A general overview of the applied research methods

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This chapter introduces the various research methods applied in our analysis. We consider it important to devote a separate chapter to methodology since it is highly important to give a deep and comprehensive explanation to the reader. The chapter includes three different research methods, two qualitative and one quantitative approach. The former includes ‚semi-structured in-depth interviews' and ‚mental mapping', while the latter includes ‚traffic counting and questioning of the drivers, passengers and cyclists'. The description of the qualitative methods is shorter since the research methods applied here do not need any long explanation. On the other hand, the clarification of the quantitative research approach is more extensive and lengthy because it gives the reader a thorough description of the implemented research that included traffic counting and a questionnaire survey in Štúrovo and Esztergom. To be specific, it clarifies the organisation of the research; preparation of the students; location and implementation of traffic counting; general parameters of the questionnaire survey; the survey data sheet and data processing; faulty and incomplete data sheets; and the general lessons learned and other minor aspects of the research process.

1. Semi-structured in-depth interviews

The development of economic relations can be relatively well-traced through statistical indicators (if they are available, of course), yet this is only partly true for social, psychological and institutional processes. These processes are more difficult to map, examine and interpret clearly through quantitative indicators. Qualitative methods prove more useful in such analyses.

The main pillar of this qualitative approach was embodied by the sequence of structured interviews where the respondents are stakeholders of the EGTC region; political, social, or economic authorities with an overview on institutionalised cross-border relations as well as on spontaneous interactions through their daily work. From the realisation of these interviews, we expected to get a comparable longitudinal picture on the temporal development of the region's cross-border relations, on the main trends of certain shorter periods, as well as on the specific goals, motives, results and problems of different spheres regarding cross-border interactions. The ultimate objective is to outline a complex picture on the

frame of cross-border partnerships, the intensity of interactions, and on how the intensification of these interactions created new needs to implement changes in the actual frames.

We placed a special emphasis on the information retrieved from semi-structured in-depth interviews, which reflect on the role of an institutionalised cross-border cooperation initiative, in this case the Ister-Granum EGTC, in the region's everyday life. Additional focus is placed on the extent to which the two urban centres of the border area, Esztergom and Štúrovo, can provide the necessary political-authoritative background for institutionalised cooperation.

The interviews were conducted between April and June 2014 in the Ister-Granum region, with a focus on settlements that were indeed active in cross-border interactions. Consequently, as a matter of course, regional actors living or working in the direct neighbourhood of the border are somewhat overrepresented. Nonetheless, we intended to compose a list of respondents to achieve as wide a coverage as possible.

We endeavoured to interview local and regional actors with a deeper insight into cross-border interactions, through either their full-time position or their voluntary work, and who are even personally involved in such interactions. A total of 25 interviews with 26 stakeholders were conducted (one interview involved two respondents).

Despite the fact that respondents represent substantially different social and economic spheres, and thus conversations covered diverse subjects, we aimed to conduct the interviews alongside the most uniform structure possible to provide comparability. Indispensable content elements were the following: introduction of the respondent's professional experience; relevant cross-border activities and partners from across the border; basis, circumstances and purposes of cross-border interactions they are aware of; the effects of social and economic changes in recent years (reconstruction of the Mária Valéria bridge, accession to the Schengen area, the adoption of the Euro in the Slovak Republic); pull and push factors for cross-border social and economic relations; as well as the respondent's own ideas, innovations, views and concerns about the enhancement and improvement of cross-border relations.

2. Mental mapping

Mental mapping is the second qualitative research approach applied. This method of behavioural geography is based on the mutual influence of one's perceptions, use of space and the area of interaction; subsequently, it can redraw the images of the geographical environment in our mind and imagination, hence these mental and image changes might affect the understanding of different dualities, like proximity/distance and friendly/strange spaces.

The process of mental mapping included a paper-based survey that tried to figure out the possible replies to several questions aimed at giving a clear picture about understanding of the neighbouring country, the depth of geographical knowledge, travelling habits and reference points about it. Moreover, the questions were accompanied by free recall (map drawing on a white paper), while in the online survey, the respondents indicated the places on an outline map.

Furthermore, the so-called position generator method was applied to measure the cross-border relationships of the respondents. To be specific, the respondents were asked to express their location knowledge, i.e. they indicated people with professions whom they know on the other side of the border, and they also indicated favourite locations out of the listed service-types and locations (town, village) in both countries. The third component of the research was embodied by language skills. To be specific, mental proximity is indicated by the extent to which the residents speak the neighbouring language. There are several ways to measure language skills and knowledge and the qualitative study and mental mapping applied two of them.

On the one hand, we recorded the language skills of the respondents. This part of the research aimed to get a picture about spoken and used languages. On the other hand, the basic vocabulary, needed for orientation and understanding in the neighbouring country during short periods of stay, was explored. The basic foreign vocabulary can be acquired by natural language learning, e.g. expressions like railway station, main square, town hall, ice cream parlor, pharmacy, etc. The exploration of language knowledge and visual recognition allow us to figure out the extent to which the respondents can recognise the reference points in the neighbouring country, even if they do not actively or passively speak that language. The results of this method held no obvious surprise, Slovakia and Hungary are visually similar, and their reference points were recognised by the

respondents from both countries even if they did not speak each other's language at all (they were not even familiar with the basic and everyday vocabulary on a passive level). This might seem trivial to those familiar with the two countries, but we must point out that this measure was conceived to measure the cognitive distance between any pair of countries.

