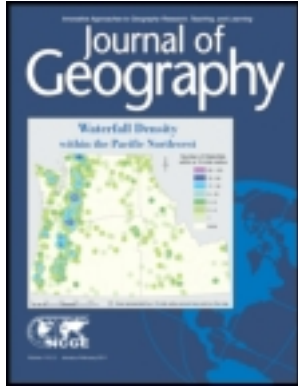


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Milan Kubiатko ^a, Tomáš Janko ^b & Katerina Mrazkova ^b

^a Institute for Research in School Education, Faculty of Education, Masaryk University, Brno, Czech Republic

^b Department of Geography, Faculty of Education, Masaryk University, Brno, Czech Republic

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Czech Student Attitudes towards Geography

Milan Kubiátko, Tomáš Janko, and Katerina Mrazkova

ABSTRACT

This study investigates 540 Czech lower secondary students' attitudes towards geography. It examined the general influence of gender and grade level on attitudes towards geography with an emphasis on four specific areas in particular: geography as a school subject; geography and the environment; the importance of geography; and the relevance of geography lessons to pupils' lives. The results suggest that grade level significantly influences attitudes towards geography, but gender does not. It also comments on drawbacks within the Czech curriculum that limit geography instruction.

Key Words: Czech Republic, student attitudes, geography instruction

INTRODUCTION

Geography is a science that connects natural and human phenomena. Geographic literacy is an important skill worth developing in an increasingly globalized world. Success will depend, in part, on students' interest in the school subject, which in turn depends on the overall attitude towards this subject (Jones, Howe, and Rua 2000; Prokop, Prokop, and Tunnicliffe 2007; Sack and Petersen 1998). Geography is a traditional part of the educational curriculum in the Czech Republic. However, little research exists about the utility of the geographical curriculum or students' attitudes towards geography, especially after the 2005 curricular reform. Accordingly, we investigated students' attitudes towards geography education and their out-of-school interests connected to geography. We also examined the effect of specific variables on students' attitudes towards geography, proposing that boys will have more positive attitudes towards geography in comparison with girls and that younger students would have more positive attitudes towards geography in comparison with older students.

BACKGROUND

The curricular position of geography varies country by country. For example, geography is a part of the social sciences in the United States; in the Czech curriculum it is perceived as a science subject. According to the U.S. Geography Standards, the main aims are the development of skills and practical use of geographical knowledge, whereas in the Czech Republic the main aims can be summarized as building up a knowledge base. The quality of geography curricula in Czech lower secondary schools varies in extent and quality, which influences students' attitudes towards geography as a school subject. There are several reasons for this. One of them is the transformation of the Czech educational system after 1989.

After the Velvet Revolution,¹ debates among academics and politicians about the need for a new curriculum model for general secondary schools started in Czechoslovakia and continued in the Czech Republic after the breakup of Czechoslovakia in 1993. A curricular reform was called for that would provide systemic renovation of the education system and an overhauling of educational aims and content. The new curriculum model for general secondary schools was to be based on the acquisition of key skills, attitudes, and values, and on the integration of intersubject relations, rather than on the acquisition of declarative facts. Nationwide discussion was brought to a close at the turn of the millennium, resulting in a document called the National Programme for the Development of Education in the Czech Republic, also known as the White Paper (2001). Since then, previous educational documents have been replaced with bilevel state and school sets of documents. The state level curricular document, the Framework Educational Programme (FEP), expresses state requirements for the quality of elementary and lower secondary education. The FEP document is obligatory and represents the educational content and expected outcomes set by the state. This document must be respected during the development of the school level curricular document, the School Educational Programme (SEP), which is specific for every school. SEP documents represent how schools distribute the educational content mandated by the state into particular grades of school attendance. SEP documents

Milan Kubiátko, Ph.D., is an assistant professor at the Institute for Research in School Education, Faculty of Education, Masaryk University, Brno, Czech Republic. His work focuses on student attitudes towards the different thematic areas of science and student and teacher usage of information and communication technologies.

