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Teachers' Interests in Geography Topics and Regions – How they Differ from Students' Interests? Empirical Findings

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Abstract

Teachers' interest is a key influencing factor in geography class, development of curricula and writing textbooks and only little is known about it. A cross-sectional study along the lines of interest theory originating from educational psychology was carried out in Germany in the summer of 2015, in which 141 teachers at secondary schools completed a questionnaire about their interest in geography topics and regions. At the same time, 3400 students (ages 10-17) were surveyed. Teachers show high interest in a broad range of geography topics. They are very interested in natural disasters and topographic topics whereas there is only little interest in several traditional topics from the field of human geography. The significantly higher interests of teachers only partially correspond to those of students (e.g. natural disasters). Teachers have a high interest in (in descending order) the greater regions of Germany, Europe and outside Europe. Among students, regions outside Europe are placed first. Both groups show high interest in Western countries and low interest in Eastern regions on all scale levels. Gender turned out to be the most influential factor in interest, however not in the total amount of topics but rather in the subscales and individual topics and regions.

Keywords

Teachers' Interest , Students' Interest , Geography Topics , Regions, Gender Differences, Geography

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Teachers do make a difference! After research findings (Hattie, 2008; Helmke, 2015) repeatedly suggested that teachers and their actions in class had significant impacts, more and more studies were conducted on professional teaching competence. A classification for professional teaching competence has prevailed, dating back to Shulman (1986): pedagogical knowledge (PK), content knowledge (CK) and pedagogical content knowledge (PCK). The COACTIV-study (Kunter et al., 2011) adds non-cognitive aspects, which include motivational orientations such as interest, to the classification. As teachers' interest affects their actions in the classroom and, therefore, constitutes a key influencing factor in the analysis and design of teaching and learning processes, the investigation of teachers' interest is, as well as students' interest, inevitable.

According to the pedagogical-psychological theory of interest (Prenzel, Krapp, & Schiefele, 1986), interest is understood as one perspective of motivation. Interest thereby signifies a stressed person-object-relation, which is marked by the features of cognition, emotion and valency (cf. Krapp, 1992). Interest in the field of geography must be distinguished from interest in the school subject. These two interests do not always match. Moreover, individual, outlasting interest must not be mistaken with situational interest (Krapp, 2010, p. 15-19; Palmer, 2009), which can spontaneously be awakened in class. However, these two kinds of interest are related (Krapp, 1992; Mitchell, 1993). Individual interest can facilitate the emergence of and enforce situational interest, which can develop into individual interest. The influence of students' interests on performance in tests and knowledge acquisition has been shown (for example in the meta-study by Schiefele, Krapp, & Schreyer, 1993; Hidi & Renninger, 2006; Baram-Tsabari & Yarden, 2009).

Considering the influence of teachers' interests on their actions in class as postulated in the model by Kunter et al. (2011) and the theoretical basics from the pedagogical-psychological theory of interest, the following key question of this paper arises: What interests do geography teachers have in topics and regions addressed and methods used in class? Even though methods were taken into account in the interest study carried out in 2015, this paper merely focuses on topics and regions in geography class. The study aims to gain basic insights into teachers' individual interests in topics and regions. The question whether teachers' interests significantly differ from students' interests and what conclusions must be drawn from it should be of great relevance.

Theoretical Background

A series of studies on interests in subjects and interests in geography topics and regions have been conducted within the past few decades. This article only makes a brief reference to these studies since this article specifically addresses teachers' interest. The meta-analysis by Hemmer (2010, p. 27-61) outlines the state of research up to 2009. After some first frontrunners (Long, 1971; McTeer, 1977), this research field has been expanding since the 1990s through research by, for example, Dijk & Riezebos (1992a, b), Klein (1995), Ballantyne (1996), Hemmer & Hemmer (1996 a, b, 1997,

2010), Obermaier (1997), Golay (2000). Norman & Harrison (2004), which focused more so on the teaching methods rather than on topics and regions. Furthermore, studies were conducted in the field of geoscience (Trend, 2001, 2004, 2005, 2007) and science, which partly included geographical and geoscientific topics, like Christidou (2006) and Schreiner & Sjöberg (2004). Several more international studies on students' interests, for example by Özdemir (2012), Rilwani, Akahomen & Gbakeji (2014) and Uitto (2014), were listed more recently. Leydon, McLaughlin & Wilson (2016) investigated the interest in topics of university students studying geography. All of these studies tested very diverse samples and used a broad range of measuring instruments. There are differences as well as similar findings concerning the topics. Many studies found that geohazards/natural disasters are very interesting topics, which is the most frequent common finding. Studies from the 1990s reported a high interest in environmental topics. Studies dealing with interest in regions demonstrated corresponding results of interest in North America/USA. Dutch students showed greater interest in their own country in contrast to German or Swiss students.

