TRAMES, 2013, **17**(**67**/**62**), 3, 301–312

DOES A DOZEN YEARS CHANGE A THING? ESTONIAN CHILDREN'S DRAWINGS OF EUROPE IN 2000 AND 2012

Kristjan Kask and Triin Hannust

University of Tartu

Abstract. This study examines aspects of children's geographical knowledge of Europe in Estonia between the years 2000 and 2012. The participants were 55 5th-graders in year 2000 and 41 5th-graders in year 2012, with the mean age of 12. Participants completed two tasks, (i) drawing a map of Europe and (ii) filling in country names in a contour map of Europe. Participants also had to state which countries they had visited. Though in 2000 children filled the contour map more accurately than in 2012, some countries (Finland, Norway and the UK) were drawn more accurately in 2012 and the drawing and contour map tasks were highly correlated with each other. Although children travelled more in 2012 compared to 2000, travelling experience had very little effect on children's knowledge of Europe, suggesting that it only plays a marginal role in the formation of place schemas.

Keywords: drawings, mental maps, place schemas

DOI: 10.3176/tr.2013.3.05

1. Introduction

All knowledge of the world is gained through different means, i.e. direct action and observation of the world, as well as through indirect means such as listening to verbal explanations or reading (Brewer, Chinn, and Samarapungavan 2000, Kikas 2003) and that knowledge has to be integrated to form scientific understanding. Examining children's geographical knowledge has a long history. For example, Piaget (1928) examined children's concept of country and found that children under the age of nine are likely to be confused on the issue. Piaget's work was later replicated and criticized by Jahoda (1963) who showed that 6 to 11-year-old children are progressively less confused about the relations between cities and countries. Jahoda (1963, 1964) claimed that conceptual understanding and repre-

sentation of spatial relationships can be very differently developed. It was demonstrated that some 6 to 7-year-olds had a good understanding of spatial relationships whereas even some 10 to 11-year-olds did not have any knowledge of the spatial relationship between their hometown and country. Therefore, a general understanding of spatial relationships does not automatically indicate that the child can construct a spatially correct representation. Instead, conceptual development proceeds from first spontaneous concepts that are tied to direct experience and cannot be used to form abstractions to scientific concepts that provide the understanding that any concept can be formulated in terms of other concepts through intermediate steps (Vygotsky 1934/1997).

As travelling is one of the most obvious sources of personal knowledge in geography, one would expect to find that personal experience with travelling forms knowledge upon which representations of one's surroundings are built. Axia et al. (1998) demonstrated that even children who had not studied geography at school and had to rely on their own spontaneous knowledge (derived from TV, internet, or travelling) reproduced better those countries which were neighbouring their home country. However, other studies failed to find any systematic relationship between travel experience and either effect or knowledge, and claim that travelling experience is not the main source of geographical knowledge but only as a helping factor (Barrett et al. 1997, Barrett and Farroni 1996). Furthermore, research in other areas of conceptual development has shown that knowledge of central facts about a topic is needed before learners can take the more global perspective and proceed beyond descriptions of the imminently visible world (Hannust and Kikas 2010).

In the 1990s, Barrett and his colleagues provided new knowledge about children's acquisition of European identity (Barrett 1996) and on their images of European people (Barrett and Short 1992). These studies demonstrated that with increasing age children develop a better factual knowledge about Europe, for example they can name more European countries. According to Spencer and Blades (2006) children start to gain knowledge of their own country from about five years of age and by eight years they are rapidly expanding their knowledge of other countries. These studies indicated that mental maps are important structures to help organise geographical knowledge (Spencer and Blades 2006) and therefore research about knowledge of geography should examine how these maps are constructed.

One methodological problem that the research of children's geographical knowledge faced was how to externalise people's mental map of the environment (Evans 1980). For example, when young children are asked to draw maps they may fail the task not because they lack the knowledge but because they have difficulty in combining perspectives and are uncertain how to depict their knowledge on paper (Blades and Spencer 1994, Karmiloff-Smith 1992), which in turn may lead to an underestimation of their knowledge (Spencer and Darvizeh 1981). Barrett and Farroni (1996) who examined the knowledge through geographical-spatial location (the relationship between cities, mountains, rivers)

and the route (how to get from one point to another) concluded that although drawing maps is the best way to examine children's spatial knowledge, it is difficult to gain full understanding of children's geographical knowledge only on the basis of drawings.