Tomáš Janko is a Ph.D. student at the Institute for Research in School Education, Faculty of Education, Masaryk University, Brno, Czech Republic. His research focuses on students' treatment of textbooks, visuals in geography textbooks, and nonverbal information processing.

Katerina Mrazkova is a Ph.D. student at the Department of Geography, Faculty of Education, Masaryk University, Brno, Czech Republic. Her research evaluates map skills development using geographic information technologies in school-age geography teaching.

Table 1. *Man and Nature* educational content.

Educational Area	Educational Field	Subject Matter (Educational Content of the Educational Field)
Man and Nature	Geographic Information, Sources of Data, Cartography, and Topography	Using geographic and cartographic language Geographical cartography and topography
	A Natural Picture of Earth	Earth as a celestial object Landscape The biosphere on the global level The biosphere on the regional level
	Regions of the World	Continents, oceans, world macroregions Sample regions of the world
	The Social and Economic Environment	World population Social, political, and economic processes of globalization World economy Regional social, political, and economic systems
	The Natural Environment	Landscape The relationship between nature and society
	The Czech Republic	The local region The Czech Republic Regions of the Czech Republic
	Geographical Fieldwork, Practice, and Application	Field exercises in and observations of the local landscape, geographical field trips Human safety in case of threats to life and health

are also an expression of the autonomy of schools and their partial responsibility for the quality of education.

In the FEP document, the content of lower secondary education is divided into specific educational areas. The educational content of geography—including its social aspects—was implemented into the FEP educational area entitled *Man and Nature*. This educational area is divided into seven educational fields (Table 1).

Understanding students' attitudes is important for supporting their achievements and interest towards a particular discipline. Research suggests that students are motivated to learn if the educational content is interesting, connected with everyday life and useful for their future development. As interest in science subjects is declining (Osborne 2003), the development of positive attitudes towards science is one of the most important goals of the curriculum (Koballa and Crawley 1985). One's attitudes can be influenced by many factors, such as previous experience and social influences. Investigation of students' attitudes towards geography is not an extensive field of research. Even so, some important studies do exist.

Related studies can be grouped into three domains. The first domain deals with the student attitudes towards geography as a school subject. Such studies were conducted by McTeer (1979) and Sack and Petersen (1998). As McTeer investigated, geography was rated poorly in comparison with other subjects. Sack and Petersen's study, conducted in Texas, USA, showed geography was rated as the worst subject of all, clearly a dissatisfactory result.

Another domain concerns the influence of different variables on attitudes towards geography. Brook (1977) examined the general attitudes towards geography held by ninth and tenth grade students and college students. Education level, gender, and students' individual conceptualizations of geography were examined as possible influences on their attitudes towards geography. The results were not significant among independent variables. Detailed results showed that the youngest students (in this case ninth grade) had better attitudes towards geography in comparison with the older ones (tenth grade and college students).

The influence of grade level was also investigated from fourth grade to sixth grade in the study of Sack and Petersen (1998) who found a decreasing interest in geography the higher the grade level of respondents. The same authors examined gender differences in attitudes towards geography and found that boys had more positive attitudes towards geography in comparison with girls. Okuranstifa (1975) examined differences between boys and girls during their school research activities and found out that boys had more positive attitudes than girls. However, when motivated girls had more positive attitudes towards geography in comparison with boys.

The last domain is related to the influence of different types of teaching methods on the attitudes towards geography. Biddulph and Adey (2004) focused on the investigation of students' enjoyment and perceived usefulness of geography in England. The study found that strategies such as group work, practical approaches to learning geography (e.g., fieldwork with geographical equipment) and using information and communication technologies are tools that have enhanced students' enjoyment of geography. Authors of these studies found that geography was perceived as

useful for students. But when they asked, students were not able to explain why geography is useful for them. Korkmaz and Karakus (2009) investigated the impact of e-learning methods on student attitudes towards their geography course. The study suggests that e-learning positively influences students' attitudes towards geography in comparison with traditional educational methods, and that there was a positive correlation between students' attitudes towards geography and their ability to think critically. In other work, Gökce (2009) investigated insufficiently qualified geography teachers, the elimination of some geography courses, and the low motivation of the teacher trainees in the field.