Considerably fewer studies are carried out in the field of teachers' interest. Hemmer & Hemmer (1997, 2010) examined teachers' interest in 50 topics and 25 regions simultaneously in comparison to students' interest and produced remarkable results. Teachers' interest was significantly higher than students' interest in six thematic subscales/topics (natural disasters/planet Earth, humans and peoples, environmental problems, topography, landforms/climate, urban and economic geography). Ranking of the topics varied as well. Topography came out on top among teachers, whereas students found natural disasters most interesting. Both groups consistently placed environmental problems second. The analysis of the topics suggests that both groups share a lot of findings, such as little interest in topics from urban and economic geography. Two differences are striking: Landforms are one of the favourite topics of the teachers whereas they are rather unpopular among students, and vice versa, teachers demonstrate little interest in expeditions whereas students have a high interest.

In regards to regions, teachers' interest turned out to be significantly higher than students' interest. Considering the results of the Germany, Europe, and outside Europe subscales, the two groups show different rankings. Teachers are more interested in Germany (ranked at the top), whereas students are more interested in regions outside Europe. It is noteworthy that both teachers and students prefer economically strong Western regions to Eastern ones, according to findings that Riezebos & Dijk (1992b) delivered in a modified way. They ascertained that students had a greater interest in the economically stronger Western regions over developing countries.

Trend (2001, 2007) examined primary school teachers' interest in geological time and geoscientific topics and determined several correlations. Accordingly, both students and teachers had great interest in geohazards/natural disasters and in the creation of the Earth. Furthermore, unlike students, teachers showed considerable interest in landforms and geomorphological processes. This result also occurred in the studies conducted by Hemmer & Hemmer (2010). Both groups displayed little interest in rocks and minerals.

The study by Hemmer and Hemmer (1998, 2010) only takes into account the influence of independent variables on teachers' and students' interests. Considering

independent variables, the authors ascertain that girls and boys demonstrate a similar total interest in geographical topics but that significant differences between genders exist on the level of subscales and specific topics. Among teachers, men showed a significantly higher interest in the topics of landforms, climates, and zoning as well as urban and economic geography. Regarding regions, male teachers and male students displayed a significantly higher interest in Germany, while female teachers and female students had a higher interest in Europe and regions outside Europe. Group membership (teacher or student) had a stronger effect than gender. Teachers at higher secondary schools demonstrated a significantly higher interest in all thematic and regional scales compared to teachers from other schools.

The studies mentioned here comprise small samples and some of them were conducted more than twenty years ago. Do these results still represent the current state? The study at hand wants to contribute to gaining more insight into this field. It addresses the following research questions in detail:

- What interests do teachers currently have in geography topics and how do they differ from students' interests?
- What interests do teachers currently have in regions and how do they differ from students' interests?
- What influence do select independent variables such as gender, age, subject education and type of school exert on teacher's interest?

Methods

The study took place as a single survey of students and teachers in summer 2015. The questionnaires were completed by 141 teachers in secondary education (80 women and 59 men). The year of birth of the teachers ranges from 1950 to 1991. Sorted by age, 32 participants were born before and 103 after 1962. These two age groups were selected because those born before 1962 took geography classes structured according to *Länderkunde* and therefore one might assume that their interests could be different. Overall, age and work experience in Germany strongly correlate. 102 teachers come from Bavaria and 39 from North Rhine-Westphalia. Sorted by type of school, 25 taught at lower, 49 at medium and 67 at higher level secondary education. 82 teachers studied geography as a major or minor, whereas 15 teachers taught the subject without tertiary education. In general, teachers employed at *Realschule* and *Gymnasium* study and teach only two subjects, while their colleagues employed at *Hauptschule* take on more subjects.

The sample of students consists of 3,400 questionnaires. It includes students from Bavaria and North Rhine-Westphalia. Data was collected from 100 students from each grade. Sorted by gender, 52.6% of the students were male and 47.4% female. Further variables are not taken into account as this article focuses on teachers' interest.

The same questionnaire, which was also used in 1995 and 2005, served as measuring instrument for both teachers and students. With regard to the research question of this article, it comprises of 50 thematic items, 25 regional items, and data on age, gender,

type of school and, for teachers, details of their tertiary education as independent variables. The 2015 version of the questionnaire also contains seven new topics that were recently introduced into geography class, such as globalisation. Thus, a total of 57 topics of interest was recorded. The questionnaire for students included two more scales on methods and comparison of subjects, which are not dealt with here. Topics and regions were taken from curricula and confirmed by sifting through textbooks as well as subject-didactic journals and by expert ratings.

Participants rated their interest in topics and regions on a five-tier Likert scale ranging from “interests me a lot” (= 5) to “does not interest me at all” (= 1). Reliability and validity were already tested in 1995 and confirmed in 2005 (Hemmer & Hemmer, 2010) and 2015. The items were assigned to scales by factor analysis. Analysis was conducted based on single items and scales. Potential influence of select independent variables among teachers were tested using t-tests for independent samples whereas differences in the arithmetic mean were determined by using non-parametric tests.

