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## Analysis of the Students' Socio-Demographic Profile

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### 1. Introduction

The paper describes statistical analysis of the students' profile. The Centre for higher education Ptuj (Revivis Ptuj) was established to encourage tertiary education in a specific region of the Republic of Slovenia. The aim of the Centre is to offer different study programs, the so-called guest study programs, to the local population as well as to establish a new high school. Students in the Centre for higher education were analyzed to get information for support of the high school education progress and quality as well as student centered curriculum development. The aim of the research was to find out a socio-demographic profile of students, a dynamic of students' profile variables and if the analyzed students have their own particularities of the selected indicators. Some indicators of interest were proposed, analyzed and compared with the profile of students from the nearby university. Supported by this research, the decisions regarding the high education development in our particular region were made.

Methods of descriptive statistics and statistical analyzes (Montgomery and Runger, 2003; Knežević, 2006) were used. The unit of the analysis was a student. Statistical socio-demographic and pedagogic variables of the students in the study centre were gathered by the use of a questionnaire. The sampling procedure used was random sampling. An analysis was made by descriptive statistic methods as well as by statistical inference methods where chi-squared test was performed.

The analyses comprised data of the students of the Centre for higher education in Ptuj, situated in the north-eastern part of Slovenia. Significant socio demographic indicators were emphasized and analyzed. Among proposed indicators were: gender, age, distance from the school, parents' education, final school result, an alternative to a selected study place, international students' exchange, employment status during the study, employment chances after the study, place of living, type of dwelling, preferred study form, etc. The questionnaire should be constantly updated with regards to experiences and new requirements.

The present paper introduces a two step-approach. In the first step is done a longitudinal evaluation of the indicators. In this particular example data from the academic years 2006/07 (Težak, 2007) and 2007/08 (Težak, 2008) were analyzed.

In the second step a comparison between students' profiles is done. Valuable data for comparison can be found in (Evroštudent SI, 2007; Eurostudent III, 2008). In this particular example a comparison between undergraduate and graduate students of tourism at Centre for higher education and students of the nearby university (Flere, 2005), was done. The research was a part of a development process of a new tourism study course; therefore the research comprised only students of tourism programs.

## 2. Methodological Remarks

The purpose of the research is to establish some students' socio-demographic and pedagogical profile indicators. Also, two research hypotheses are set. The first is: "The structure of the students' answers is similar for the study year 2006/07 and 2007/08". The second research hypothesis is: "The structure of the students at the Centre for higher education is similar to the structure of the students at the University of Maribor".

Survey results of the students profile can be found at the web pages for Slovenia (Evroštudent SI, 2007) and for other European countries (Eurostudent III, 2008), but they cannot describe our potential students in details. In the academic year 2007/08 we performed a survey of the students' profile as well as in the study year before (Težak, 2007; Težak, 2008). The purpose of the survey is to define some indicators of student's life, as well as to put the findings into broader social circumstances.

The unit of the analysis is a student. The research instrument used was a standardized questionnaire completed by students. The sampling procedure used was random sampling.

To test the first hypothesis, the universe consisted of students who attended lectures of all study programs performed at the Centre for higher education Ptuj. The sample numbers are  $n_1 = 41$  units and  $n_2 = 83$  units, for the successive academic years respectively. Described are characteristics such as: student's gender and age profile, family status of student, social background and a source of income, students' mobility and employment possibilities.

The second hypothesis comprised students who attended lectures of undergraduate and graduate study programs of tourism, performed at the Centre for higher education in Ptuj,  $n_1 = 61$  units. The second source of data are students of the University of Maribor,  $n_2 = 1209$  units. Questionnaires differ in the number of parameters. In the research we compared parameters such as: gender, age profile, place of living, family status of students, social background and a source of income, students' mobility and employment possibilities etc.; only some will be presented here.

An analysis was made by descriptive statistics as well as by statistical inference methods.

