The World seen by Hungarian students: a mental map analysis

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Abstract

The project "Eurobroadmap", funded by the European Commission[4], is setting out a worldwide survey of the opinions of undergraduate students in different fields of learning (geography, political science, management, medicine and arts) in order to analyze their perception of the World and Europe. Its objective is to catch how undergraduate students from different domains and from different countries perceive the contemporary World in general and Europe in particular.

More precisely, the project focuses on two aspects of this vision: attractive and repulsive places, and relevant partitions of the World. The objectives were reduced to 10,320 questionnaires in 18 countries and 43 cities all around the world. Hungary participated in the survey by 244 questionnaires. The article gives an overview on global and local level on the valuable considerations of the Hungarian students' cognitive geographical perceptions.

Keywords: cognitive maps, mental maps, students' mental maps, Europe, World

Introduction

Every map is a reflection of objective realities as well as of partly subjective elements (WRIGHT, J.K. 1966). Analysis of world maps from the most ancient times to the present provides us with evidence of mingling of objective and subjective elements and with a means of measuring changing images of the World (HENRIKSON, A.K. 1979).

This opened a new research trend in geography: the cognitive mapping (LYNCH, K. 1960, GOULD, P.R. and WHITE, R.L. 1986). The definition of cognitive

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mapping was usually given as "a construct which encompasses those cognitive processes which enable people to acquire, code, store, recall, and manipulate information about the nature of their spatial environment" (Downs, R.M. and Stea, D. 1973).

Nowadays most of the social analyses label them perceptions, being the frame of their mental ability. It is important to explore the thinking of participants not from the point of stock, but how the different indicators will reflect to their behaviour. It makes further trust problem, namely the changing factors and the changing impacts. A research on world pattern of geographic literacy was carried out just prior to the end of the Cold War (Saarinen, T.E. and MacCabe, C.L. 1995).

The structure of questionnaires

The questionnaire itself is divided into four parts. The first one asks for information regarding the situation of the student (age, gender, socio-economic background, mobility practices).

The second part deals with attractive and repulsive cities and countries in the World. Perhaps the third and fourth parts are the most innovative and promise interesting results as the students were asked to divide the World between 2 and 15 regions, to name them, and to give borders to Europe on blind maps.

This paper presents the main findings of the "Eurobroadmap" survey that was carried out in autumn 2009 in Hungary. The document highlights the most interesting features on how Hungarian students mentally perceive the World and Europe. The picture is drawn by the answers of 244 students, who were asked about their experience and vision of the World.

The survey in Hungary was conducted in one city only, Budapest. According to this a significant urban background can be connected to the situation that may influence the students' perception of the world. There is a significant concentration of high level education in Budapest with quite diverse forms of education, which made possible to easily complete the sample in every domains.

The overall distribution of males and females in the sample is balanced, even if men are slightly overrepresented in the sample (51.6%). There are, however, large differences among domains in gender division with a high overrepresentation of males in engineering studies and with a medium or small overrepresentation in those of arts and political sciences. Females are significantly overrepresented in the sample within the domain of social sciences. There is a fair equilibrium in the samples from business and health science studies.

Experience of the world

The socio economic and spatial background of the students' family is important for the explanation of the students' vision of the world, but it is also interesting to study that background in itself.

National origin of the families

The spatial mobility of the families is very low in our sample: only 3% of the students surveyed are not born in Hungary. Those that are not born in Hungary came mainly from Romania (3), but the sample also contains a student born in Bulgaria, one in Switzerland, one in Pakistan and one in Ukraine.

According to the data on the parents 97% of the students are born in the same country as their father and 95% in the same country as their mother. Place of birth of father if not Hungary is Romania (2), the USSR (2), Bulgaria (1), Estonia (1) or Kyrgyzstan (1). Mothers are born in 4 different countries out of Hungary, namely in Romania (3), the USSR (1), Finland (1) or Slovakia (1).

There were 8 students, who gave no answer about the country where their mother was born. The results reflect that the place of origin outside Hungary is usually in its close surroundings.

Languages spoken

The average number of languages spoken by Hungarian students is 2.66. Among them 9 students speak only one language (3.7%), which is their vernacular, Hungarian. 37.7% of the students declared to speak (or to have spoken) two languages. Finally, 58.6% of the students mentioned to speak 3 languages or more.

The situation is however a bit different if one considers the division of languages spoken by the domain studied. More than 50% of students in engineering and arts speak one or two languages but in business, health or political studies the figure is just about 30% (*Figure 1*).

As such, most of the Hungarian students indicate that they speak two or three languages. For students of Hungarian origin the figure is the following: apart from vernacular Hungarian they speak mainly English and German, and French just in rare cases do.

Other less frequently mentioned languages spoken by students are Italian, Spanish, Latin or Russian, while some of the students speak languages due to foreign origin (Slovak, Romanian etc.).
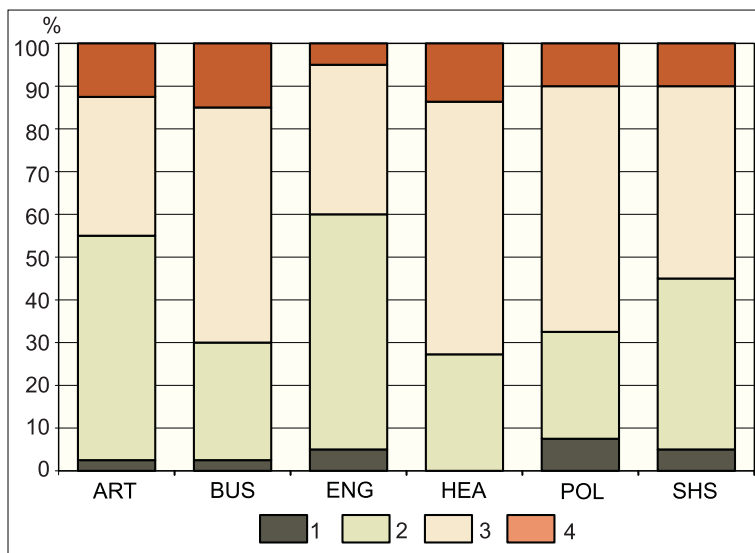
Fig. 1. Number of languages in Hungary by domain of learning. – ART = arts; BUS = business;
ENG = engineering; HEA = health; POL = political sciences; SHS = social and human sciences

Student travels in the world

Hungarian students have reported of 4.52 visited countries on average. Those who declare no travel abroad are only 4 (1.6%). The figures vary considerably according to the domain of study: social science students seem to have visited fewer countries than students of art, business or engineering. 80% of the latter group declares to have visited 5 countries (*Figure 2*).

The world experience of the Hungarian students can be observed on the maps. *Map 1* shows the percentage of the students who have lived in different countries for more than four months. Only 14% of all students mentioned that he or she has lived in other countries than Hungary. This resulted in the fact that the issue of world experience does not have a consistent spatial pattern, however European, typically EU countries, were often mentioned. The results are geographically shared among 19 countries. Austria, Germany and the USA were mentioned most frequently.

Map 2 represents the percentage of students who have visited different countries of the world. Altogether 62 countries were mentioned, with the majority located in Europe. The first country referred to was the neighbouring Austria, which was mentioned by 59% of the students. Following Austria, Italy and Germany were mentioned most, which were in turn followed by the group
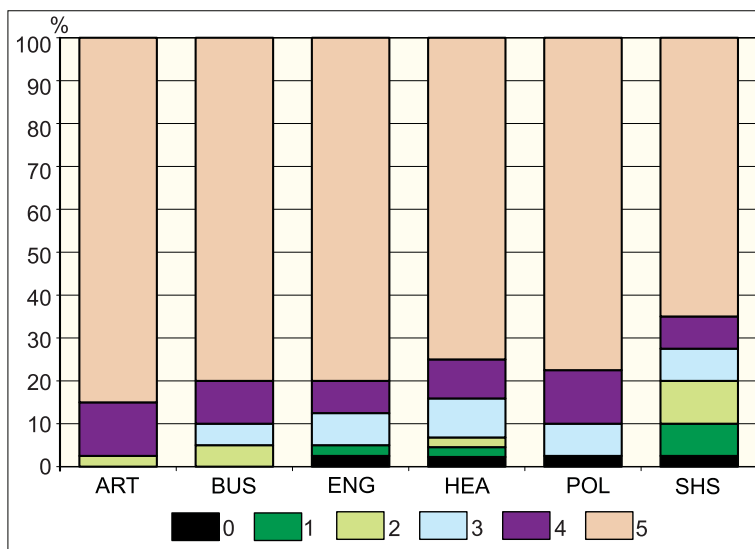
Fig. 2. Number of countries visited by Hungarian students according to domain of learning
(For explanation see *Fig. 1*)

of Hungary's neighbours (Slovakia, Romania, Croatia) and West European countries (France, Great Britain, Spain). More than 10% of the students have visited Greece, Poland and the Czech Republic. Among overseas countries some holiday destinations around the Mediterranean (Egypt, Tunisia) were mentioned as well as countries of North America (USA, Canada), but other destinations were noted rarely. There are large areas in Africa, South America, and South Asia or in Oceania, which are virtually unknown as countries of experience.