Findings

Interest in Topics in Geography Class

Total Interest in Geographical Topics. The arithmetic mean for all 57 topics is 3.95 ($s = 0.452$) among geography teachers. Total interest significantly differs from student interest, which is clearly lower at $\bar{x} = 3.27$ ($s = 0.629$). Sorted by gender, female teachers reveal an arithmetic mean of 4.01 and 3.87 for male teachers. Considering $p = 0.077$, this difference is statistically irrelevant. The corresponding results from the students are $\bar{x} = 3.24$ for girls and $\bar{x} = 3.29$ for boys and are therefore also not significantly different. The interest of teachers born in and before 1962 is significantly higher than the interest of those born after 1962 (≤ 1962 : 4.08; > 1962 : 3.90; $p = 0.041$). The answers from Bavaria and North Rhine-Westphalia are almost identical considering $p = 0.879$. Tertiary education and type of school statistically do not have any influence on total interest.

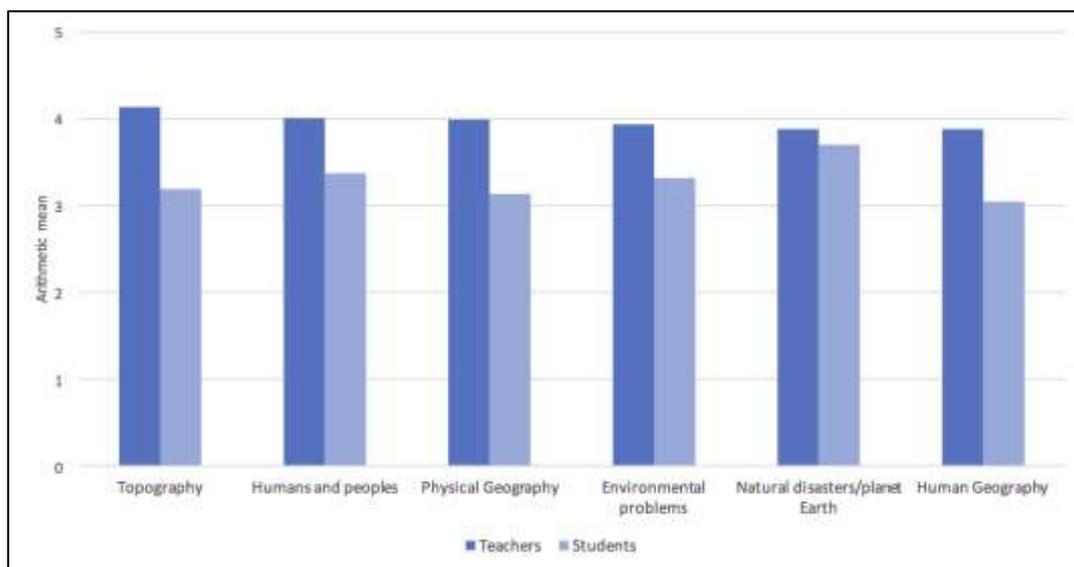


Figure 1. Teachers' and students' interest in topics dealt with in geography class

($n_{\text{teachers}} = 141$; $n_{\text{students}} = 3,400$; hierarchy of subscales according to degree of teachers' interest; \bar{x} = arithmetic mean; range of answers: 5 = “interests me a lot” to 1 = “does not interest me at all”: reliability of the scales from left to the right: $\alpha = .833$, $\alpha = .829$, $\alpha = .835$, $\alpha = .871$, $\alpha = .744$, $\alpha = .890$)

Interest in Single Geographical Topics. These items were already assigned to the six subscales (natural disasters/planet Earth, physical geography, human geography, environmental problems, humans and peoples and topography) in 1995 and 2005 by using factor analysis. Five of the seven new items fit into the scales mentioned before. The two items “interrelations between human and environment” and “sustainable development”, which connected with several factors, are treated as single items in the analysis.

Teachers' interest is fundamentally higher than students' interest on each scale (cf. Figure 1). According to the Mann-Whitney-U-Test, this difference is highly significant in every case ($p = 0.000$) and, thus, the null hypothesis is rejected. The ranking of interest in single topics is different between teachers and students in four of the six cases. It is similar in the area of humans and peoples (placed second) and human geography (placed sixth). Topography, which is only fourth among students ($\bar{x} = 3.18$), leads the ranking among teachers with $\bar{x} = 4.13$. Natural disasters/planet Earth comes out on top among students but only holds fifth position among teachers.