Tabular form and graphs were used for the survey data presentation. Chi-squared test was performed for statistical inference. We chose the significance level  $\alpha = 0.05$ . Figures represent relative frequencies. Tables contain absolute frequencies.

## 3. Research Results and Discussion

In this section are presented some of the most specific or interesting results of the survey, according to our opinion. Complete survey can be found in already mentioned data sources. The first hypothesis gives us longitudinal evaluation of the students' profile parameters. Let us set and test hypothesis for some parameters.

3.1 Gender

Gender	2006_7	2007_8	2006_7(%)	2007_8(%)
female	28	54	68,29	65,06
male	13	29	31,71	34,94
total	41	83	100,00	100,00

Table 1. Gender of the student

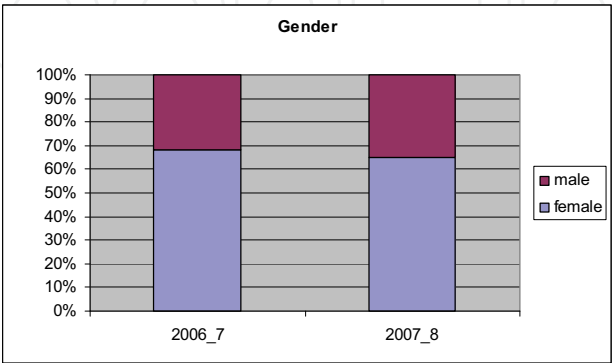


Fig. 1. Gender of the student

$H_0$ : the structure of the answers is similar for both years.

$H_a$ : the structure of the answers is not similar.

$\alpha = 0.05$ .  $DF=1$ .

Chi-squared test,  $p = 0.72$ .  $H_0$  is accepted.

The structure of the answers is similar for both years.

3.2 Age

Age	2006_7	2007_8	2006_7(%)	2007_8(%)
<21	4	24	9,76	28,92
22-25	14	17	34,15	20,48
26-30	11	18	26,83	21,69
>31	12	24	29,27	28,92
total	41	83	100,00	100,00

Table 2. Age of the student

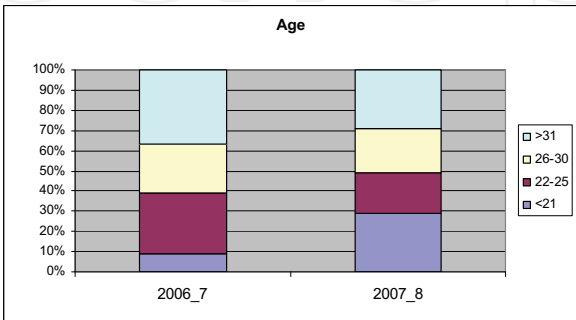


Fig. 2. Age of the student

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=3$ .  
Chi-squared test,  $p = 0.08$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.

3.3 Distance From the School

Distance	2006_7	2007_8	2006_7(%)	2007_8(%)
<5 km	12	17	29,27	20,48
5-30 km	20	44	48,78	53,01
>30 km	9	22	21,95	26,51
total	41	83	100,00	100,00

Table 3. Distance from the school

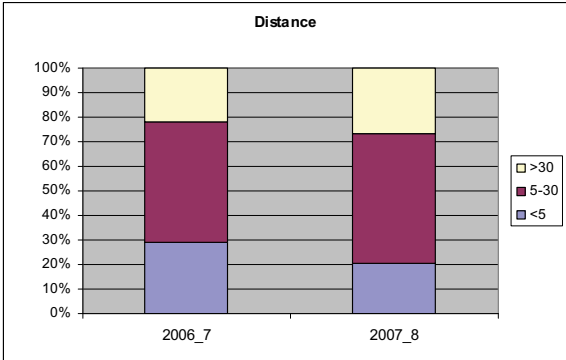


Fig. 3. Distance from the school

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=2$ .  
Chi-squared test,  $p = 0.55$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.

