was coded: 1- high school in a big city, 2- high school in small town/village.

* $p < .05$; ** $p < .01$;

Table 2: Correlation between variables used in the research

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Order of selection of programme of study										
2. Grade point average in high school	.117*									
3. Sum of family's monthly income	.077	-.084								
4. Mother's level of education	-.181**	-.162**	.289**							
5. Father's level of education	-.026	-.079	.221**	.557**						
6. Number of other high educated family members	.001	-.031	.175**	.116*	.208**					
7. High school location (small town or village/big city)	-.124*	.115*	.008	-.160**	-.148**	.001				
8. Number of pupils in class	.020	-.122*	.037	.042	.015	.029	-.114*			
9. Type of high school (non-gymnasium/gymnasium)	-.150**	-.100*	.091*	.226**	.143**	-.062	-.143**	.141		
10. Relationship with teachers and peers	.045	.140**	-.044	.020	-.011	-.161**	-.116*	0.013	.171**	
11. Relationship with school's support staff	.090	-.031	-.001	.062	.011	-.117*	.072	-.001	.147**	.469**

Table 3 shows the results of the hierarchical regression analysis for explaining the probability of enrolment into first choice programme of study. The regression analysis comprised four steps (including the same variables which were comprised in four steps of hierarchical regression analysis performed by Rogošić (2016)). The first step of the regression analysis includes grade point average in high school and explains 1.4% of the criteria variable. Participants in the research who had better achievement in high school have an increased probability of enrolling into the preschool programme of study as their first choice ($\beta=.117$; $p<0.05$). The second degree of the regression analysis included variable which measured the level of education of family members where the level of mother's education emerged as a significant predictor ($\beta=-.227$; $p<0.001$) and 4.9% of the variance of the criteria variable was explained in the second step of hierarchical analysis. Achievement in high school lost a significant influence. The level of mother's education has a role of moderator as with introducing the mentioned variable, high school achievement lost its significance, which was confirmed by testing the moderator according to the instructions put forward by Baron & Kenny (1986) and Berger (2003). A lower educational level of mother increased the probability that the participant selected the preschool education programme of study as their first choice. The third step includes the variable which measured economic capital of the family, but did not show a significant contribution to explaining enrolment into first choice programme of study. The mother's level of education maintained a significant contribution in the third step ($\beta=-.219$; $p<0.001$). 5% of the variance of the criteria variable was explained in the third step. The last part of the regression analysis comprises variables that examined the school's social capital, while significant predictors were type of high school ($\beta=-.149$; $p<0.05$) and place (small or big city) where they went to high school ($\beta=-.179$; $p<0.001$), while mother's level of education continued to maintain its significant contribution in explaining the criteria variable ($\beta=-.202$; $p<0.05$). Attending grammar school and high school in smaller towns reduced the possibility of a participant to enrol the preschool education programme of study as the first choice. The final step in the regression analysis explains 10.3% of variance.

Table 3: Hierarchical regression analysis for explaining the probability of enrolling first choice programme of study (N=400)

	R ²	β	t	p
Step 1	.014*			
Average grade upon completion of high school		.117	2.343	.020
R= .117; R²= .014; Adjusted R²= .011; ΔF(1/398)= 5.49; p<0.05				
Step 2	.049***			
Average grade upon completion of high school		.088	1.779	.076
Mother's level of education		-.227	-3.795	.000
Father's level of education		-.106	-1.762	.079
Number of other family members who have a higher education		-.008	-.157	.875
R=.221; R²= .049; Adjusted R²= .039; ΔF(3/395)= 4.849; p<0.001				
Step 3	.050***			
Average grade upon completion of high school		.087	1.752	.081
Mother's level of education		-.219	-3.594	.000
Father's level of education		-.108	-1.790	.074
Number of other family members who have a higher education		-.012	-.240	.810
Sum of family's monthly income (parental household)		-.032	-.615	.539
R= .223; R²= .050 ; Adjusted R²= .037; ΔF(1/394)= .379; p<0.001				
Step 4	.103***			
Average grade upon completion of high school		.094	1.861	.063
Mother's level of education		-.202	-3.310	.001
Father's level of education		-.099	-1.678	.094
Number of other family members who have higher education		-.005	-.105	.916
Sum of monthly income of the family (parental household)		-.017	-.330	.742
High school type (gymnasium/other schools)		-.149	-2.918	.004
Location/place of high school (big city/small town or village)		-.179	-3.556	.000
Number of pupils in class		-.010	-.210	.834
Relationship with school's support staff		-.018	-.329	.743
Relationship with teachers and peers		-.046	-.815	.415
R=.321; R²= .103; Adjusted R²=.080; ΔF(5/389)= 4.653; p<0.001				

Note: The order of the selection of the study is encoded as follows: 1- I enrolled at the study programme of my fourth choice, I enrolled at the study programme of my third choice, 3-I enrolled at the study programme of my second choice, 4- I enrolled at the study programme of my first choice;

Type of high school was coded: 1- non-gymnasium school, 2-gymnasium school; Location of high school was coded: 1- high school in a big city. 2- high school in small town/village.

