

# Elements Influencing Study Success

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Study success can be influenced by following factors: (i) social elements (social class position, parents' education, parents' profession, parents' income); (ii) student-related factors (motivation, aptitude, effort, IQ, time spend on study, opportunity to learn, pre-university education); (iii) quality of instruction (organisation, course material, communication, assignments, exams, grading, course outcomes); (iv) curriculum (number of courses, sequence of courses, test schedule, system-block or parallel); (v) government (grant, student accommodation). In the paper the influence of these factors on study success is presented. Social and academic integration are central aspects. In the research we found out that "social elements" greatly influence the decision to enrol, but have less influence on marks received and the duration of study. Grants also greatly influence study success. We were surprised when we found out that factors from the "quality of instruction" group can only explain 12.3% of the variance of exam results.

**Keywords:** study success, students, social elements, academic elements

## 1 Introduction

On average, one-third of students in OECD<sup>1</sup> countries drop out before they complete their first degree, regardless of whether they are following university-level or advanced programmes. The dropout rate is much higher for advanced research programmes, with a survival rate of less than 60%. University-level survival rates differ widely among OECD countries, ranging from below 60% in Austria, France, Italy and Sweden to above 80% in Ireland, Japan, Turkey and the United Kingdom. Advanced vocational survival rates range from above 80% in Denmark, the Flemish Community of Belgium, Japan, Mexico, Poland and Sweden, to around 50% in Ireland and Italy (Higher Education: Quality, Equity and Efficiency 2006). In Slovenia the survival rate is about 66%.

Comparison of the study time needed to complete a first degree in the university sector shows that the United Kingdom clearly has the shortest study time, at 3.4 years, closely followed by Ireland with 3.6 years. At the other end of the scale, we find graduates in Germany and Austria take on average of up to twice as long (6.8 and 6.7 years). In Finland and in Portugal, students take about 6 years to graduate from university. The Netherlands and Spain are mid-range with average times of 5.2 and 5.5 years. In most of these countries, a degree in "engineering" takes longer than a degree in "humanities and arts". Particularly in Portugal, the Netherlands and Austria, these differences are substantial and amount to between one and two years (Eurostudent Report 2005). However, in Germany students studying "humanities and arts" take about 6

months longer to complete their studies than those studying engineering subjects (van den Berg and Hofman 2005).

In Slovenia the average graduation time is 6.9 years. The typical graduation age for students completing higher professional studies is between 24 and 25 years, for university studies 25 years, and for postgraduate studies between 30 and 34 years. On average, women graduate a year earlier than men. In 2004, 1,829 students graduated from vocational colleges, half of whom were women. The total number increased by 46.3% from 2003. Social sciences had the most graduates, followed by engineering and services. 11,608 students completed their undergraduate higher education studies, 3.3% more than in 2003. The proportion of women was 63.2%. 49.1% of students graduated from higher professional programmes and 50.9% from university programmes. In 2004, 1,096 students completed their master's degrees or specialisation studies, 1.3% more than in 2003. The proportion of women was 54.4%. The highest academic title, i.e. doctor of science, was awarded to 355 persons, 3.3% down on the previous year. Of these, 40.6% were women (Rapid Reports 2005).

In this study we aim to determine the extent to which: (i) social elements, (ii) quality of instruction, (iii) the curriculum, (iv) government and, (v) students themselves contribute to study success.

## 2 Elements influencing study success

The following five key elements influencing study success in higher education were considered: (i) social elements (social

<sup>1</sup> Organisation for Economic Cooperation and Development

class position, parents' education, parents' profession, parents' income); (ii) student-related factors (motivation, aptitude, effort, IQ, time spend on study, opportunity to learn, pre-university education); (iii) quality of instruction (organisation, course material, communication, assignments, exams, grading, course outcomes); (iv) curriculum (number of courses, sequence of courses, test schedule, system-block or parallel); (v) government (grant, student accommodation).

### *Social elements*

The different ways in which children are brought up influence their desire and capacity to learn, and their adaptability to the requirements of school. Middle-class parents have been found to expect more of their children, who internalise those expectations – expecting more of themselves, they care more about achievement at school. Moreover, in middle-class families, children will generally have been better prepared to make good use of school, because their relations with their parents will have prepared them for relations with their teachers, and the activities their parents encourage will have resembled those of the school (Phelps Brown 1979). Analysing extensive US data, Duncan (1967) found that large families exerted a consistently depressing effect on educational attainment relative to the attainments of children from small families. It is understandable that where there are fewer children in the family, the parents have more resources with which to support the education of each child and more time in which to attend to the progress of each. But they will not do this simply because their children are few: they must also have the will to do it. Blau and Duncan (1967) found that with parents of a given socio-economic status, boys from small families where the eldest brother did not go beyond elementary school enjoyed no educational advantage over boys from large families.