3.4 Parents Education

Parents education - mother	2006_7	2007_8	2006_7(%)	2007_8(%)
primary and less	7	9	17,07	10,98
middle	28	48	68,29	58,54
high and more	6	25	14,63	30,49
total	41	82	100,00	100,00

Table 4. Parents education - mother

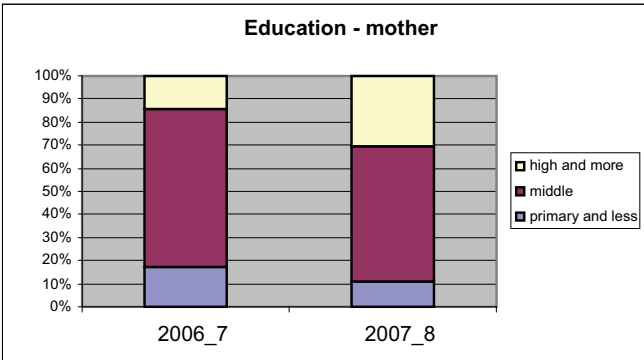


Fig. 4. Parents education - mother

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=2$ .  
Chi-squared test,  $p = 0.14$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.

Parents education - father	2006 7	2007 8	2006 7(%)	2007 8(%)
primary and less	6	4	15,00	4,82
middle	27	55	67,50	66,27
high and more	7	24	17,50	28,92
total	40	83	100,00	100,00

Table 5. Parents education - father

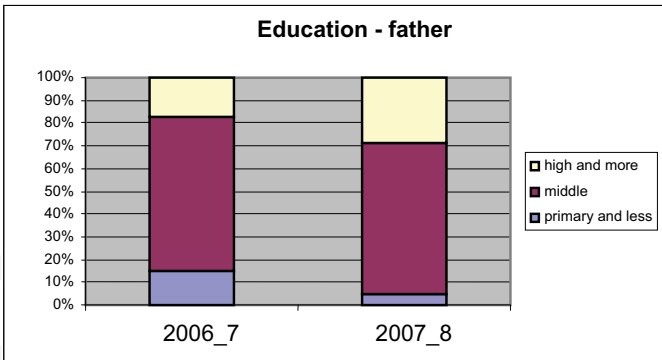


Fig. 5. Parents education - father

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=2$ .  
Chi-squared test,  $p = 0.09$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.

3.5 Final Secondary School Result

Final school success	2006_7	2007_8	2006_7(%)	2007_8(%)
excellent	4	6	10,00	7,23
very good	15	27	37,50	32,53
good and less	21	50	52,50	60,24
total	40	83	100,00	100,00

Table 6. Secondary education final result

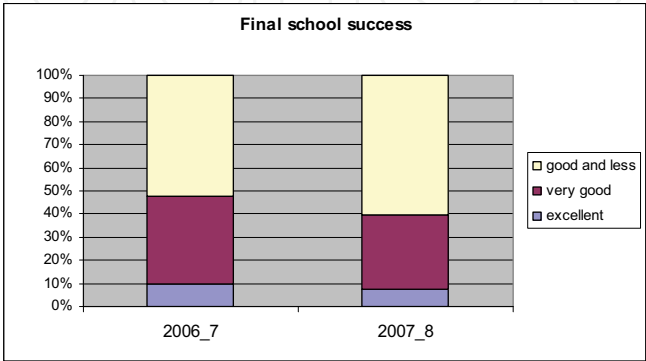


Fig. 6. Secondary education final result

$H_0$ : the structure of the answers is similar for both years.

$H_a$ : the structure of the answers is not similar.

$\alpha = 0.05$ .  $DF=2$ .

Chi-squared test,  $p = 0.69$ .  $H_0$  is accepted.

The structure of the answers is similar for both years.