Despite some criticisms of the method of drawing (Matthews 1992), it still seems to be a useful tool when carefully used. For example, children's drawings of maps have contributed significantly to our understanding of children's representation of natural large-scale environments (Lynch 1977). Also, children's maps often correlate with data drawn from other methods, such as placement of model-toys, or verbal descriptions (Axia 1988, Hart 1979). Barrett and Farroni (1996) made a cross-national comparison of British and Italian children adopting a number of different methods (such as filling in the contour map of Europe) to assess children's geographical knowledge of Europe and found patterns of results which were similar to findings from studies where only children's maps had been used (see Axia and Bremner 1992). These findings suggest that when different types of tasks are combined, useful information about children's knowledge of geography can be gained.

Moreover, it has been indicated that place schemata can be used to gain valuable insights into the development of spatial knowledge (Axia et al. 1998). Place schemata are cognitive structures that contain knowledge about the everyday environment (for example knowledge of Europe) and a person's prior experiences with specific places. They involve mainly three types of spatial information (Mandler 1984): *inventory information* about which objects typically appear in a place; *spatial-relation information,* which describes the typical spatial layout of a place; and *descriptive information,* which describes what the objects look like. This indicates that when asked to draw a map of Europe, a person has to organise all of his/her knowledge of Europe into a spatial frame or schema to be able to complete the task and confirms that place schemata can be successfully used to examine children's drawings (Axia et al. 1998).

This paper examines aspects of children's geographical knowledge of Europe in 2000 and 2012. The main aim of the study is to examine further how children's understanding of their geographical surroundings develops. For that end links between children's personal experiences, general knowledge of surrounding countries and their ability to express that knowledge in generative tasks (e.g. map drawing) are examined. It is hypothesized that because the participants have not studied the geography of Europe in school and therefore have to base their answers more on knowledge gained during everyday living, they will know better those countries that come up more often (i.e. neighbouring countries, or the places they have visited).

Moreover, because in 2000 Estonia was an EU candidate country with the GDP per capita (current prices) 4,136 US dollars (International Monetary Fund 2012) and by 2012 Estonia had joined the EU, changed its currency to Euro in 2011, and the current GDP per capita is 16,637 dollars (International Monetary Fund 2012) it is hypothesized that as the national GDP (and therefore parents' opportunities to

travel) has increased, the children might have travelled more in 2012 compared to 2000, which in turn may have an influence on their knowledge of the destination countries.

2. Method

2.1. Participants

The participants of this study were 55 (37 boys) 5th graders in year 2000 from Tartu and 41 (25 boys) 5th-graders in year 2012 from Tallinn, with the mean age of 12. In both years the samples came from large district schools (over 500 students) placed in the middle of the annual ranking-table of schools. During both assessments the requirements of the national curriculum were similar and because of that the participants had not studied geography at school and were not specialising on a specific field of study.

2.2. Procedure

Children's knowledge was examined with two different tasks - drawing a map of Europe (Axia et al. 1998) and naming countries in a contour map (Barrett and Farroni 1996). The children were tested in groups in their classrooms and they used their own pencils to complete the tasks. All the maps were removed from the walls of the classroom. The children worked individually under the supervision of their teacher. An experimenter was always present and ready to offer any explanation concerning the task.

In the first task a blank A4 sheet of paper were given to each child. The instruction was: "Please draw a map of Europe on your sheet of paper". No time limit was given; maximum time it took to draw the map was 20 minutes. None of the children had any difficulty in understanding the word 'map', but 15 boys and 9 girls did not complete the drawing (for example, they drew the globe and/or continents but did not depict countries).

In the second task children were handed a contour map of Europe. The task was to write down the countries they knew. Maximum time for completion of the task was 15 minutes. To the other side of the paper children also wrote their age and which countries they had visited.