Bowles and Gintis (2001) found that parental economic status is passed on to children in part by means of unequal educational opportunity, but that the economic advantages of the offspring of higher social status families go considerably beyond the superior education they receive. The authors believe that the social class into which an individual was born leads to the principal differences in educational levels.

Van den Berg and Hofman (2005) claim that the education and professions of students' parents, as well as parental income, are strongly associated with students' study progress.

Bevc (2003) measured the success of students at Slovenian faculties, and found that the ratio of graduate students is proportional to the level of education of their parents. But she also found that, in Slovenia, a relatively large number of graduate students also come from poor families. This is, for instance, not the case in the United Kingdom. In the UK, university dropout rates for working-class students have been identified as one of the most pressing issues in the higher education sector (Quinn 2004).

The aim of our study was to determine the extent to which the social class into which students are born, and their parents' education, profession and income affect students' study progress. The Goldthorpe class schema was used to define social class position (see Goldthorpe, 1980).

### *Student-related factors*

Developmental factors and students' perceptions about their own abilities also affect their level of engagement in learning. The older that students get, the less likely they are to take risks and engage themselves fully in activities at which they are not sure they will succeed. Students' attitudes about their abilities and their interpretation of success and failure further affect their willingness to engage themselves in learning (Anderman and Midgley, 1998).

According to Jansen (2004), dedication, planning behaviour and the way time is spent also affect academic success. It goes without saying that the amount of time students spend studying is an important factor. Carroll's model of school learning (1963) established the importance of effective study time. Carroll stated that effective use of study time is enhanced by an optimal learning environment, with two preconditions: 'quality of instruction' and 'opportunity to learn'.

Furthermore, there is evidence that student characteristics like sex, age, and grade point average in pre-university education are linked to study success or study progress (Jansen 2004). Van der Hulst and Jansen (2002) and Lindblom-Ylänne et al. (1999) reported that ability or grade point average (gpa) in pre-university education affected achievement in higher education. As far as access to higher education is concerned, women have in the meantime overtaken men (Eurostudent Report 2005). In Slovenia, 60.4% of graduates in 2004 were women (Rapid Reports 2005). Shah and Burke (1999) also reported better university results for female students. According to Macan et al. (1990), women are better time managers than men and have greater work discipline. Intrinsically motivated students actively engage themselves in learning out of curiosity, interest, or enjoyment, or in order to achieve their own intellectual and personal goals. According to Dev (1997) "A student who is intrinsically motivated . . . will not need any type of reward or incentive to initiate or complete a task. This type of student is more likely to complete the chosen task and be excited by the challenging nature of an activity". Perhaps this helps explain why female students are performing better than male students. Finally, age can be seen as a proxy for ability. Older students have likely had more delays in pre-university education, and we can expect their suitability in terms of ability to be lower (Jansen 2004).

### *Quality of instruction*

Slavin (1995) assumed that quality of instruction refers to the extent to which information or skills are presented to students clearly. Studies on the quality aspect of instruction have shown that knowledge and skills must be presented in an organised and structured manner (Feldman 1989; Slavin 1995). In courses, teachers can achieve structure and organisation by, e.g. presenting information in an organised and orderly way, noting transitions to new topics, using clear and simple language, using many vivid images and examples and rating essential principles (Slavin 1995). In addition to presenting content in an organised and structured manner, research has shown that it is important that students know how to complete and what to expect from a particular course (Feldman 1989; Creemers 1994; Finaly-Neuman 1994).

This feedback loop is one of the most important stimulating mechanisms; what is being assessed determines what students study, how many hours they spend studying, how many classes they attend, and the approaches they take to studying (Biggs 1996). Another important aspect pertaining to the quality of instruction is the pace of instruction. Whenever the teacher sets a pace appropriate to the needs of students with the required background knowledge, students lacking this required background will fall behind. On the other hand, setting the pace to suit the needs of students without the required background knowledge will result in a motivational loss (Slavin 1995). Another aspect pertaining to the quality of instruction is the stimulating effect of instruction. The student's motivation to study may come from the intrinsic value of the subject that is being studied, but it can also be enhanced by extrinsic incentives, such as positive feedback, stimulation of interest in the course and subject-matter, encouraging students to ask questions, discussion and openness to opinions, intellectual challenge, encouragement of independent thought and teacher's enthusiasm (Feldman 1989). Tuckman (1991) found that factors such as the scale of the task, informational feedback, encouragement, goal setting, group outcomes and preset versus normative standards had a considerable influence on effort and persistence.