Socio-economic background

A large majority of the Hungarian students surveyed position themselves in the two medium classes of personal income. Most of the students (40%) state that they belong to the "medium high" level, while an additional 34.6% deem to belong to the "low medium" level. 20.6% consider themselves to belong to the group of the poorest and only 4.6% to the richest.

The figures more or less correlate with the level of education of the parents: the main difference is that the "high" modality has been lot more often and the "low" modality less often chosen. The inquiries have shown no significant difference between the education level of the fathers and mothers.
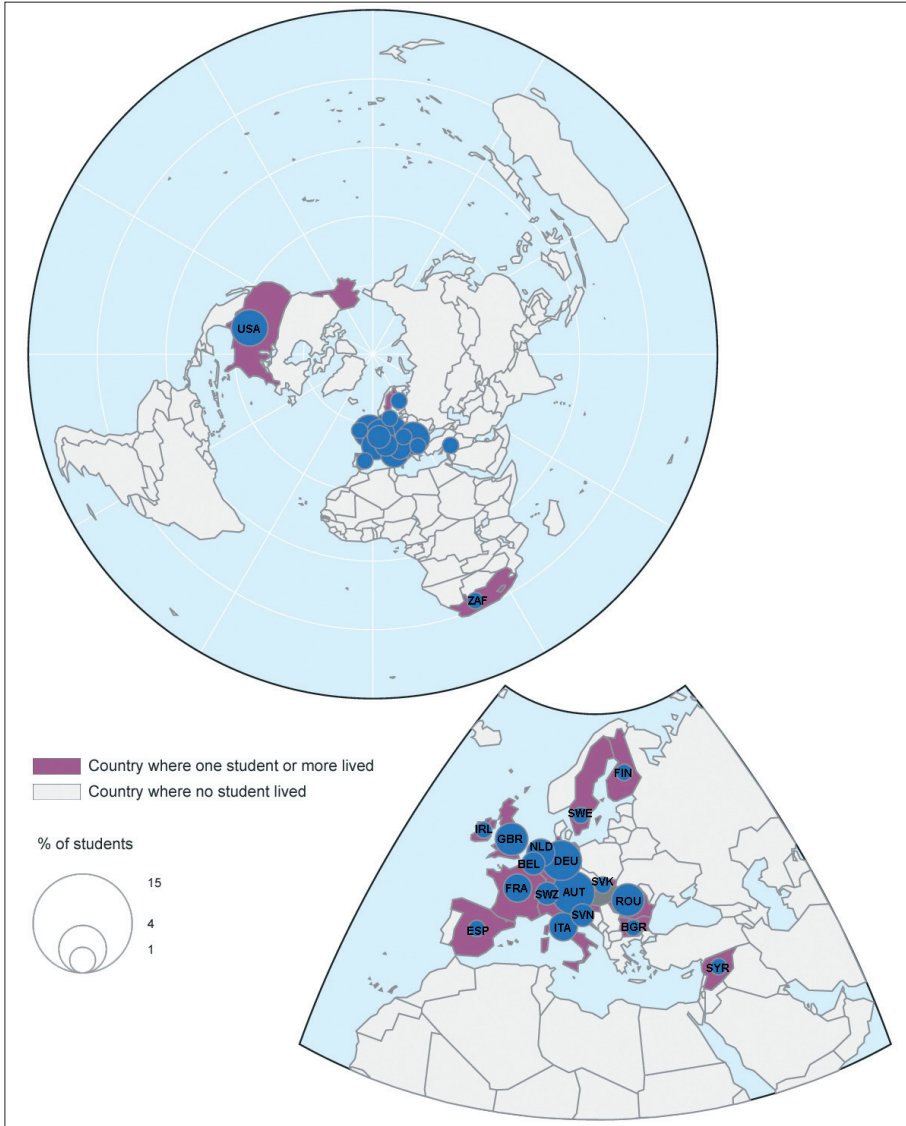
Map 1. World experience of the Hungarian students (countries where students have lived more than 4 months)

Concerning their religious affiliation 42.6% of the students declare to have a feeling of belonging to a particular religion of coherent set of belief. Among them 91 declare to be Christians and one as Jewish, others refused to answer, did not reply or mentioned other religious affiliation.
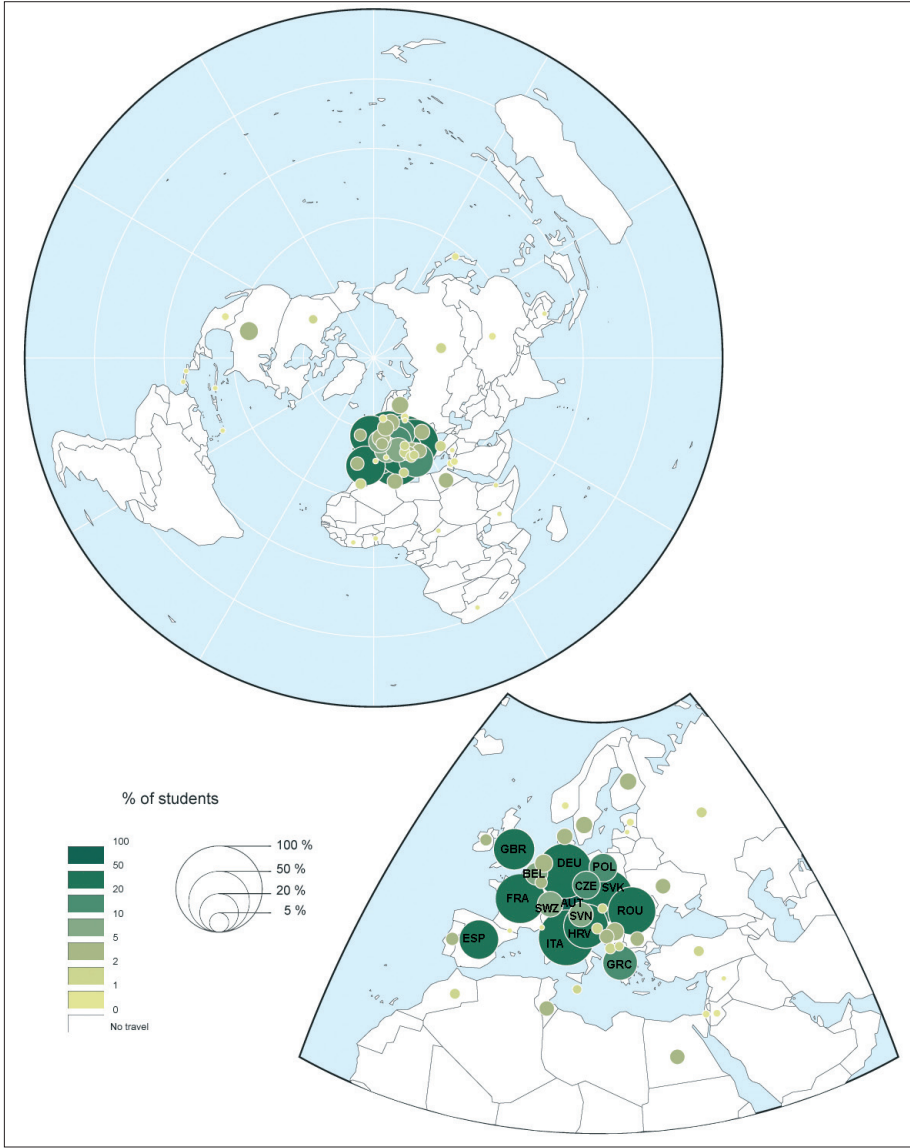
Map 2. World experience of the Hungarian students (last 5 countries visited by students)

Analysis of scales of belonging

A large majority of Hungarian students declare that their first level of belonging is the "national" level (43.7%). The second most frequent answer was the

local level (22.3%), which was followed by the infranational level (12.7%) and the global level (11.4%). Students, who answered this question, much rarely quote the supranational level and other levels concerning their belonging (*Figure 3*).

