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KNOWLEDGE OF SUSTAINABLE DEVELOPMENT AMONG GEOGRAPHY STUDENTS IN SLOVENIA

POZNAVANJE TRAJNOSTNEGA RAZVOJA MED ŠTUDENTI GEOGRAFIJE V SLOVENIJI

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Waste separation is also an integral part of sustainable practices.
Tudi ločevanje odpadkov je sestavni del trajnostnega ravnanja.

Knowledge of sustainable development among geography students in Slovenia

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ABSTRACT: The paper presents the results of the survey conducted among geography students of the three public universities in Slovenia regarding their knowledge of sustainable development and the ways of gaining this knowledge. On the basis of 160 questionnaires, distributed mainly among the first-level students, we concluded that the students assess their knowledge of sustainable development as very good. However, they lack knowledge about social aspects of sustainable development. They gained most of their respective knowledge through formal education. The knowledge of sustainable development improves in the course of study years on the first level and particularly on the second level. This fact and the answers regarding connectedness of study programmes with the topic of sustainable development (also the courses mentioned by the students) show that sustainable development is well integrated into geography study programmes.

KEY WORDS: geography, sustainable development, knowledge of sustainable development, survey, education, universities, Slovenia

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1 Introduction

Sustainable development (hereafter SD) as a paradigm of an urgent change in the world management, both in economy and in social and environmental spheres, should also be integrated into education. At universities in particular, far greater attention should be paid to sustainability, especially in view of the fact that education is provided to persons who will to a great extent become the holders of leading and managing positions and conveyors of knowledge, i.e. teachers. Already in the Tbilisi Declaration of the remote year 1977, the necessity was recognized that the ethical, social, cultural and economic aspects should be integrated into university curricula as »environmental education«. Resultantly, in the following decades, education about the environment was enhanced, especially instruction about the negative consequences of human interventions into natural environment, excessive utilization of natural resources and the already critical burdening of the environment. With the Agenda 21, we were acquainted more thoroughly with the ideas and contents of sustainable development and we realized how urgent was the need to upgrade education with the knowledge required for sustainable development. The United Nations Economic Commission for Europe, which is part of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), prepared the Education for Sustainable Development Strategy and declared the period 2005–2014 as the Decade of Education for Sustainable Development (Internet 1; Internet 2; Internet 3). As envisaged, sustainability as a strategy and a paradigm should have already become an integral part of the curricula at all levels of education, research and learning, but unfortunately we are still quite remote from this objective, as has been established by A. Mlinar (2011). Though in general geography is not the mother discipline of the sustainability science, with environmental sciences and technologies being the most important ones (Nučič 2012), mainly thanks to the publications of Plut (1998; 2005; 2006; 2008; 2010), the scholarly branch of geography has recognized its scientific potentials, offered by its vast scope, openness and interdisciplinary-linking nature, for being integrated to a larger extent into the education for sustainable development.

In order to establish the extent to which the study of sustainable development has been integrated into geography study programmes, a research was launched among geography students at our public universities. In our research of 2011, done at the University of Primorska, we already detected differences in the knowledge, comprehension and learning among students in different study programmes (Kovačič and Brečko Grubar 2012), while in the continued research we tried to discover whether or not differences existed also among the students of different study programmes of geography. The results have shown that the students still relate SD most closely to environment, the use of natural resources, and nature protection, less closely to economy, and least of all to the social sphere (Kovačič and Brečko Grubar 2012). Also some foreign studies have shown much the same situation (Summers, Corney and Childs 2004; Kagawa 2007; Blum 2010; Catenazzo et al. 2010; Incekara and Tuna 2011; Michalos et al. 2011; Michalos et al. 2012). We can anticipate that from the education *about* SD we are gradually advancing to the education *for* SD, while we cannot hope to reach very soon the education *as* sustainability – if we summarize the differentiation made by Sterling, as quoted in Mlinar (2011). Education for sustainability helps students to understand and value sustainability as well as to get integrated in the changes necessary for sustainability; but when education has become sustainability, an overall view will be required, as well as systematic consideration, dialogue, active citizenship, interculturality, empathy, and, above all, interdisciplinarity (Mlinar 2011). Thus, required for sustainable education are long-term cultural changes and a different concept of society. In view of the well-reasoned interconnection between interdisciplinarity and sustainability (Jones, Selby and Sterling 2010), geography certainly plays an important role, thanks to its all-embracing view; namely, in addition to environmental sciences as the leading ones in the domain of sustainability, geography is supposed to influence significantly the perception of sustainability and education as sustainability.

2 Methods

The research is based on a survey conducted among geography students at the three Slovenian public universities in the study year 2011/2012. Included in the survey were students of the university first-level one-strand and two-strand study programmes of geography, and the second-level master's study programme of geography at the Faculty of Arts, University of Ljubljana (hereafter UL), students of the university first-level two-strand study programme of geography and second-level two-strand study programme of geography

at the Faculty of Arts, University of Maribor (hereafter UM), and the university first-level one-strand study programme of geography and the second-level master's programme of geography at the *Faculty of Humanities, University of Primorska* (hereafter UP). The total number of students included in the survey was 160, or 33.3% of geography students population at the first- and second levels in Slovenia; 94.4% of respondents were students at the first level and mere 5.6% were students at the second level, who represent 32.0% of the post-graduate geography students at the second level in Slovenia. The sample of the investigated students at both levels of study is adequate and considered to be representative. The research included 63 students (39.6%) of the first, 32 students (20.1%) of the second and 44 students (27.7%) of the third year of the undergraduate studies. Of the respondents at the UL, 12 were fourth-year students (7.5%) of the previous, i.e. pre-Bologna, programme. As to the gender, 114 of the respondents were females (71.3%) and 46 males (28.7%). The survey at the UL included 92 students of geography study programmes, or 29.1 % of the population, 68 of whom were females (73.9%); at the UM, 24 students (22.4% of the population) were included in the survey, 18 of whom were females (75.0%); and the survey at the UP included 44 students (62.9% of the population), 28 of whom were females (63.6%).

The online survey, which was devised after different foreign models (Summers, Corney and Childs 2004; Catenazzo et al. 2010; Eyuboglu, Oslu and Oz 2010; Michalos et al. 2011; Michalos et al. 2012), consisted of 40 questions; however, published in the current paper are only the results of descriptive statistics related to the knowledge and understanding of SD, statements about the sources of knowledge about SD, and those about connectedness of study programs with the SD contents. For comparison we also made use of the results of a similar research performed by the UP ($n = 238$) among the students of the three faculties in the year 2011 (Kovačič and Brečko Grubar 2012).

Differences in frequencies of responses to individual questions by geography students from individual universities as well as differences in frequencies of responses to individual questions by geography students in individual academic years were analysed by means of Pearson chi squared statistics at the significance level $\alpha = 0{,}01$, and put down alongside were also the computed *p*-values (Košmelj 2007). By means of the analysis of adjusted standardized residuals in individual cells we tried to establish locations of the highest statistical deviations within the studied contingency tables, also in those cases when the computed statistics for the entire table have not shown significant differences in responses. The values of adjusted residuals higher than 2 represent a statistically significant difference ($\alpha < 0.05$), and the values higher than 3 are already a considerable deviation ($\alpha < 0.01$) (Agresti 2007; Internet 4; Internet 5).

However, we are well aware of the fact that different compulsory and elective courses that were taught while the survey was being conducted, especially those whose contents are related to SD, certainly influenced significantly the demonstrated students' knowledge about SD and their assessments of connectedness of individual courses with the SD contents, yet these influences cannot be properly evaluated.