### *Curriculum*

There are many different conceptions of curriculum. The curriculum may include any educational experience. It may also be conceived of in a relationship, and it is this phenomenon that is the new paradigm view of the curriculum. The curriculum may relate to the range of courses that students can select from, but may also relate to a specific programme. In the latter context, the curriculum describes the collective teaching, learning and assessment materials available for a particular course. A crucial part of the curriculum is the definition of the course objectives, often expressed in terms of learning outcomes and normally including the assessment strategy for the programme. These learning outcomes (and assessments) are often grouped into units (or modules) and the curriculum, therefore, comprises a collection of such units, each concentrating on a specific part of the curriculum. So a typical curriculum would include units on communications, information technology, inter-personal skills together with more specialised provision (Curriculum, 2007). Cornbleth (1990) stated: "Curriculum construction is an ongoing social activity that is shaped by various contextual influences within and beyond the classroom and accomplished interactively, primarily by teachers and students. The curriculum is not a tangible product but the actual, day-to-day interactions of students, teachers, knowledge and milieu."

Jansen (2004) demonstrated in his research that scheduling fewer parallel courses helps improve study progress. Students adjust their study behaviour to the way the curriculum is organised. Students' study attitudes change when an exam or test is approaching. Having fewer courses and tests to contend with at the one time will lead to the optimal use of study time. Block teaching, i.e., where courses are taught one at a time and are immediately completed with a test, results in improved study progress (Vaughan and Carlson 1992; Nonis et al. 1998;

Jansen 2004). Starting from time management behaviour, they stated that exams, assignments and projects should be scheduled at short, regular intervals, and that major assignments and projects should be divided into smaller parts with separate deadlines. Furthermore, Jansen (2004) claims that it is far better not to spread re-tests over the whole year. Opinions gathered in his research differ as to when re-tests should be taken. They should almost certainly be taken as close as possible to the initial exam, in order to make full use of the knowledge already acquired. Once classes have resumed, it is unwise to also have re-tests, as almost invariably both will suffer.

### *Government*

The last element of our study progress model in higher education is government. In Slovenia, regular education is free. There are no tuition fees yet, but the government is considering introducing them into the school system. Students claim that about 30.0% of today's students will be unable to study if tuition fees are introduced. In 2003 Slovenia set aside 130 million euros for scholarships, with 37.3% for secondary schools and the rest for university faculties. Slovenia provides 29 student residences containing 10,010 beds. Residences give priority to individuals with lower income (Annual Statistics of the Republic of Slovenia 2005).

## **3 Methodology**

In our research we wanted to find out: (i) which elements influence study success and (ii) to which extent.

We tested the validity of the model through a questionnaire. The paper-and-pencil survey was carried out. We interviewed 1068 students at three universities in Slovenia: the University of Ljubljana, the University of Maribor, and the University of Primorska. We interviewed only students who had passed at least one year of study at university. Sampling was random.

The questionnaire comprised 45 questions relating to (1) data on the respondent (age, sex, year of study, study method etc.) and (2) elements described in the previous chapter. The questionnaire was of the closed type.

The characteristics of the sample compared to the whole student population are as follows (Table 1, Table 2):

The average age of those surveyed was 23 years 1 month. The youngest was 19 and the oldest 50.

In Slovenia there is still no report on research into membership of social classes, and so we were unable to compare the structure of the sample with the actual structure of the whole population with regard to membership of social classes. We did however compare the education of the fathers of those surveyed with the educational structure of the total population of employees in Slovenia. The results of the comparison are shown in the table 2.

Educational degrees: (I) did not finish primary school, (II) finished primary school (8 years), (III) secondary school (2 years), (IV) secondary school (3 years), (V) secondary school (4 years), (VI) two year study, (VII) higher education and (VII+) master's degree, doctorate degree.

Table 1. Comparison of the structure of the sample with the total student population

TOTAL STUDENT POPULATION IN SLOVENIA, 2005/6*		SAMPLE	
Total number of students	<b>92.204</b>	Number students surveyed	<b>1068</b>
Of which male	52,678 (40.1%)	Of which male	452 (42.3%)
Of which female	55,318 (59.9%)	Of which female	616 (57.7%)
Number part-time students	21,289 (23.0%)	Surveyed part-time students	254 (23.8%).
Number full-time students	70,915 (76.9%)	Surveyed full-time students	814 (76.2%),

\* Statistical Yearbook of the Republic of Slovenia 2006

Table 2. Comparison of structure of the sample with regard to father's education and the educational structure of the total population of employees

		SAMPLE Education of father of surveyed students		Total population of employees in Slovenia *
		Frequency	Percent	Percent
	I	23	2.2	0.3
	II	63	5.9	12.4
	III	71	6.6	5.9
	IV	306	28.7	28.0
	V	353	33.1	28.3
	VI	86	8.1	7.2
	VII	122	11.4	16.9
	VII+	19	1.8	1.0
	<b>Total</b>	<b>1043</b>	<b>97.7</b>	<b>100</b>
Not known		25	2.3	0
Total		1068	100.0	100

\* Statistical Yearbook of the Republic of Slovenia 2006

Educational degrees: (I) did not finish primary school, (II) finished primary school (8 years), (III) secondary school (2 years), (IV) secondary school (3 years), (V) secondary school (4 years), (VI) two year study, (VII) higher education and (VII+) master's degree, doctorate degree.