R-multiple correlation coefficient; *R*²-multiple determination coefficient; Adjusted *R*²- change of multiple correlation coefficient; **p*<0.05; ***p*<0.01 ;****p*<0.001 *df*'=degrees of freedom between groups; *df*^w= degrees of freedom within groups

Discussion

The average grade in high school in replicated research was not a significant predictor of enrolment into first-choice programme of study, which is the case in the original research. It is assumed that such results are related to concurrency during the competition for enrolment into a programme of study. In the original research participants were students from eight faculties of the University of Zagreb (belonging to the most diverse areas of interest: from the arts to the natural sciences) of which some programmes of study are far more attractive than the *Early and Preschool Education* (According to the data from the Agency for Science and Higher Education, 2015a; 2015b), which means more submissions, stricter criteria for enrolment and higher number of candidates, so that is probably the reason why high school grades had a significant impact on enrolment into first-choice programme of study for future school teachers but not for the future pre-school teachers.

Participants in this research who have completed grammar school and whose mothers were more educated aspired to enrol into a different programme of study whereas preschool education programme of study was enrolled as a kind of alternative. Such a finding is in agreement with the research results confirming mother's role in selecting a profession (Douvan, 1976; Muthukrishna & Sokoya, 2008) and correlation of parental expectations with choice of programme of study (Bait-Almal, 2012). Since parents generally want their children to achieve the same or higher socio-economic status than theirs (Edmonds, 2012) for parents with a lower level of education, enrolment of a child into any college often represents a step towards achieving social mobility, while for parents with a higher education the selection of programme of study is of crucial significance.

Results confirm the negative perception of the preschool teacher profession in the public eye which is consistent with findings of previous studies in Croatia (eg. Šimić-Šašić, Klarin & Lapić. 2011) and other countries (e.g. Berry, 1986; Ministry of Education and Research of Republic of Estonia, 2014). Such a perception is related with low wages of preschool teachers in the Republic of Croatia (Šimić-Šašić, Klarin & Lapić. 2011). Still, it is presumed that other factors such as the possibility for personal intellectual development, advancement at work and similar also have an influence.

The profession of school teachers (who were respondents in the original study) is perceived in Croatia as profession of low prestige, too. However, there is a difference between those samples: for example, Croatian language high school teachers can be proofreaders, math high school teachers can work in banks, and physical education high school teachers may be personal trainers etc. as opposed to pre-school education students who do not have such opportunities.

Furthermore, attending grammar school lessens the possibility that students select the preschool education programme of study as their first choice. If the fact that grammar schools are the most prestigious high schools, that they have the most demanding programmes, strict enrolment criteria and offer the broadest spectrum of general and abstract knowledge is taken into consideration, it is concluded that the possibility of an individual enrolling the preschool education programme of study as first choice diminishes as these are probably candidates with

best qualifications. Therefore, it can be concluded that a kind of negative selection of high school students is in place.

Results show that attending high school in smaller towns (rural areas) reduced the possibility of a participant to enrol the preschool education programme of study as the first choice. Considering that children who attended high school in rural areas often have lower scores in tests (Bracken, 2007; Hu, 2003; Klepač 2016) (e.g. state Matura examination) making it highly probable that in the inability to enrol a different programme of study they have opted for the preschool education programme, adding to the thesis on negative selection of high school students. Such conclusion should be checked through future research, particularly to establish whether the mentioned trend is growing or declining.

Contrary to the expected, aspect of high school social capital (relationship with teachers and peers) did not emerge as significant predictor of enrolment into first choice programme of study as it was case in original study (Rogošić, 2016). The differences in the findings can be explained by the fact that the respondents in the original study selected the teaching profession (they are future primary or high school teachers) because they were often inspired by their high school teachers with whom they had a good relationship. In qualitative part of the original study participants have testified that their high school teachers had been role models to them and because of their exemplary teachers they chose teacher profession which could not be the case with the respondents in the repeated research (as preschool teacher profession differs greatly from high school teacher profession).

Conclusion

Results of replicated study do not match findings of the original study, which is a valuable proof of the necessity of caution in cases where the results of sociological research of educational achievements attempt to generalize. Namely, the interpretations of the findings depend heavily on the characteristics of the sample and on contextual factors.

It is assumed that high school teachers have a stronger impact on the decision on the selection of programme of study for those students who intend to engage in the same profession as they are. Hence, the level of school social capital in the original study had a positive impact on the enrollment into first-choice programme of study which was not the case in the repeated research. Accordingly, the theory of social mobility was confirmed in original but failed in replicated study. Explanation for the failure of replication is that in the replicated study, there is a different set of contextual factors that modifies the postulated mechanism: preschool education programme of study is less attractive than programmes of primary and secondary teacher education and preschool teacher profession is a profession of lower prestige.

Considering the fact that participants in this research who have better qualifications and those with higher socio-economic status more often want to enroll some other, more attractive and more prestigious programme of study replicated results are more consistent with the findings of other similar research in Croatia (eg. Doolan, 2008; 2009) and with the theory of social reproduction (Buordieu, 1986) thus indicating that the theory of social mobility is probably valid in a specific research context (related to the sample comprising future school teachers).

Without conducting replication research it is not possible to compare differences in some specific social patterns and therefore replication is desirable and one of the fundamental scientific research methods. Hence, findings indicate the need for increased use of replication especially in survey research which La Sorte (1972) also emphasizes. Replication research often sheds light on controversial findings related to the characteristics of the sample and contextual factors thus contributing to the deepening of scientific knowledge and theory development.

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