2.3. Coding

Two independent coders were trained in the scoring procedure of both tasks. Each map was coded by the coders, their overall agreement was 90%; disagreements were resolved by discussion.

In the first task each map was given three scores based on Mandler (1984). The general score was received by summing the number of countries which were clearly recognizable for either location or shape, or both. The minimum amount of information needed to make a country recognizable (scored as '1') was a scoring of at least 1.5 for shape or location (see below); if a country was not recognizable

then it was scored as '0'. The score related to the location of each country varied from 0 to 2 as follows: 0-country absent, l-country present but in the wrong location, 1.5-present in the approximate location, 2-correct location. The score related to the shape of each country ranged from 0 to 2 as follows: 0-country absent, 1-shape not recognizable, 1.5-shape vaguely recognizable, 2-shape recognizable.

In the second task it was coded if the correct name of the country was written inside the borders of the country. If the name was correct, it was coded as '1' and if incorrect then it was coded as '0'.

3. Results

3.1. Children's geographical knowledge of Europe

The differences between children's general knowledge scores in 2000 and in 2012 were not statistically significant, but on a more specific (i.e. country) level some countries were depicted better during the second study (see Table 1). In 2000 Lithuania, Estonia, Latvia, Poland and Russia were drawn most recognisably; in 2012 (besides the previously mentioned countries) Finland, Sweden, Norway and the UK were also depicted accurately. When Kruskal-Wallis test was used to examine whether there are statistically significant differences at the country level, the following differences emerged: Finland's location was more accurately drawn in 2012 $\chi^2(1) = 4.57$, $p = .032$; the UK's location and overall score were higher in 2012 (respectively, location $\chi^2(1) = 6.82$, $p = .009$ and overall score $\chi^2(1) = 6.82$, $p = .009$); and finally Norway's shape, location and overall score were higher in 2012 than in 2000 (respectively, shape $\chi^2(1) = 9.22$, $p = .002$, location $\chi^2(1) = 8.13$, $p = .004$ and overall score $\chi^2(1) = 4.93$, $p = .005$.

When the total number of countries marked in the contour map was compared, two-way ANOVA indicated that in 2000 children marked more countries correctly ($M = 12.87$, $SD = 6.38$) than in 2012 ($M = 9.20$, $SD = 5.41$, $F(1,94) = 8.86$, $p = .004$, $\eta^2 = .086$). In 2000 children knew most accurately the locations of Iceland, Spain, Estonia, Ireland, Italy, the UK and the Netherlands; in 2012 Iceland, Estonia, Finland, Norway, Sweden and the UK were known most accurately. When we examine these results on the country level (see Table 2) to see whether there are statistically significant differences in the accuracy of marking certain countries on a contour map, whereas using Fisher's exact the following differences emerged. In 2012 five countries were marked more inaccurately to a contour map than in 2000: Ireland (57% vs 95%, $\chi^2(1) = 7.22$, $p = .012$, $\eta^2 = .461$); Spain (69% vs 100%, $\chi^2(1) = 10.20$, $p = .004$, $\eta^2 = .476$); France (45% vs 82%, $\chi^2(1) = 8.19$, $p = .007$, $\eta^2 = .376$); Germany (33% vs 72%, $\chi^2(1) = 11.47$, $p = .001$, $\eta^2 = .379$); and Denmark (35% vs 77%, $\chi^2(1) = 7.45$, $p = .011$, $\eta^2 = .416$).

Next we examined the correlations (Spearman) between these two tasks (drawing a map and filling in a contour map) and found that there was a positive correlation between location and shape of country ($r = .984$, $p < .01$). The scores of drawings and the contour map task were also significantly ($p < .01$) correlated,

i.e. location of country in drawings and contour map (r = .374) and shape of country in drawings and contour map (r = .366).