Concerning the students' history of spatial mobility, a clear difference can be observed in the results of the scales of belonging between those whose country of residence is different from their country of birth and those with a coincidence of the two (*Figure 4*). The students that were not born in Hungary, are more connected to local level, and quoted infranational and other spatial levels also often. In contrast, students who were born in Hungary quoted national level the most (44%), and only students of this group mentioned the category of supranational and global belonging.

Concerning the differences between the place of birth of the students and their parents the figures are strenghtening the previously mentioned observations (*Figure 5*). Two thirds of those, whose father was born in different country than Hungary declared to have local level of belonging. Compared to this, whose father was born in the same country quoted less the local level, and rather mentioned national, infranational or supranational levels.

The picture is almost the same concerning the place of birth of the mother (*Figure 6*). Those whose mother was born outside Hungary referred to local and infranational levels more, and somewhat more often also to the global level, while whose mother was born in the same country rather declared to have national level of belonging.

The scale of belonging of students is somewhat different in terms of gender (*Figure 7*). Female students mentioned global belonging more fre-
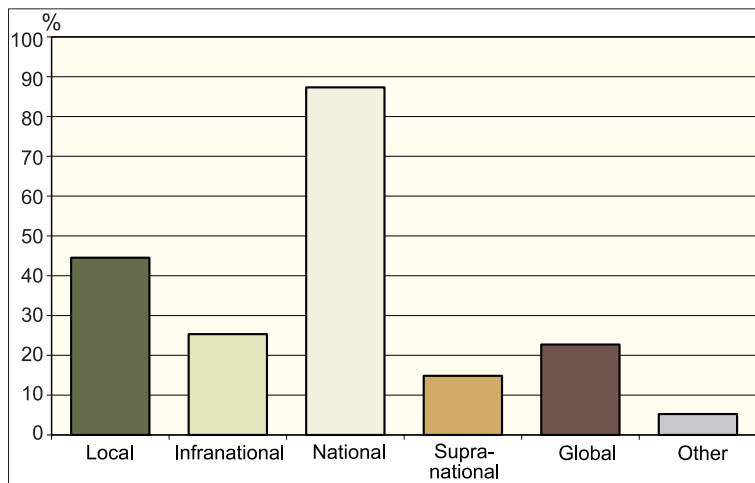

Fig. 3. Frequency of students according to the scale of belonging
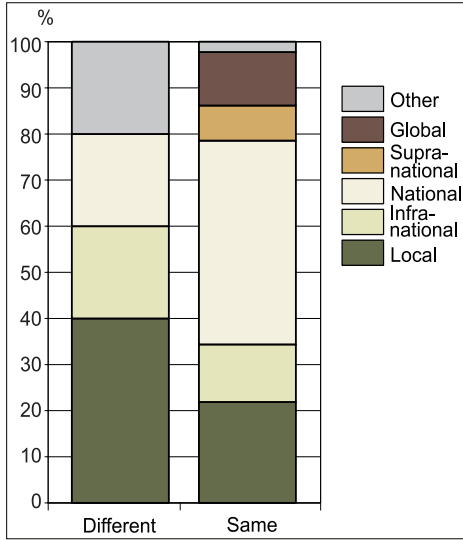
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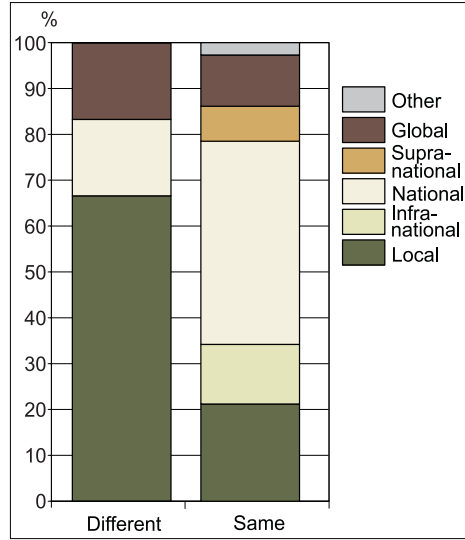*Fig. 4.* Spatial mobility by scale of belonging

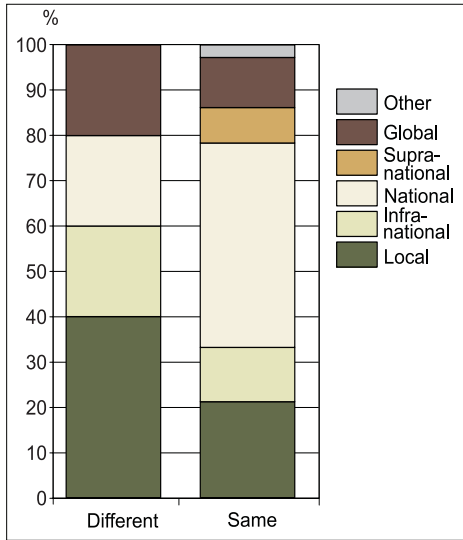*Fig. 5.* Place of birth of the father by scale of belonging

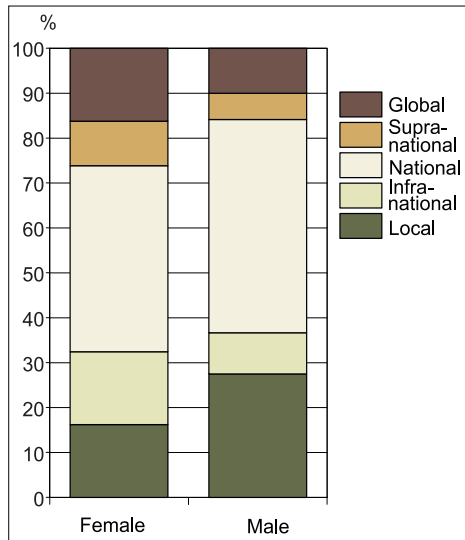*Fig. 6.* Place of birth of the mother by scale of belonging

Fig. 7. Gender by scale of belonging

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quently than males, while the latter mentioned local belonging more often. The dominantly mentioned spatial level is the national level by both genders, however men chose this category more often than women.

According to the number of languages spoken by the students surveyed, there is no significant relation between the two variables (*Figure 8*). As an interesting result it can be mentioned however, that students, who speak only one language did not quote any interim spatial level (neither infranational nor supranational). They mentioned only local, national or global level as their scale of belonging.

Finally the relationship between different religions and the mentioned level of belonging can be observed (*Figure 9*). It seems that those who declare themselves as Christian appear to identify themselves more with national level than others. Catholics, who form the largest group in the sample, mention national and local levels frequently, and quote global level also a bit larger than others.

Those who declare themselves as Protestants are also connected more to the national level. Finally students with Jewish or Lutheran religion were quite rare in the sample, therefore their results of belonging more to local or infranational level is not representative for these social groups.
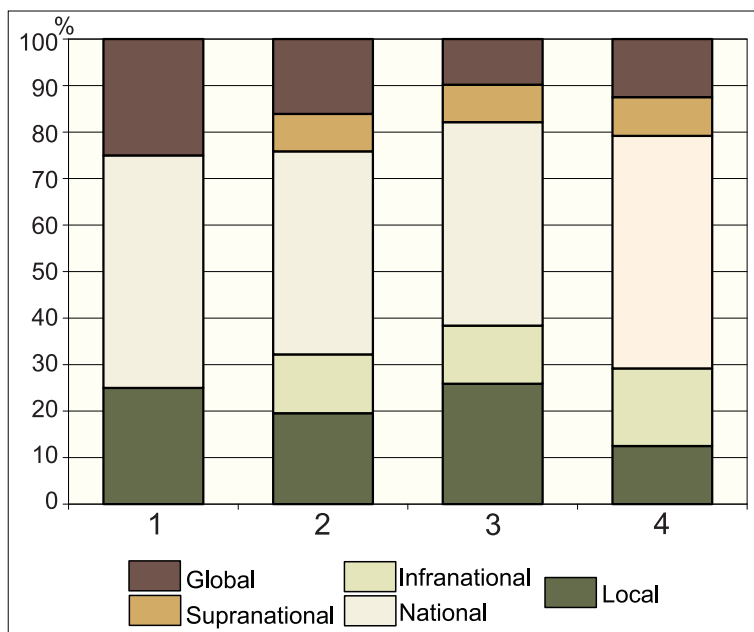