3 Knowledge about the sustainable development contents

A gross half (53.1%) of the respondents believe that their knowledge about SD is good, and 34.4% believe that their knowledge is poor. There was no option of answering »medium« to this question. The results are comparable to those of the UP students (good = 57%; poor = 31%) (Kovačič and Brečko Grubar 2012). The percentage of those geography students who assessed their knowledge of SD as very poor is really low, 4.4%, while 8.1% of the students believe that they have a very good knowledge of SD. The chi-square statistics show ($p = 0.0321$) that there is no statistically significant relationship between the knowledge of sustainable development and the students of geography from individual universities. Slightly lower than the average is the percentage of geography students at the UL with their responses of »poor« knowledge of SD (26.1%), and slightly higher is the percentage of those who believe that their SD knowledge is very good (12.0%). At one of the universities in Istanbul, merely 12% of the respondents ($n = 60$) ticked off the answer confirming that they were acquainted with the SD contents, but only 7% were able to explain it (Eyubolglu, Oslu and Oz 2010). A research among post-graduate students at the Oxford University ($n = 61$) showed that 62% of the respondents (but 80% of geographers) assessed their own knowledge of SD as good or very good. The percentage of responses by Slovenian geography students in equal value categories is by one percent lower and the same statement applies to the UP student respondents in the year 2011 (Summers, Corney and Childs 2004; Kovačič and Brečko Grubar 2012).

The chi-square statistics show (p = 0.0000) that the notion of one's own knowledge about SD among Slovenian geography students is closely related to the year of study. In the contingency table of the year of study and one's own notion about SD, the students of the first year statistically significantly deviate with their high percentage of responses in the categories »very poor« (adjusted residual = +3.3) and »poor« (adjusted residual = +5.9), and with a low percentage of responses in the category »good« (adjusted residual = –5.6). The students of the third year stand out by their low percentage of responses in the category »poor« (4.5%; adjusted residual = –4.9) and the high percentage in the category »good« (81.8%; adjusted residual = +4.5).

Table 1 shows the percentage of correct answers of Slovenian students of geography to the statements about the knowledge of SD. The chi-square statistics show that the percentage of correct answers to individual statements is not statistically significantly related to the year of study. This is somewhat surprising, since the SD contents are included in the courses syllabi of all study programmes of geography in Slovenia and it could be expected that the percentage of correct answers would be higher in advanced years (see below, chapter 4.1). Except for the second statement, where the majority of answers were incorrect, correct answers prevail (77.5%–98.8%), which also corresponds with the assessments by the respondents about their own knowledge of the SD contents. As has already been established by the research done among the UP students in 2011 (Kovačič and Brečko Grubar 2012), the lowest number of correct answers occurred with the questions related to the social sphere in SD (statements 2, 3, 4, 7 and 13). Geography students proved to be the worst at answering the question about the connection of gender equality with SD, where the percentage of correct answers is only 35.0%, which is by 10% lesser if compared to the answers of

Table 1: Percentages (%) of correct answers to the statements on the knowledge about sustainable development.

Statement (n = 160)	UL	UM	UP	TOTAL
1. Economic development, social development and environmental protection are all comprised/included in sustainable development.	97.8	100.0	100.0	98.8
2. Education for sustainable development includes education in the culture of peace and gender equality.	37.0	41.7	27.3	35.0
3. Sustainable development equally incorporates the needs of the future (our children) and the present needs.	95.7	95.8	88.6	93.8
4. Social justice is not an integral part of sustainable development.	82.6	75.0	68.2	77.5
5. Sustainable use means the use of goods and services in a way that minimizes the use of natural resources and poisonous substances and reduces wastes	94.6	91.7	93.2	93.8
6. Reduction of material-energy flows is not of great significance for sustainable development.	95.7	95.8	86.4	93.1
7. Sustainable development surpasses anthropocentrism and involves ethical treating of animals.	87.0	83.3	70.5	81.9
8. Sustainable development seeks to establish balance between the human and economic welfare and the cultural tradition and natural resources.	96.7	100.0	86.4	94.4
9. We are not able to slow down the climate changes.	84.6	79.2	79.5	82.4
10. Social responsibility of companies is irrelevant for sustainable development.	95.7	91.7	93.2	94.4
11. Sustainable development anticipates a change in consumers' mentality and the transition from satisfying desires to meeting actual needs.	95.7	83.3	90.9	92.5
12. Preservation of biodiversity is essential for effective operation of ecosystems.	96.7	100.0	100.0	98.1
13. Education for sustainable development supports cultural diversity and respect of human rights.	84.8	79.2	68.2	79.4
14. The use of non-renewable resources should not exceed the use of sustainable renewable substitutes.	92.3	87.5	93.2	91.8
15. Environmental carrying capacity of the environment (capacity of self-purification, neutralization of burdening/pollutions and regeneration) is irrelevant for sustainable development.	89.1	91.7	93.2	90.6

the UP students in 2011 (Kovačič and Brečko Grubar 2012). It is interesting that the percentage of male geography students who answered correctly the question about gender equality as part of SD (43%) is higher than the percentage of answers given by female students (32%), while the research in Manitoba (Michalos et al. 2011) shows that females are better than their male colleagues at recognizing the social sphere as part of SD. This is somewhat consistent with the finding that the sustainability science focuses around the environmental sciences, and much less goes to the economic and social research fields (Nučič 2012). With Slovenian geography students, relationship between sexes and the percentage of correct answers to the statements about SD are not statistically significant, except for the 3rd statement, where the percentage of correct answers by males is 87% (adjusted residual = –2.3) and by females 96.5% (adjusted residual = +2.3).

There is no major statistically significant relationship in the percentage of correct answers and the students of geography from individual universities, except for the UP students of geography, whose answers to the statements 6, 7, 8, and 13 statistically significantly deviate (adjusted residuals from –2.1 to –2.7) with a lower percentage of correct answers in comparison with the other two universities. And the UM students of geography deviate negatively with a slightly lower percentage of correct answers to the statement 11 (83.3%).

4 Sources of knowledge about sustainable development

The following two questions were related to the education about SD and the principal sources of knowledge which influenced the students' insight into SD. The answers show that 61.9% of geography students of the three universities have already received some education about SD, while 38.1% have not, and positive answers were more frequent with male students (67.4%) than with female ones (59.6%). We can conclude from the results obtained that the SD contents are not adequately included in Slovenian geography study programs. However, the analysis of these (see below – chapter 4.1.) shows just the opposite: the courses related to SD are well involved. The result obtained from the answers can partly be explained by the fact that students do not recognize the SD contents within individual courses or that several of such courses are elective and the respondents just did not choose them. The percentage of geography students who have already been taught about SD is slightly lower than the percentage of the UP respondents (71%) of 2011 (Kovačič and Brečko Grubar 2012). The results of the research done among the Istanbul students show that only 3% of the respondents received some education about SD (Eyuboglu, Oslu and Oz 2010). The analysis of the data from our research shows that the percentage of geography students who have already been taught about SD increases from the start of undergraduate studies to the completion of postgraduate studies (first year – first level = 30.2%, second year – first level = 71.9%, third and fourth years – first level = 86.0%, and second level altogether = 100%).This means that the SD contents are adequately included in the study programs. However, disquieting is the information that only 52.3 % of the UP geography students state that they have already been taught about SD; the respective percentage at the UL amounts to 65.2%, and at the UM to 66.7%. The UP geography students statistically significantly deviate (adjusted residual = + 3.7) also in the total number of answers saying »very poor« and »poor« in response to the question about connectedness of study contents with SD, which amounts to 31.8% in comparison with 10.8% with the UL geography students and 16.6% with the UM students.

Answers to the question concerning the source of their knowledge about SD, where several options were offered to students (several answers possible), are shown in Table 2.

For Slovenian students of geography, »formal education« (19.6%) is the most important source of knowledge about SD; this option was ticked off by as many as 81.8% of those who had already received some education about SD (n = 99). This testifies that the SD contents are adequately integrated both in the formal education at the undergraduate and postgraduate study programmes of geography in Slovenia and in the curricula of secondary schools. The latter fact can be deduced from the answers by the first-year geography students. The importance of formal education for acquiring knowledge about SD in the undergraduate and postgraduate study programmes of geography is also manifest in the increasing percentage of answers in this category from the beginning of study at the undergraduate level (11.7%) to the postgraduate study (17.9%). The research performed among the students of several faculties of the UP (Kovačič and Brečko Grubar 2012) gave a similar result: formal education is the most important source of knowledge about SD (21.4%). At the Oxford University, 56% of the postgraduate respondents acquired knowledge

about SD within the framework of formal education, while the percentage of geographers alone, who were taught about SD, is much higher (81%) (Summers, Corney and Childs 2004). The survey conducted among postgraduate students of geography at the Faculty of Humanities, University of Primorska (n = 10) showed that this percentage amounted to 100% (Kovačič and Brečko Grubar 2012). Of the student respondents in Manitoba only 14% stated that they had already been taught about SD within the framework of formal education (Michalos et al. 2011).