Table 1
Topics in geography class that interest teachers and students most (Rank 1-10)

Teachers' Interest			Students' Interest		
R	Items	\bar{x}	R	Items	\bar{x}
01	Natural disasters	4.59	01	Natural disasters	4.23
02	Human interference in ecosystems	4.49	02	Space	3.96
03	Poverty and hunger	4.40	03	Creation of the Earth	3.89
04	Developing countries	4.36	04	Expeditions	3.78
05	Location of continents	4.31	05	Crisis and war zones	3.68
06	Tourism and environment	4.31	06	Poverty and hunger	3.63
07	Population growth	4.31	07	Forest dieback	3.59
08	Crisis and war zones	4.29	08	People on foreign countries	3.59
09	Climate change	4.25	09	Children and young people	3.58
10	Ecosystems of the topics and subtropics	4.24	10	Local recreation areas	3.51

(R = rank; \bar{x} = arithmetic mean; range of answers: 5 = “interests me a lot” to 1 = “does not interest me at all”) (Source: authors)

Regarding gender, only two statistically substantial differences arise on two subscales among teachers: Women display a significantly higher interest in both the “humans and peoples” (women \bar{x} = 4.20; men \bar{x} = 3.72; p = 0.000) and “environmental problems” (women \bar{x} = 4.02; men \bar{x} = 3.81; p = 0.048) subscales compared to their male colleagues. Students show a different picture here: With the exception of the “environmental problems” subscale, there are significant differences between genders in all other subscales. Boys show higher interest in four cases and girls demonstrate higher interest in the “humans and peoples” subscale with an extraordinarily high difference between the arithmetic means (girls \bar{x} = 3.58, boys \bar{x} = 3.19).

Moreover, older teachers born in or before 1962 rated both topography and environmental problems as significantly more interesting than their younger colleagues did. Considering the other independent variables, varieties in interest are irrelevant.

Interest in Single Topics. Teachers’ interest is significantly higher in 53 of 57 cases than students’ interest concerning the level of single items. The null hypothesis is only true for “creation of the Earth”, “earth scientific research project”, “forest dieback“ and, what is quite surprising, “children and youths in foreign countries” and, therefore, no statistically considerable gap between the groups can be detected.

Table 2

Topics in geography class that interest teachers and students least (Rank 48-57)

Teachers' Interest			Students' Interest		
R	Items	\bar{x}	R	Items	\bar{x}
48	Forest dieback	3.61	48	Agriculture in different parts of the world	2.95
49	Agriculture–past & present	3.60	49	Global economic scale	2.94
50	Industry	3.58	50	Industry	2.93
51	Expeditions	3.58	51	Migration	2.91
52	Soil impact	3.55	52	Services	2.85
53	Space	3.53	53	Urbanization	2.85
54	Urban & regional planning	3.51	54	Transport	2.84
55	Services	3.35	55	Societal systems	2.79
56	Transport	3.30	56	Social or economic disparities	2.75
57	Research project	3.21	57	Europe–economic and political cooperation	2.69

(R = rank; \bar{x} = arithmetic mean; range of answers: 5 = “interests me a lot” to 1 = “does not interest me at all”) (Source: authors)

The following paragraphs focus on extreme values – specifically: Which of the ten topics fascinate the most or rather which ten topics attract disinterest? Three topics hit both the top ten of teachers and students (cf. Table 1): natural disasters, poverty and hunger as well as crisis and war zones. Natural disasters is the only item that holds the

same position in both groups and reaches the top by far with an arithmetic mean of 4.59 among teachers and 4.23 among students. With regard to the teachers, this is a striking result because “natural disasters/planet Earth” only occupies fifth position. This discrepancy can be explained by the fact that the other items that form this scale (space, creation of the Earth, expeditions) appear in the top ten of the students but not in the top ten of the teachers (cf. Table 1).

Taking into account the ten topics that had the most disinterest (rank 48-57), three topics appear both among teachers and students: Industry, services and transport (cf. Table 2). All ten least interesting topics among students stem from human geography, whereas the ten least interesting topics among teachers are widespread. The fact that three topics that hit the top ten among students are also listed as least interesting among teachers gives rise to concern. These topics are space, expeditions and forest dieback.

Interest in Regions Dealt with in Geography Class

Total Interest in Regions. The total arithmetic mean of all 25 regions is significantly smaller among students ($\bar{x} = 3.36$, $s = 0.752$) than among teachers ($\bar{x} = 3.95$, $s = 0.510$). Sorted by gender, differences cannot be ascertained between women ($\bar{x} = 4.02$) and men ($\bar{x} = 3.85$; $p = 0.061$). State, age and education do not have an effect on teachers' total interest in regions.