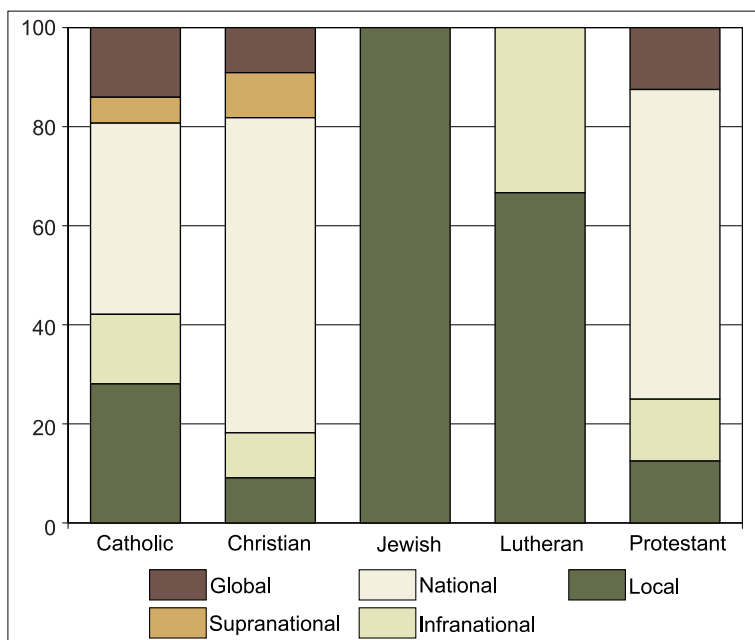*Fig. 8.* Number of languages spoken by scale of belonging

Fig. 9. Religion by scale of belonging

Countries where students would like/not like to live in a near future

Typology of world states according to Hungarian students

In the following the combination of answers on two questions will be presented. They deal with the knowledge about countries of the World, and with the positive or negative judgement of them (*Figure 10*). The results are presented in main groups.

High Degree of Knowledge and Positive Asymmetry: Switzerland, Spain, Austria, Germany, Italy, United Kingdom and France. These seven countries which are mentioned by more than 30% of students and with a clearly positive asymmetry (more students would like to live in these country than not like to live). *High Degree of Knowledge and Symmetry:* The USA is mentioned by a great number of students in this category, which means that it is a country, where both students would like to live and would not like to live. *High Degree of Knowledge and Negative Asymmetry*: China, Iran Islamic Republic, Iraq, Romania, Russia, Slovakia and Ukraine are countries that are cited by many students and almost always as places where they would not like to live.
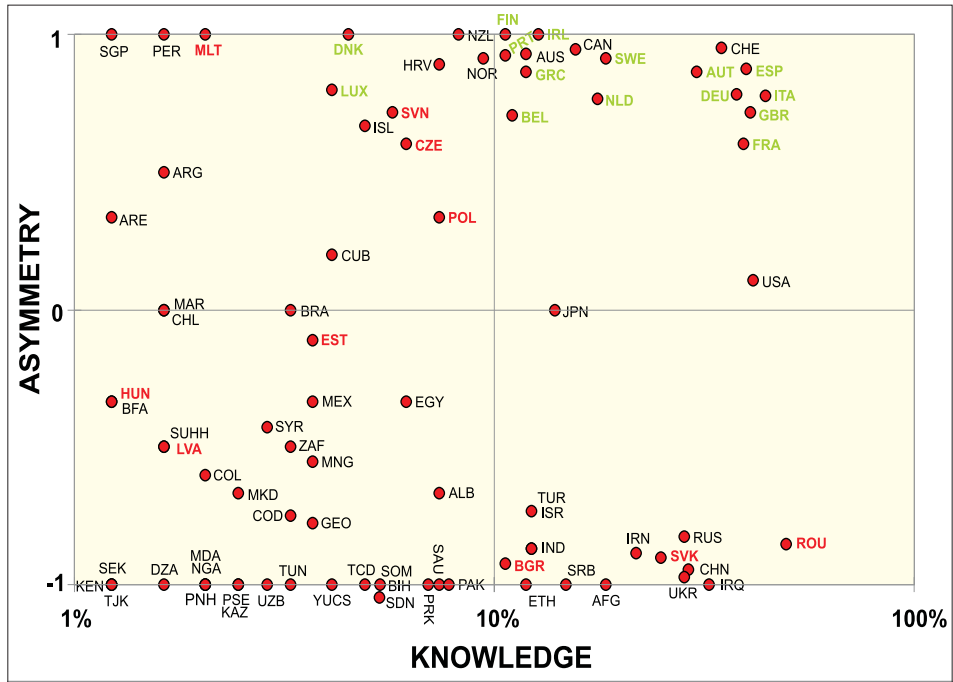
Fig. 10. Knowledge and asymetry in the perception of countries where students would like/ not like to live (Hungary). – Green = EU15; Red = new EU members; Black = other countries). – Abbreviations: AFG = Afghanistan; ALB = Albania; ARE = United Arab Emirates; ARG = Argentina; AUS = Australia; AUT = Austria; BEL = Belgium; BFA = Burkina Faso; BGR = Bulgaria; BIH = Bosnia and Herzegovina; BRA = Brazil; CAN = Canada; CHE = Switzerland; CHL = Chile; CHN = China; COD = Democratic Republic of the Congo; COL = Colombia; CUB = Cuba; CZE = Czech Republic; DEU = Germany; DNK = Denmark; DZA = Algeria; EGY = Egypt; ESP = Spain; EST = Estonia; ETH = Ethiopia; FIN = Finland; FRA = France; GBR = United Kingdom; GEO = Georgia; GRC = Greece; HRV = Croatia; HUN = Hungary; IND = India; IRL = Ireland; IRN = Iran Islamic Republic; IRQ = Iraq; ISL = Iceland; ISR = Israel; ITA = Italy; JPN = Japan; KAZ = Kazakhstan; KEN = Kenya; LUX = Luxembourg; LVA = Latvia; MAR = Morocco; MDA = Moldova; MEX = Mexico; MKD = (Former Yugoslav Republic of) Macedonia; MLT = Malta; MNG = Mongolia; NGA = Nigeria; NLD = Netherlands; NOR = Norway; NZL = New Zealand; PAK = Pakistan; PER = Peru; POL = Poland; PRK = Democratic People's Republic of Korea; PRT = Portugal; PRY = Paraguay; PSE = Occupied Palestinian Territory; ROU = Romania; RUS = Russia; SAU = Saudi Arabia; SDN = Sudan; SEN = Senegal; SGP = Singapore; SOM = Somalia; SRB = Serbia; SUHH = former USSR; SVK = Slovakia; SVN = Slovenia; SWE = Sweden; SYR = Syrian Arab Republic; TCD = Chad; TJK = Tajikistan; TUN = Tunisia; TUR = Turkey; UKR = Ukraine; USA = United States; UZB = Uzbekistan; YUCS = Yugoslavia; ZAF = South African Republic

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Romania is the country mentioned the most often concerning all categories. Within this group primarily countries are detached, which are related to political issues or conflicts, among them a group is formed by the neighbour countries of Hungary, and an other group by distant countries with global geopolitical affairs. *Medium Degree of Knowledge and Positive Asymmetry*: Australia, Belgium, Canada, Finland, Greece, Ireland, Netherlands, Portugal and Sweden. These countries are not mentioned by as many students as those countries in the high knowledge groups, but are quoted as places where students would like to live. The countries of this group are basically connected with higher living standards or pleasant living forms. *Medium Degree of Knowledge and Symmetry:* Japan is the country mentioned by a medium number of students. Students both mentioned this country as a place likely to live, and as a place where they would not like to live. *Medium Degree of Knowledge and Negative Asymmetry*: Afghanistan, Bulgaria, Ethiopia, India, Israel, Serbia and Turkey. This group consists of countries almost the same types as those in the group of high knowledge and negative asymmetry, but with somewhat less quotations. Some of the countries in this group are connected to global geopolitical affairs and media representations, while others may be connected to inherit rather negative stereotypes of students.

Geography of the perception of world states by Hungarian students

The map combining knowledge and asymmetry reveals a relatively simple spatial pattern of places where Hungarian students would like to live and not like to live (*Map 3*).

Positively perceived areas:

– Western Europe appears clearly as the geographical core of places where Hungarian students would like to live in a near future. The degree of asymmetry is rather high in West Central European countries (Austria, Switzerland, Germany), and in countries of Scandinavia (Norway, Sweden, Finland) and the Mediterranean (Spain, Portugal, Italy, Greece). Ireland and the group of the Benelux countries are also perceived positively, while France and the United Kingdom has somewhat smaller positive values in perception.