3.6 Alternative to Choose a Study Place

Alternative for study	2006_7	2007_8	2006_7(%)	2007_8(%)
easy elsewhere	13	37	32,50	50,00
hard elsewhere	22	32	55,00	43,24
can not study	5	5	12,50	6,76
total	40	74	100,00	100,00

Table 7. Alternative to choose a study place

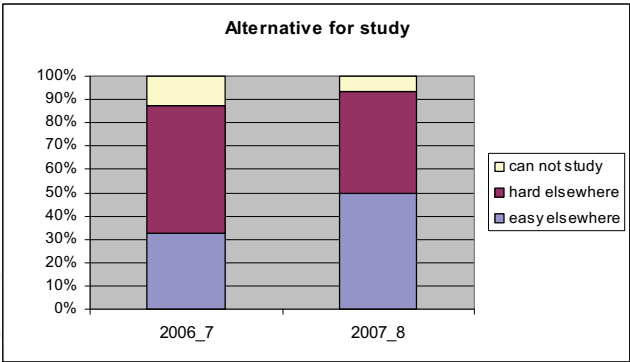


Fig. 7. Alternative to choose study place

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=2$ .  
Chi-squared test,  $p = 0.17$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.

3.7 International Student Exchange Intention

International exchange	2006_7	2007_8	2006_7(%)	2007_8(%)
yes	15	33	38,46	47,14
no	24	37	61,54	52,86
total	39	70	100,00	100,00

Table 8. International student exchange intention

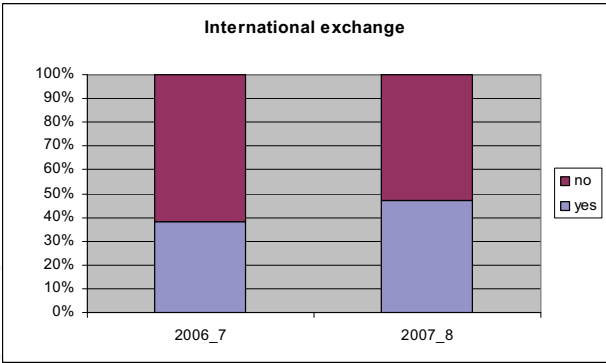


Fig. 8. International student exchange intention

$H_0$ : the structure of the answers is similar for both years.  
 $H_a$ : the structure of the answers is not similar.  
 $\alpha = 0.05$ .  $DF=2$ .  
Chi-squared test,  $p = 0.38$ .  $H_0$  is accepted.  
The structure of the answers is similar for both years.



3.8 Employment Status During the Study

Employment in time of study	2006_7	2007_8	2006_7(%)	2007_8(%)
employed	26	59	65,00	86,76
not employed	14	9	35,00	13,24
total	40	68	100,00	100,00

Table 9. Employment status during the study

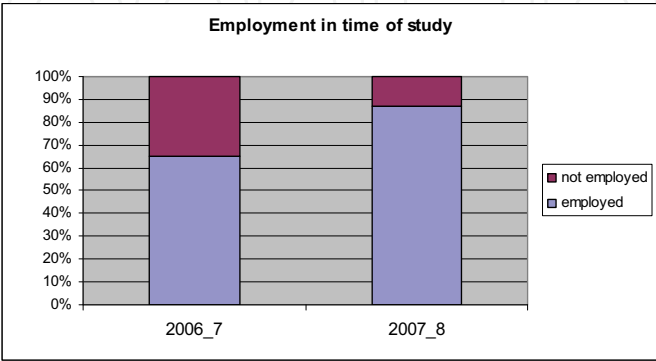


Fig. 9. Employment status during the study

$H_0$ : the structure of the answers is similar for both years.

$H_a$ : the structure of the answers is not similar.

$\alpha = 0.05$ .  $DF=1$ .

Chi-squared test,  $p = 0.008$ .  $H_0$  is rejected.

The structure of the answers is not similar for both years.