Similar work has been conducted for other science disciplines. In his analysis, Weinburgh (1995) found that boys had more positive attitudes towards science subjects in comparison with girls. Ramsden's study (1998) showed such results, too. In the study done by Prokop, Prokop, and Tunnicliffe (2007), girls had more positive attitudes towards biology. However, the dichotomy of boys' and girls' interests decreased as the students advanced to higher grades. On the other hand, Salta and Tzougraki (2004) found that there are no gender differences in student attitudes towards chemistry with regard to interest, usefulness, and importance of the subject. Another variable that has been investigated is grade level. The trend is alike in almost all studies, positive attitudes towards science subjects decrease the higher the student grade (Pell and Jarvis 2001; Stark and Gray 1999). Similar results were confirmed for chemistry (Cheung 2009) and for biology (Prokop, Tuncer, and Chudá 2007). We, therefore, chose to investigate the influence of these two variables.

METHODS

Participants

The sample consisted of 540 lower secondary school students attending six Czech elementary schools². The participants were from eleven- to fifteen-years-old. Ninety-four students were from the sixth grade, 165 from the seventh grade, 155 from the eighth grade and 126 from the ninth grade. The sample consisted of 315 females and 225 males.

Construction of the Questionnaire

Students' attitudes towards geography were measured on a 5-point Likert-type scale. The items were adapted from similar questionnaires investigating attitudes towards science subjects (Prokop, Prokop and Tunnicliffe 2007; Salta and Tzougraki 2004, U"ak *et al.* 2009). Our questionnaire is divided into two parts. The first part consists of demographic variables such as gender, age, and grade level, while the second part consists of attitudinal items. The original form of the questionnaire was developed in Czech and then was translated into English for publication purposes with the assistance of a native speaker. The

items were developed to evaluate geography as a school subject (e.g., "I like geography more than other subjects"), the importance of geography (e.g., "Geography is not important in comparison with other courses"), the difficulty of geography (e.g., "Geography lessons are very difficult for me"), the interest in geography (e.g., "I would like to have geography lessons more often"), and using didactic tools in geography lessons (e.g., "We use a lot of geographical aids in geography lessons").

The questionnaire consisted of twenty-seven items (presented in random order) that were rated by the participants from 1 (strongly disagree) to 5 (strongly agree). Items had both positive (e.g., "I like geography more than other subjects") and negative (e.g., "Geography is not important in comparison with other courses") formulations (Oppenheim 1999). Negative items were reversed in the scoring. The total score of individual participants provides a composite index of attitudes towards geography. A low score reflects a relatively negative attitude and a high score reflects a relatively positive attitude toward geography.

Procedure

Copies of the questionnaire were administered at six Czech lower secondary schools. Students were informed that the questionnaire was anonymous and that it was not a test but rather a research attempt to explore attitudes towards geography. Administering of the questionnaires was random. No time limit was given for the finalization of the questionnaire, but the longest time taken to complete it was approximately twenty minutes. The distribution of the questionnaires was done by researchers themselves or by teachers who were instructed about its distribution. All questionnaires ($n = 540$) were filled out correctly and were included in the analysis.

Statistical Procedure

The acquired data was subsequently processed with factor analysis with Varimax rotation and four factors (areas) with eigenvalues greater than 1.0 were derived: (1) geography as a school subject (five items); (2) geography and the environment (six items); (3) importance of geography (five items); (4) relevance of geography lessons to students' lives (nine items) (Table 2). These four specific areas explained 44.28 percent of the total variance. According to Reckase (1979), the prime factor should explain at least 20 percent of the total variance and the difference between the second and the third factor should be lower than the difference between the first and the second factor. Two items with factor scores lower than 0.30 were excluded from the subsequent analyses (Anastasi and Urbina 1996). The suitability of factor analysis was confirmed by the value of Kaiser-Meyer-Olkin (0.90) and Bartlett's test of sphericity ($\chi^2 = 4116.14$; $df = 351$; $p < 0.001$).