3. Traffic counting and the questioning of drivers, passengers, and cyclists

The methodological implementation of the quantitative research was performed in two steps. The survey research was undertaken in the summer of 2014; subsequently, the results of the survey were controlled by a later survey organized under the same conditions in the spring of 2015. Assuring the participation of the students was unproblematic.[1] Students who had registered themselves on the research were contacted as soon as possible.[2] Regarding the financial possibilities of the research, the survey was launched with the participation of 10 students. They were assigned multiple duties and tasks during the field research, and in the end, all these duties and tasks were carried out. Since the field research took place relatively far from their university, the participating students were accommodated in a dormitory in the city of Esztergom.[3] Moreover, Ister-Granum EGTC suggested that their relations and contacts in the city of Štúrovo should be utilized, thus local secondary school students could also be involved in the survey.[4]

The first survey research was launched in early July, immediately after the university exam session (specifically, on 7th July 2014), while the second survey research was conducted in early spring of the following year. Police assistance was provided for *four* days. Two Slovak police officers on duty

1 We had indicated our aim to conduct a survey research to our university colleagues who coordinated the field research domains. The field research received curricular classification, a code, and it was published on the university grading internal webpage to inform students about it.

2 Students had been initially informed about the details of the research. Immediately before the field research, they had been sent a circular letter informing them about the most important information.

3 Students were accommodated in Kőrösy Dormitory in Esztergom during both field research periods. It goes without saying that students who live close to the survey location were also given the possibility to apply, but without the need to ask for accommodation.

4 Two college students actively participated in the first survey research as part of their summer jobs.

were also directed to the Slovakian location of the field research in such a way that they are easily redirected in case of emergency.

3.1 The traffic counting

3.1.1 The preparation of traffic counting

There were no serious difficulties in organizing and planning the *traffic counting*. The following tasks were identified regarding this part of the research:

a. providing appropriate location for the traffic counting
b. ensuring suitable survey design and data sheets
c. designing spreadsheets for data processing
d. ensuring an adequate number of students, their preparation and management

3.1.2 The location of traffic counting

The Mária Valéria bridge was opened in 1895. Unfortunately, it suffered so much damage in both World Wars, that it could no longer perform its original function. The bridge has thus undergone two repair works. The first reconstruction took place after World War I, starting in 1919 and finishing only in 1927. The second reconstruction, aimed at repairing the damages of World War II, was finished in 2001. The bridge thus has been effectively serving the region and its inhabitants for more than a decade now. It provides an east-west crossing route on the Danube river. More precisely, the axis covers a slight west-northwest/east-south-east direction (see ***Figure 1*** and ***Figure 2***). From a broader perspective, it is clear that the bridge plays a key role in the north-south and north-west and south relations, given the connections of the capital city with the Hron Valley and with the centres that are located on the left bank of the Little Hungarian Plain.

The environment of the bridge has changed radically since its construction as the current urban settlement structure of Esztergom and Štúrovo is significantly different from that of the late 19th century. What remained unchanged is the fact that neither city centre is directly connected to the bridge. Hence, the bridge is located at an intersection that directs traffic towards and/or out of the cities (see ***Figure 3***).

Figure 1: The location of the Mária Valéria bridge between the two towns

Figure 2: Inner cores of the two cities and the location of the bridge

Figure 3: The two town centres and the environment of the Mária Valéria bridge

It needs to be underlined that the current physical and functional centre of the city of Štúrovo is located near the bridge, but the two are connected only through a T-shaped intersection and through its built infrastructural environment. On the other side, the bridge is embedded into a special settlement structural belt. Repair works caused a dramatic change in the traffic structure of Esztergom.[5]

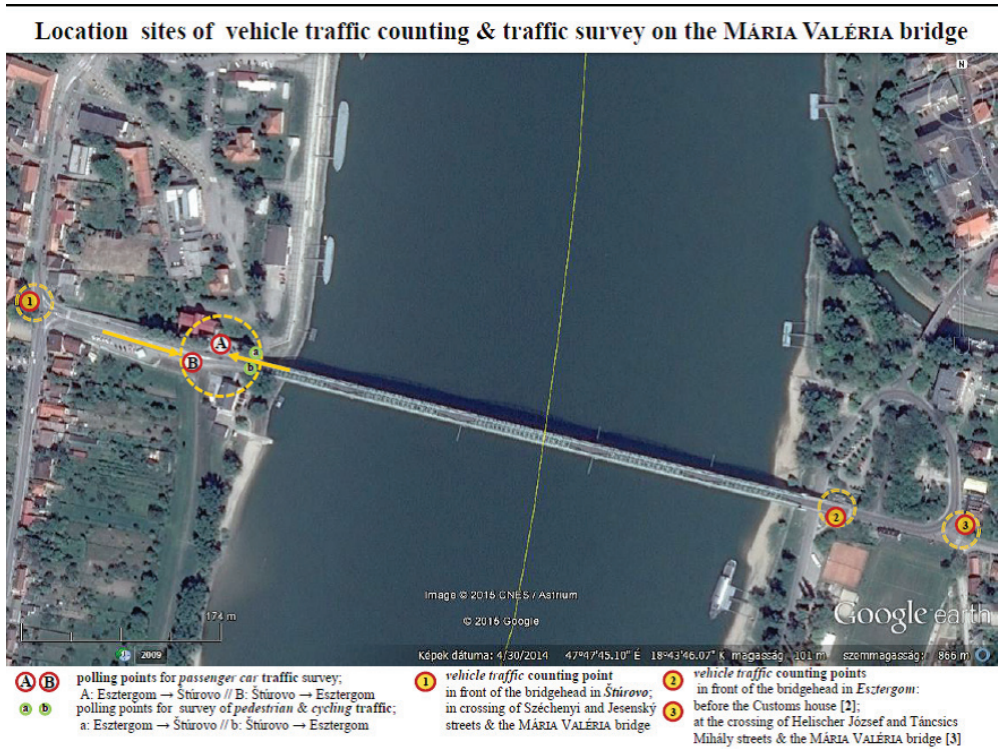
The bridgehead on the Štúrovo side had been expanded, originally for the sake of border control facilities and buildings. Upon joining the Schengen area and the opening of borders in 2007, these facilities have been