Table 1. Means and standard deviations in drawings' location, shape and overall score in 2000 and 2012

	2000				2012			
		location	shape	total		location	shape	total
	No.	M (SD)	M (SD)	M (SD)	No.	M (SD)	M (SD)	M (SD)
Estonia	33	1.72 (.36)	1.58 (.47)	.85 (.36)	36	1.86 (.26)	1.68 (.38)	.97 (.17)
Russia	32	1.55 (.37)	1.25 (.36)	.78 (.42)	32	1.72 (.31)	1.14 (.23)	.94 (.25)
Latvia	27	1.72 (.38)	1.33 (.37)	.85 (.36)	33	1.76 (.40)	1.35 (.29)	.85 (.36)
Lithuania	25	1.64 (.34)	1.22 (.29)	.88 (.33)	29	1.60 (.39)	1.24 (.29)	.79 (.41)
Finland	31	1.42 (.34)	1.18 (.28)	.68 (.47)	33	1.62 (.40)	1.20 (.28)	.79 (.42)
Sweden	29	1.38 (.32)	1.12 (.26)	.66 (.48)	31	1.55 (.37)	1.21 (.25)	.81 (.40)
Norway	23	1.33 (.29)	1.09 (.19)	.61 (.50)	16	1.66 (.30)	1.31 (.25)	1.00 (.99)
Denmark	14	1.25 (.43)	1.18 (.37)	.29 (.47)	10	1.35 (.41)	1.25 (.35)	.50 (.53)
Spain	14	1.15 (.23)	1.04 (.13)	.29 (.47)	10	1.20 (.26)	1.10 (.21)	.50 (.53)
Poland	22	1.45 (.26)	1.09 (.20)	.82 (.39)	14	1.50 (.28)	1.14 (.23)	.93 (.27)
Germany	31	1.19 (.28)	1.08 (.23)	.35 (.49)	20	1.22 (.30)	1.05 (.15)	.45 (.51)
France	24	1.15 (.28)	1.04 (.20)	.25 (.44)	16	1.19 (.25)	1.06 (.17)	.38 (.50)
Italy	26	1.17 (.28)	1.31 (.29)	.62 (.50)	14	1.18 (.32)	1.25 (.26)	.50 (52)
The UK	22	1.23 (.26)	1.07 (.18)	.45 (.51)	12	1.46 (.14)	1.13 (.23)	.92 (.29)
Ireland	10	1.35 (.24)	1.15 (.24)	.70 (.48)	7	1.36 (.24)	1.14 (.24)	.71 (.48)
Slovenia	1	1	1	0	1	1	1	0
Austria	2	1 (0)	1 (0)	0 (0)	4	1.13 (.25)	1 (0)	.25 (.50)
Iceland	12	1.46 (.33)	1.25 (.26)	.75 (.45)	5	1.70 (.27)	1.30 (.27)	1.0 (0.0)
Portugal	9	1.22 (.26)	1 (0)	.44 (.53)	9	1.22 (.26)	1.17 (.25)	.56 (.53)
Greece	2	1 (0)	1 (0)	0 (0)	1	1.5	1	1
Turkey	2	1 (0)	1 (0)	0 (0)	1	1.5	1	1
The Ukraine	2	1.25 (.35)	1 (0)	.5 (.71)	1	1	1	0
Czech Republic	12	1.08 (.19)	1 (0)	.17 (.39)	1	1	1	0
Bulgaria	3	1.17 (.29)	1 (0)	.33 (.58)	2	1 (0)	1 (0)	0 (0)
Hungary	3	1 (0)	1 (0)	0 (0)	1	1.5	1	1
Switzerland	1	1	1	0	3	1.5 (0)	1 (0)	1 (0)
Malta	1	1.5	1	1	–	–	–	–
Moldova	1	1.5	1	1	2	1 (0)	1 (0)	0 (0)
Slovakia	4	1 (0)	1 (0)	0 (0)	2	1.25 (.35)	1.25 (.35)	.50 (.71)
Belgium	1	1	1	0	2	1.5 (0)	1.25 (.35)	1 (0)
Romania	1	1.5	1	1	2	1.5 (0)	1.25 (.35)	1 (0)
Luxembourg	2	1 (0)	1 (0)	0 (0)	1	1	1	0
The Netherlands	6	1 (0)	1 (0)	0 (0)	3	1.33 (.29)	1.17 (.29)	.67 (.58)
Cyprus	1	1.5	1	1	1	1.5	1	1
Serbia	1	1	1	0	1	1	1	0
Liechtenstein	–	–	–	–	1	1	1	0
Croatia	1	1	1	0	1	1	1	0
Total		11.08 (11.59)	9.55 (9.91)	4.69 (5.86)		13.83 (9.64)	11.22 (7.9)	6.73 (5.42)

Note. No. – the total number of how many times a country has been drawn.