The reliability of the questionnaire was calculated using Cronbach's alpha coefficient. The value of reliability was high ($\alpha = 0.87$), which indicated acceptable reliability of the

Table 2. The factor analysis of GAQ (Geography Attitude Questionnaire)

	α	I	II	III	IV
(I) Geography as a school subject	0.72				
1. I like geography more than the other subjects.		0.58	0.06	0.23	0.27
4. Geography lessons are very difficult for me.		0.62	0.02	0.06	0.24
6. I would like to have geography lessons more often.		0.59	0.13	0.22	0.24
16. It is necessary to pay more attention to understand geographical content.		0.63	-0.05	-0.16	-0.20
27. I believe geography is one of the easiest subjects.		0.69	0.10	0.11	0.17
(II) Geography and the environment	0.66				
3. Geography and nature are strange for me.		0.27	0.32	0.19	0.08
10. Geographical knowledge can help with solving a problem which is connected with the environment.		-0.06	0.62	0.21	0.13
17. Nature is a fundamental part of human life.		0.08	0.59	-0.09	-0.09
18. When I finish my studies I would like to work in the field of science.		0.22	0.39	0.28	-0.14
23. I consider the processes taking place in the environment very interesting.		0.15	0.60	0.23	0.17
24. I suppose that geography as a subject is able to explain the impact of humans on the nature.		0.01	0.67	-0.03	0.27
(III) Importance of geography	0.67				
7. Geographical knowledge is important for understanding other subjects.		-0.02	0.11	0.59	0.16
11. I use geographical knowledge in everyday life.		0.03	0.07	0.67	0.17
12. I will use geographical knowledge in my future job.		0.20	0.14	0.65	0.04
15. I believe that geography compared to other subject is not important.		0.08	0.10	0.32	0.24
26. I believe that geography as a subject enables us to understand thinking and behavior of people from other countries.		-0.10	0.28	0.39	0.28
(IV) Relevance of geography lessons to pupils lives	0.84				
5. Geography lessons develop my knowledge and skills.		0.10	0.17	0.22	0.38
8. I am bored in geography lessons.		0.13	0.10	0.11	0.67
9. Teachers' explanations in geography lessons are interesting for me.		0.11	0.28	0.12	0.69
13. Geography is interesting for me because we are taught by a professional teacher.		0.09	0.11	0.12	0.78
14. Maps, atlases, and globes used in geography lessons are interesting for me.		-0.02	0.14	0.22	0.45
20. I do not like geography lessons.		0.29	0.12	0.14	0.62
21. I do not like my geography teacher.		0.12	0.10	-0.07	0.75
22. We use a lot of geographical aids in geography lessons.		-0.17	0.01	0.29	0.44
25. Teaching materials (books, magazines, video, souvenirs, etc.) connected with geography are interesting for me.		0.15	0.22	0.21	0.36
Eigenvalue		6.90	2.04	1.78	1.24
variance (%)		25.57	7.54	6.58	4.59
Deleted items					
2. We do not use any aids in geography lessons.		-0.03	0.06	0.11	0.13
19. Geographical knowledge is not important in everyday life.		-0.09	0.11	0.20	0.22

α – Cronbach's alpha.

The numbers of items are identical to the numbers in the questionnaire.

questionnaire (Nunnally 1978). The high value of reliability coefficient in our study implies that the instrument used for investigation of students' attitudes towards geography is reliable and its usage for further analysis is appropriate. Values of Cronbach's alpha for specific factors (areas) are presented in Table 2. Two of the factors achieved a reliability score lower than 0.70, nevertheless according to Dhindsa and Chung (2003) and Francis and Greer (1999), a reliability score between 0.59 and 0.75 can be considered acceptable.

Analysis of variance (ANOVA) with general results and multivariate analysis of variance (MANOVA) with results for specific factors (areas) as dependent variables and demographic variables (gender and grade) as independent

categorical variables were conducted. We used Tukey posthoc test to get more detailed results. The Pearson product moment was used to find the relation among the dimensions. Results showed statistically significant differences and relationships for the levels: $p < 0.05$; $p < 0.01$ and $p < 0.001$.