5 Road closures by the city of Esztergom between the bridgehead and the city centre in 2008 generated a profound 'internal conflict'. This decision was made to ease the traffic burden on high-traffic intersections in the city. This traffic limiting decision and the outsourced concrete elements became the symbols of interest clashes and conflicts in Esztergom. The immediate results of this traffic limitation had a direct influence on some internal traffic routes and settlements like those along route 11 (Pilismarót – Visegrád – Szentendre) and those north of Esztergom. As a result, the first binding decision of the City Council that took office after the elections in 2014, was the immediate withdrawal of this traffic limitation.

removed, allowing a larger ***Figure 3***, a) and a smaller (b) space to become a parking space. The former administrative building, located to the North of the bridgehead, currently operates as the local tax office of Nitra District (c). Moreover, a tourist hostel was also built here, to the South of the Štúrovo bridgehead, after the war (d).

On the Esztergom bridgehead, there are two buildings. One of them is a nicely restored and reconstructed customs house (e), where an exhibition has been installed presenting the history of the bridge. The other one, built in the ‚broken bridge' era, used to serve as a nightclub, now it functions as an exchange office and public toilet. However, it is important to note that the abutment of the bridge in Esztergom is much narrower, hence there are no dual carriageways as in Štúrovo. The first round of the survey and traffic counting, with the presence of Slovak police officers, was organized near the parking space on the Štúrovo side.

Figure 4: The research locations



3.1.3 Categorisation and triple criteria of traffic counting

We compiled the questionnaire survey based on the principle of triple criteria of traffic counting: quarter-hour time frames, vehicle type and direction. The participating students were asked to record the required information and to summarize and quantify data on the traffic on Mária Valéria bridge. The categorisation of vehicles was smoothly performed. Vehicles were grouped into 5 well-distinguished categories during the first survey, while we used 6 vehicle categories during the second survey.[6]

3.1.4 Data processing of traffic counting

Data was processed in MS Excel sheets with regard to the triple criteria of traffic counting. To minimize and avoid mistakes, the three entries (time/category/direction) were set automatically. The same method was applied for time, category and direction summarisations, as well as for the daily summarization. Each student had to register their survey by submitting its number code.

3.1.5 Preparing the students for traffic counting

Initially, two or three students were to take three-hour long turns counting traffic between 8.00 and 20.00 every day. The preparation of students was a smooth and easy process. It included the introduction of the survey sheet and the clarification of vehicle categories. They were asked to only count vehicles crossing the bridge, therefore vehicles in the parking space or those not crossing the bridge entirely were not recorded in the survey. Further aspects of the research were also clarified, like the order of substitution and general precautions in case of any accident or sickness (with special

6 The categorization *of passenger cars* was unproblematic. In the case of the separate categorisation of *minibuses* and *buses*, we relied on their length and size as well as on their visible capacity. The latter category included vehicles with a capacity of over 30 persons. Our experiences from the first survey confirmed the need for one more vehicle category: the category of *vans* included vehicles with a closed structure, thus not adequate for passenger transport, and of an axle load below 3.5t. The category of *motorcycles* was also clear. The category of *special* vehicles involved vehicles for specific purposes, e.g. fire brigade, police and ambulance vehicles, though the latter two were not permitted to cross the borders or had a limited crossing permit. Furthermore, the category included trucks that crossed the borders despite exceeding the weight limit, vehicles with advertisements and promotions, and the sightseeing "trains", which run on schedule in the high season between the two cities' main tourist centre, as well as agricultural machines that crossed the bridge.

focus on clothing: visibility vest, hat and sunglasses against sunstroke, jacket against rain etc.).

3.1.6 The implementation of traffic counting

It is important to underline that not all prepared students participated in traffic counting eventually. The task proved to be easy; nevertheless, it was very exhausting, thus students were given certain freedom in modifying shift duration, by extending or shortening the time they spent counting. The monotony of traffic counting made their task rather demanding, but it was the weather that posed the biggest challenge. With sufficient drinking water supply, hot weather was much easier to tolerate than the cold in the mornings and evenings of March 2015.

The prior assumptions about the location selection of traffic counting proved to be correct, however, the *locations* originally selected were modified several times, either on the students' request or based on previous experience.

The first identified traffic counting location was in the parking space of the former border police directorate, now functioning as a car and technology collection, at the bridgehead on the Štúrovo side (see ***Figure 4***; ①). This is the location where the bridgehead and the adjacent crossroads are fully available for surveying. However, the survey was seriously hindered by the heavy traffic passing by the surveying students, thus it was hard to distinguish vehicles that actually wanted to cross the bridge from those only seeking parking space. Subsequently, it became immediately clear that the initial idea of recording the route of the vehicles (whether they turn to the right or to the left upon crossing the bridge, or whether they reach the bridge from the left or from the right) was only possible with the eager attention and cooperation of two students; however, we did not have enough students for this additional traffic counting task.[7]

As a result, the traffic counting position was relocated to the Hungarian area from the Slovakian one, where further surveying was thus not conducted. The customs house became the new, more suitable location for traffic counting, with proper shadow conditions for the students (***Figure 4***; ②). This traffic counting location was automatically approved for the second survey. During the spring survey in 2015, we suggested the slight relocation of the traffic counting location, approximately 30–40 metres further

7 The presence and interests of tourists in Slovakia was another hindering factor for the survey team.

away, in front of the parking space of a restaurant, due to better shadow conditions (***Figure 4***; ③).