– Northern America is also positively perceived, especially Canada, while the United States was evaluated less positive, however more students mentioned this country.

– Oceania is mentioned also positively by students, in particular Australia and New Zealand, however with not as often quoted as most of the countries of Western Europe.
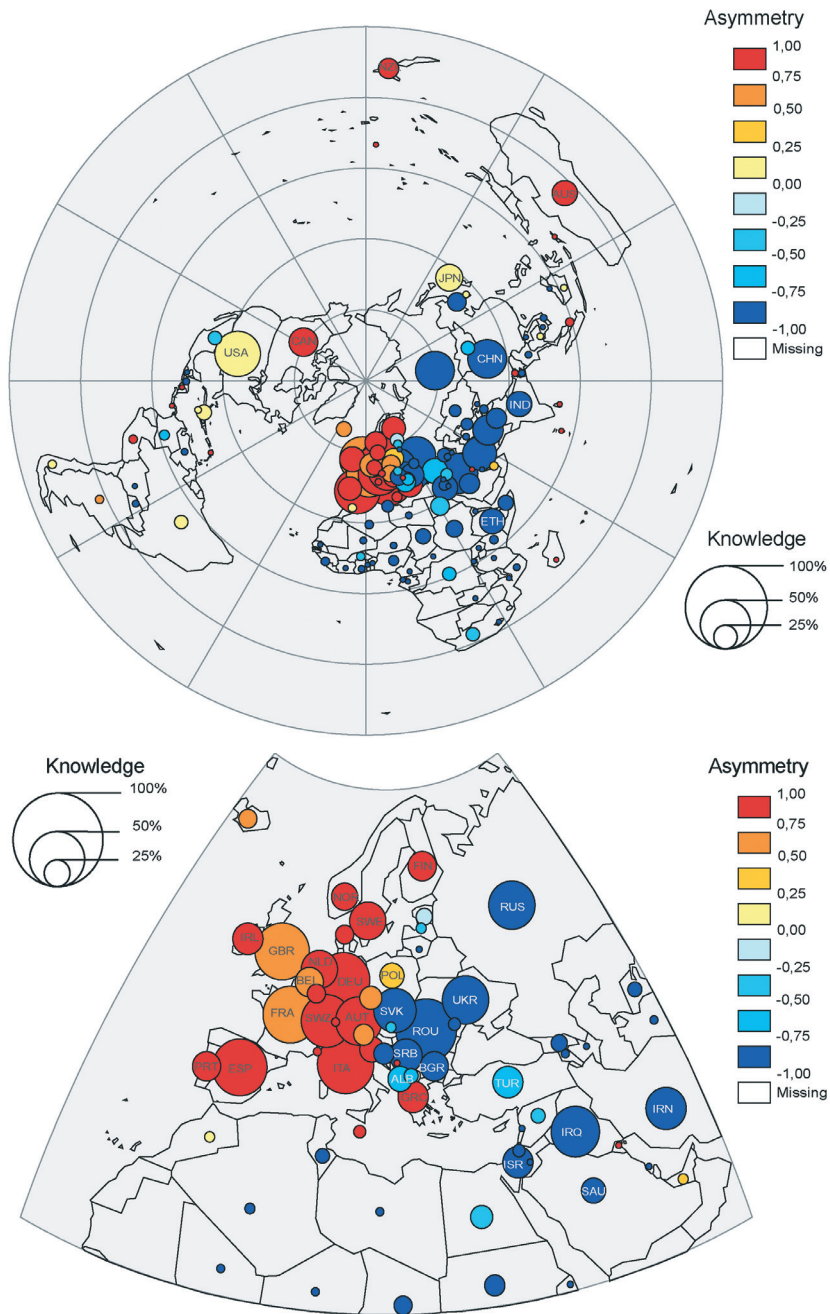
Map 3. Localisation of countries where student would like/not like to live in a near future (Hungary)

Negatively perceived areas:

– Russia, Balkans and Eastern Europe are frequently mentioned as negative perceived areas of the World. Most of Hungary's neighbouring post-socialist countries like Slovakia, Romania, Ukraine and Serbia are quoted as less attractive countries. A negative perception is connected also to Bulgaria and Russia according to the results.

– Middle East is often mentioned but mainly in a negative way, in particular in the case of Israel, Iraq and Iran. Among the Islamic countries also Turkey is referred negatively, but with somewhat better values in perception.

– Southern Asia and Eastern Asia are generally mentioned mostly in a negative way, in particular China and India. Japan is a slightly positive exception, which was perceived rather positive than negative.

Areas rarely mentioned:

– Africa is relatively rarely represented among the mentioned countries, except Ethiopia, which is referred to somewhat more positively. The asymmetry of the vision is almost always negative concerning the countries of this continent.

– Central and South America are part of the World mentioned infrequently, especially small Central American countries are quoted rarely. The students' opinion on these countries is quite heterogeneous, some countries are perceived positively (e.g. Argentina, Peru), while some are mentioned in a negative way (e.g. Venezuela, Paraguay).

– Central and South-Eastern Asia are also places less mentioned by Hungarian students. The countries of this group are mentioned both positively (e.g. Malaysia) and negatively (e.g. Burma, Vietnam), however Central Asian countries have more frequently negative results concerning their mental perception.

Top 10 countries where Hungarian students would like/not like to live

The top 10 countries where Hungarian students declared they would like to live in a near future are, firstly, Mediterranean countries (Italy: 96 responses, Spain: 91 responses), followed by Great Britain (85), Switzerland (83), Germany (82), France (77), Austria (69), USA (56), Sweden (43) and the Netherlands (48). Looking at the variation by gender and domains of studies a slight divergence can be seen in the rank of the countries. Men answered German language countries more frequently, on the contrary Latin language countries (France, Italy, and Spain) were quoted as top countries to live by women. The top 10 countries where Hungarian students declared they would not like to live in a near future are firstly Romania (112 answers), Iraq (79), China (69), Ukraine

(68), Russia (63), Slovakia (58), Iran (50), Afghanistan (45), USA (45) and Serbia (36). It is interesting that USA figures both among the most and the least favored countries (*Table 1*).

Cities where students would like/not like to live in a near future

Typology of world cities according to Hungarian students

Considering the cities in terms of Knowledge and Asymmetry provide a better appreciation of their real importance in the vision of the world of Hungarian students (*Figure 11*).

Table 1. Top 10 countries where students would like/not like no live in a near future by gender and domain

| LIKE	Total	Gender		Domains					
		Male	Female	ART	BUS	ENG	HEA	POL	SHS
Students	244	126	118	40	40	40	44	40	40
Answers	1189	612	577	195	188	196	216	195	199
Mean	4.87	4.86	4.89	4.88	4.70	4.90	4.91	4.88	4.98
Top 10									
1	ITA	CHE	FRA	GBR	CHE	CHE	ITA	ITA	ESP
2	ESP	DEU	ITA	FRA	DEU	USA	ESP	AUT	FRA
3	GBR	ESP	ESP	DEU	ITA	AUT	DEU	ESP	GBR
4	CHE	ITA	GBR	CHE	AUT	ESP	GBR	CHE	ITA
5	DEU	GBR	AUT	ITA	GBR	SWE	AUT	DEU	DEU
6	FRA	AUT	CHE	ESP	ESP	GBR	CHE	FRA	USA
7	AUT	USA	DEU	AUT	USA	DEU	FRA	GBR	CHE
8	USA	FRA	USA	CAN	FIN	ITA	USA	NZL	NLD
9	SWE	SWE	NLD	GRC	SWE	FRA	NLD	CAN	PRT
10	NLD	CAN	IRL	IRL	CAN	NLD	BEL	NLD	AUT
NOT LIKE									
Students	244	126	118	40	40	40	44	40	40
Answers	1,198	620	578	196	192	197	216	200	197
Mean	4.91	4.92	4.90	4.90	4.80	4.93	4.91	5.00	4.93
Top 10									
1	ROU	ROU	IRQ	ROU	ROU	ROU	ROU	CHN	ROU
2	IRQ	CHN	ROU	RUS	UKR	IRQ	CHN	ROU	IRQ
3	CHN	RUS	IRN	UKR	IRQ	CHN	IRQ	IRQ	IRN
4	UKR	SVK	UKR	BGR	SVK	SVK	RUS	SVK	CHN
5	RUS	UKR	CHN	USA	USA	IND	UKR	UKR	SVK
6	SVK	SRB	RUS	SRB	AFG	AFG	IRN	USA	UKR
7	IRN	IRQ	AFG	IRQ	CHN	IRN	SVK	SRB	ETH
8	AFG	AFG	SVK	CHN	RUS	SRB	AFG	AFG	RUS
9	USA	USA	USA	TUR	IRN	ISR	TUR	IRN	AFG
10	SRB	BGR	TUR	AFG	ISR	GBR	USA	RUS	JPN