RESULTS

Attitudes towards Geography in General

The overall mean score of students' attitudes towards geography was 3.36.

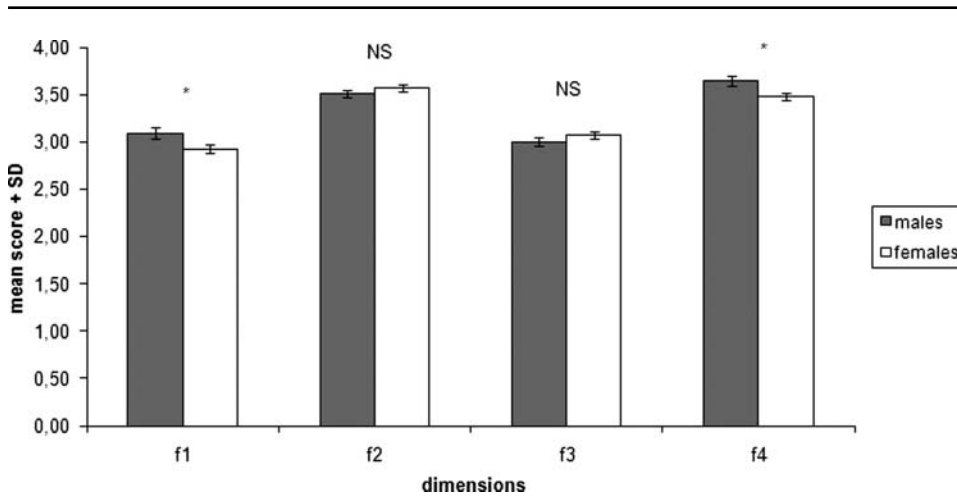


Figure 1. Mean score of student attitudes towards geography in specific areas (gender). NS – not a statistically significant difference; * $p < 0.05$; f1 – specific area 1 “Geography as a school subject”; f2 – specific area 2 “Geography and the environment”; f3 – specific area 3 “Importance of geography”; f4 – specific area 4 “Relevance of geography lessons to students’ lives”

There was no significant difference found between boys and girls ($F = 0.97$; $p = 0.32$). Boys achieved a slightly higher score. A statistically significant difference was found among grades ($F = 10.21$; $p < 0.001$). The sixth grade students had the highest average, whereas the ninth grade students were lower.

statistically significant difference was not found (Fig. 1).

The influence of grade level proved statistically significant, too ($F = 8.27$; $p < 0.001$). Detailed analysis showed statistically significant differences among grades in two specific factors (areas): “Geography and environment” and “Relevance of geography lessons to students’ lives” (Fig. 2). In the other analyzed factors (areas) a statistically significant difference was not found.

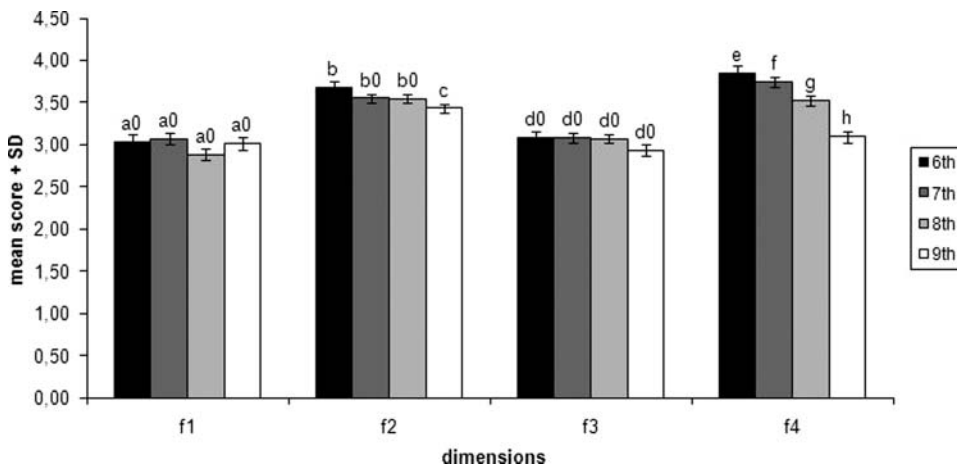


Figure 2. Mean score of student attitudes towards geography in specific areas (grade level). Letters indicate a statistically significant difference; letters with “0” indicate no statistically significant difference and letters without “0” indicate statistically significant difference within a specific area; f1 – specific area 1 “Geography as a school subject”; f2 – specific area 2 “Geography and the environment”; f3 – specific area 3 “Importance of geography”; f4 – specific area 4 “Relevance of geography lessons to students’ lives”