Most of the students did a very good job. After the launch of the second survey, it was suggested that the starting time of the survey should be 6am instead of the original 8am, so that early workers who cross the bridge in the morning are also recorded. It was approved and as a result, the ending time of the survey was also modified so traffic counting finished at 6pm instead of 8pm every day. Certain unfortunate situations also need to be mentioned: there was a problem during data summarization on one day of the first survey, and the last day of the second survey was rather chaotic.

Moreover, students were requested to report every day on their feelings and their experiences about events and happenings that could not be recorded in the survey but could be important regarding the border-crossing phenomenon. For example, the presence of police officers caused some vehicles that had indicated to cross the bridge to suddenly change their direction and not cross the bridge. This event was recorded in the case of some special vehicles.[8]

3.2 The questionnaire survey

3.2.1 The preparation of the questionnaire survey

This part of the research included the surveying of vehicle passengers to reveal the features of border crossing. The tasks were the following:

a. finding the appropriate location for surveying
b. identifying general parameters and questions of the survey
c. designing of the questionnaire survey
d. designing spreadsheets for data processing
e. ensuring the adequate number of students, their preparation and management

8 At the beginning of the traffic counting on 7th July 2014, a truck accidentally drove to the bridge from Štúrovo, despite the existing traffic ban on big lorries. This incident caused a minor accident, and the investigation by the police temporarily slowed down traffic on the bridge.

3.2.2 Location of the questionnaire survey

The initial conditions of traffic counting were affected by the presence of police officers, and the survey too had to be adapted to these changed conditions. The presence of Slovak police officers posed limitations for the questionnaire survey, i.e. it could only be conducted at the Slovakian bridgehead. As a result, the survey location was automatically relocated (see ***Figure 3***, ***Figure 4***). Vehicles arriving from Esztergom were surveyed in the parking space before the tax office (***Figure 4*** A), while vehicles from the opposite direction were surveyed in the immediate vicinity of the bridge (***Figure 4*** B). Questioning of the drivers on these locations did not cause any traffic disruption.

3.2.3 General parameters of the questionnaire survey

The general parameters of the questionnaire survey had to be divided into two parts. One formula was used for pedestrians and cyclists, and another formula was used for vehicle drivers. These two types of surveys were implemented on different conditions thus their separation was an appropriate methodological approach. These questionnaire formulas differed in the following:

- the way of addressing and stopping the identified people/passengers,
- different time frames that are available for the questionnaire survey.

To be exact, vehicles could not be stopped without the presence of police officers and surveying was conducted in a *very* limited time frame to avoid traffic disruption in the direct vicinity of the bridge. On the other side, passengers and cyclists could be stopped according to their willingness to participate in the questionnaire survey, thus the result of their questioning varied from case to case.

It became immediately clear that the vehicle passengers[9] will be the priority subjects of the questionnaire survey. Nevertheless, we tried to design questionnaire surveys with common components. Accordingly, we first drafted the questionnaire for vehicle passengers and then this questionnaire was modified for the surveying of pedestrians and cyclists.

9 As regards the special difficulties of the survey, more valuable results were given by the vehicle passengers.

A) The questionnaire survey for vehicle passengers

The primary criterion of the questionnaire survey was that it should be done by an experienced interviewer and it should not take more than 5 minutes. This time frame directly limited the number of questions in the survey. Moreover, it was necessary to clarify the format of the collected data, their structuring, summarisation and sequence. The most suitable method was to design five questions in order not to exceed the time frame. This closed structure of questions was mixed with open and half-open questions, which required individual and longer explanations.

I. The basic question of the questionnaire survey was: *What is the actual destination of passenger(s) who cross the borders?* At this point, there were four possibilities: besides Esztergom and Štúrovo, Budapest was another destination on the list. Including Budapest in the survey was reasonable since it is close to Esztergom and to the border region and therefore it plays a unique role in the lives of inhabitants in the region. The general geographical and settlement conditions of the Slovakian region do not involve any settlements on the Slovakian side that have a similar role and position that Budapest does on the Hungarian side. The fourth entry was the other category, which was further specified by the respondent. At this point, we were curious whether this category included a village or a settlement in the Euroregion (either in the Hungarian or Slovakian part), or a settlement that could be classified as *another* geographical group.

To avoid confusion, we had to come up with the easiest questions possible. The question, ‚*Where are you travelling*', was amended with the expression ‚*which settlements*'. The *essence* of the question was indicated in brackets ([final destination of the journey]) that primarily helped the task of the interviewer. These steps were necessary because:

i. only one answer could be accepted;

ii. to avoid any misunderstanding, it was necessary to clarify the settlement in question, either the final destination or the one in which surveying took place.

II. The second question was about the *reason* of the 'actual' journey during which the passenger was stopped and surveyed. At this point, the general reasons of border crossing were grouped into seven categories of answers, with a sequence that indicates priorities (job; shopping; administrative affairs; business administration; healthcare; entertainment, leisure, culture; visiting relatives). These categories were designed to fulfil two functions. On the one side, to give a picture and structure of the everyday border crossing network in the Euroregion. On the other side, to prepare a quick survey with the shortest thinking and completion time possible, and to avoid the impression that questions may violate the rights of passengers.