For questions 23 to 45 (where we offered respondents a scale of answers from 1 to 7) we calculated Cronbach's alpha coefficient. The value calculated is 0.944, which indicates great reliability of measurement. With regard to the composition and characteristics of the sample, we believe that it is representative.

## 4 Results

"Study success" was measured by asking students the following:

**A** – How many months did you take to complete your last study year? The survey asked students how long (months) they needed to successfully complete their previous study year.

**B** – Average grade for last completed year. We asked students what was their average grade for exams in their last completed year. A scale from 1 to 10 is used in Slovenia, where a

grade of 1 to 5 means that the student failed the exam, 6 means "satisfactory", 7 means "good", 8 and 9 mean "very good" and 10 means "excellent". We only surveyed students who had successfully completed at least one study year.

**C** – Grade (1 to 10) received at the last exam you sat. We asked students the grade they received at the last exam they sat.

**D** – Number of re-tests of the last exam. We asked students how many times they had taken the exam they last sat.

Variables A, B, C and D are dependent variables (Table 3).

### Social elements

Our research measured the following "social elements" (Table 4):

**E** – Father's education and **F** – mother's education. The definitions used in Slovenia for level of education are ((I) did not finish primary school, (II) finished primary school (8 years), (III) secondary school (2 years), (IV) secondary school

Table 3. Frequency table for variables A, B, C, D

		A	B	C	D
N = 1068	Valid	1029	1053	1061	1052
	Missing	39	15	7	16
Mean		11.94	7.5745	7.26	1.74
Median		10.00	7.5000	7.00	1.00
Std. Deviation		5.391	.70121	1.494	1.121

A – How many months did you take to complete your last study year?

B – Average grade in last completed year.

C – Grade (1 to 10) received at the last exam you sat.

D – Number of re-tests of the last exam.

Table 4. Frequency table for variables E, F, G, H

		E	F	G	H
N = 1068	Valid	1043	1059	1009	1067
	Missing	25	9	59	1
Mean		4.67	4.72	4.64	3.54
Median		5.00	5.0	4.00	4.00
Std. Deviation		1.439	1.527	2.581	0.797

E- father's education

F- mother's education

G- social class

H- current financial-material conditions

Table 5. Pearson correlation coefficients (n=1068).

	A	B	C	D	E	F	G	H
A	1							
B	-.223(**)	1						
C	-.125(**)	.359(**)	1					
D	.164(**)	-.248(**)	-.277(**)	1				
E	.000	.046	-.001	.016	1			
F	-.013	.002	-.054	.029	.578(**)	1		
G	.005	-.021	.015	-.067(*)	-.514(**)	-.568(**)	1	
H	-.062(*)	.115(**)	.040	-.019	.155(**)	.188(**)	-.185(**)	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

(3 years), (V) secondary school (4 years), (VI) two year study, (VII) higher education, and (VII+).

**G** - Social class. In the questionnaire we used the Goldthorpe class schema (Goldthorpe, 1980).

**H** – We asked students about the financial and material conditions in which they live, and offered responses from 1 (socially at risk) to 5 (excellently provided-for).

Calculation of the Pearson correlation coefficients between the dependent variables and the variables from the “social elements” group is shown in Table 5.

We could conclude from Table 5 that there is no correlation between the dependent variables and the social elements (parental education, social origin and financial and material conditions). During detailed analysis of the results, we came to the following conclusions.

The level of risk of poverty in Slovenia in 2003 was 11.7%. Of the surveyed students, only 1.2% were “socially at risk”. In the whole sample, 15.3% came from families whose financial status was poor, 43.1% from the middle, 37.6 regarded their financial status as satisfactory, and 3.9% as excellent. From this we conclude that the “financial status of the family” greatly influences the decision to go to university. These findings match those of Bowles and Gintis (2001), which we have already cited in this paper.

We also observed very great differences in the structure of students with regard to the difficulty level of study. In Slovenia, faculties offer study at the more demanding, so-called university level and at the less demanding, so-called higher education professional level. Of students at university level, as many as 70.6% came from higher social classes (classes I, II, IIIa and IIIb in the Goldthorpe class scheme). We interpret this to mean that children from higher social classes have higher goals, which matches the findings of other authors, e.g. Hyman (1953), Van den Berg and Hofman (2005), Bevc (2003). However, our findings do not match those of Quinn (2004).