The computed chi-square test shows that there is no statistically significant relationship between the answers and geography study programmes of the three Slovenian universities ($p = 0.5498$). However, the residual analysis by individual cells of contingency table 2 shows that the UP students of geography with only 12.3% of answers in the category »formal education« statistically significantly deviate in the negative direction (adjusted residual = –3.6), which agrees with the above presented high percentage (31.8%) of the UP students of geography who believe that their study programme is poorly or very poorly related to SD. In contrast to geography students of the other two universities, where the answer »formal education« takes the first place of all offered options (UL = 22.2%, and UM = 21.5%), this answer takes only the fourth place with geography students at the UP (Table 2). The results of residual analysis show that the UL geography students statistically significantly deviate in the negative direction with only 9.9% of the answers to the option »social background« (adjusted residual = –3.1), while for the same option the UP geography students deviate into the positive direction with 17.9% (adjusted residual = +3.3).

The lowest percentage of answers by geography students from the three universities occurs within the category »informal education« (4.6–7.4%), which encompasses students' activities in various courses, societies, workshops and round tables outside the regular study process. This percentage is slightly higher than the average with the UP students (4.2%) (Kovačič and Brečko Grubar), but in general it shows the lack of students' interest for gaining SD knowledge outside the formal forms of education and mass media. Through active participation various forms of informal education are a very suitable way of promotion of the SD guidelines, and young educated people should be the propelling power in this direction; however, the results show that this is not the case. Therefore, the role of teachers is very important at all levels of education, and at faculties in particular; it is teachers that should encourage zeal in the students for creating a better future by means of informing the public about the pressing necessity for the society to live and act in accordance with the SD principles. To achieve this goal, teachers should have adequate knowledge and skills to inspire young people to recognize that we are all responsible for space, if we want to preserve it for future generations (Fridl, Urbanc and Pipan 2009; Urbanc and Fridl 2012). It is a miscalculation to rely merely on the self-initiative of the young in their assuming the responsibility. The importance of educating the young about SD, so that its global aims could be reached, is also underlined in some researches (Wade 1999; Catenazzo et al. 2010).

The answers of Slovenian geography students concerning the remaining individual categories of knowledge sources are rather equally distributed (10.4–13.3%) (Table 2). Slightly surprisingly, with its 12.8% »professional and scientific literature« is ranking third, immediately after »documentary programs (TV & radio shows)«, which is about gross 2% more than the result obtained from the UP students in 2011 (Kovačič and Brečko Grubar 2012). The results of the same study show that the UP students gain 51.6% of information

Table 2: Percentage (%) of selected options on obtaining individual types of information related to sustainable development (multiple choice question). The first of the two figures shows the percentage of all respondents who chose the respective answer, and the second figure shows the percentage of choices of individual answers in relation to all chosen answers.

Answer (n = 99)	UL	UM	UP	SUM
Formal education	90.0 / 22.2	87.5 / 21.5	56.5 / 12.3	81.8 / 19.6
Informal education (courses, round tables, societies, talks, etc.)	30.0 / 7.4	18.8 / 4.6	26.1 / 5.7	27.3 / 6.5
Social background (friends, family, etc.)	40.0 / 9.9	56.3 / 13.8	82.6 / 17.9	52.5 / 12.6
Informative TV and radio programmes	48.3 / 11.9	37.5 / 9.2	60.9 / 13.2	49.5 / 11.8
Documentary TV and radio programmes	50.0 / 12.3	50.0 / 12.3	73.9 / 16.0	55.6 / 13.3
Newspapers and magazines	36.7 / 9.1	56.3 / 13.8	52.2 / 11.3	43.4 / 10.4
Professional and scientific literature (books, articles in journals)	58.3 / 14.4	50.0 / 12.3	43.5 / 9.4	53.5 / 12.8
Web pages, forums, actions, etc.	50.0 / 12.3	43.8 / 10.8	56.5 / 12.3	50.5 / 12.1
Other	1.7 / 0.4	6.3 / 1.5	8.7 / 1.9	4.0 / 1.0

and knowledge about SD from diverse mass media (TV, radio, newspaper, internet, etc.; this percentage is slightly higher than that of Slovenian geography students in general (47.7%), and both of them reveal the importance of mass media in the education about SD. Informative and documentary programs on TV and radio cover one quarter of the answers, therefore they should be utilized more efficiently for the purpose of education about SD and its promotion (Table 2).

4.1 Connectedness of sustainable development contents with geography study programmes

The computed chi-square test shows that the answers by geography students as to connectedness of their study programmes with the SD contents significantly differ between the three universities ($p = 0.0066$). Sticking out with the total of 60.9% of »strong« and »very strong« answers are the UL geography students, who gained most of their SD knowledge through formal education (22.2%; Table 2). With the UM geography students the total percentage of »strong« and »very strong« answers amounts to 33.3% and with the UP students 29.5%. The latter statistically significantly deviate with the highest total percentage of »very poor« and »poor« answers (31.8%). A half of the UM geography students believe that their study programme is moderately connected with the SD contents; of equal opinion at the UP are 38.6% of the students, and 27.2% at the UL (Table 3). Of the 160 respondents of the three universities only one declared that his study programme was not related to the SD contents.

Table 3: Connectedness of the contents of Slovenian geography study programmes with SD.

Answer (n = 160)	UL (%)	UM (%)	UP (%)	SUM (%)
No	1.1	0	0	0.6
Very poor	5.4	8.3	4.5	5.6
Poor	5.4	8.3	27.3	11.9
Moderate	27.2	50.0	38.6	33.8
Strong	42.4	25.0	22.7	34.4
Very strong	18.5	8.3	6.8	13.8

A comparison of the total percentage of »strong« and »very strong« answers by all respondents and the answers to the question about connectedness of study contents with SD in individual years of study shows that the SD contents are adequately integrated in geography study programmes. This indicates that academic geography education properly follows the generally set goals of education in the field of SD. Statistically significant deviation in the negative direction is typical for the first-year students (adjusted residual = –3.3). This is also reflected in the explicit difference in the total percentage of the »strong« and »very strong« answers given by the students of the first year (25.3%) and by those of the second year of study (62.6%) at the first level. Equal percentage occurs with the students of the third and fourth years (62.5%), while with the postgraduate students it amounts to 75.0%. Students' assessment of connectedness of study programmes and the SD contents is in accord with the opinion about their knowledge about SD which increases through the years from the beginning to the completion of their study (see chapter 3).

In order to establish connectedness of Slovenian geography study programmes with the SD contents we asked the students to name up to five courses in the order of the amount of SD contents included in them. Connectedness of a course with the SD contents was first established only on the basis of its name; we did not examine the syllabi contents of the quoted courses. Because of the insufficient number of the respondents at the second level of geography, the analysis was done for the programme of the first level only. Included in further analyses were only the first three named courses which, according to the opinion of the respondents, deal with the SD themes (Table 4).

From the names of courses in the one-strand and two-strand first level study programmes of geography at the UL we could conclude that most strongly connected with the SD contents are the following courses: Geography of Sustainable Development, Ecological Geography and Protection of Geographical Space. The last-mentioned one is a course that remains from the old (pre-Bologna) study programme of geography. However, the analysis of the stated titles of the courses shows that the UL geography students most often

named as their first three selections the following ones: Hydrogeography (16.7%), followed by Geography of Sustainable Development (13.7%) and Ecological Geography (11.6%). The eight courses quoted in Table 4 represent together 75.5% of all course titles named by the UL geography students. Since the course Protection of Geographical Space was named only by the students of the old programme, the percentage of this choice is proportionally low (4.7%). The UL students of geography most often named Geography of Sustainable Development (35.2%) as their first selection among the courses; Ecological Geography came as the second (23.1%), and Human Ecology (17.9%) as the third selected course.

Table 4: Selection percentage (%) for individual courses in first-level geography study programmes which, according to students, deal with the SD themes.