Cross-border shopping is one of the strongest and most important local networking elements due to its general effects on market and relations.[10] Accordingly, the category of shopping had three subcategories (shopping mall; shop; market). Thus, the questionnaire was multi-choice. The ‚other' category was the eighth option in this question.[11]

III. The third question addressed the *frequency* of border crossing. This question was drawn up as a closed question. The possible answers were categorised into four groups with two sub-groups each, so passengers could choose from eight options. With the extra answer, 'I have crossed the border for the first time this year, which was a separate answer chosen predominantly by tourists, there were a total of nine possible answers. The first two possibilities involved passengers who use the bridge on a regular and daily basis. The second two answers were for those who often use the bridge. The third group contained the answers of passengers who either regularly or irregularly, but more rarely use the bridge. Finally, the fourth group[12] was chosen by passengers who use the bridge casually.

IV. The fourth question asked about *further* settlements that the passengers usually visit when they *cross* the border and the Mária Valéria bridge. In other words, this question clarifies the 'alternative destinations' of border crossing. The question itself was not very simple: "In case you do not (given in the 1st question) travel to any settlements, which are the settlements that

10 TESCO, Praktiker in Esztergom, the market, and the attractive effect of the big market on Monday – Wednesday

11 It appears that it would have been appropriate and logical to include a ninth possiblity, 'travelling home'.

12 The answer 'six times a year' turned out to be the least chosen one. It may be due to the fact that this subgroup required a fast counting of yearly border and bridge crossings, thus other choices seemed more appealing, faster and easier for the passengers.

you often/generally visit by crossing the Mária Valéria bridge?' We gave 10 options that seemed enough for this question.[13]

V. The last (complex) question addressed the nature and extension of a cross-border network of relations. "Do you have relatives/friends/professional relationships on the other side of the border? If so, where do they live?' An extra option, ‚none' was also given besides the above. In case of a positive answer, we asked passengers to give an explanation and list their cross-border relations and tried to clarify their extension as it was given based on the previous question.[14]

It is important to note that the part "other side of the border' of the question was formulated so as not to confuse the passengers for their actual location (e.g. on their way home) and their concept of ‚the other side'. To be specific, the notion "other side' implied the area separated from their permanent residence by the border. Perplexity was inevitable when the permanent residence of the passenger was not clarified at the beginning of the survey.

Personal data of the respondent

We relied on the most important personal information to process the survey successfully. It included six data of different importance:

- **Residence** – it is of primary importance and required to process the survey.
- **Gender** – may be given afterwards by the interviewers. Missing data on gender only allows limited evaluation.
- **Age** – if the passenger did not answer this question, interviewers were permitted to enter their assumptions. We put forward *six* categories with an expanded middle age group (under 20; 21–35; 36–50; 51–65; 66–70; over 70). Data on age was not indispensable to process the survey.
- **Education** – we put forward four categories (primary/secondary/tertiary education), and giving answers was optional. Even if it was not filled, the survey was still processed.

13 The maximum number of settlements given by a passenger was eight, while the average was three. 36.07% [815] of the passengers during the first survey and 31.00% [516] of the passengers during the second survey did not indicate any settlement.

14 The willingness to respond was very similar to the previous question. 33.51% [441] of the total surveyed vehicles did not contain any enumeration, while 361 answers were submitted with 'no' to the question that addressed the respondent's personal cross-border contacts.

- **Profession** – it was an open question and it could be answered based on the respondents' own willingness. Even if it was not filled in, the survey was still processed.
- **Language skills** – it was partly a closed question with four given categories (Hungarian, Slovak, English, German), but also listed an ‚*other'* option. The question was optional, without having to specify the level of language command. Even if it was not filled in, the survey was still processed.

In the case of vehicle passengers, it was mainly the *driver* whose answers were recorded, independently from other passengers' possibly different opinions. We allowed this degree of distortion and 'loss of information' in order to prevent traffic congestion that could have been generated by lengthy individual surveying of all the car passengers. Nevertheless, we asked the students to record the *number of passengers* in the car.

The possibility of 'repeated query' was present during the second survey. The principle was that if a repeated query was identified during the second survey, it was recorded as 'adjunct, additional information'. In the case of a repeated query, survey completion and data collection were still useful for the analysis, because the aim of the research was to get a picture of the destinations of the *actual passengers* and the reasons for crossing from the *total* border crossing.[15]

B) Surveying pedestrians and cyclists

The time frame of the questionnaire survey was not as strict, limited and important aspect in the case of pedestrians and cyclists; nevertheless, the designing of the pedestrians and cyclists survey was based on the basic principles applied for the vehicle survey.

Whether they crossed the bridge on foot or by bicycle was evident, hence questions addressed destination.

I. The first question in the pedestrian & cyclist questionnaire was the same as the second question in the vehicle survey. This question addressed the reasons for border crossing.

15 The importance of this issue was repeatedly highlighted to the students. Repeated queries were recognised twice during the whole surveying period. Both occurred during the second survey. In the first case, it was a repeated query of the first survey from the summer. In the second case, it was a repeated query from few days earlier, when the respondent was a driver who crossed the border 'several times a day'.

II. The second question of the pedestrian & cyclist survey was fundamentally different from the vehicle survey. This question specified further destinations of the pedestrian/cyclist crossing the bridge: "*After crossing, do you continue your travel beyond Esztergom/*Štúrovo?"

As it was partly a closed question, we put forward three possible options (no/no, I will return today/yes). In case of a 'yes', we asked for the specification of the settlement and the means of transport (bus/train), whether they continue their journey by public transport.

III. The third question addressed the frequency of border crossing, similarly to the vehicle survey.

IV. The fourth question of the pedestrian & cyclist survey was identical to the fifth question of the vehicle survey, thus addressed the nature and extension of the cross-border network of relations.