Table 2. Total numbers of marked countries and the percentages of accuracy of the total numbers of correctly marked countries in contour map in 2000 and 2012

	2000	2012
Estonia	96% (54)	95% (38)
Russia	60% (53)	40% (39)
Ireland	95% (20)	57% (14)
Iceland	100% (29)	100% (11)
Spain	100% (29)	69% (16)
Norway	91% (45)	92% (26)
Italy	93% (42)	89% (26)
Finland	87% (55)	90% (39)
Sweden	90% (52)	92% (38)
Portugal	89% (26)	80% (10)
Latvia	89% (52)	84% (38)
The UK	91% (34)	90% (20)
Lithuania	88% (50)	84% (37)
France	82% (38)	45% (20)
Germany	72% (50)	33% (30)
Poland	70% (47)	70% (20)
Denmark	77% (26)	35% (17)
Slovenia	71% (17)	31% (16)
Austria	46% (11)	40% (5)
Greece	77% (12)	23% (7)
Turkey	0% (4)	63% (8)
The Ukraine	73% (11)	67% (9)
Czech Republic	85% (13)	33% (3)
Bulgaria	58% (12)	14% (7)
Belarus	64% (14)	36% (11)
Hungary	50% (6)	33% (3)
Switzerland	25% (12)	100% (2)
Malta	0% (4)	100% (1)
Moldova	100% (2)	0% (4)
Bosnia-Herzegovina	–	100% (1)
Slovakia	88% (8)	0% (2)
Belgium	100% (2)	0% (1)
Romania	71% (7)	0% (2)
Luxembourg	0% (1)	0% (1)
The Netherlands	93% (15)	67% (3)
Cyprus	–	100% (1)
Andorra	–	100% (1)
Armenia	–	0% (1)
Azerbaijan	–	0% (1)
Albania	50% (2)	–
Croatia	0% (1)	–

3.2. The role of personal experience in geographical knowledge

Children's self-reported travel experience was higher in 2012, on average 3.41 countries (SD = 2.12, n = 41) compared to 2.36 countries in 2000 (SD = 2.34, n = 55), $F(1,94) = 5.12$, $p = .026$, $\eta^2 = .052$. In 2000 children had travelled more to the neighbouring countries such as Finland (69%), Latvia (55%), Lithuania (41%),

Sweden (32%), followed by Germany (29%), Poland (22%), Russia (19%) and Spain (9%). In 2012 children's travel experiences were rather similar – Finland (73%), Sweden (65%), and Latvia (63%) were visited most often, followed by Lithuania (36%), Russia and Spain (both 23%), and Germany and Poland (both 8%). There was a significant increase in 2012 children's travelling experiences to Sweden χ^2 (1) = 8.16, p = .004, η^2 = .325 (65% in 2012 vs 32% in 2000) and a decrease to Germany χ^2 (1) = 5.60, p = .018, η^2 = .272 (8% in 2012 vs 29% in 2000).

Next, children's travel experience to the above-mentioned eight countries was examined in relation to their knowledge of Europe using drawings or the contour map. Only one significant finding emerged using Kruskal-Wallis test between those who had visited a certain country compared to those who had not (when summing the results in both 2000 and 2012, see Table 3). Namely, those children (n = 12) who had been to Russia drew Russia's location more accurately (M = 1.88, SD = .23) than those who had not been there (M = 1.58, SD = .35, n = 52), χ^2 (1) = 7.48, p = .006.