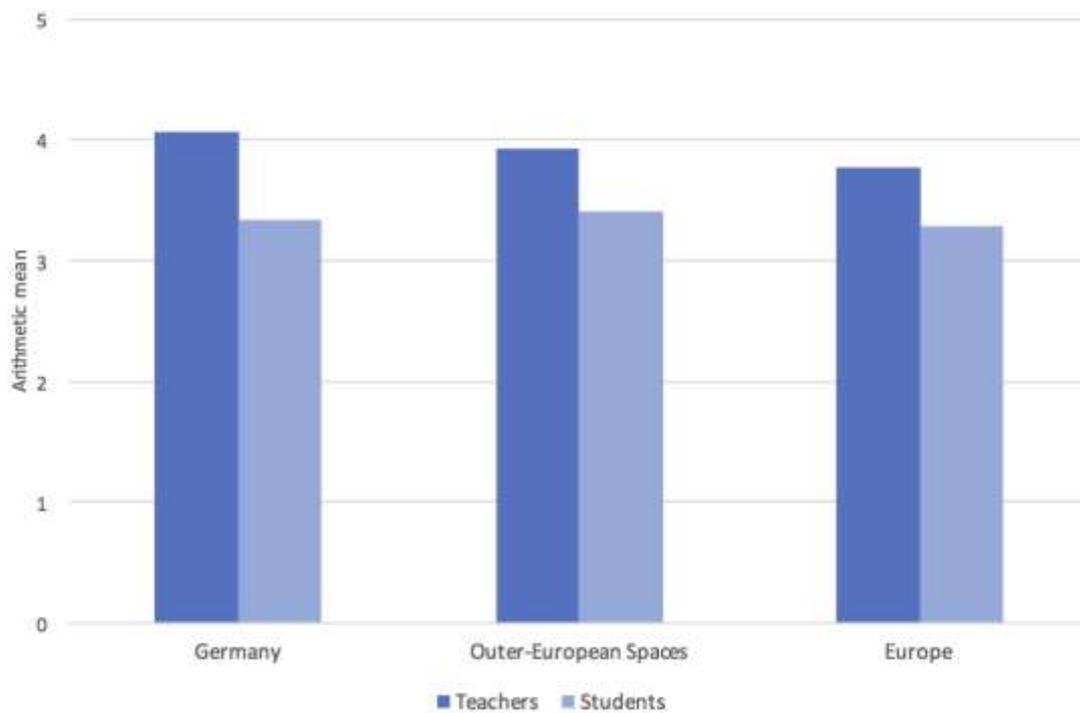


Figure 2. Teachers' and students' interest in regions dealt with in geography class (theoretical subscales)

($n_{\text{teachers}} = 141$; $n_{\text{students}} = 3,400$; hierarchy of subscales according to degree of teachers' interest; \bar{x} = arithmetic mean; range of answers: 5 = “interests me a lot” to 1 = “does not interest me at all”; reliability of the scales from left to the right: $\alpha = .862$, $\alpha = .790$, $\alpha = .885$) (Source: authors)

Table 3
Teachers' and students' Interests in regions of geographic education

Teachers' Interest			Students' Interest		
R	Items	\bar{x}	R	Items	\bar{x}
01	Germany	4.59	01	North America/USA	3.99
02	North America/USA	4.45	02	Germany	3.87
03	The Alps	4.31	03	Australia	3.79
04	North Rhine-Westphalia resp. Bavaria	4.30	04	North Rhine-Westphalia resp. Bavaria	3.66
05	Latin America	4.19	05	Berlin	3.61
06	Western Europe	4.14	06	Arctic/Antarctica	3.58
07	Southern Europe	4.11	07	Western Europe	3.57
08	Home areas	4.09	08	Southern Europe	3.55
09	Middle East	4.08	09	China	3.42
10	Germany's coastal regions	4.07	10	North Africa/Middle East	3.39
11	China	4.04	11	Latin America	3.36
12	Sub-Saharan Africa	3.99	12	Japan	3.35
13	Northern Europe	3.93	13	Northern Europe	3.33
14	Australia	3.90	14	The Alps	3.29
15	India	3.87	15	Sub-Saharan Africa	3.29
16	Berlin	3.85	16	Germany's coastal regions	3.27
17	Arctic/Antarctica	3.85	17	Russia/CIS	3.25
18	Japan	3.78	18	India	3.20
19	Southeast Asia	3.76	19	Turkey	3.19
20	Russia/CIS	3.73	20	Southeast Asia	3.06
21	East German federal states	3.71	21	East German federal states	2.99
22	Central German Mountainous Region	3.63	22	Home areas	2.99
23	Turkey	3.38	23	Central German Mountainous Region	2.99
24	Central Europe	3.32	24	Central Europe	2.99
25	Southeast Europe	3.30	25	Southeast Europe	2.93

(R = rank; \bar{x} = arithmetic mean; range of answers: 5 = "interests me a lot" to 1 = "does not interest me at all") (Source: authors)

Interest in Germany, Europe and Regions Outside Europe. The following paragraph addresses the Germany, Europe and outside Europe theoretical subscales

since the study from 2015, just as the earlier studies, did not bring about a convincing subsampling factor analysis.

It is conspicuous that teacher interest is significantly higher in all subscales than student interest (cf. Figure 2). Both groups found Europe to be most disinteresting. Teachers showed the strongest interest in Europe, whereas students displayed the strongest interest in regions outside Europe. Sorted into men and women, only the “regions outside Europe” subscale differed in favour of female teachers. None of the other independent variables (age, state and type of school) have a statistically substantial influence on interest.