3.9 Employment Chances After the Study

Employment after study	2006_7	2007_8	2006_7(%)	2007_8(%)
easily	16	33	39,02	40,74
difficult	17	36	41,46	44,44
not know	8	12	19,51	14,81
total	41	81	100,00	100,00

Table 10. Employment chances after the study

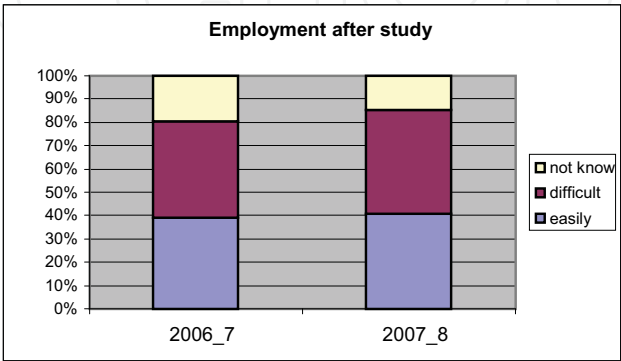


Fig. 10. Employment chances after the study

$H_0$ : the structure of the answers is similar for both years.

$H_a$ : the structure of the answers is not similar.

$\alpha = 0.05$ .  $DF=2$ .

Chi-squared test,  $p = 0.8$ .  $H_0$  is accepted.

The research  $\chi^2$  tests show that students responses have similar structure for gender, age, distance from the school, parents education, final school success, alternative to choose study place, vision about international student exchange and employment chances after study. We cannot say the same for employment status during the study period. We can conclude that we have got some parameters of our students' socio-demographic profile.

The second research step will compare students at the Centre for higher education Ptuj and students at the University of Maribor which is only 30km away.

3.10 Gender

Gender	Ptuj	UMb	Ptuj (%)	Umb (%)
female	45	702	73,77	58,06
male	16	507	26,23	41,94
total	61	1209	100,00	100,00

Table 11. Gender of the student

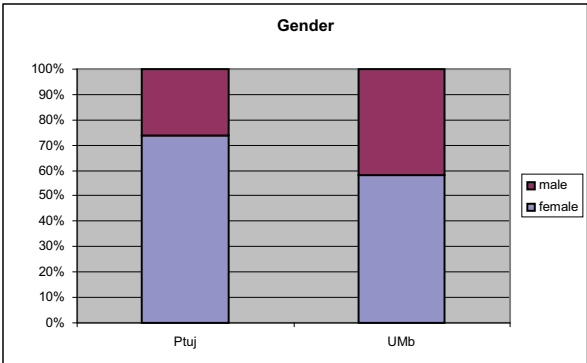


Fig. 11. Gender of the student

$H_0$ : the structure of the students at the Centre for higher education is similar to the structure of the students at the University of Maribor.

$H_a$ : the structure of the students at the Centre for higher education is not similar to the structure of the students at the University of Maribor.

$\alpha = 0.05$ .  $DF = 1$ .

$\chi^2_{crit} = 3.84$ .  $\chi^2 = 5.91$ .

Statistical conclusion:  $H_0$  is rejected and we accept  $H_a$ . There are differences between students of both educational centers.

The gender structure shows that students in Ptuj count more women than their peers in Maribor. According to the structure of persons employed in the tourism industry one should expect even a greater number of women-students. Basing ourselves on the survey results we can conclude that students in Ptuj range among managing staff and that is why the ratio of women-students does not prevail.

3.11 Age

Age	Ptuj	UMb	Ptuj (%)	Umb (%)
<19	11	254	18,03	21,01
20-21	13	508	21,31	42,02
22-23	7	363	11,48	30,02
24-25	6	60	9,84	4,96
>26	24	24	39,34	1,99
total	61	1209	100,00	100,00

Table 12. Age of the student

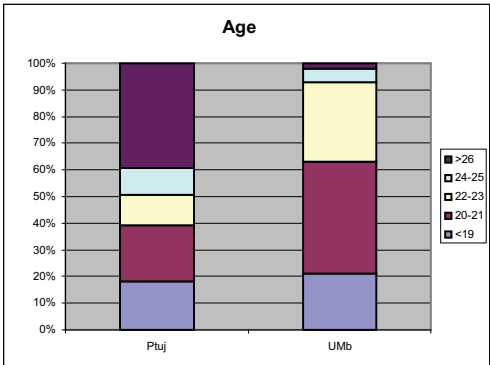


Fig. 12. Age of the student

$H_0$ : the structure of the students is similar to the structure of the students at the University of Maribor.