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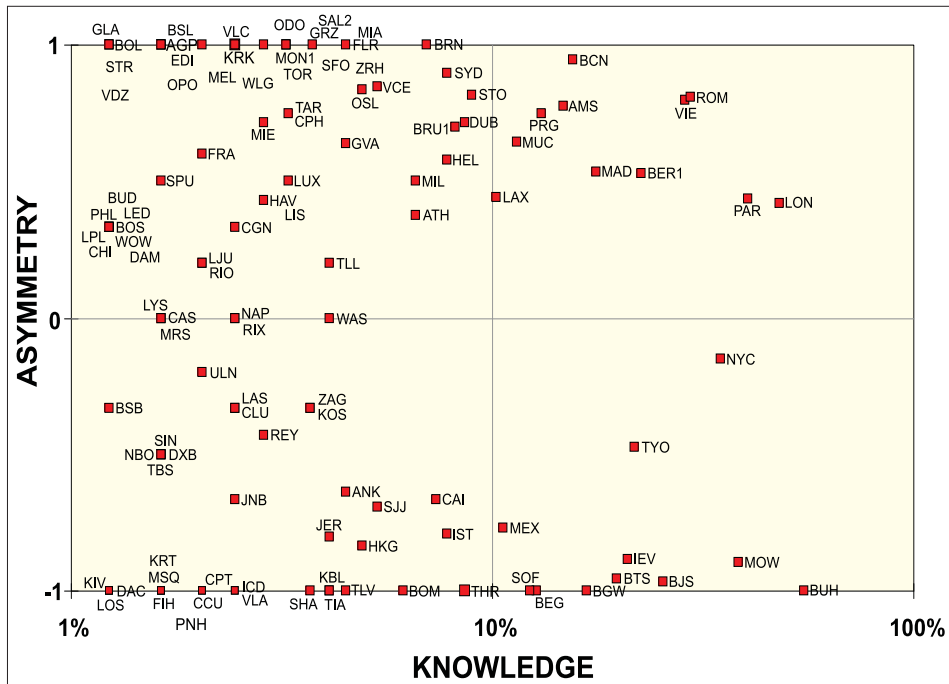
Fig. 11. Knowledge and asymetry in the perception of cities, where students would like/ not like to live (Hungary). – Abbreviations: AGP = Malaga; AMS = Amsterdam; ANK = Ankara; ATH = Athens; BCN = Barcelona; BEG = Belgrade; BER1 = Berlin; BGW = Baghdad; BJS = Beijing; BOL = Bologna; BOM = Mumbai (Bombay); BOS = Boston; BRN = Bern; BRU1 = Brussels; BSB = Brasilia; BSL = Basel; BTS = Bratislava; BUD = Budapest; BUH = Bucharest; CAI = Cairo; CAS = Casablanca; CCU = Kolkata (Calcutta); CGN = Cologne; CHI = Chicago; CLU = Cluj-Napoca; CPH = Copenhagen; CPT = Cape Town; DAC = Dhaka; DAM = Damascus; DUB = Dublin; DXB = Dubai; EDI = Edinburgh; FIH = Kinshasa; FLR = Florence; FRA = Frankfurt; GLA = Glasgow; GRZ = Graz; GVA = Geneva; HAV = La Habana; HEL = Helsinki; HKG = Hong Kong; ICD = New Delhi; IEV = Kiev; IST = Istanbul; JER = Jerusalem; JNB = Johannesburg; KBL = Kabul; KIV = Kishinev; KOS = Košice; KRK = Krakow; KRT = Khartoum; LAS = Las Vegas; LAX = Los Angeles; LED = St. Petersburg; LIS = Lisbon; LON = London; LOS = Lagos; LPL = Liverpool; LUX = Luxembourg; LYS = Lyon; MAD = Madrid; MEL = Melbourne; MEX = Mexico City; MIA = Miami; MIE = Miercurea-Ciuc; MIL = Milan; MON1 = Monaco; MOW = Moscow; MRS = Marseilles; MSQ = Minsk; MUC = Munich; NAP = Naples; NBO = Nairobi; NYC = New York; ODO = Odorheiu Secuiesc; OPO = Porto; OSL = Oslo PAR = Paris; PHL = Philadelphia; PNH = Phnom Penh; PRG = Prague; REY = Reykjavik; RIO = Rio de Janeiro; RIX = RIGA; ROM = Rome; SAL2 = Salzburg; SFO = San Francisco; SHA = Shanghai; SIN = Singapore; SJJ = Sarajevo; SOF = Sofia; SPU = Split; STO = Stockholm; STR = Stuttgart; SYD = Sydney; TAR = Târgu Mures; TBS = Tbilisi; THR = Tehran; TIA = Tirana; TLL = Tallinn; TLV = Tel Aviv; TOR = Toronto; TYO = Tokyo; ULN = Ulaanbaatar; VCE = Venice; VDZ = Vaduz; VIE = Vienna; VLA = Vladivostok; VLC = Valencia; WAS = Washington DC.; WLG = Wellington; WOW = Warsaw; ZAG = Zagreb; ZRH = Zurich

Major Degree of Knowledge and Positive Asymmetry: Vienna, Roma, Berlin, Paris and London are well known and positively perceived cities in the vision of the world of Hungarian students.

Within this category London is mentioned the most frequently by 117 students (48% of all mentioned this city). The highest proportion of positive answers is connected to Vienna, which obtain a positive asymmetry of +0.81, as well as to Rome with +0.80 asymmetry result. *Major Degree of Knowledge and Symmetry*: New York is a city, which is well known among students, but perceived very differently. The results show that just a bit more students dislike this city than like it.

Major Degree of Knowledge and Negative Asymmetry: Bucharest, Moscow, Beijing, Tokyo and Kiev are the most negatively perceived cities of the World according to Hungarian students.

Bucharest is the most frequently quoted city of all students; it is mentioned by 134 answers (55%). According to the results all the answers were negative concerning the perceptions of Bucharest.

The next most often mentioned city is Moscow, which has a negative asymmetry of -0.89, and Beijing, which is not preferred relatively by large proportion of the students that is reflected in the asymmetry result of -0.97. Tokyo is perceived better than the above mentioned countries, but still has significant negative asymmetry.

Medium Degree of Knowledge and Positive Symmetry: Barcelona, Stockholm, Amsterdam, Prague, Dublin, Brussels, Munich, Madrid and Los Angeles appear as a second level in terms of knowledge (mentioned by respectively 15–20% of Hungarian students). Barcelona is typically positively perceived by the students (+0.95), while Madrid is significantly less attractive but still positively perceived (+0.53).

Hungarian students generally feel Western European cities more attractive, the only East Central European city that was quoted as a favorable place to live is Prague with an asymmetry of +0.75. *Medium Degree of Knowledge and Negative Asymmetry*: Baghdad, Belgrade, Bratislava, Mexico City, Sofia and Teheran are known by 15–20% of the students, who mentioned them as cities, where they do not prefer to live.

Baghdad, Belgrade, Sofia and Teheran are cities, which were perceived negatively by all students, who mentioned them. Mexico City may have the negative asymmetry (-0.77), according to the students' opinion on the environment and the overcrowded neighbourhood, Baghdad and Teheran may be associated with political conflicts, while Bratislava can be perceived negatively (-0.96) because of recent years' unfavourable trends in the Hungarian-Slovak relations, which was reflected by the media. The results show that in a city's mental perception the preconception of the country it is located in can affect its attractiveness.

There is a significant relationship between the selection of cities and countries where students would like or not like to live in terms of asymmetry. As for the results of the cities also the western part of Europe is the most attractive, as well as the Mediterranean, while Eastern Europe, the Balkans and Asia is less favourable for students (*Map 4*).