Interest in Single Regions. In general, teacher interest is higher than student interest in most regions (cf. Table 3). The null hypothesis is only true for Berlin, Turkey, Australia and Arctic/Antarctic and, thus, no significant difference can be detected. Focusing on the five regions that are of most interest, three appear in both groups, although not in similar positions: Germany (teachers $\bar{x} = 4.59$; students $\bar{x} = 3.87$), North America/USA (teachers $\bar{x} = 4.45$; students $\bar{x} = 3.99$) and their home state of Bavaria or North Rhine-Westphalia (teachers $\bar{x} = 4.30$; students $\bar{x} = 3.66$). Germany is listed on top and North America/USA second among teachers. It is the other way around for students. Furthermore, four of the five regions that generate the least interest match: Eastern federal states of Germany, Central Uplands, East-Central Europe and Southeast Europe come out last in both groups. Consequently, this study reveals a wide discrepancy in interest between West and East in accordance with earlier studies (e.g. Hemmer, 2000).

Discussion

The discussion is structured according to the research questions.

What interests do teachers have in geography topics?

Teachers have a high and fairly diverse interest in geography topics. “Natural disasters” attracts the most interest. In addition, interest in topography is very strong. In contrast, traditional topics from human geography provoke little interest. Teachers’ and students’ interest only partly correspond. They are disparate, too, which can be concluded from the different rank orders of the scales and of the single topics. In comparison with earlier studies, these results closely match with those found by Hemmer & Hemmer (1997, 2010), which were conducted with the same groups and same questionnaires. The ranking of the subscales was the same in both groups. However, interest sank in the environmental scale, which was placed second among both groups in 1995 but dropped to third among students and to fourth among teachers in 2015. Interest in traditional topics of human geography remained on a low level in 1995 and 2015. With regard to single topics, these results resemble those found by Trend (2001, 2007), who revealed equally high interest in natural disasters among students and teachers in primary schools. He also found strong interest in the creation of the Earth, which is not confirmed by the study at hand. Trend also disclosed a difference between teachers’ and students’ interests concerning landforms, which is also proved in our study in a slightly weaker form. Further studies support findings of high student

interest in natural disasters/planet Earth (e.g. Normann & Harrison, 2004; Christidou, 2006). Higher interest on the side of teachers could be explained by their choice of subject when entering higher education.

What interests do teachers have in regions?

Teachers show a high interest in the greater regions of Germany, outside Europe and Europe (in descending order). This finding is confirmed on the level of single items. The ranking of the greater regions demonstrates that teachers focus more on their own country than students do. Possible explanations to be looked at are in the age or general openness and curiosity of the students. However, these hypotheses require further exploration, for example as part of qualitative studies. Furthermore, both groups display a high interest in Western countries on all scale levels (Germany, Europe, global) with North America/USA leading the way, and little interest in Eastern regions. In comparison to the results from the study in 1995, the recent study ascertains similar results in accordance with the findings on topics. However, students' interest in Germany has risen, which may be connected with a stronger national conscience. Then and now, both groups show high interest in Western countries and hardly any interest in Eastern regions (Hemmer & Hemmer, 2010). The former result, a high interest in the USA, is also revealed by other studies on students' interest, such as the studies by Obermaier (1997) and Dijk & Riezebos (1992b). The discrepancy between East and West does not occur clearly in other studies as those studies covered less regions. In addition, the prominent East-West discrepancy does not seem to originate in German curricula as these generally strive for a balanced representation of the regions. In contrast, media (such as movies) and overall consumption in Germany seems to be more westward-oriented. One problematic aspect is the growing discrepancy induced by teachers during the process of teaching.

What influence do independent variables exercise on the results?

In total, independent variables exercise only a small influence. Neither education nor type of school nor state turned out to be relevant. Age only matters in relation to the total sum of all topics. Younger teachers demonstrate a significantly higher interest. Gender is most influential concerning subscales and single items but not regarding the total sum of all geographical topics. The study from 1995 indicated the same gender differences (Hemmer & Hemmer, 2010). However, group membership (teacher or student) proves to be more relevant. Gender-based differences regarding interest in topics clearly originate from socialisation. Studies with focus on career choice in Germany came to similar conclusions. Boll, Bublitz & Hoffmann (2015) found that women display higher interest in people and societies and are also more likely to choose professions entailing more frequent human interaction. In addition, other studies (cf. Empacher, Hayn, Schubert, & Schultz, 2001; Schahn, 2008) also measured a more pronounced interest of women in topics related to the environment. The authors of these studies argue that possible reasons can be found in a higher emotional side and other aspects of daily life.

The results suggest great continuity between the two times of measurement (1995 and 2015) in terms of individual interests in geographical topics and regions in total. Consequences will need to be drawn from the results of this study.

Conclusions

Teachers display a high interest in topics and regions. Differences in interest between teachers and students exist. These are important because teachers not only significantly influence class, but also curricula and textbooks. Teacher training and further education should incorporate the findings from this research in order to raise awareness among teachers. Moreover, these results should be considered when developing curricula, as already done in Germany and Switzerland (cf. Golay, 2010).

The constant discrepancy between East and West seems particularly problematic. This means a special need for action concerning the creation of curricula and training of intercultural competence. However, focus on teachers seems to be the only way to diminish the discrepancy between East and West measured in case of the students.