When the role of personal travelling experience was analysed separately for the two time-points, in 2000 there were no significant effects of experience-based knowledge of countries which more children had visited (i.e. Russia, Latvia, Lithuania, Finland, and Sweden). In 2012 two significant differences emerged using Kruskal-Wallis test. First, the shape of Lithuania was known better by those

Table 3. Means and standard deviations in drawings' location, shape and overall score, and contour map between those children who have visited a certain country or not (2000 and 2012 aggregated)

	Travel experience (No.)	Contour map	Location	Shape	Drawing total
		M (SD)	M (SD)	M (SD)	M (SD)
Russia	No (52)	.96 (.19)	1.58 (.35)	1.17 (.30)	.83 (.38)
	Yes (12)	.92 (.29)	1.88 (.23)	1.29 (.33)	1.00 (.00)
Latvia	No (27)	.81 (.40)	1.72 (.40)	1.31 (.28)	.85 (.36)
	Yes (30)	.90 (.31)	1.80 (.36)	1.40 (.36)	.87 (.35)
Lithuania	No (36)	.83 (.38)	1.63 (.34)	1.21 (.28)	.86 (.35)
	Yes (16)	.94 (.25)	1.66 (.40)	1.31 (.31)	.81 (.40)
Finland	No (25)	.92 (.27)	1.56 (.39)	1.24 (.33)	.76 (.43)
	Yes (38)	.89 (.31)	1.49 (.38)	1.16 (.24)	.71 (.46)
Sweden	No (32)	.94 (.25)	1.45 (.39)	1.19 (.28)	.66 (.48)
	Yes (26)	.96 (.20)	1.48 (.33)	1.15 (.24)	.81 (.40)
Poland	No (28)	.71 (.46)	1.46 (.27)	1.14 (.23)	.86 (.36)
	Yes (7)	.71 (.49)	1.50 (.29)	1.00 (.00)	.86 (.38)
Germany	No (41)	.59 (.50)	1.20 (.29)	1.08 (.22)	.37 (.49)
	Yes (8)	.88 (.35)	1.25 (.27)	1.00 (.00)	.50 (.53)
Spain	No (15)	.87 (.35)	1.13 (.23)	1.07 (.18)	.27 (.46)
	Yes (7)	.86 (.38)	1.21 (.27)	1.07 (.19)	.57 (.53)

Note. No. – the number of participants who have visited or not visited a certain country.

who visited Lithuania M = 1.67 (SD = .43, n = 9) than by those who had not, M = 1.58 (SD = .37, n = 20), χ^2 (1) = 6.17, p = .013. Second, concerning the overall score of Finland, those who had not visited Finland were more accurate (M = .68, SD = .48, n = 22) than those who had visited Finland (M = 1.00, SD = .00, n = 11), χ^2 (1) = 4.31, p = .038.

Finally, when comparing the results between 2000 and 2012 then two significant effects emerged using two-way MANOVA. First, the shape of Lithuania was known better by those who had visited Lithuania in 2012 (visited M = 1.44, SD = .30, n = 9 vs not visited M = 1.16, SD = .24, n = 20), however, in 2000 the results were opposite (not visited M = 1.26, SD = .31, n = 17 vs visited M = 1.13, SD = .23, n = 8), F(1,52) = 7.37, p = .009, η^2 = .128. Second, the location of Finland was known better by those who had not visited Finland in 2012 (not visited M = 1.82, SD = .25, n = 11 vs visited M = 1.50, SD = .42, n = 21) whereas in 2000 those who had visited Finland got better results than those who had not visited Finland (visited M = 1.47, SD = .33, n = 17 vs not visited M = 1.35, SD = .36, n = 14), F(1,62) = 4.81, p = .032, η^2 = .074. There were no differences for Russia, Latvia, Sweden, Germany and Spain; the data concerning Poland could not be analysed because the variance in subsamples was not homogeneous.

4. Discussion

This paper examined Estonian children's geographical knowledge of Europe in 2000 and 2012. For that end two tasks were used - drawing a map and filling in the names of the countries in a contour map. These tasks have previously been suggested as good determinants of geographical knowledge (Hart 1979, Barrett and Farroni 1996), and proved to be significantly positively correlated in this study as well. We formulated two hypotheses, (i) children know better those countries they have direct experiences with and (ii) as the national GDP had increased in 2012 compared to 2000, the children might have travelled more in 2012, which in turn might have further improved their knowledge of the destination countries. However, although some of the results supported these hypotheses, others did not, and therefore the hypotheses could not be fully confirmed.