Knowledge of states subsumed by a single city: 61% of the countries mentioned by Hungarian students are reduced to a single city. The perception of these cities appears as representative of their respective countries. Most cities of this group are mentioned only by few answers, namely 9 or fewer students quoted them. Those, which are mentioned by significantly more students, are mainly cities associated with typically negative appreciated countries like Afghanistan (Kabul), Albania (Tirana), Bosnia and Herzegovina (Sarajevo) or Egypt (Cairo). However, there are cities, which are single representatives of their country and have positive asymmetry like Helsinki in Finland or balanced asymmetry like Tallinn in Estonia. The result suggests that Hungarian students frequently perceive a city and its country in the same manner. *States reduced to several cities with different knowledge but equivalent asymmetry:* At least 2 cities are quoted in 40 countries (38%), however there are only 10 countries (9,8%), which are represented by 5 or more cities. From the group of states, which are assimilated to several cities, 18 cases are represented by cities with different knowledge but equivalent asymmetry. A stable positive asymmetry is connected to cities of Austria, Australia, Belgium, Canada, Denmark, Greece, Ireland, New Zealand, Norway, Portugal, Sweden and Switzerland. On the contrary all cities are perceived negatively from countries like China, India, Israel, Nigeria, Serbia, Ukraine and Vietnam. The knowledge of cities is mostly unbalanced in countries with several mentioned cities, with a dominant city and some alternative cities of second degree of interest. Exceptions can be however India, Israel, New Zealand, Portugal or Switzerland, where cities are mentioned quite the same frequently. *States reduced to several cities with variable asymmetry:* According to the dispersion of answers there are 22 countries, which are quoted by several cities but with variable asymmetry. These countries have large number of quoted cities (e.g. 12 in Italy, 12 in the USA, 10 in France), therefore it can easily happen that a city is perceived somewhat differently than the other ones across the country.

A rather positive asymmetry is connected to some large Western European countries, but all have at least one city that is perceived negatively or with almost zero asymmetry. France is basically positively perceived where the exceptions are Lyon and Marseilles. The same is the case in Italy, where Naples is perceived relatively worse than other cities. In Spain Seville is the only exception with zero asymmetry, while in the UK both Manchester and
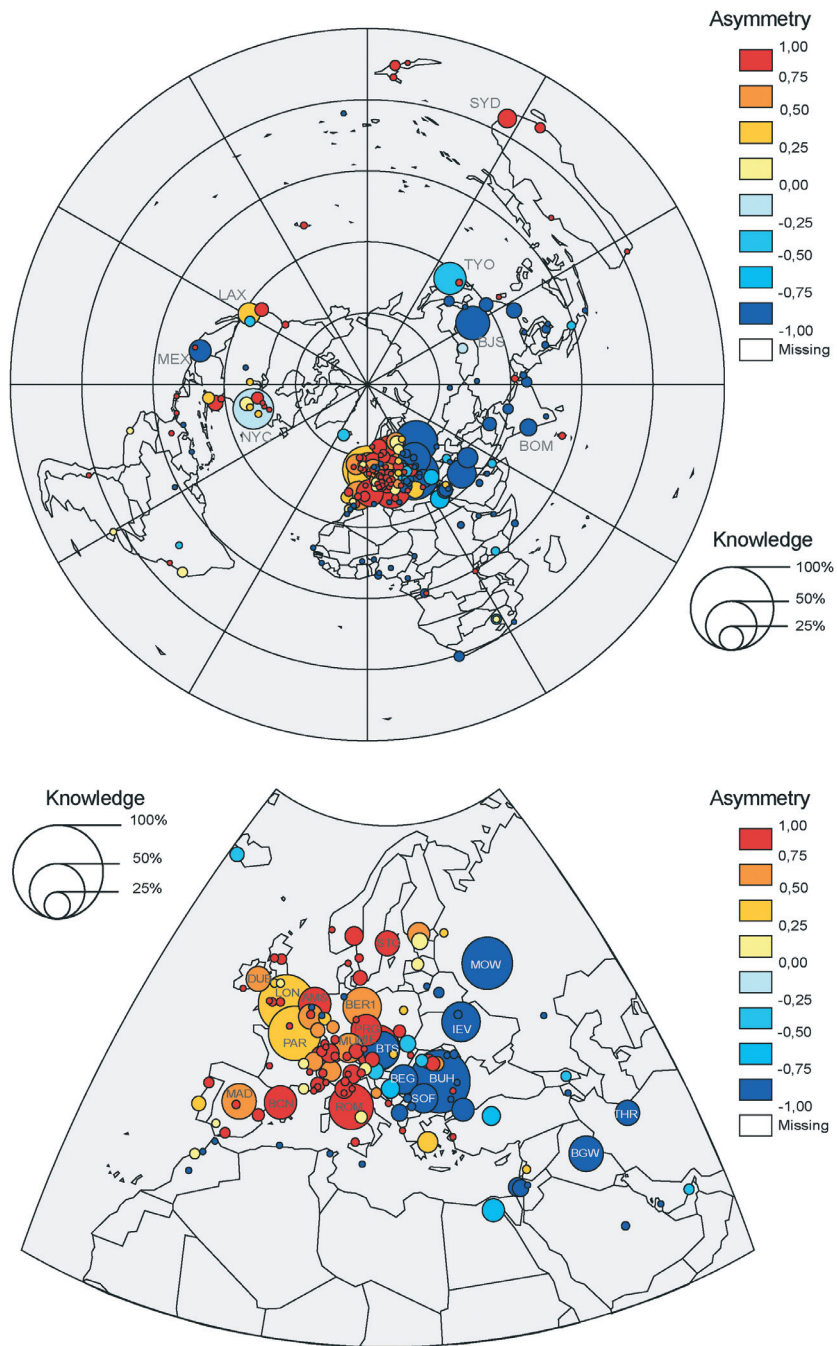
Map 4. Localization of cities where student would like/not like to live in a near future

Liverpool have balanced asymmetry. Other large countries have more diverse results: in the USA cities like Miami or Los Angeles are attractive for students, New York or Washington is balanced, while Kansas City is unfavorable. In Germany Berlin and Munich are mentioned positively, while Hamburg and Düsseldorf are evaluated negatively.

Another group of countries are largely negatively mentioned, having however some better perceived cities as well. That is the case in Japan, where Osaka is perceived positively, or in Bulgaria, where Varna as a holiday destination is a positive exception. In Russia only St. Petersburg is mentioned as a city perceived not negatively. Some countries have quite mixed picture of perception: in Romania cities with relatively high number of Hungarian minority are evaluated positively (Odorheiu Secuiesc, Târgu Mureş, Miercurea-Ciuc), others have balanced (Cluj-Napoca) or negative asymmetry results (Bucharest, Iasi). *Ignored Areas:* although resembling the results on the national level, the fact is worth mentioning, that only some cities of Africa, Central Asia, Central America or South America have reached a significant level of knowledge.

Preliminary analysis of words associated with Europe

Table 2. Top 21 words associated to Europe (Hungary)

	All students	
	Words	Frequency
1	culture	61
2	union	56
3	European Union	30
4	history	24
5	development	23
6	continent	19
7	diversity	17
8	home	17
9	Christendom	16
10	variety	16
11	unity	14
12	welfare	14
13	democracy	11
14	community	9
15	euro	9
16	old	9
17	old continent	9
18	civilization	8
19	togetherness	8
20	multicoloured	7
21	war	7

Hungarian students perceive Europe above all as a cultural, historical place, or as a political entity, which is represented in the frequently mentioned words like "union" and "European Union" (*Table 2*). If we sum up these two phrases, it seems that this is the first that comes to their mind when asked about Europe. Often mentioned words like "culture", "history", "old", "old continent" or "civilization" also reflect student's belief that traditional values are predominantly connected to Europe. The historical dimension can be observed in some fairly definite words like "Christendom" or "war" (thinking

on perhaps Europe's historical role in some large military conflicts). Words like "diversity", "variety", "multicoloured", as well as "unity", "community" and "togetherness" represent that they perceive Europe not as a non-homogeneous area, where a lot of different people has to understand each other. Some other phrases like "development" and "welfare" or "euro" connected with economic phenomena are mentioned also frequently, which is related to the perception of the quality of life.

Finally it is important to mention that students mostly quoted relative words, which they think mentally separate Europe from other parts of the World (like Africa, Asia or America). They think some of the words are more typical of Europe than of other continents.

Conclusions

According to the results presented here, the students' knowledge of different parts of the World bears a close relation to previous life experiences and travels. This is reflected in the fact that Hungarian students have typically mentioned neighbouring countries, as well as west European or Mediterranean countries they have visited. Based on these experiences the perception of the countries of the World in terms of "like" or "do not like" to live in can also be examined.

These results are reflected in frequent mention especially of West Central European countries (Austria, Switzerland, Germany), and countries of Scandinavia (Norway, Sweden, Finland) and the Mediterranean (Spain, Portugal, Italy, Greece), which are favoured by them.