$H_a$ : the structure of the students at the Centre for higher education is not similar to the structure of the students at the University of Maribor.

$\alpha = 0.05$ .  $DF = 4$ .

$\chi^2_{crit} = 9.49$ .  $\chi^2 = 472.39$ .

Statistical conclusion:  $H_0$  is rejected and we accept  $H_a$ . There are differences between students.

The age parameter shows huge differences between the groups of Ptuj and Maribor students. Ptuj students are much older which leads to a conclusion that those who are studying already work in the tourism sector.

3.12 Place of Living

Place of living	Ptuj	UMb	Ptuj (%)	Umb (%)
school city	23	193	37,70	15,96
another city	27	411	44,26	34,00
rural settlement	11	605	18,04	50,04
total	61	1209	100,00	100,00

Table 13. Place of living

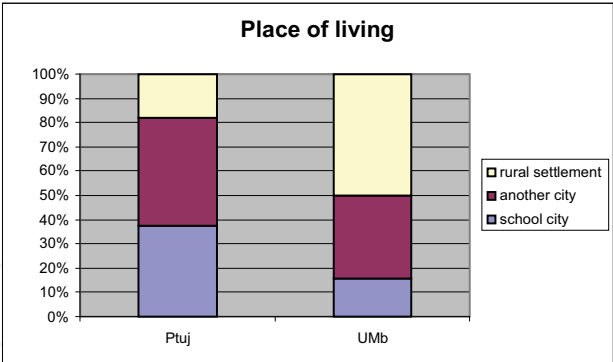


Fig. 13. Place of living

$H_0$ : the structure of the students is similar to the structure of the students at the University of Maribor.

$H_a$ : the structure of the students at the Centre for higher education is not similar to the structure of the students at the University of Maribor.

$\alpha = 0.5$ .  $DF = 2$ .

$\chi^2_{crit} = 5.99$ .  $\chi^2 = 30.18$ .

Statistical conclusion:  $H_0$  is rejected and we accept  $H_a$ . There are differences between students.

The permanent address parameter equally shows significant differences between both groups of students. It could be deduced that students in Ptuj mostly belong to the leading staff from urban environment. On the other hand in Maribor half of the students come from the urban environment in comparison with Ptuj where as much as 80% of all students are from urban environment.

3.13 Parents Education

Parents education - mother	Ptuj	UMb	Ptuj (%)	Umb (%)
less than primary	0	30	0,00	2,48
primary	5	182	8,20	15,05
middle	36	713	59,02	58,97
higher	8	133	13,11	11,00
high	10	145	16,39	11,99
graduate	2	6	3,28	0,50
total	61	1209	100,00	100,00

Table 14. Parents education - mother

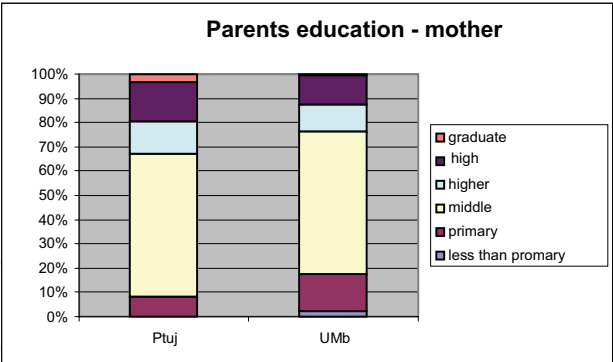


Fig. 14. Parents education - mother

$H_0$ : there is no difference between students at the Centre for higher education and students at the University of Maribor.

$H_a$ : there are differences between students.

$\alpha = 0.05$ .  $DF = 5$ .