First, we expected to find that children are more knowledgeable about those countries that are either discussed or visited more often. More specifically, we believed that as neighbouring countries are most often discussed at home and in the media, as well as being a rather convenient and cost-efficient holiday destination, children might have more knowledge about them. The results were in accordance with this expectation and showed that children indeed tended to draw most correctly the neighbouring countries such as Latvia, Lithuania and Russia. Interestingly, the only destinations that were better known by those children who

had direct travelling experience with those places were the locations of Russia, Finland and Lithuania.

Vygotsky (1934/1997) has proposed that knowledge based on personal experience is not enough for children to form a scientifically accurate representation and the present findings are in accordance with this idea. The present study confirms that travelling experience is indeed not the main source of geographical knowledge but rather a helping factor (Barrett et al. 1997, Barrett and Farroni 1996). To form an accurate understanding of one's geographical surroundings unwavering knowledge of central facts as a basis of taking the global perspective is needed (see also Hannust and Kikas 2010).

The second aim of the study was to examine whether travelling experience was larger in 2012 than in 2000, which in turn might improve children's schemata about the destination countries. We found that the overall travelling experience was higher in 2012 than in 2000. More specifically, children had travelled more to the neighbouring EU countries such as Finland, Latvia, Lithuania and Sweden.

The results of different tasks varied across years. In 2000 children marked more countries accurately in a contour map than in 2012. Regarding the neighbouring countries there were no differences on country level – during both assessments they were rather well known. However, in 2000 the more distant and less visited countries were recognised better (Ireland, Spain, France, Germany, and Denmark). In 2012 children tended to do better than in 2000 when drawing neighbouring countries (Russia, Finland, and Norway), or more familiar countries (UK, which is discussed rather often in English lessons).

The conflicting findings suggest that the two tasks tap into different ways of thinking and knowing. The contour-map task is mostly a recognition-task – children have to recognise the map and remember the proper names, which was easier for the 2000 sample. However, to successfully solve tasks that require to come up with answers from scratch (e.g. drawing one's understanding of Europe on a blank paper) respondents need to access their existing schemata (c.f. Axia et al. 1998, Mandler 1984). As place schemata are based on knowledge about everyday environment and a person's prior experiences with specific places, it is rather expected that children's schemata contain more accurate information about the regularly discussed and visited places, which is also reflected in better drawings of those places. In addition, the results that in 2000 the children had less travelling experience and that in 2000 some neighbouring countries were depicted in the generative map drawing task more poorly than in 2012 suggest that when no personal experience is available children's knowledge might not be organised according to a place schemata at all.

In conclusion, we found that between 2000 and 2012 contradicting changes in children's geographical knowledge have occurred. More specifically, children's map drawing skills have increased whereas their knowledge in contour maps has decreased in time. We also found suggestions that travelling experiences in general might spur children to organize their existing knowledge of geography into a coherent representation, but as spatial relations between distant places cannot be

directly experienced and geographical information has to be either memorized or experienced in a piecemeal fashion, the progression from egocentric representation of one's surroundings to a more global view takes time, and difficulties should be expected.

Acknowledgements

Research for this paper was supported by the Estonian Science Foundation grant No 9033.

Address:
Kristjan Kask
Institute of Public Law
University of Tartu
Kaarli pst. 3
10119 Tallinn, Estonia
Tel.: +372 627 1898
E-mail: kristjan.kask@ut.ee

References

Axia, G. (1988) "Language and orientation: memory for route elements in verbal descriptions by children and adults". In *Looking Back to the Future*, IAPS, v01.2, 513–521. H. van Hoogdalem, N. L. Prak, J.T.M. van der Voordt, and H.B.R. van Wegen, eds. Delft: Delft University Press.

Axia, G. and J.G. Bremner (1992) *Children's understanding of Europe: British and Italian points of view*. Paper presented at the 5th European Conference on Developmental Psychology, Seville, Spain, September.

Axia, G., J.G. Bremner, P. Deluca, and G. Andreasen (1998) "Children drawing Europe: the effects of nationality, age and teaching". *British Journal of Developmental Psychology* 16, 423–437.