University and course	Course type	Year	Percentage of answers
UNIVERSITY OF LJUBLJANA			
Hydrogeography	Compulsory	2	16.7
Geography of Sustainable Development	Elective	1–3	13.7
Ecological Geography	Compulsory	3	11.6
Pedo- and Biogeography (only one-strand study)	Compulsory	2	8.6
Tourism and Traffic Geography (only one-strand study)	Compulsory	2	8.2
Human Ecology	Elective	1–3	6.4
Climatogeography (only one-strand study)	Compulsory	1	5.6
Protection of Geographical Space (pre-Bologna programme)	Compulsory	4	4.7
UNIVERSITY OF MARIBOR			
Sustainable Water Resources Management	Elective	1	31.7
Soil Protection	Elective	2	16.7
Hydrogeography	Compulsory	1	15.0
Geography of Slovenian Regions	Compulsory	3	6.7
Ecological Geography	Compulsory	3	5.0
UNIVERSITY OF PRIMORSKA			
Introduction to Social Geography	Compulsory	1	23.3
Introduction to Physical Geography	Compulsory	1	13.3
Landscape and Human Ecology	Elective	2–3	10.0
World Regional Geography	Compulsory	1	10.0
Applied Geography in Regional Development	Elective	2–3	7.8
Geography of Settlement and Population	Compulsory	2	5.5
Economic and Social Geography	Compulsory	3	4.5

For three of the five most often named courses in the two-strand first-level study programme of geography at the UM we can conclude from their very names that their contents are connected with SD (Sustainable Water Resources Management, Soil Protection, and Ecological Geography). Given in the first year of the above-mentioned programme is also the elective course Anthropogenic Climate Changes, whose content is connected with SD, but only a very low number of students named it. From among the first three selected courses, Sustainable Water Resources Management was most often named (31.7%) by the UM geography students, next comes Soil Protection (16.7%), and the third is Hydrogeography (15.0%). The five courses from Table 4 together account for 75.1% of the courses named by the UM geography students. As their first selection they most often named Sustainable Water Resources Management (66.7%), as the second Hydrogeography and Soil Protection (23.8% each), as the third one again Soil protection (33.3%).

In the UP one-strand first-level study programme of geography only the name of the elective course Landscape and Human Ecology indicates connectedness with the SD contents. However, the analysis of choices by the students of the said programme shows that the SD contents are also included in the general geographical courses. The most frequently named course was Introduction to Human Geography (23.3%), thus ranking first, next comes Introduction to Physical Geography (13.3%), ranking third with 10.0% are World Regional Geography and Landscape and Human Ecology. The seven courses quoted in Table 4 together account for 74.3% of the choices by the UP geography students. Most often named as their first selection were Landscape and Human Geography and Introduction to Physical Geography (18.9% each), second comes Introduction to Social Geography (30.3%) and the third was World Regional Geography (20%).

5 Conclusion

More than a half of the respondents believe that they have good knowledge about SD and a gross third of them assess their own knowledge as poor. Those who assess their knowledge as »very good« or »very poor« are few, and differences between the students of different Slovenian universities are negligible. Slightly higher is the percentage of good knowledge with the UL students, which corresponds with the high percentage (60.9%) of students who believe in »strong« or »very strong« connectedness of the SD contents with their study programmes. It is beyond doubt that students in the higher years of the first level and students of the second level of study assess their own knowledge as much better than do the students of lower years. Surprisingly, percentages of correct and incorrect answers to statements with which we tested the knowledge about SD did not show any statistically significant relationship between the answers' correctness and the years of study; neither did they show any statistical significant relationship the students of different universities. This can be explained by the fact that certain SD contents, especially those from the sphere of »public welfare«, are not at all or only to a lesser extent included in the study programmes, and students do not learn about them even in a long-term education. A slightly lower percentage of correct answers was observed with the UP geography students, who assessed their SD knowledge as poor already at the beginning.

The percentage of geography students included in the survey who have previously gained knowledge about SD surpasses 60% and increases with the students of higher years (3rd year, first level = 86%). The differences also agree with the conclusion that the percentage of students who have already some previous SD knowledge, and the percentage of students who believe that their study programmes are strongly or very strongly connected with SD both increase from the beginning to the completion of the study. A comparison between the students of different universities shows that the UP geography students statistically significantly deviate, due to their minor percentage of affirmative answers; they also assess connectedness of study programmes with SD as poorer. This was further confirmed by their answers to the question concerning the way of acquiring their knowledge, where they ascribed minor importance to formal education. Nonetheless, formal education plays an important role in acquiring knowledge about SD with the majority of the respondents. Examination of the curricula of study programmes has shown that there are quite significant differences between study programmes as to the inclusion of the SD contents, judging merely from the names of the courses. At the UL and UM, there is the compulsory course Ecological Geography, which is related to SD, while at the UP there is no such compulsory course, and among the elective courses, there are two at the UL and UM, while the UP has only one. More illuminating are the courses named by the students since we have established that some general basic geographical courses are more often than expected the source of knowledge about SD.

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Poznavanje trajnostnega razvoja med študenti geografije v Sloveniji

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IZVLEČEK: Prispevek predstavlja rezultate raziskave o poznavanju in poteh pridobivanja znanja o trajnostnem razvoju študentov geografije na vseh treh javnih univerzah v Sloveniji. Na podlagi 160 anket, izvedenih večinoma med študenti prve stopnje študija, smo ugotovili, da študenti visoko vrednotijo svoje poznavanje trajnostnega razvoja, da slabše poznajo njegovo družbeno-kulturno polje in da so znanje pridobili večinoma s formalnim izobraževanjem. Boljše poznavanje pri študentih višjih letnikov in študentih druge stopnje, odgovori anketiranih o povezanosti študijskega programa z vsebinami trajnostnega razvoja ter njihove navedbe predmetov, kjer so o njem največ izvedeli, kažejo, da je trajnostni razvoj dobro vključen v študijske programe geografije.

KLJUČNE BESEDE: geografija, trajnostni razvoj, poznavanje trajnostnega razvoja, anketiranje, izobraževanje, univerze, Slovenija

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1 Uvod

Trajnostni razvoj (v nadaljevanju TR) kot paradigma o nujni spremembi upravljanja sveta na ekonomskem, družbeno-kulturnem in okoljskem področju bi moral biti prisoten tudi v izobraževanju. Na univerzah bi morali trajnosti posvetiti več pozornosti. V Tbilisijski izjavi iz leta 1977 je bila izražena potreba, da se etični, družbeni, kulturni in gospodarski vidiki vključijo v univerzitetni prostor kot »okoljsko izobraževanje«. Posledično se je v naslednjih desetletjih okrepilo izobraževanje o okolju, zlasti o negativnih posledicah človekovih poseganj v naravno okolje, o čezmerni izrabi naravnih virov in že kritičnem obremenjevanju okolja. V večji meri je družba »osvojila« pojme in vsebine trajnostnega razvoja ter spoznala potrebo po nadgraditvi izobraževanja za trajnostni razvoj z Agendo 21. Ekonomska komisija Organizacije združenih narodov za Evropo, ki deluje v okviru Organizacije združenih narodov za izobraževanje, znanost in kulturo, je oblikovala Strategijo izobraževanja za trajnostni razvoj in obdobje 2005–2014 razglasila za desetletje izobraževanja za trajnostni razvoj (internet 1; internet 2; internet 3). Tako bi po pričakovanjih trajnost kot strategija in paradigma morala postati del učnih programov na vseh ravneh izobraževanja in raziskovanja, vendar smo žal od tega še precej oddaljeni, kot ugotavlja Mlinar (2011). Geografija ni matična disciplina znanosti o trajnostnosti, saj prednjačijo okoljske znanosti in tehnologije (Nučič 2012). Vendar smo v Sloveniji predvsem po zaslugi objav Pluta (1998; 2005; 2006; 2008; 2010) spoznali njene priložnosti, da se s svojo širino, odprtostjo in povezovalno interdisciplinarnostjo v večji meri vključi v izobraževanje za TR.