The negatively perceived countries are primarily Hungary's neighbouring post-socialist countries like Slovakia, Romania, Ukraine and Serbia, or countries from the Middle East and Asia. Cities give a similar picture of the world as perceived by Hungarian students. London, Paris, Vienna and Rome are the most quoted cities in a positive way, while Bucharest, Moscow and Beijing are perceived negatively.

Main findings on global level

As mentioned previously, this survey was made not only in Hungary, but also in several other countries of the World. Some interesting global findings should be therefore worth to mention.

Concerning the family background: if the father had a low level of education, the frequency of student mobility was low. On the other hand, if the family background was much better, it provided greater opportunities for

mobility. Speaking about the family's national origins, typically 3 or 5% of the answers mentioned living longer in a country other than home. In Scandinavia 40% of students already lived longer in another county.

The results also reflected that 52% of participants never lived in a different state. The students have different relations to countries where they have lived. As an answer on the level of belonging 38% of the students declared stronger connections to national level, 22% to global level and 10% to supranational level.

There were no significant differences among the answers given by urban and rural residents. It is interesting that students who had lived several countries or had wide mobility, like in Sweden, showed the highest local feeling in rank.

Neighbourhood effects show a universal view: we know but do not like each other. The distant geographical regions are more attractive. If the student speaks one language his or her belonging is bound to stick to the national level. 20% of the students noted only one language, but over half of them more than four languages. In terms of gender the mental perceptions of females appear to be more global.

From asymmetric variables we are able to make some conclusions regarding perceptions. The preferred countries are situated in a geographically concentrated manner. The preferred countries are typically rich, enjoy good social benefits, are not far, and speak the same language. The large countries are more attractive than the smaller ones.

Ranking the countries by their global connection, those that are at the top, such as Turkey, Azerbajdian, Egypt, Brazil, Russia, all have had large diasporas.

The cities according the scale of belonging can be grouped into several types: global local mix, (Coimbra), local (Dakar, Stockholm), infranational (Beijing, and all Chinese cities), national (Moscow, all other Russian cities, Budapest, Delhi, Bangalore, Leuven, Liège). In scale of belonging the languages are playing a determining role. It was verified that English is on the second place after the mother language.

Visions of Europe according to the domain of study generally indicated a negative vision, frequently mentioning racism, xenophobia, terrorism. Among students in business studies integrative words like economy, commission, rich, sports, slow prevailed, those in political sciences liberalism, democratic, war, Christianity, cooperation dominated. Among students in human science wellbeing, power, colony, polluter, civilization, were frequently referred.

On health the answers were differentiated. On engineers idealistic words like Coco Channels or Eiffel tower were mentioned. The students with high mobility typically cited: diversity, Schengen, exchanges, history, culture and expressions.

Local view

This survey made it possible to draw a picture of how Hungarian students see the World and Europe mentally. In most of the variables Hungary was ranked in mid positions. The surveys presented some interesting results, in regards to how the students identify themselves when their respective experiences of the World are taken into consideration. Concerning their spatial history only 3% of the students surveyed are not born in Hungary, therefore they rather collected experiences of the World by traveling to foreign cities. Hungarian students have quoted an average of 4.52 visited countries, which are typically the neighboring countries, as well as West-European or Mediterranean countries. There are large areas in Africa, South America, and South Asia or in Oceania, which are unknown as countries of experience.

Another interesting result regards the spatial level Hungarian students identify themselves as the preferred level of belonging. According to the answers a large majority of Hungarian students declare that their first level of belonging is the "national" level (43.7%), while the second most frequent answer was the local level (22.3%).

The students' vision of the countries of the world, in terms of "like" or "not like" to live in, reflects some interesting geographical consequences. The most preferred countries to live in are located in Western Europe. The students mentioned especially West Central European countries (Austria, Switzerland, Germany), and countries of Scandinavia (Norway, Sweden, Finland) and the Mediterranean (Spain, Portugal, Italy, Greece), which are favorable for them. Some developed countries far from Hungary are also among the possible living destinations (Canada, Australia, and New Zealand). The negatively perceived countries are primarily Hungary's neighbouring post-socialist countries like Slovakia, Romania, Ukraine and Serbia, or countries from the Middle East and Asia. In the background of negative perception in many times the relation to political affairs and conflicts could be identified, as well as the negative attitude in the neighbouring countries to Hungarian minorities living there in a relatively large number.

There is a significant relationship between the selection of cities and countries where students would like or not like to live. As for the results of the cities also the Western part of Europe is the most attractive, as well as the Mediterranean, while Eastern Europe, the Balkans and Asia is less favorable for students. Most of the countries mentioned by Hungarian students are assimilated to a single city, mostly the capital, but there is a significant number of countries, which have more than one city mentioned, and not always with the same sympathy. In Romania for example cities with relatively high number of Hungarian minority are evaluated positively, while others are not. In Germany Berlin and Munich are mentioned positively, while Hamburg and Düsseldorf are evaluated negatively.

The word analysis about the perception of Europe reveals that Hungarian students perceive Europe above all as a cultural, historical place, or as a political entity. They mention also words connected to traditional values or the perception of the European quality of life.

REFERENCES

Downs, R.M. and Stea, D. eds. 1973. *Image and Environment: Cognitive Mapping and Spatial Behavior*. Chicago, Aldine Publishing Co.
Gould, P.R. and White, R.L. 1986. *Mental Maps*. Winchester, MA. Allen and Unwin.
Henrikson, A.K. 1979. All the World's a Map. *Wilson Quarterly,* Spring. 164–177.
Lynch, K. 1960. *The Image of the City*. Cambridge, MA. MIT Press
Saarinen, T.E. and MacCabe C.L. 1995. World patterns of geographic literacy based on sketch map quality, *The Professional Geographer,* 47. (2): 196–204.
Wright, J.K. 1966. Map makers are human, Chapter 3. In *Human nature in geography,* Ed.: Wright, J.K. Cambridge, Harvard University Press, 33–52.

Hungary in Maps

Edited by
Károly Kocsis and Ferenc Schweitzer

Geographical Research Institute Hungarian Academy of Sciences
Budapest, 2009. 212 p.

'Hungary in Maps' is the latest volume in a series of atlases published by the Geographical Research Institute of the Hungarian Academy of Sciences. A unique publication, it combines the best features of the books and atlases that have been published in Hungary during the last decades. This work provides a clear, masterly and comprehensive overview of present-day Hungary by a distinguished team of contributors, presenting the results of research in the fields of geography, demography, economics, history, geophysics, geology, hydrology, meteorology, pedology and other earth sciences. The 172 lavish, full-colour maps and diagrams, along with 52 tables are complemented by clear, authoritative explanatory notes, revealing a fresh perspective on the anatomy of modern day Hungary. Although the emphasis is largely placed on contemporary Hungary, important sections are devoted to the historical development of the natural and human environment as well.

In its concentration and focus, this atlas was intended to act as Hungary's 'business card', as the country's résumé, to serve as an information resource for the sophisticated general reader and to inform the international scientific community about the foremost challenges facing Hungary today, both in a European context and on a global scale. Examples of such intriguing topics are: stability and change in the ethnic and state territory, natural hazards, earthquakes, urgent flood control and water management tasks, land degradation, the state of nature conservation, international environmental conflicts, the general population decline, ageing, the increase in unemployment, the Roma population at home and the situation of Hungarian minorities abroad, new trends in urban development, controversial economic and social consequences as a result of the transition to a market economy, privatisation, the massive influx of foreign direct investment, perspectives on the exploitation of mineral resources, problems in the energy supply and electricity generation, increasing spatial concentration focused on Budapest in the field of services (e.g. in banking, retail, transport and telecommunications networks), and finally the shaping of an internationally competitive tourism industry, thus making Hungary more attractive to visit.

This project serves as a preliminary study for the new, 3rd edition of the National Atlas of Hungary, that is to be co-ordinated by the Geographical Research Institute of the Hungarian Academy of Sciences.
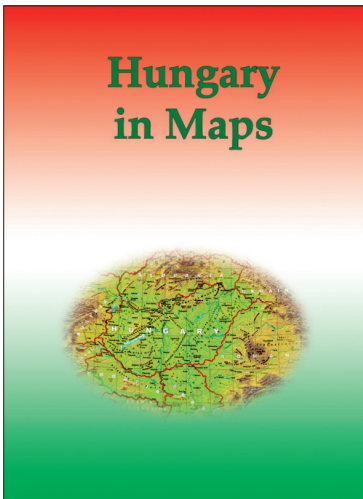
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