We draw the following conclusions:

1. We did not find any direct correlation between the dependent variables and the observed social elements.
2. “Social elements” in Slovenia indirectly influence the final educational outcome of the individual. Social elements influence whether someone will go to university, and the difficulty level at which they will study. Our findings are thus not inconsistent with those of Hyman (1953) and Phelps-Brown (1979), as well as Bowles and Gintis (2001) and Toličič and Zorman (1977).
3. An important limitation of our research is that, due to the protection of students’ personal data, we could not study those who had enrolled at university but had failed.

#### *Student-related factors*

We researched the influence of the following “student related factors” on the dependent variables (Table 6):

1. Gender, age.
2. Method of study (full-/part-time).

3. Time spent on study (we asked students how many hours a week they spend studying).
4. We asked students how often they attended lectures, offering the possible responses: 1-“I attend up to 20% of lectures”, 2-“I attend between 20 and 40% of lectures”, 3-“I attend between 40 and 60% of lectures”; 4-“I attend between 60 and 80% of lectures” and 5-“I attend between 80 and 100% of lectures”.
5. Pre-university education (we asked students how successful they were at secondary school, with the following options: 1-completed after re-tests; 2-satisfactory; 3-good; 4-very good and 5-excellent. We did not ask students what type of school (e.g. *gimnazija*, secondary technical school, ...) they attended.
6. We did not ask students questions relating to motivation for study. We did however ask students how satisfied they were with their educational achievements. We offered them options from 1 (“very unsatisfied”) to 5 (“very satisfied”).

It is clear from Table 7 that there is a weak correlation ( $r=0.223$ ; *Correlation is significant at the 0.01 level (2-tailed)*) between the time taken to complete the year and the average grade for the year. Those who completed the year quicker generally have slightly better grades.

There is a correlation ( $r=0.368$ ) between the average grade for the last completed year and success at secondary school. Van der Hulst and Jansen (2002), Lindblom-Ylänne et al. (1999) reported that ability or grade point average (gpa) in pre-university education affected achievement in higher education. We found that the sample included only 15 (1.4%) students who repeated at least once year in secondary school, and only 38 (3.6%) who had completed secondary school with only satisfactory results. We therefore also conducted correlation analysis on a stratified sample ( $n=75$ ). The calculated Pearson correlation coefficient for the stratified sample is 0.350. This confirms the finding that there is a significant correlation between success at secondary school and success at university.

We did not directly measure the influence of motivation on success. We believe that an individual’s motivation cannot be directly measured using objective criteria. We therefore asked students how satisfied they were with themselves. The-

Table 6. Frequency table for variables I, J, K, L, M

		I	J	K	L	M
N = 1068	Valid	1059	1045	1065	1066	1035
	Missing	9	23	3	2	33
Mean		3.61	3.54	23.12	4.00	23.42
Median		4.00	4.00	22.00	4.00	20.00
Std. Deviation		0.819	0.773	4.870	1.1098	14.837

I – How successful were you at secondary school?

J – How satisfied in general are you with your success?

K – Age

L – How often do you attend lectures?

M – How many hours a week on average do you spend studying (attending lectures, practicals, learning, seminar papers etc.)?

Table 7. Correlations between dependent variables and certain factors from the “student” group (n=1068)

	A	B	C	D	I	J	K	L	M
A	1								
B	-.223(**)	1							
C	-.125(**)	.359(**)	1						
D	.164(**)	-.248(**)	-.277(**)	1					
I	-.161(**)	.368(**)	.088(**)	-.141(**)	1				
J	-.228(**)	.406(**)	.210(**)	-.222(**)	.180(**)	1			
K	.065(*)	.034	.174(**)	-.116(**)	-.079(*)	.057	1		
L	-.053	.134(**)	.148(**)	-.093(**)	.081(**)	.098(**)	.056	1	
M	-.065(*)	.208(**)	.003	-.007	.205(**)	.054	-.264(**)	.259(**)	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

re is a considerable positive correlation between self-image and average grade for the year ( $r=0.406$ ). Through regression analysis ( $\Delta R^2=0,166$ ) we confirmed the findings of Anderman and Midgley (1998), who emphasise the importance of motivation.

We found there is no correlation between the age of the student and the average grade for the year. Likewise, there is no correlation between attendance at lectures and average grade. This result surprised us somewhat. We interpret it to mean that many faculties have well organised distance study, and so many students are successful despite not actually attending lectures. In addition, many students also work. They organise their time in their own way, and are evidently fairly successful in doing so.