V raziskavi smo želeli ugotoviti, v kolikšni meri študenti geografije slovenskih javnih univerz poznajo vsebine TR. Že v raziskavi, ki je na Univerzi na Primorskem potekala leta 2011, smo namreč ugotovili razlike v poznavanju, razumevanju in učenju pri študentih različnih študijskih programov (Kovačič in Brečko Grubar 2012), v nadaljevanju pa smo želeli ugotoviti, ali so razlike med študenti geografije treh univerz. TR še vedno najbolj povezujejo z okoljem, rabo naravnih virov, varovanjem narave, v manjši meri z gospodarstvom in najmanjši z družbeno-kulturnim področjem (Kovačič in Brečko Grubar 2012), kar dokazujejo tudi nekatere raziskave v tujini (Summers, Corney in Childs 2004; Kagawa 2007; Blum 2010; Catenazzo s sod. 2010; Incekara in Tuna 2011; Michalos s sod. 2011; Michalos s sod. 2012). Predvidevamo, da od izobraževanja o TR postopno prehajamo k izobraževanju za TR, izobraževanja kot trajnostnosti (Sterling v Mlinar 2011) pa še ne bomo dosegli prav kmalu. Izobraževanje za trajnostnost pomaga študentom pri razumevanju, vrednotenju trajnostnosti ter pri vključevanju v spremembe za trajnostnost, ko pa postane izobraževanje trajnost, so potrebni celostni pogled, sistemsko razmišljanje, dialog, aktivno državljanstvo, medkulturnost, empatija in predvsem interdisciplinarnost (Mlinar 2011). Za trajnostno izobraževanje so torej potrebni dolgoročne kulturne spremembe in drugačen koncept družbe. Glede na utemeljeno povezanost interdisciplinarnosti in trajnostnosti (Jones, Selby in Sterling 2010), ima geografija s svojim celostnim pogledom nedvomno pomembno vlogo, saj naj bi pomembno vplivala na zaznavanje trajnostnosti in izobraževanje za trajnostnost.

2 Metode

Raziskava temelji na anketiranju študentov geografije na treh javnih slovenskih univerzah v študijskem letu 2011/2012. V anketo so bili vključeni študenti univerzitetnega študijskega programa prve in druge stopnje Geografija na Filozofski fakulteti Univerze v Ljubljani (v nadaljevanju UL), Filozofski fakulteti Univerze v Mariboru (v nadaljevanju UM) ter na Fakulteti za humanistične študije Univerze na Primorskem (v nadaljevanju UP). Skupaj je bilo anketiranih 160 ali 33,3 % populacije študentov geografije prve in druge stopnje v Sloveniji; 94,4 % anketiranih je bilo študentov prve stopnje in zgolj 5,6 % študentov druge stopnje, ki pa vendar predstavljajo 32,0 % populacije študentov geografije druge stopnje v Sloveniji. Reprezentativnost preučevanega vzorca za obe stopnji študija je ustrezna. Anketiranih je bilo 63 študentov prvih (39,6 %), 32 študentov drugih (20,1 %) in 44 študentov tretjih letnikov (27,7 %) dodiplomskih programov. Med anketiranimi na UL je bilo še 12 študentov četrtega letnika starega programa (7,5 %). Med anketiranimi je bilo 114 študentk (71,3 %) in 46 študentov (28,7 %). Na UL je bilo na programih geografije anketiranih 92 študentov ali 29,1 % populacije, od tega 68 deklet (73,9 %), na UM je bilo anketiranih 24 študentov ali 22,4 % populacije, od tega 18 deklet (75,0 %), in na UP 44 študentov ali 62,9 % populacije, od tega 28 deklet (63,6 %).

Spletna anketa, ki je bila zasnovana po različnih zgledih iz tujine (Summers, Corney in Childs 2004; Catenazzo s sod. 2010; Eyuboglu, Oslu in Oz 2010; Michalos s sod. 2011; Michalos s sod. 2012), je obsegala 40 vprašanj. V prispevku objavljamo zgolj rezultate statistike na vprašanja o poznavanju in razumevanju TR, navedbah virov pridobivanja znanja o TR ter povezanosti študijskih programov z vsebinami TR. Za primerjavo smo uporabili rezultate podobne raziskave, opravljene med študenti treh fakultet UP (n = 238) leta 2011 (Kovačič in Brečko Grubar 2012).

Razlike med frekvencami odgovorov študentov geografije na posameznih univerzah in razlike med frekvencami odgovorov študentov geografije v posameznih letnikih na posamezna vprašanja smo preučili s pomočjo Pearsonove χ^2 statistike pri stopnji značilnosti $\alpha = 0{,}01$ in dopisali *p*-vrednosti (Košmelj 2007). S pomočjo prilagojenih ostankov v posameznih celicah smo ugotavljali največja statistična odstopanja znotraj preučevanih kontingenčnih preglednic, tudi v primerih, ko izračun χ^2 statistike za celotno preglednico ni pokazal bistvenih razlik v odgovorih. Vrednosti prilagojenega ostanka, višje od 2, pomenijo statistično značilno razliko ($\alpha < 0{,}05$), vrednosti, višje od 3, pa kažejo na močno odstopanje od pričakovanih vrednosti ($\alpha < 0{,}01$) (Agresti 2007; internet 4; internet 5).

Zavedamo se, da je izvajanje različnih obveznih in izbirnih predmetov v času anketiranja, še posebej tistih, ki so vsebinsko zelo povezani s TR, zagotovo zelo vplivalo na izkazano znanje študentov o TR in njihovo opredeljevanje do povezanosti posameznih predmetov z vsebinami TR, vendar teh vplivov ni možno ustrezno ovrednotiti.

3 Poznavanje vsebin trajnostnega razvoja

Približno polovica (53,1 %) študentov geografije v Sloveniji meni, da je njihova predstava o TR dobra, 34,4 % pa, da je slaba. Možnosti odgovora »srednje« vprašanje ni vsebovalo. Rezultati so primerljivi s študenti UP (dobra = 57 %, slaba = 31 %) (Kovačič in Brečko Grubar 2012). Med študenti geografi je zelo majhen delež tistih, ki so svoje poznavanje TR ocenili kot zelo slabo (4,4 %), 8,1 % pa jih meni, da imajo zelo dobro predstavo o TR. Statistika χ^2 testa kaže ($p = 0{,}0321$), da med študenti geografije na posameznih univerzah in poznavanjem vsebin trajnostnega razvoja ni statistično značilne povezanosti. Na UL z nekoliko manjšim deležem izstopajo odgovori »slaba« predstava o TR (26,1 %) in odgovori, da je predstava o TR »zelo dobra« (12,0 %). Na eni od univerz v Carigradu je zgolj 12 % anketiranih (n = 60) označilo, da pozna vsebino TR, razložiti pa jo jih je znalo samo 7 % (Eyubolglu, Oslu in Oz 2010). Raziskava med podiplomskimi študenti na Oxfordski univerzi (n = 61) je pokazala, da 62 % anketiranih (geografi 80 %) svoje poznavanje TR ocenjuje kot dobro oziroma zelo dobro. V enakih vrednostnih kategorijah je delež odgovorov študentov geografije v Sloveniji odstotek manjši, enako pa velja tudi za anketirane študente UP v letu 2011 (Summers, Corney in Childs 2004; Kovačič in Brečko Grubar 2012).

Statistika χ^2 pokaže ($p = 0{,}0000$), da je predstava o lastnem poznavanju TR študentov geografije zelo povezana z letnikom študija. V kontingenčni preglednici med letniki študija in lastni predstavi o TR študenti prvih letnikov močno odstopajo z velikim deležem odgovorov v kategorijah »zelo slaba« (prilagojen ostanek = + 3,3) in »slaba« (prilagojen ostanek = + 5,9), z majhnim deležem odgovorov pa v kategoriji »dobra« (prilagojen ostanek = –5,6). Študenti tretjih letnikov izstopajo z majhnim deležem odgovorov v kategoriji »slaba« (4,5 %; prilagojen ostanek = –4,9) in velikim deležem v kategoriji »dobra« (81,8 %; prilagojen ostanek = + 4,5).