This study does not claim to be representative although it produces new insights and proves other results. Further studies could be set out in different ways: On one hand, international research projects using the same measuring instrument would be an asset. On the other hand, qualitative studies could aim more at the genesis of interest and, at last, interventions focusing explicitly for interest could be developed and examined for its effectiveness. Further research is needed in this field that deserves more detailed consideration.

References

- Ballantyne, R. (1996). Factors affecting student choice of geography as a senior secondary school subject in Queensland. *International Research in Geographical and Environmental Education*, 5 (3), 172-185.
- Baram-Tsabari, A. & Yarden, A. (2009). Identifying meta-clusters of students' interest in science and their change with age. *Journal of Research in Science Teaching*, 46 (9), 999-1022.
- Boll, C., Bulblitz, E. & Hoffmann, M. (2015). *Geschlechtsspezifische Berufswahl: Literatur- und Datenüberblick zu Einflussfaktoren, Anhaltspunkten struktureller Benachteiligung und Abbruchkosten. HWWI Policy Paper 90*. Hamburg: Hamburgisches Weltwirtschaftsinstitut.
- Christidou, V. (2006). Greek students' science-related interests and experiences: Gender differences and correlations. *International Journal of Science Education*, 28 (10), 1181-1199.
- Dijk, H.v. & Riezebos, A. (1992a). Europa im Blick niederländischer Schüler. In E. Kross & J. V. Westrhenen (eds.), *Internationale Erziehung im Geographieunterricht. Geographiedidaktische Forschungen 22* (pp. 67-76). Nürnberg: HGD.
- Dijk, H.v. & Riezebos, A. (1992b). Arm und warm? Kein Interesse! In E. Kross & J.V. Westrhenen (eds.), *Internationale Erziehung im Geographieunterricht. Geographiedidaktische Forschungen 22* (pp. 77-87). Nürnberg: HGD.
- Empacher, C., Hayn, D., Schubert, S. & Schultz, I. (2001). *Analyse der Folgen des Geschlechtsrollenwandels für Umweltbewusstsein und Umweltverhalten*. Berlin: Institut für Sozialökologische Forschung.

- Golay, D. (2000). Das Interesse der Schüler/-innen am Schulfach Geographie auf der Sekundarstufe I in der Region Basel. *Geographie und ihre Didaktik*, 28 (3), 131-147.
- Golay, D. (2010). Die Umsetzung der Forschungsergebnisse in unterrichtsrelevante Dokumente – eine Analyse am Beispiel der Bildungsstandards und der Schweizer Basismodule. In I. Hemmer & M. Hemmer (eds.), *Schülerinteresse an Themen, Regionen und Arbeitsweisen des Geographieunterrichts. Geographiedidaktische Forschungen* 46 (pp. 283-295). Weingarten: HGD.
- Hattie, J. (2008). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement*. London & New York: Routledge.
- Helmke, A. (2015). *Unterrichtsqualität und Lehrerprofessionalität. Diagnose, Evaluation und Verbesserung des Unterrichts*. Seelze: Klett-Kallmeyer.
- Hemmer, I. & Hemmer M. (1996a). Schülerinteresse am Erdkundeunterricht. Grundsätzliche Überlegungen und erste empirische Ergebnisse. *Geographie und ihre Didaktik*, 24 (4), 192-204.
- Hemmer, I. & Hemmer M. (1996b). Welche Themen interessieren Jungen und Mädchen im Geographieunterricht? – Ergebnisse einer empirischen Untersuchung. *Praxis Geographie*, 26 (12), 41-43.
- Hemmer, I. & Hemmer M. (1997). Lehrerinteresse und Schülerinteresse an Inhalten und Regionen des Geographieunterrichts – ein Vergleich auf der Grundlage empirischer Untersuchungen. In A. Convey & H. Nolzen (eds.), *Geographie und Erziehung. Münchner Studien zur Didaktik der Geographie* 10 (pp. 119-128). München: Department of Geography.
- Hemmer, I. & Hemmer M. (1998). Wie beurteilen Schüler und Schülerinnen das Unterrichtsfach Geographie? – Ergebnisse einer empirischen Studie. *Geographie und Schule*, 19 (112), 40-43.
- Hemmer, I. (2010). Erforschung von Schülerinteressen als wichtige fachdidaktische Aufgabe – ein Überblick über den Stand der Forschung in Geographie und Geoscience. In I. Hemmer & M. Hemmer (eds.), *Schülerinteresse an Themen, Regionen und Arbeitsweisen des Geographieunterrichts. Geographiedidaktische Forschungen* 46 (pp. 27-64). Weingarten: HGD.
- Hemmer, I. & Hemmer, M. (eds.) (2010). *Schülerinteresse an Themen, Regionen und Arbeitsweisen des Geographieunterrichts. Geographiedidaktische Forschungen* 46. Weingarten: HGD.
- Hemmer, M. (2000). *Westen ja bitte – Osten nein danke! Empirische Untersuchungen zum geographischen Interesse von Schülerinnen und Schülern an den USA und der GUS. Geographiedidaktische Forschungen* 33. Weingarten: HGD.
- Hidi, S. & Renninger, K. (2006). The four-phase model of interest development. *Educational Psychologist*, 41 (2), 111-127.
- Klein, P. (1995). Using inquiry to enhance the learning and appreciation of geography. *Journal of Geography*, 94 (2), 358-367.
- Krapp, A. (1992). Das Interessenkonstrukt. Bestimmungsmerkmale der Interessenhandlung und des individuellen Interesses aus der Sicht einer Person-Gegenstands-Konzeption. In A. Krapp & M. Prenzel (eds.), *Interesse, Lernen, Leistung* (pp. 297-329). Münster: Aschendorff.