V. The last, fifth question of the pedestrian & cyclist survey was similar to the fourth question of the vehicle survey. This question asked about *further* settlements that passengers usually visit when they cross the border and the Mária Valéria bridge. Nevertheless, the question was formed slightly differently in this case. ("*Which are the settlements besides Esztergom/*Štúrovo *that you most often/generally visit when you cross the Mária Valéria bridge during the journey?*")

Respondents were asked the same *general questions* and personal data in each survey.

3.2.4 The questionnaire data sheets

The questionnaires were structured in a form that they fit an A4-size page. This was done to save material and to speed up the data digitalization process. The logo and name of the Ister-Granum EGTC was printed on the left letterhead of the questionnaires. The type of the questionnaire (whether it was compiled for vehicle passengers or for pedestrians & cyclists) was indicated on the right letterhead.[16] The date entry, which was to be filled on the spot by the interviewer, was also printed on the letterhead. (year/month/day/hour/minute).

The specification of hour and minute, done immediately *after* filling in the questionnaire, was **compulsory** because it facilitated survey processing and later identification, and it was an important sorting and grouping criterion.

16 Cyclist questionnaires were marked with a 'K'.

Important information was indicated on the letterhead, like the *number of passengers* in the vehicle, or any *repeated* questioning. In the case of the second survey, the direction of the crossing could be also specified.[17] Moreover, the interviewers signed the questionnaire on the letterhead. Any further comment or note that the interviewers considered important could be written on the wide page margins.

There were two boxes besides settlements, for residence (SK/HU) and other settlements (IGE/'other'). These could be filled out later, since it had importance for the digitalization stage in the first place.

We considered it important to prepare the questionnaires in *Slovak language* as well. A quarter of the printed questionnaires were in Slovak language. During the questionnaire processing, we explicitly indicated if Slovak questionnaires had been used. Nevertheless, the importance of bilingual questionnaires is questionable. As a number of Slovak questionnaires were marked with the note 'information in Hungarian', we did not print any Slovak questionnaires during the second survey.[18]

3.2.5 Questionnaire processing

Data was processed in MS Excel. The students received four worksheets (.xls file) with four dates of the survey. The processing of data contained 11 000 cells within **115** and **119** columns and **104** rows (three lines of header + a summary row [pre-set formulas] at the end of the table; 100 pieces of 'data-rows'). Fields of the table were pre-coded so that they are better managed and used. It was '0' in the case of numbers and '–' in the case of texts.

The first three columns (*number* [pre-set]; *time* [set out in the questionnaire, hour & minute]; *code* [signature(s) of interviewer(s)] were followed by data as it was stated on the questionnaire. All the rubrics and registrations of the questionnaire appeared among the columns, too. The block marked with 'A'

17 A: Esztergom → Štúrovo // B: Štúrovo → Esztergom

18 It is important to underline that the management and processing of the questionnaires in Slovak language would have been a major challenge. The initial concept was that the Slovak questionnaires would be used in the case when the driver, pedestrian, or cyclist only speaks Slovakian. In this unique case, the passenger would have answered the questionnaire on their own, after receiving it from a Slovak student from Štúrovo to avoid any communication problem due to language barriers. Nevertheless, such cases occurred with a rather low frequency. Moreover, in some problematic cases, English proved helpful, too. According to the participating students, there was one case during the first survey when the police officer assisted in completing the questionnaire in Slovak language.

contained the encoding and visualization of general data (residence; gender; age; education; profession; language skills). A separate column was then inserted for the 'number of passengers in the car'. The following columns (1–5) were used to code and show the given answers. The last, coloured column served for the comments of the interviewers and encoders. The tables of the pedestrian and cyclist questionnaires were similar to the one of the questionnaire designed for drivers, only the 'number of travellers in the car' was altered to 'the number of cyclists'.

The encoding process:

- the value '0' was substituted by '1' in case of every filled box;
- entering the name of the settlement and the text written in the 'other' column.

The box ('IGE'/'other') following the settlement box in the questionnaire was optional. We only expected to fill the 'SK' or 'HU' columns. Nevertheless, we found several mistakes in this field.

To *process summarized* data, we prepared a table that is different from the presented one.

Furthermore, we increased the number of **columns**.

Three new columns were inserted before block 'A':

- one displaying the total number;
- 'information' column to indicate wrong data requiring replacement;
- one for the day of the survey (using Roman numerals).

Columns of SK and HU residences in block 'A' were expanded with two new columns:

- IGE SK;
- IGE HU,

to identify Slovakian and Hungarian settlements of the Euroregion.

Next to the 'profession' column, a new column marked 'kat.' was inserted to group the given professions and further facilitate data processing and analysis.

In the summarisation of the questionnaire survey, the settlements were expanded with columns marked 'IGE SK', 'IGE HU', 'IGE', and 'other'. This additional information served the '*automatic*' *classification* of the settlements.

We followed the same approach (automatic pooling and coding) regarding occupational groups, which required the insertion of two more columns.

Modifications were made in the *rows* of the summary tables: the *summary* fields in the bottom of the tables had to be increased and adjusted. These changes already served the *visualization* of the results (groupings).

We added five additional rows under the summary row for consolidated subtotals, certain partial shares and averages.

3.2.5.1 Faulty and incomplete data sheets

We distinguished **faulty** and **incomplete** questionnaires based on the errors during data collection. Questionnaires were regarded as faulty if the entry for one of the two most important questions was not recorded or was unidentifiable, regarding either j the place of residence or k the destination of the respondent. Questionnaires were regarded as 'incomplete' if some of j the personal data were missing, or it was impossible to reconstruct the information, or the answer referring to k the purpose of crossing, l its frequency or m cross-border relationships was not recorded. In fact, missing data could be completed later (e.g., missing gender, but 'female hairdresser' was recorded for profession). These questionnaires, with the completed information, are indicated separately in the table.