Preglednica 1 prikazuje delež pravilnih odgovorov študentov geografije v Sloveniji na trditve o poznavanju TR. Statistika χ^2 kaže, da delež pravilnih odgovorov pri posamezni trditvi ni statistično značilno povezan z letnikom študija, kar je nekoliko presenetljivo, saj so te vsebine vključene v učne načrte predmetov vseh programov geografije v Sloveniji in bi pri višjih letnikih pričakovali večji delež pravilnih odgovorov (poglavje 4.1). Z izjemo druge trditve, kjer je bila večina odgovorov nepravilnih, prevladujejo pravilni odgovori (77,5 do 98,8 %), kar je skladno tudi z lastnimi ocenami anketiranih študentov o poznavanju vsebin TR. Tako kot je pokazala že raziskava med študenti UP leta 2011 (Kovačič in Brečko Grubar 2012), je najmanj pravilnih odgovorov pri vprašanjih, povezanih s družbeno-kulturnim področjem TR (trditve 2, 3, 4, 7 in 13). Študenti geografije so se najslabše izkazali pri vprašanju povezanosti enakosti spolov in TR, kjer je bil delež pravilnih odgovorov zgolj 35,0 %, kar je v primerjavi z odgovori študentov UP v letu 2011 (Kovačič in Brečko Grubar 2012) 10 % manj. Zanimivo je, da je delež moških študentov geografije, ki so pravilno odgovorili na vprašanje o enakosti spolov kot delu TR (43 %) večji od deleža žensk (32 %), v raziskavi

v ameriški zvezni državi Manitobi (Michalos s sod. 2011) pa se je pokazalo, da ženske v primerjavi z moškimi družbeno-kulturno področje bolje prepoznavajo kot del TR. To je skladno z ugotovitvijo, da se znanost o trajnostnosti prevladujoče osredotoča na okoljske znanosti, veliko manj pa sega na področja ekonomije in družbenih ved (Nučič 2012). Pri študentih geografije v Sloveniji povezanost med spolom in deležem pravilnih odgovorov na trditve o TR ni statistično značilna, z izjemo 3. trditve, kjer je delež pravilnih odgovorov pri moških 87,0 % (prilagojeni ostanek = –2,3), pri ženskah pa 96,5 % (prilagojeni ostanek = + 2,3).

Med študenti geografije na posameznih univerzah in deležem pravilnih odgovorov ni statistično značilne povezave, z izjemo študentov geografije na UP, ki v primerjavi z drugima dvema univerzama pri trditvah 6, 7, 8 in 13 statistično značilno odstopajo (prilagojeni ostanki od –2,1 do –2,7) z manjšim deležem pravilnih odgovorov. Z nekoliko manjšim deležem pravilnih odgovorov pri 11. trditvi (83,3 %) v negativno smer izstopajo študenti geografije na UM.

Preglednica 1: Deleži (%) pravilnih odgovorov na trditve o poznavanju trajnostnega razvoja.

trditev (n = 160)	UL	UM	UP	skupaj
1. Trajnostni razvoj vključuje tako gospodarski razvoj, družbeno-kulturni razvoj kot varstvo okolja.	97,8	100,0	100,0	98,8
2. Učenje za trajnostni razvoj vključuje učenje kulture miru in enakosti spolov.	37,0	41,7	27,3	35,0
3. Trajnostni razvoj enako zajema potrebe v prihodnosti (naših otrok) kot današnje potrebe.	95,7	95,8	88,6	93,8
4. Socialna pravičnost ni sestavina trajnostnega razvoja.	82,6	75,0	68,2	77,5
5. Trajnostna poraba vključuje uporabo dobrin in storitev na način, ki zmanjšuje na minimum uporabo naravnih virov in strupenih snovi ter zmanjšuje odpadke.	94,6	91,7	93,2	93,8
6. Zmanjšanje snovno-energijskih tokov za trajnostni razvoj ni bistvenega pomena.	95,7	95,8	86,4	93,1
7. Trajnostni razvoj presega antropocentrizem in vključuje etično ravnanje do živali.	87,0	83,3	70,5	81,9
8. Trajnostni razvoj skuša uravnotežiti človeško in gospodarsko blagostanje s kulturno tradicijo in naravnimi viri.	96,7	100,0	86,4	94,4
9. Podnebnih sprememb ne moremo upočasniti.	84,6	79,2	79,5	82,4
10. Družbena odgovornost podjetij je za trajnostni razvoj nepomembna.	95,7	91,7	93,2	94,4
11. Trajnostni razvoj predvideva spremembo potrošniške miselnosti ter prehod od zagotavljanja želja k zagotavljanju dejanskih potreb.	95,7	83,3	90,9	92,5
12. Ohranjanje biološke raznovrstnosti je ključno za učinkovito delovanje ekosistemov.	96,7	100,0	100,0	98,1
13. Izobraževanje za trajnostni razvoj podpira kulturno različnost in spoštovanje človekovih pravic.	84,8	79,2	68,2	79,4
14. Uporaba neobnovljivih virov ne sme presegati uporabe sonaravnih obnovljivih nadomestkov.	92,3	87,5	93,2	91,8
15. Nosilna sposobnost okolja (sposobnost samočiščenja, nevtralizacije obremenitev in regeneracije) je nepomembna za trajnostni razvoj.	89,1	91,7	93,2	90,6

4 Viri znanja o trajnostnem razvoju

Naslednji vprašanji sta bili povezani z učenjem o TR in poglavitnimi viri znanja, ki so vplivali na poznavanje TR. Odgovori kažejo, da se je 61,9 % študentov geografije treh univerz že učilo o TR, 38,1 % pa ne; več pritrdilnih odgovorov je bilo pri študentih (67,4 %) kot študentkah (59,6 %). Iz rezultatov bi lahko sklepali, da vsebine TR niso ustrezno zastopane v študijskih programih geografije v Sloveniji. Vendar njihova analiza (poglavje 4.1) pokaže ravno nasprotno, torej, da je zastopanost predmetov, povezanih s TR, dobra.

Takšen rezultat si lahko delno razložimo s študentskim neprepoznavanjem vsebin TR znotraj posameznih predmetov ali pa s tem, da je več predmetov izbirnih in jih anketirani študenti niso izbrali. Delež vseh študentov geografije, ki so se že učili o TR, je nekoliko manjši od deleža anketiranih študentov UP (71,0 %) leta 2011 (Kovačič in Brečko Grubar 2012). Rezultati raziskave med študenti v Carigradu kažejo, da se je o TR učilo zgolj 3 % vprašanih (Eyuboglu, Oslu in Oz 2010). Analiza podatkov naše raziskave razkriva, da delež študentov geografije, ki so se že učili o TR, narašča od začetka dodiplomskega do zaključka podiplomskega študija (prvi letnik prve stopnje = 30,2 %, drugi letnik prve stopnje = 71,9 %, tretji in četrti letnik prve stopnje = 86,0 % in druga stopnja skupaj = 100,0 %), kar pomeni, da so vsebine TR ustrezno zastopane v študijskih programih. Zaskrbljujoč je podatek, da je le 52,3 % študentov geografije na UP navedlo, da so se že učili o TR, na UL je ta delež 65,2 % in na UM 66,7 %. Študenti geografije na UP statistično močno odstopajo (prilagojen ostanek = + 3,7) tudi pri skupnem deležu odgovorov »zelo malo« in »malo« na vprašanje o povezanosti študijskih vsebin s TR, ki je kar 31,8 %, v primerjavi s študenti geografije na UL (10,8 %) in UM (16,6 %).

Odgovore na vprašanje, kje so pridobili znanje o TR, pri čemer so študenti izbirali med ponujenimi možnostmi (možnih več odgovorov), prikazuje preglednica 2.