Barrett, M. and J. Short (1992) "Images of European people in a group of 5–10-year-old English schoolchildren". *British Journal of Developmental Psychology* 10, 339–363.

Barrett, M. (1996) "English children's acquisition of a European identity". In *Changing European identities: social-psychological analyses of social change*. G. Breakwell and E. Lyons, eds. Oxford: Butterworth-Heineman.

Barrett, M. and Farroni, T. (1996) "English and Italian children's knowledge of European geography". *British Journal of Developmental Psychology* 14, 257–273.

Barrett, M., E. Lyons, M. Bennett, I. Vila, A. Gimenez, L. Arcuri, and A.S. de Rosa (1997) *Children's beliefs and feelings about their own and other national groups in Europe*. End of Award Report to the Commission of the European Communities, Directorate-General XII for Science, Research and Development, Human Capital and Mobility (HCM) Programme, Research Network No. CHRX-CT94-0687.

Blades, M. and C. Spencer (1994) "The development of children's ability to use spatial representations". In H. W. Reese, ed. *Advances in child development and behaviour,* 157–199. San Diego, CA: Academic Press.

Brewer, W. F., C.A. Chinn, and A. Samarapungavan (2000) "Explanation in scientists and children". In *Explanation and cognition,* 279–323. F. C. Keil and R. A. Wilson, eds. Cambridge, MA: MIT Press.

Evans, G. (1980) "Environmental cognition". *Psychological Bulletin* 88, 259–287.
Hannust, T. and E. Kikas (2010) "Young children's acquisition of knowledge about the Earth: a longitudinal study". *Journal of Experimental Child Psychology* 107, 164–180.
Hart, R. (1979) *Children's experience of place*. New York: Irvington. International Monetary Fund (2012) Available online at <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/weorept.aspx?sy=2000&ey=2013&scsm=1&ssd=1&sort=country&ds=.&br=1&pr1.x=35&pr1.y=19&c=939&s=NGDPRPC%2CNGDPPC%2CNGDPDPC&grp=0&a>. Accessed on 31.08.2012.
Jahoda, G. (1963) "The development of children´s ideas about country and nationality". *British Journal of Educational Psychology* 53, 47–60.
Jahoda, G. (1964) "Children's concepts of nationality: a critical study of Piaget's stages". *Child Development* 35, 1081–1092.
Johnson, N., M. Middleton, and H. Tajfel (1970) "The relationship between children's preferences for and knowledge about other nations". *British Journal of Social and Clinical Psychology* 9, 232–240.
Karmiloff-Smith, A. (1992) Beyond modularity: a developmental perspective on cognitive science. Cambridge, MA: MIT Press.
Kikas, E. (2003) "Constructing knowledge beyond senses: worlds too big and small to see". In *Cultural guidance in the development of the human mind*, 211–227. A. Toomela, ed. London: Ablex.
Lambert, W. and O. Klineberg (1959) "A pilot study of the origin and development of national stereotypes". International Social Science Bulletin 11, 221–238.
Lynch, K. (1977) Growing up in cities. Cambridge, MA: MIT Press.
Mandler, J. (1984) Stories, scripts and scenes: aspects of schema theories. Hillsdale, NJ: Erlbaum.
Matthews, M. H. (1992) Making sense of place: children's understanding of large-scale environments. Hemel Hempstread: Harvester.
Piaget, J. (1928) *Judgement and reasoning in the child*. London: Kegan Paul.
Spencer, C. and Z. Darvizeh (1981) "The case for developing a cognitive environmental psychology that does not understimate the abilities of young children". *Journal of Environmental Psychology* 1, 21–31.
Spencer, C. and M. Blades (2006) *Children and their environments*. Cambridge: Cambridge University Press.
Tajfel, H., C. Nemeth, G. Jahoda, J. Campbell, and N. Johnson (1970) "The development of children's preference for their own country: a cross-national study". *International Journal of Psychology* 5, 245–253.
Vygotsky, L. (1997) *Thought and language*. A. Kozulin, ed. Cambridge, MA: MIT Press. (Original work published in 1934.)