$\chi^2_{crit} = 11.07$ .  $\chi^2 = 134.66$ .

Statistical conclusion:  $H_0$  is rejected and we accept  $H_a$ . There are differences between students, concerning mothers' education.

The educational level of mothers shows higher level in Ptuj which can be ascribed to the older age of Ptuj students in general, and consequently their parents, who might have finished their formal education, are older too. University students are younger and some of their parents are planning to proceed with their own studies. Another established fact is that 80% of Ptuj students come from urban environment where the level of education is generally higher, which holds true of Ptuj students.

Parents education -father	Ptuj	UMb	Ptuj (%)	Umb (%)
less than primary	0	36	0,00	2,98
primary	2	145	3,28	11,99
middle	37	737	60,66	60,96
higher	13	146	21,31	12,08
high	7	133	11,48	11,00
graduate	2	12	3,28	0,99
total	61	1209	100,00	100,00

Table 15. Parents education - father

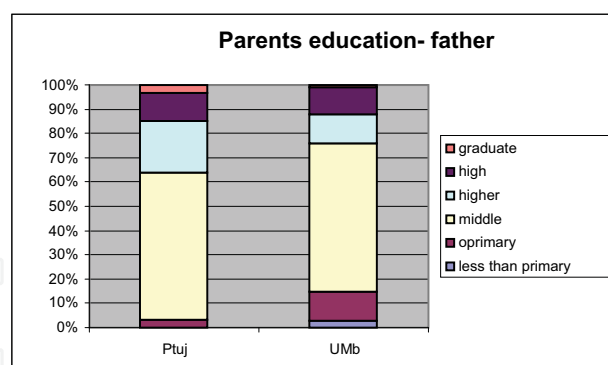


Fig. 15. Parents education - father

$H_0$ : there is no difference between students at the Centre for higher education and students at the University of Maribor.

$H_a$ : there are differences between students.

$\alpha = 0.05$ .  $DF = 5$ .

$$\chi^2_{crit} = 11.07. \chi^2 = 89.46.$$

Statistical conclusion:  $H_0$  is rejected and we accept  $H_a$ . There are differences between students, concerning fathers' education.

The conclusion is the same as the one regarding the educational level of the mother. It also conditions the higher educational level of the father as the age level of students in Ptuj is higher. The urban environment and consequently different academic experiences of students' parents also speak for their higher formal education.

The findings were put into broad social circumstances. It was shown, that there is a statistically significant difference between populations of students of the Centre for higher education and students of the nearby university. Students attending courses at the higher education Centre clearly reflect characteristic structure of employed staff in the middle professional position. They are also characterized by their origins in a relatively poor region and by their specific needs.

#### 4. Conclusion

Results of the research give us an important aspect of and quantitative data for making decisions regarding higher education development in our region. The analyze shows that students at the Centre for higher education are statistically different from students of the nearby university regarding some analyzed parameters. However, we have got a profile of a student in our region. This was the purpose of the research. Students' needs are different and a new curriculum development has to consider this fact to better suit students' needs and to encourage higher education quality in our region.

With permanent students' profile and study outcomes observation, we will be able to make better student policy and study conditions for the students. Consecutively we will offer more effective study to students as well as students' outcomes will be better. This gives sense to our efforts to encourage quality higher education in the region. The similar analysis of the students' socio-demographic profile is going to be done as an international joint project between Centre for higher education in Ptuj and Faculty of Education of the

University of St. Kliment Ohridski. The initial questionnaire with nineteen questions will be updated to show additional parameters that are important for the particular university.

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## **Advances in Technology, Education and Development**

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From 3rd to 5th March 2008 the International Association of Technology, Education and Development organised its International Technology, Education and Development Conference in Valencia, Spain. Over a hundred papers were presented by participants from a great variety of countries. Summarising, this book provides a kaleidoscopic view of work that is done, all over the world in (higher) education, characterised by the key words 'Education' and 'Development'. I wish the reader an enlightening experience.

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