There is however a correlation between time spent studying and average grade ( $r=0.208$ ). This confirmed the findings of Carroll (1963) and Jansen (2004) on the existence of this correlation. We find however that the correlation is less than we expected.

We further found that part-time students spend less time studying. We therefore calculated the Pearson correlation coefficient between time spent studying and average grade sepa-

rately for the sample of part-time students. Even in this case the correlation is fairly small ( $r=0.278$ ). Our research did not examine the mental abilities of students and their IQs. Given the results of the correlation analysis between average grade and most factors from the student group, we suspect that the most important factor is in fact the mental abilities of students.

Shah and Burke (1999) reported better results in university for female students. We also investigated how the sex of students influences outcomes. The results are shown in Table 8.

We performed the mean difference test. We found:

1. There is no statistically significant difference ( $t = -1.907$ ;  $\alpha=0.05$ ;  $p_\alpha=0.057$ ) between men and women at faculties in the average grade of the last completed year, although we found that women had completed secondary school with slightly better average results ( $t = -4.984$ ;  $\alpha=0.05$ ;  $p_\alpha=0.00$ ).
2. The mean difference test showed that there were no statistically significant differences between men and women in the grade received at the last exam.
3. There are statistically significant differences between men and women in the time spent on study ( $t = 4.267$ ;  $\alpha=0.05$ ;

Table 8: Comparison of the state of dependent variables with regard to the sex of the student

	A		B		C		D	
	male	female	male	female	male	female	male	female
<b>Valid</b>	435	594	436	597	436	597	436	597
<b>Missing</b>	17	22	16	19	16	19	16	19
<b>Mean</b>	12.83	11.28	7.5313	7.6128	7.21	7.29	1.78	1.70
<b>Median</b>	11.00	10.00	7.5000	7.5000	7.00	7.00	1.00	1.00
<b>Std. Deviation</b>	6.770	3.977	0.70856	0.69469	1.532	1.477	1.186	1.054
<b>Min</b>	2	2	6.00	6.00	1	1	1	1
<b>max</b>	60	36	10.00	9.60	10	10	9	8

A – How many months did you take to complete your last study year?

B – Average grade in last completed year.

C – Grade (1 to 10) received at the last exam you sat.

D – Number of re-tests of the last exam.

Table 9: Comparison of time spent on study (hours weekly).

	N=1068		N=1064	
	men	women	Full-time	Part-time
<b>Valid</b>	436	595	792	239
<b>Missing</b>	16	21	19	14
<b>Mean</b>	21.63	24.76	26.33	13.85
<b>Median</b>	20.00	20.00	25.00	12.00
<b>Std. Deviation</b>	14.004	15.279	14.828	10.031

Table 10: Comparison of the state of dependent variables with regard to study method

N =1064	A		B		C		D	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
<b>Valid</b>	779	222	779	222	779	222	779	222
<b>Missing</b>	32	31	32	31	32	31	32	31
<b>Mean</b>	11.79	12.36	7.5751	7.6155	7.14	7.71	1.83	1.42
<b>Median</b>	10.00	12.00	7.5000	7.5000	7.00	8.00	1.00	1.00
<b>Std. Deviation</b>	5.523	5.051	0.70251	0.67579	1.454	1.540	1.129	1.016
<b>Min</b>	2	2	6.00	6.00	1	1	1	1
<b>max</b>	60	36	10.00	9.60	10	10	9	8

A – How many months did you take to complete your last study year?

B – Average grade in last completed year.

C – Grade (1 to 10) received at the last exam you sat.

D – Number of re-tests of the last exam.

$p_{\alpha}=0.00$ ). Women complete years faster than men, We see the reason for this in the fact that women spend more time per week studying than men.

Women spend more hours a week studying than men. This is clear at first glance from Table 9, and the conclusion is confirmed by the t-test ( $t = -3.455$ ;  $\alpha=0.05$ ;  $p_{\alpha}=0.001$ ). According to Macan et al. (1990), women are better time managers than man and have higher work discipline.

Full-time students spend considerably more time studying than part-time, as can be seen from Table 10 and from the t-test ( $t=14.929$ ;  $\alpha=0.05$ ;  $p_{\alpha}=0.00$ ).

We conducted the mean difference test. We found that there was no statistically significant difference ( $t = 0.035$ ;  $\alpha=0.05$ ;  $p_{\alpha}=0.972$ ) between full-time and part-time students in the average grade for the last completed year. Likewise there was no statistically significant difference between full-time and part-time students in the time taken to complete the last completed year, which surprised us ( $t = 1.385$ ;  $\alpha=0.05$ ;  $p_{\alpha}=0.166$ ).

### Quality of instruction

We studied the influence of factors under the heading “quality of instruction” by determining the influence of 23 factors. On the basis of this factor analysis we obtained five new factors from 23 elements of quality.