Preglednica 2: Deleži (%) navedb pridobivanja posameznih vrst informacij o trajnostnem razvoju (možnih več odgovorov). Prvo število je delež vseh anketiranih, ki so izbrali odgovor, drugo pa delež navedb posameznega odgovora od vseh navedenih odgovorov.

odgovor (n = 99)	UL	UM	UP	skupaj
formalno izobraževanje	90,0/22,2	87,5/21,5	56,5/12,3	81,8/19,6
neformalno izobraževanje (tečaji, okrogle mize, društva, krožki . . .)	30,0/7,4	18,8/4,6	26,1/5,7	27,3/6,5
okolica (prijatelji, družina . . .)	40,0/9,9	56,3/13,8	82,6/17,9	52,5/12,6
informativni programi TV, radio	48,3/11,9	37,5/9,2	60,9/13,2	49,5/11,8
dokumentarni programi TV, radio	50,0/12,3	50,0/12,3	73,9/16,0	55,6/13,3
časopisje in revije	36,7/9,1	56,3/13,8	52,2/11,3	43,4/10,4
strokovna in znanstvena literatura (knjige, članki v revijah)	58,3/14,4	50,0/12,3	43,5/9,4	53,5/12,8
spletne strani, forumi, akcije . . .	50,0/12,3	43,8/10,8	56,5/12,3	50,5/12,1
drugo	1,7/0,4	6,3/1,5	8,7/1,9	4,0/1,0

Najpomembnejši vir znanja o TR je »formalno izobraževanje« (19,6 %), ki ga je navedlo kar 81,8 % vseh, ki so se že učili o TR (n = 99). To kaže, da so vsebine TR ustrezno vključene tako v formalno izobraževanje na dodiplomskih in podiplomskih programih geografije kot tudi na srednjih šolah. Slednje je mogoče sklepati iz odgovorov študentov prvih letnikov. Pomen formalnega izobraževanja na študijskih programih geografije pri pridobivanju znanj o TR se kaže tudi v naraščanju deleža odgovorov v tej kategoriji od začetka študija na dodiplomski ravni (11,7 %) do podiplomskega študija (17,9 %). Raziskava, opravljena med študenti več fakultet UP (Kovačič in Brečko Grubar 2012), je prav tako pokazala, da je najpomembnejši vir znanja o TR formalno izobraževanje (21,4 %). Na Oxfordski univerzi se je 56 % anketiranih podiplomskih študentov o TR učilo v okviru formalnega izobraževanja, pri čemer je delež geografov, ki so se učili o TR, še veliko večji (81 %) (Summers, Corney in Childs 2004). Anketa med podiplomskimi študenti geografije na UP (n = 10) je pokazala, da je ta delež 100 % (Kovačič in Brečko Grubar 2012). Med anketiranimi dijaki v Manitobi pa jih je samo 14 % navedlo, da so se o TR že učili v okviru formalnega izobraževanja (Michalos s sod. 2011).

Izračun χ^2 testa kaže, da med viri znanja o TR in domicilnostjo študentov geografije ni ($p = 0{,}5498$), vendar pa analiza ostankov posameznih celic kontingenčne preglednice 2 pokaže, da z zgolj 12,3 % vseh odgovorov v kategoriji »formalno izobraževanje« v negativno stran močno odstopajo študenti geografije na UP (prilagojen ostanek = –3,6), kar je skladno z že zgoraj omenjenim velikim deležem (31,8 %) študentov geografije na UP, ki menijo, da je njihov program malo ali zelo malo povezan s TR. Drugače od študentov geografije na ostalih dveh univerzah, pri katerih je med ponujenimi na prvem mestu odgovor »formalno izobraževanje« (UL = 22,2 % in UM = 21,5 %), ta pri študentih geografije na UP zaseda šele četrto mesto (preglednica 2). Rezultati analize ostankov pokažejo, da v negativno stran s samo 9,9 % vseh odgovorov pri navedbi »okolica« močno odstopajo študenti geografije na UL (prilagojen ostanek = –3,1), v pozitivno stran pri isti navedbi pa s 17,9 % študenti geografije na UP (prilagojen ostanek = + 3,3).

Pri študentih geografije na vseh treh univerzah je najmanjši delež odgovorov v sklopu »neformalno izobraževanje« (4,6–7,4 %), ki zajema udejstvovanje študentov na tečajih, krožkih, delavnicah in okroglih

mizah zunaj študijskega procesa. Delež je nekoliko večji od povprečja za študente UP (4,2 %) (Kovačič in Brečko Grubar 2012), vendar pa kaže na nezanimanje študentov za pridobivanje znanja o TR izven formalnih oblik učenja in množičnih medijev. Oblike neformalnega izobraževanja so z aktivno udeležbo sicer zelo primerna oblika promocije smernic TR in mladi izobraženci bi morali biti gonilna sila v tej smeri, vendar rezultati kažejo, da ni tako. Zato je zelo pomembna vloga učiteljev, ki bi v študentih morali spodbuditi vnemo po prizadevanju za ustvarjanje boljše prihodnosti, v smislu informiranja javnosti o nujnosti bivanja in delovanja družbe po načelih TR. Pri tem je pomembno tudi mladim vcepiti zavedanje, da je prostor skupna odgovornost vseh, če ga želimo ohraniti prihodnjim rodovom (Fridl, Urbanc in Pipan 2009; Urbanc in Fridl 2012). Računati zgolj na samoiniciativnost mladih pri prevzemanju te odgovornosti je zgrešeno. Pomen izobraževanja mladih o TR za doseganje njegovih globalnih ciljev izpostavljajo tudi nekatere raziskave (Wade 1999; Catenazzo s sod. 2010).

Preostale kategorije virov znanja so med študenti geografije dokaj enakomerno razporejene (od 10,4 do 13,3 %) (preglednica 2). Nekoliko presenetljivo se na tretje mesto (12,8 %), takoj za »dokumentarnimi programi«, uvršča »strokovna in znanstvena literatura«, kar je za dobra 2 % več, kot smo leta 2011 ugotovili pri študentih UP (Kovačič in Brečko Grubar 2012). Rezultati iste raziskave so pokazali, da študenti UP 51,6 % informacij in znanja o TR pridobijo iz različnih medijev (TV, radio, časopis, svetovni splet …), kar je nekoliko več od celotne populacije študentov geografije v Sloveniji (47,7 %), oboji pa seveda kažejo na velik pomen medijev v izobraževanju o TR. Informativnemu in dokumentarnemu programu TV in radia pripada skupno četrtina vseh odgovorov, zato bi ju veljalo učinkoviteje izkoristiti za izobraževanje o TR in njegovo promocijo (preglednica 2).

4.1 Povezanost vsebin trajnostnega razvoja s študijskimi programi geografije

Preglednica 3: Povezanost vsebin študijskih programov geografije v Sloveniji s TR.

odgovor (n = 160)	UL (%)	UM (%)	UP (%)	skupaj (%)
nikakršna	1,1	0,0	0,0	0,6
zelo majhna	5,4	8,3	4,5	5,6
majhna	5,4	8,3	27,3	11,9
srednja	27,2	50,0	38,6	33,8
velika	42,4	25,0	22,7	34,4
zelo velika	18,5	8,3	6,8	13,8

Odgovori študentov geografije o povezanosti njihovih študijskih programov z vsebinami TR med tremi univerzami se statistično pomembno razlikujejo ($p = 0{,}0066$). S skupno 60,9 % odgovorov »velika« in »zelo velika« izstopajo študenti geografije na UL, ki so največ znanja o TR pridobili s formalnim izobraževanjem (22,2 %; preglednica 3). Pri študentih geografije na UM je skupni delež odgovorov »velika« in »zelo velika« 33,3 %, na UP pa 29,5 %. Slednji pomembno odstopajo z največjim skupnim deležem odgovorov »zelo majhna« in »majhna« (31,8 %). Polovica študentov geografije na UM meni, da je njihov program srednje povezan z vsebinami TR, na UP jih je enakega mnenja 38,6 % in na UL 27,2 %. Med vsemi anketiranimi je zgolj eden navedel, da njegov študijski program ni prav nič povezan z vsebinami TR.

Primerjava skupnega deleža odgovorov »velika« in »zelo velika« vseh anketiranih študentov ter odgovorov na vprašanje o povezanosti študijskih vsebin s TR po letnikih študija pokaže, da so vsebine TR ustrezno vključene v programe geografije, povezanost je statistično značilna. Visokošolsko izobraževanje ustrezno sledi splošno zastavljenim ciljem izobraževanja na področju TR. Močno odstopanje v negativno stran je značilno za študente prvega letnika (prilagojeni ostanek = –3,3). To se odseva tudi v izraziti razliki skupnega deleža odgovorov »velika« in »zelo velika« med študenti prvega (25,3 %) in drugega letnika študija (62,6 %) na prvi stopnji. Enak delež je pri študentih tretjega in četrtega letnika (62,5 %), pri študentih podiplomskega študija pa je le-ta 75,0 %. Ocena študentov o povezanosti študijskih programov z vsebinami TR se ujema z mnenjem glede poznavanja TR, ki narašča od začetka do zaključka študija (poglavje 3).