Analysis of Specific Areas

During the investigation we found a statistically significant influence for two independent variables (gender and grade level) on the specific factors (areas). MANOVA was used as a statistical method, where the score for these specific areas was used as a dependent variable. That is why this specific result was different from the overall results. Influence of gender was proved as statistically significant ($F = 4.87$, $p < 0.01$). More detailed analysis of the factors (areas) “Geography as a school subject” and “Relevance of geography lessons to students’ lives” showed a statistically significant difference between boys and girls. Boys achieved a higher score in comparison with girls in both factors (areas). In the other analyzed factors (areas) a

statistically significant difference was not found (Fig. 1). The influence of grade level proved statistically significant, too ($F = 8.27$; $p < 0.001$). Detailed analysis showed statistically significant differences among grades in two specific factors (areas): “Geography and environment” and “Relevance of geography lessons to students’ lives” (Fig. 2). In the other analyzed factors (areas) a statistically significant difference was not found.

The relationship between specific areas was measured by Pearson’s product moment. Correlations among specific areas were statistically significant (all $p < 0.05$) (Table 3). The highest correlation was between “Importance of geography” and “Relevance of geography lessons to students’ lives” ($r = 0.55$). A possible explanation is that using didactical aids and the influence of desirable educational methods used by a teacher could have a positive influence on the perception of the importance of geography to everyday life. The next highest correlation was proved between “Importance of Geography” and “Geography and the Environment” ($r = 0.49$). This could imply that students perceive geography as a part of their education that is important for the development of awareness of environmental issues.

Table 3. Values of correlations among dimensions.

	Geography and the Environment	Importance of Geography	Relevance of Geography Lessons to Pupils Lives
Geography as a School Subject	0.30	0.29	0.45
Geography and the Environment		0.49	0.43
Importance of geography			0.55

All correlations are statistically significant $p < 0.05$

The correlation between “Importance of Geography” and “Geography and the Environment” could be influenced by students’ understanding of geography as a science discipline, too. There was a high correlation ($r = 0.45$) between specific areas “Relevance of geography lessons to students’ lives” and “Geography as a school subject.” This could be interpreted as follows: when students appreciated the personality of the teacher and his/her educational methods and educational materials were used in a desirable way, geography was perceived more positively compared to when these conditions were not present.

DISCUSSION

The study examined students’ attitudes towards geography at six lower secondary schools in the Czech Republic. Research on these attitudes is neither common in the Czech Republic nor in central Europe. However, the authors of this study believe that examining students’ attitudes towards school subjects is an important part of research into curricula. This study provides a measurement tool, which can be used not only in geography, but also in other science subjects. It can be used for different age cohorts, too. The quantitative methods of data evaluation have also been presented.

The overall attitude score indicated a relatively neutral attitude from Czech students towards geography. This result correlates with other studies, which focused on similar problems (Sack and Petersen 1998). Reasons that can cause such a situation are described by McTeer (1979). We find these reasons valid even in our study. The first reason is that students experience geography lessons taught with a great amount of new information to be remembered. Second, geography lessons are quite often taught by teachers not certified in geography. The third reason is that many novice teachers get an insufficient amount of practice during their university studies and therefore are not yet so skilled in teaching geography.

Our first hypothesis that boys will have more positive attitudes towards geography than girls was not confirmed. It has been found that boys achieved higher scores than girls but the difference was not statistically significant. This result conforms to findings of other researchers who also did not find gender differences in attitudes towards geography (Brook 1977; Sack and Petersen 1998).