Experience shows that incomplete or deficient data occurs *cumulatively* within a questionnaire and, in general, they occur in higher proportion at the beginning of the questionnaire.

During data processing, we finally decided that it was better to **omit** *all* data from both the faulty and the incomplete data sheets in the analysis. Still, as they might contain numerous data that could have been useful to establish the aspects of our analysis or to draw conclusions, we eventually decided to put them aside in a separate group, instead of destroying them.

3.2.6 Preparing the students for the questionnaire survey

The recruitment process of students is described above. Surveying, on the other hand, required a different kind of preparation. The 'physical' part of the preparation was partly the same, though the level of burden proved to be completely different from our expectations, and it was not only due to the monotony of the task. Wearing a visibility vest during surveying in road traffic was obviously *compulsory*. The personal data of the students

were collected preliminarily with the EGTC's contribution, and each of them received a 'researcher's card' and a badge with a logo.[19] Furthermore, the office in Esztergom also printed the questionnaires, and provided stationery and bottled water for the students on the bridge – the latter was particularly important as the survey was conducted in the summer.

As much as it was possible – though conditions in the summer and early spring bore significant differences – we made every effort to prepare the students in advance for the *whole* process of the survey. In both cases, for many students this was the first serious 'field experience' in their lives.

- First, we informed them about the main objectives of the survey and the importance of data collection.
- Afterwards, they were given a thorough introduction about the elements of the questionnaire.[20]
- We clarified the possible procedures of on-the-spot questionnaire-filling and data recording.
- We discussed the methods to handle possible misunderstandings and to record extreme answers.
- Due to the general lack of experience, we made sure the students were shown the necessary forms of *communication*, we called their attention to the significance of *personal contact* and the courtesy formulas used upon finishing the survey.

Based on a preliminary schedule, the survey was conducted between 8AM and 4PM. The basic concept was to spend *two-hour-shifts in pairs* with the presence of police officers when conducting the survey with car passengers, pedestrians and cyclists, while two other students did the traffic counting. We did not stick to the shifting system with time limits. According to the preliminary schedule, in line with the two types of survey, a total of four students had to be on the bridge at the same time.

3.2.7 The implementation of the questionnaire survey

It was necessary to inform the Slovakian police in advance about the intention of the research and the expectations, as well as about the cooperation with the students. We asked the police officers to stop vehicles only with either a

19 These were also provided for the traffic counters.

20 We made every effort to present every single aspect of the questionnaire.

Hungarian or Slovakian license plate. This survey limitation was necessary because counting tourists was not part of our research. Moreover, we asked the police officers to stop mainly cars that were registered in the area that is connected to the bridge, namely cars with license plates of Nové Zámky, Levice and Komárno.[21]

These filters might have caused certain *distortion*, but this intervention *promoted* and improved our research goals rather than hindered them. In other words, the aim of the research was to explore the narrow borderland relations in the neighbourhood of the Mária Valéria bridge, as well as their depth, effectiveness and way of functioning.

The assistance of the police came from Nové Zámky district in both cases. There was one exception, when the police officers arrived from the local police station. The geographical distance between Štúrovo and Nové Zámky caused considerable delays, too. It means the surveying of the pedestrians and cyclists followed the scheduled plan, but the vehicle questionnaire survey suffered certain delays, which was further aggravated by the daily lunch breaks of police officers (25–30 minutes). Subsequently, it was proved that the flexible management of the schedule and time frame was very useful and effective for the research.

The cooperation between students and police officers was unproblematic. Their cooperation was significantly improved by the presence of two students from Štúrovo who spoke Slovak; moreover, there were two cases when the police officer had an excellent command of Hungarian. After stopping the vehicles, the police officers briefly explained to the drivers that they were not stopped for traffic control, but because of a social research with questionnaire survey; and then they gave the ground for the students. As police officers stopped the cars, they paid attention to avoid congestion, but based on our experience, even in rush hours a maximum of *three* vehicles pulled up.

The actual *speed* of surveying, in comparison with initial expectations, was a positive surprise. The students gained a lot of experience in a short time and their individual skills made it possible to finish the surveying process within the five-minute time frame. It was influenced by the traffic and by the activity of the police officers, too. Simply, we can note that after the brief

21 We made every effort to present every single aspect of the questionnaire.

learning period, the whole process went very *smoothly*.[22]

Nevertheless, the survey was different in the case of pedestrians and cyclists from what had been planned during preparation, due to several factors. Firstly, there was low pedestrian and cyclist traffic on the bridge and across the border. Secondly, pedestrians and cyclists often rejected to be surveyed by the students. Thirdly, the repeated encounter with the pedestrians and cyclists also decreased the effectiveness of the survey. Simply, this survey proved a much more difficult task for the students. Additionally, these problems were aggravated by tourist flows in the summer.[23]

Besides the issues with communication and willingness, the students had the extra task of recording the pedestrian/cycle traffic across the bridge by the following criteria: quarter-time frames / direction of the border crossing / method of crossing. Simply, initial survey expectations were too high in this area, so it was not the students' fault that the surveying produced the poorest results here.