We also conducted regression analysis, from which we found the influence of factors on the dependent variable (see

Table 11 and Table 12). The dependent variable was the grade received at the last exam.

We found that the five new variables can account for 12.3% of the variance of grades received at the last exam. The total influence of the factors from the “quality of instruction” group seems smaller than expected. Within this influence, we used regression analysis to investigate the influence of individual factors on the grade at the exam.

We found that the first four factors (1) organisation, (2) course outcomes, (3) course material, and (4) assignments, exams, grading were statistically significant. “Course outcomes” and “assignments, exams, grading” are particularly important.

Like Jansen (2004), we also believe that the type of testing can play an important role in achievement.

The factor “organisation” is not the most important. Its influence is in fact much less than we expected. In our research, we found that many students in Slovenia very rarely attend lectures. Only 62% attend at least 60% of lectures. The reason for this situation is that only 27.1% of students surveyed have no job outside study, while some 37.9% work 20 hours or more per week to pay for their upkeep. The system of work in faculties evidently enables this. The “frequency of attending lectures” and consequently also the “organisation” factor has therefore (statistically speaking) relatively little influence on study success. This means that many students study alone and prepare individually for exams. Materials replace professors. Elements such as accessibility of materials,



Table 11: Regression factor score

Model	R	R <sup>2</sup>	$\Delta R^2$	Std. Error of the Est.
1	.351(a)	.123	.118	1.405

a Predictors: (Constant), REGR factor score 5 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 1 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 4 for analysis 1

Table 12: Coefficients of the five new variables

	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	7.356	.046		159.268	.000
Factor 1: “ <b>Organisation</b> ”	.187	.045	.125	4.134	.000
Factor 2: “ <b>Course outcomes</b> ”	.326	.046	.216	7.084	.000
Factor 3: “ <b>Course material</b> ”	.191	.045	.130	4.277	.000
Factor 4: “ <b>Assignments, exams, grading</b> ”	.302	.045	.203	6.673	.000
Factor 5: “ <b>Communication</b> ”	.003	.045	.002	.058	.954

a Dependent Variable: Grade received (1 to 10) at the last exam sat.

structure and content of materials therefore have an important influence on the success of students in studying individual subjects and preparing for exams.

In a similar way, we also investigated the influence of “quality of instruction” factors on the variable “number of re-tests of last exam”. Once again in this case factor analysis revealed factors in terms of content almost entirely matching the content elements shown in Table 1. We were surprised when we found that their influence on the number of re-tests was statistically similarly small as the influence on the grade received at the exam.

The research did not confirm the influence of the “communication” factor. This conclusion does not surprise us, since in practice we find that the tutorial method of study has not yet become established in Slovenia. There were 87,205 students enrolled in faculties in 2003/4, and 6137 full time teachers. Professors in numerous faculties are overburdened. In their studies, many students therefore never seek individual help from a professor. This is a weakness of the system of higher education in Slovenia.

Viewed as a whole, the research confirmed the previous conclusions of researchers mentioned in the first part of the paper. The influence of factors from the “quality of instruction” group seems small to us. We interpret this to mean that students have to adapt to the professor. They prepare for exams even if they are not satisfied with the quality.

### Government

In our research we measured the following factors from the “government” group:

We asked students if they live in student residences. Of the students surveyed, 173 (16.2%) live in student residences, with the remainder living elsewhere. We did not ask students about the distance from their place of residence to school.

We asked students if they receive a grant. Of 1068 students surveyed, 322 (30.1%) received a grant, 80 (7.5%) had partly or fully paid tuition, and 666 (62.4%) received neither a grant nor tuition.

We found that living in a student residence is not a factor influencing the duration of study. This is also confirmed by the t-test ( $t=-1.453$ ;  $\alpha=0.05$ );  $p_\alpha=0.147$ ). Living in a student residence is likewise not a factor that influences the average grade of the last completed year (Table 13). This is again confirmed by the t-test ( $t=1.105$ ;  $\alpha=0.05$ ;  $p_\alpha=0.269$ ).

On the basis of analysis of the results of the survey, we believe that living in a student residence is not a factor influencing study success. Of course we cannot speculate on how things would be if those living in student residences did not have this option.

We found that receipt of a grant is a factor influencing the duration of study (Table 14). We found that students not receiving grants on average took somewhat longer to complete the previous year. The difference is not great, but is statistically significant. This is confirmed by the t-test ( $t=-1.933$ ;  $\alpha=0.1$ ;  $p_\alpha=0.054$ ). Receipt of a grant is also a factor that influences the average grade of the last completed year. Again in this case the difference is not great, but is statistically significant. This is also confirmed by the t-test ( $t=4.206$ ;  $\alpha=0.05$ ;  $p_\alpha=0.000$ ).