Z namenom ugotavljanja povezanosti programov geografije z vsebinami TR smo študente zaprosili za navedbo do pet študijskih predmetov, ki si sledijo glede na zastopanost vsebin o TR. Na povezanost predmeta z vsebino TR smo sklepali le na podlagi navedbe predmeta, učnih načrtov nismo pregledovali. Zaradi premajhnega števila anektiranih študentov druge stopnje geografije smo analizo opravili le za programe

prve stopnje. V nadaljnjo analizo smo vključili samo prve tri navedene predmete, ki po mnenju anketiranih obravnavajo teme TR (preglednica 4).

Iz navedenih imen predmetov enopredmetnega in dvopredmetnega prvostopenjskega programa Geografija na UL bi lahko sklepali, da so z vsebinami TR najbolj povezani predmeti Geografija sonaravnega razvoja, Ekološka geografija in Varstvo geografskega okolja. Slednji je predmet starega (predbolonjskega) programa Geografija. Vendar je analiza navedb predmetov pokazala, da so študenti geografije na UL kot prve tri možnosti največkrat navedli Hidrogeografijo (16,7 %), šele nato sledita Geografija sonaravnega razvoja (13,7 %) in Ekološka geografija (11,6 %). Osem navedenih predmetov v preglednici 4 predstavlja skupno 75,5 % vseh navedb predmetov študentov geografije na UL. Ker so predmet Varstvo geografskega okolja navajali zgolj študenti starega programa, je delež teh navedb temu primerno majhen (4,7 %). Študenti geografije na UL so kot prvoizbrani predmet največkrat navedli Geografijo sonaravnega razvoja (35,2 %), kot drugoizbranega Ekološko geografijo (23,1 %) in kot tretjeizbranega Humano ekologijo (17,9 %).

Preglednica 4: Deleži (%) navedb posameznih predmetov programov geografije 1. stopnje, ki po mnenju študentov obravnavajo teme, povezane s TR.

univerza in predmet	tip predmeta	letnik	delež navedb
UNIVERZA V LJUBLJANI			
Hidrogeografija	obvezni	2	16,7
Geografija sonaravnega razvoja	izbirni	1–3	13,7
Ekološka geografija	obvezni	3	11,6
Pedo- in biogeografija (samo enopredmetni študij)	obvezni	2	8,6
Geografija turizma in prometa (samo enopredmetni študij)	obvezni	2	8,2
Humana ekologija	izbirni	1–3	6,4
Klimatogeografija (samo enopredmetni študij)	obvezni	1	5,6
Varstvo geografskega okolja (stari program)	obvezni	4	4,7
UNIVERZA V MARIBORU			
Sonaravno urejanje voda	izbirni	1	31,7
Varovanje prsti	izbirni	2	16,7
Hidrogeografija	obvezni	1	15,0
Geografija slovenskih pokrajin	obvezni	3	6,7
Ekološka geografija	obvezni	3	5,0
UNIVERZA NA PRIMORSKEM			
Uvod v družbeno geografijo	obvezni	1	23,3
Uvod v fizično geografijo	obvezni	1	13,3
Pokrajinska in humana ekologija	izbirni	2–3	10,0
Regionalna geografija sveta	obvezni	1	10,0
Uporabna geografija v regionalnem razvoju	izbirni	2–3	7,8
Geografija poselitve in prebivalstva	obvezni	2	5,5
Ekonomska in socialna geografija	obvezni	3	4,5

Za tri od petih predmetov na dvopredmetnem prvostopenjskem programu Geografija na UM, ki so jih študenti največkrat navedli, lahko že iz njihovih imen sklepamo na povezanost vsebin s TR (Sonaravno urejanje voda, Varovanje prsti in Ekološka geografija). Na omenjenem programu se kot izbirni predmet 1. letnika predava tudi predmet Antropogene klimatske spremembe, ki je vsebinsko povezan s TR, vendar ga je navedlo zelo majhno število študentov. Med prvimi tremi možnostmi so študenti geografije na UM največkrat navedli Sonaravno urejanje voda (31,7 %), sledi Varovanje prsti (16,7 %), na tretjem mestu je Hidrogeografija (15,0 %). Pet navedenih predmetov v preglednici 4 predstavlja skupno 75,1 % od vseh navedb predmetov študentov geografije na UM. Kot prvo izbiro so največkrat navedli Sonaravno urejanje voda (66,7 %), kot drugo Hidrogeografijo in Varovanje prsti (oba 23,8 %), kot tretjo pa Varovanje prsti (33,3 %).

Na enopredmetnem prvostopenjskem programu Geografija na UP z imenom le izbirni predmet Pokrajinska in humana ekologija nakazuje na povezanost z vsebinami TR, kakor pa kaže analiza navedb študentov omenjenega programa, so vsebine TR vključene tudi v splošne geografske predmete. Na prvo mesto se z največ navedbami uvršča Uvod v družbeno geografijo (23,3 %), sledi Uvod v fizično geografijo (13,3 %), na tretjem mestu sta z 10,0 % deležem Regionalna geografija sveta ter Pokrajinska in humana ekologija. Sedem navedenih predmetov v preglednici 4 predstavlja skupno 74,3 % od vseh navedb študentov geografije na

UP. Kot prvo izbiro so študenti največkrat navedli Pokrajinsko in humano ekologijo ter Uvod v fizično geografijo (oba po 18,9 %), kot drugo Uvod v družbeno geografijo (30,3 %) in kot tretjo Regionalno geografijo sveta (20 %).

5 Sklep

Več kot polovica anketiranih študentov geografije v Sloveniji meni, da dobro poznajo TR, dobra tretjina jih svoje poznavanje ocenjuje kot slabo. Tistih, ki svoje poznavanje ocenjujejo kot »zelo dobro« ali »zelo slabo«, je malo, med študenti posameznih univerz pa so razlike zanemarljive. Nekoliko večji je delež dobrega poznavanja pri študentih UL, kar je skladno z velikim deležem (60,9 %) študentov, ki menijo, da so vsebine TR »veliko« ali »zelo veliko« povezane z njihovimi študijskimi programi. Nedvoumna je ugotovitev, da študenti višjih letnikov prve stopnje in študenti druge stopnje študija veliko boljše ocenjujejo lastno poznavanje od študentov nižjih letnikov. Deleži pravilnih in nepravilnih odgovorov pri trditvah, s katerimi smo preverjali poznavanje TR, presenetljivo niso pokazali statistično značilne povezanosti med pravilnimi odgovori in letniki študija, kakor tudi ne z domicilnostjo anketiranih študentov. Določene vsebine TR, zlasti z družbeno-kulturnega polja, namreč niso ali so le v manjši meri zastopane v študijskih programih in jih študenti ne spoznajo niti v dalj časa trajajočem izobraževanju. Nekoliko manjši delež pravilnih odgovorov je bil zaznan pri študentih geografije UP, ki so svoje poznavanje TR že v začetku ocenili slabše.

Delež anketiranih študentov geografije, ki so se že učili o TR, presega 60 % in se pri študentih višjih letnikov povečuje (3. letnik 1. stopnje 86 %). Razlike so skladne tudi z ugotovitvijo, da delež študentov, ki so se že učili o TR, in delež študentov, ki menijo, da so njihovi študijski programi močno ali zelo močno povezani s TR, naraščata od začetka do zaključka študija. Z manjšim deležem pritrdilnih odgovorov so statistično pomembno odstopali študenti geografije na UP, ki tudi slabše ocenjujejo povezanost študijskih programov s TR. To so potrdili tudi z odgovori na vprašanje o načinu pridobivanja znanja, kjer so manjši pomen pripisali formalnemu izobraževanju. Sicer ima pri večini anketiranih študentov geografije formalno izobraževanje pomembno vlogo v spoznavanju TR. Pri pregledovanju predmetnikov študijskih programov smo ugotovili, da so med študijskimi programi univerz precejšnje razlike v zastopanosti vsebin TR, če bi sklepali iz imen predmetov. Bolj »zgovorne« so navedbe nazivov predmetov pri študentih, kjer smo ugotovili, da so bili nekateri splošnogeografski temeljni predmeti bolj pogosto vir znanja o TR, kot smo pričakovali.

6 Literatura

Glej angleški del prispevka.