The second hypothesis was confirmed, because younger students achieved higher scores in comparison with older respondents. Our study agrees with other research focused on attitudes towards geography. Brook (1977) found that older students have less positive attitudes towards geography in comparison with younger students. On the other hand Sack and Petersen (1998) found that age does not influence attitudes. If we look at research on attitudes towards other science subjects, Prokop, Tuncer, and Chudá (2007) found that students have less positive attitudes as they get older. We suggest that the reason interest in geography as a school subject declines with age could be that in the lower grades the geographical curriculum is more interdisciplinary-oriented and integrates knowledge of other school subjects more frequently. Teachers could also use games in education more frequently in the lower grades (Lujan and DiCarlo 2006). This may be why students can perceive geography as more enjoyable and more meaningful in lower grades than in higher grades and thus have more positive attitudes towards the subject. But in higher grades of Czech lower secondary education attitudes towards geography fade. This could be due to several reasons. It is believed that one of the most marked reasons is the failure of curricular reform in Czech Republic. As Řezníčková (2003) states, the Czech geographical curriculum is resistant to change. Even after the Curricular Reform, which was meant to ensure student-oriented inquiry and to reinforce the acquisition of key skills, the Czech geographical curriculum still maintains in its traditional teacher-oriented inquiry. Emphasis is placed on memorizing declarative facts rather than on the ability to use geographical knowledge in everyday life. Teachers put insufficient emphasis on the connection between geographical subject matter and students’ everyday experiences (of a social and/or physical nature). Also, geographical fieldwork is rare. Students are not taught to interpret (geographical) information and to decide and to act according to their geographical skills. The situation is summarized by Hynek (2002) who states that “the Czech geographical curriculum has great attainment targets, but very traditional educational content.” It is believed that more student-oriented ways of teaching could attract more students to the subject matter of geography and its implications for everyday life.

Another reason could be that the prestige of a school subject is influenced by the prestige of the corresponding scientific discipline in society (Holt-Jensen 2005). Contrary to other science disciplines, such as physics, chemistry, or biology, geography is quite underestimated in Czech society. The general opinion is that geography is only a matter of naming capital cities and the position of countries

and other places. The potential of geography to explain interrelationships between natural and social phenomena and their spatial aspects is acclaimed only by people interested in the matter. If geography becomes a respected scientific discipline in society, its position as a school subject will improve. In this regard, there is lot of work to be done.

The situation is similar for the factor (area) "Geography as a school subject." Students in higher grades are more influenced by attitudes towards geography in public, which are not very high in the Czech Republic. Thus a lot of students perceive geography as an escapist subject that is easier than other science subjects, such as physics or chemistry. Students in higher grades play only the passive role of listeners, thus their interest fades and their attitudes towards subjects decline. The oldest respondents of our investigation are in the developmental phase of adolescence. In this phase students are strongly influenced by group opinion (friends, classmates). And that is also how the ambivalent reputation of geography could be spread.

Another reason that is not directly connected to lower secondary education, but we believe has "significant influence," is the upper secondary exit/end of course exam called *maturita*. Although *maturita* is a matter of upper secondary education, it influences lower secondary students thinking about their school subjects. In the recent structure of the *maturita* exam, geography was placed among nonobligatory subjects. The key point here is that most of the lower secondary students perceive geography as an optional subject, in which their interest decreases as they proceed to the *maturita* exam (Řezníčková 2009).

CONCLUSION

In our study we examined the influence of demographic variables such as gender and grade level on attitudes towards geography. General results suggest that Czech students' attitudes towards geography are rather neutral. It has been found that gender does not significantly influence Czech lower-secondary students' attitudes towards geography. It has also been found that students' attitudes towards geography decline the higher their school grade. This finding is surprising because it was expected that students' attitudes would be more positive after the implementation of the Curricular Reform principles. So what is wrong with the Czech geographical curriculum? It is believed that the main culprits are the ineffectiveness of Czech curricular reform to fulfill desired educational aims as well as the continued prevalence of teacher-oriented inquiry in geography lessons at Czech lower secondary schools. It could also be a matter of the Czech educational system being resistant to change, as Řezníčková (2009) states. Another reason could be that the Czech geographical curriculum is predominantly geared towards *Man and Nature* issues. *Appreciation of Man and Society or Society and Nature* issues such as multiculturalism and tolerance for the variety in human cultures still lag behind.