- Krapp, A. (2010). Die Bedeutung von Interesse für die Lernmotivation. In I. Hemmer & M. Hemmer (eds.), *Schülerinteresse an Themen, Regionen und Arbeitsweisen des Geographieunterrichts. Geographiedidaktische Forschungen* 46 (pp. 9-26). Weingarten: HGD.
- Kunter, M., Baumert, J., Blum, W., Klusmann, U., Krauss, S. & Neubrand, M. (2011). *Professionelle Kompetenz von Lehrkräften. Ergebnisse des Forschungsprogramms Coactiv*. Münster: Waxmann.
- Leydon, J., McLaughlin, C., & Wilson, H. (2016). Does the High School Geography Experience Influence Enrolment in University Geography Courses? *Journal of Geography*, 116 (2), 79-88.
- Long, M. (1971). The interests of children in school geography. *Geography* 56 (1), 177-190.
- Lössner, M. (2010). Warum will ich Geographielehrer werden? Berufswahlmotive und fachspezifisches Interesse von Lehramtsstudierenden der Geographie in Gießen und Lodz – ein Vergleich. *Geographie und ihre Didaktik*, 38 (1), 1- 21.
- McTeer, H. & Beasley, W.M. (1977). *Student preferences for social studies content and methodology*. Institute of Education Sciences.
- Mitchell, M. (1993). Situational interest: Its multifaceted structure in the secondary school mathematics classroom. *Journal of Educational Psychology*, 85 (3), 424-436.
- Norman, M. & Harrison L. (2004). Year 9 students' perceptions of school geography. *Teaching Geography*, 29(1), 11-15.
- Obermaier, G. (1997). *Strukturen und Entwicklung des geographischen Interesses von Gymnasialschülern in der Unterstufe – eine bayernweite Untersuchung*. München: Selbstverlag.
- Özdemir, U. (2012). High school students' attitudes towards geography courses. *World Applied Sciences Journal*, 17 (3), 340-346.
- Palmer, D.H. (2009). Student interest generated during an inquiry skills lesson. *Journal of Research in Science Teaching*, 46 (2), 147-165.
- Prenzel, M., Krapp, A. & Schiefele, H. (1986). Grundzüge einer pädagogischen Interessentheorie. *Zeitschrift für Pädagogik*, 32 (2), 163-173.
- Rilwani, M.L., Akahomen, D.O. & Gbakeji, J.O. (2014). Factors influencing secondary school students' attrition in geography in Esan West Local Government area, Edo State, Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 5 (2), 154-161.
- Schahn, J. (2008). *Warum sind Frauen umweltbewusster als Männer? Zum Hintergrund der Geschlechtsunterschiede im Umweltbewusstsein*. Saarbrücken: VDM Verlag Dr. Müller.
- Schiefele, U., Krapp, A. & Schreyer, I. (1993). Metaanalyse des Zusammenhangs von Interesse und schulischer Leistung. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 25 (2), 120-148.
- Schreiner, C. & Sjøberg, S. (2004). *Sowing the seeds of ROSE. Background, rationale, questionnaire development and data collection for ROSE (The Relevance of Science Education)–A comparative study of students' views of science and science education. Acta Didactica* 4. Oslo: Department of Teacher Education and School Development, University of Oslo.
-

- Shulman, L.S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15 (2), 4-14.
- Trend, R. (2001). Deep time framework: A preliminary study of UK primary teachers' conceptions of geological time and perceptions of geosciences. *Journal of Research in Science Teaching*, 38 (2), 191-221.
- Trend, R. (2004). Children's personal interests in selected geoscience topics. *Teaching Earth Sciences*, 29(1), 9-18.
- Trend, R. (2005). Individual, situational and topic interest in geoscience among 11- and 12-year-old children. *Research Papers in Education*, 3 (3), 271-302.
- Trend, R.D. (2007). Fostering progress in children's developing geoscience interests. *Geographie und ihre Didaktik*, 35 (4), 168-184.
- Palmer, D.H. (2009). Student interest generated during an inquiry skills lesson. *Journal of Research in Science Teaching*, 46 (2), 147-165.
- Uitto, A. (2014). Interest, attitudes and self-efficacy beliefs explaining upper-secondary school students' orientation towards biology-related careers. *International Journal of Science and Mathematics Education*, 12 (6), 1425-1444.

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