Based on analysis of the results of the survey, we find that receipt of a grant is a factor that influences study success.

Table 13: Comparison of dependent variables with regard to place of residence (lives/does not live in student residence)

N =1065	A		B	
	yes	no	yes	no
<b>Valid</b>	161	841	161	841
<b>Missing</b>	12	51	12	51
<b>Mean</b>	11.30	12.04	7.6397	7.5728
<b>Median</b>	10.00	10.00	7.5000	7.5000
<b>Std. Deviation</b>	4.388	5.591	0.7008	0.69673

A – How many months did you take to complete your last study year?

B – Average grade in last completed year.

Table 14. Comparison of the state of dependent variables with regard to receipt of grants (yes/no receives grant)

N =1064	A		B	
	yes	no	yes	no
<b>Valid</b>	387	633	387	633
<b>Missing</b>	15	29	15	29
<b>Mean</b>	11.52	12.21	7.6907	7.5123
<b>Median</b>	10.00	10.00	7.6000	7.5000
<b>Std. Deviation</b>	4.333	5.956	0.74162	0.66507

A – How many months did you take to complete your last study year?

B – Average grade in last completed year.

Table 15. Influence of grants on the extent of student labour

CLAIM	Receive grant (n=403)	No grant (n=665)
In addition to study, I do no other work	35.2 %	22.1%
In addition to study, I work 20 hours a week or more	28.8%	43.5%

Those students who do not receive a grant spend more time earning money to live on. This is clear from Table 15.

Student labour is reflected in study success. Of course, we cannot in this case speculate on the situation if those receiving grants did not receive them.

## 5 Conclusion

Many authors, long before us, have asked which factors influence study success. Based on knowledge of the theories and results of previous research we established a “The model of study progress”. Through the empirical research presented, we wanted to investigate whether the model also applies in Slovenia. In principle we can claim that the findings of other authors regarding the factors that influence study success and study progress also apply in Slovenia.

The results of our research are in certain details somewhat different from other countries. Slovenia as a post-communist

country is undoubtedly different from West European countries such as the Netherlands or the UK.

Thus we found that there is no link between the “social elements” group and the average grade for the year or time taken to complete last year. We did however find that social elements influence whether someone even enrolls at university. They do not however influence exam results. As said previously, we were unable to determine why students drop out of the system, and what role social elements play in this. Research dealing with these issues will in future represent a major challenge.

Our research had certain limitations. One very important limitation of our research is that we were unable to study “survival” of students in the education system. Many authors have undertaken precisely such research. Slovenia is one of the countries with a very high drop out rate. Data on such students is sadly lacking in our research. In Slovenia we were unable to undertake very detailed research on a sample of these students due to legislation protecting students’ personal data. For the

same reasons, we were unable to study in greater detail how certain factors from the “student” group (e.g. IQ) influence success. Due to protection of confidential data on schools, we were unable to investigate the influence of factors from the “curriculum” group (e.g. organisation of lectures) on success.

We believe that the mental abilities and positive attitude and the related student motivation are still the most important factor in study success. We therefore believe that it is necessary to maintain access to education for talented students from lower social classes. We found that we will have to find a mechanism to ensure greater student attendance at lectures and to ensure greater influence of lectures on success. Given the situation we have found, we believe that at present something is not as it should be in this field. We thus advise professors and faculty management to pay considerable attention to ensuring “quality of instruction”.

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### **Elementi, ki vplivajo na uspeh študentov**

Na uspeh študentov lahko vplivajo naslednji elementi: (i) socialni elementi (socialni razred, izobrazba staršev, poklic staršev, dohodki staršev); (ii) elementi, vezani na študenta (motivacija, odnos, trud, inteligenčni kvocient, čas, porabljen za študij, možnosti za študij, srednješolska izobrazba); (iii) kakovost izvedne izobraževalnega procesa (organizacija, učno gradivo, komunikacija, naloge, izpiti, ocenjevanje, rezultati); (iv) kurikulum (število predmetov, zaporednost predmetov, urnik izpitov, sistem - blokovni ali paralelni); (v) država (štipendija, nastanitev). V prispevku je prikazan vpliv navedenih elementov na uspešnost študenta. Ugotovili smo, da socialni elementi vplivajo predvsem na odločitev posameznika za študij, na pa toliko na prejete ocene in čas trajanja študija. Uspeh je povezan tudi s prejemanjem štipendije. Presenečeni pa smo nad ugotovitvijo nizkega vpliva elementov kakovosti izvedbe izobraževalnega procesa na rezultate študentov.

**Ključne besede:** uspeh, študentje, socialni elementi, akademski elementi