What kinds of activities begin to vanish from the students' experiences? It is important to note that even

though the geography curriculum has the potential to do so, students are not taught to develop their skills. They are not taught to use their geographical knowledge to solve daily problems. They are not taught to select, interpret, and use relevant information. They do not develop their ability to argue, negotiate, communicate, and listen. Memorizing and positioning within regional geography dominates the Czech geographical curriculum even after the Curricular Reform (c.f. Hynek 2000, 2002). We suppose that the correction of the conditions previously stated is a matter of interest for a broader discussion between teachers, academia, and politicians. Despite this we would like to present some suggestions, which we believe could contribute to the enhancement of students' enjoyment and attraction to geography subject matter even in the higher grades of lower secondary education.

To make geography lessons more interesting and thereby hopefully improve Czech students' attitudes towards geography, teachers have to make geography more meaningful in students' eyes. They should convince students of the importance of geography for making decisions and acting in real-life situations. To attain this, teachers should:

- Have their own personal idea about which skills are fundamental, and strategize how these should be developed through the geographical curriculum.
- Switch to more student-oriented inquiry.
- Advertise the multidisciplinary of geography and point out its ability to explain everyday situations more frequently to make students perceive geography more meaningfully.
- Avoid memorizing, which causes geography subject matter to be perceived superficially. Instead, they should intensify the development of geographical skills and the ability to use geographical knowledge in everyday life. The competencies to argue and discuss and also to listen and communicate should be included, too.
- Connect geography lessons with the real world and bring real-world problems (social, political, economical, etc.) to geography lessons, e.g., through reports in the media (TV, Internet, press, etc.). An important aspect of this topic is also the development of the ability to select and work with relevant information from the huge amount of information presented. What school subject is more suitable for explaining real world problems than geography?
- Work with interdisciplinary topics in geography lessons, e.g., technical or mathematical problems related to geographical subject matter.
- Enrich geography lessons via educational games. Educational games which dominate in the lower grades are believed to generate more positive attitudes towards school subjects, while transmission of curriculum content without any entertainment dominates in higher grades. It is believed that fun or

humor can make it easier for students to understand complicated parts of geography.

- Try working with students' own personal geographies and teach students how to perceive the world in a more well-rounded way.
- Use innovative technologies more frequently, which could make students perceive geography as more meaningful, e.g., using geographical information systems (GIS) or global positioning system (GPS) in conjunction with actual world events could be more motivating than a plain report about what happened in a far-away country. Teachers should also consider how to use topical and popular media in geography lessons (e.g., Internet, Facebook, Twitter, iPod).
- Attract key people working in the field to geographical curriculum. Real geographers' experiences and knowledge will surely enrich lower secondary geography lessons. Nowadays Czech university geographers suffer from a lack of awareness about the ongoing educational reform as well as the reality of geographical curriculum.

In summary, this study investigated the influence of demographic variables like gender and grade level on attitudes towards geography among Czech lower-secondary students. General results suggest that Czech lower-secondary students' attitudes differ depending on the grade level. The higher the school grade, the lower the appreciation of geography. On the other hand gender has been shown as a nonsignificant influence. It is believed that the main culprits are the ineffectiveness of Czech curricular reform as well as the continuing prevalence of teacher-oriented inquiry in geography lessons at Czech lower secondary schools. Subsequent research should investigate other variables such as the influence of teachers' attitudes towards geography, travel experience, students' aspirations or students' residence on attitudes towards geography.

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NOTES

1. The Velvet Revolution was a nonviolent revolution in Czechoslovakia. The mass demonstrations that followed on November 17, 1989, led to the resignation of the conservative Communist party and established democracy in Czechoslovakia. The removal of the party from its leading role allowed the country to create its first non-Communist government after forty-one years.

2. Czech schools are described differently than their American counterparts where elementary schools generally educate students aged five to ten.

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