The time schedule had been organized and arranged in advance for student approval, to avoid any complication or jeopardy to the implementation of the survey. We tried to organize the process of the research in a way as to give every student the chance to test their abilities in every field of the research (traffic counting / questionnaire survey of vehicle passengers / questionnaire survey of pedestrians and cyclists). We only deviated from this principle when the research required it or because of medical problems of the students. Simply, full 'fluctuation' of students at every position was not achieved during the implementation of the research. Furthermore, it proved very useful to give students certain freedom regarding the shifts, especially because of the considerable time delays in surveying vehicle passengers. It occurred for example that two groups of students were present in the survey area due to the tardiness of police officers; however,

22 According to students' reports, police intervention was necessary on two occasions. In one case, they fined the driver because the vehicle license had been expired, and it also turned out that the driver was not unknown to the police officers. Other small notifications were given (e.g. relating to headlights and seatbelts) by the police officers. What is more, one student reported that one Slovak driver vehemently protested against the survey in Slovak language, but the police officer briefly rebuked him.

23 These difficulties may have been caused by the composition of the surveying group. To be specific, the first survey was carried out only by male students. Previous complaints were then forgotten about during the second survey, but it is important to underline that many students performed very well in the first survey, too. At this point, individual communication skills played a significant role and it was even more important than in the questioning of the drivers with the help of police officers.

this did not hinder the research since they joined the students in surveying the vehicle passengers, hence the research regained its speed.

The students on duty were checked on many times during the day. Discussions that were held at the end of the day were very useful. We successfully arranged the time schedule with them for the following day and discussed the questions and problems that emerged during the survey, thus the constructive feedback they received helped to overcome identified weaknesses and problems of the research. To sum up, it can be stated without any exaggeration that students performed an excellent work, and we can be *fully satisfied* with their *output* in the research field.

3.2.8 The evaluation and characterization of the questionnaire survey in the summer of 2014

The police assistance during the first survey was provided for four days, and the survey began on 7th July 2014, a Monday morning. The arrival of the students who participated in the survey had been organized the previous day. Following their arrival, the students were acquainted with the area, locations, the Mária Valéria bridge, and with the survey tasks.

Meetings and briefings were held in the early evening every day. Most of the students who participated in the survey in Esztergom and Štúrovo continued their professional work in the Transcarpathian physical geography trip that started immediately after the survey. Consequently, the students were given extra time to process and digitalize data. The deadline was the beginning of the fall semester. The processed data was successfully delivered in the autumn.

Weather conditions were generally favourable for the survey. Except for some special cases, the survey research was not disturbed. The questionnaire survey was cancelled only once, and it was the second day (8th July 2014, Tuesday) because of a huge downpour in the early afternoon. Based on the visible signals of the coming storm, the police officers left the survey area and as there was negligible border crossing traffic, the students left the area, too. Even though the storm abated in the evening, the survey was not continued that day.

3.2.9 The evaluation and characterization of the field research: questionnaire survey in spring 2015

The questionnaire survey organised in spring 2015 was based on the experiences of the first survey, hence the research was more prepared and arranged. Slovak police officers assisted in the second survey, too, and had significant influence on the preparation and the implementation of the survey.

The most important modification of the second survey regards the preparation phase: instead of students' own applications, this time they were recruited for the task. It is important to underline that the performance of students during the first survey demonstrated high quality work, and we aimed to ensure the same quality during the second survey.

There was an over-application of students after the winter exam session (2014/2015), thus the student survey team was expanded with one student (to 11 students) compared with the previous survey (10 students + 2 students from the high school of Štúrovo). The increase of participating students was caused by the fact that there was one student who repeatedly submitted his application, hence he participated in both surveys. What is more, two students who live near the survey area also applied, so their accommodation problems were solved, too.

During the second survey, we aimed to organize and implement the survey based on our initial ideas. During the first day of the week, participating students received a deep and comprehensive preparation, either in the Ister-Granum EGTC office or in the survey area. The Ister-Granum EGTC office was the place for the daily coordination and therefore played an important role during the survey. Eagerness and willingness of the participating students was beyond any doubt. Weather and cold spring winds occasionally caused some problems. Cold windy weather was more exhaustive for students who were doing the traffic counting, because it was a physically more passive task than the questioning one.

Some problems occurred with the presence of the police officers on the first and last days of the research. The police officers came from Nové Zámky and they arrived at the location with a considerable delay on the first day. On the last day, the problem was caused by communication problems within the police agency, thus they once again arrived with a certain time delay.

Survey data digitalization was faster during the second survey except for two unexpected cases: data from the last day of the survey (27th March 2015, Friday) partly disappeared, and from another day (25th March 2015, Wednesday) totally disappeared due to technical and hard drive errors.

3.2.10 General lessons

Disregarding the observations and experiences of the students is a serious mistake, because they can be important elements of the research and evaluation of the results[24]. That means if we take into account their observations, it gives students the feeling of being regarded as equal partners, of being fully involved in the research work, which is a strong motivating factor. Continuous control of the work of the students and constant contact with them are the important lessons we have drawn from the two surveys. It became clear that the success of the field work depended to a large extent on the preparation process of the students; moreover, it was important to listen to their experiences, opinions, and ideas, and to implement changes in a flexible way, based on students' feedback. That means that a very important element of the research was the continuous evaluation of students' work, which called attention to the mistakes and omissions during the survey. This process allowed to improve the survey activity from day to day.

It is important to underline that surveying the vehicle passengers was a positive surprise, because it was more flexible, smoother and less problematic compared with prior expectations. On the other hand, there were many – unexpected – difficulties in questioning the pedestrian and bicycle traffic. These experienced difficulties were generated by several interrelated reasons, e.g. this kind of traffic could be characterised with lower intensity and with specific features[25], repeated encounters with the same pedestrians and cyclists. The pedestrian and bicycle traffic demonstrated a relatively rapidly growing denial and lower willingness to stop and answer the questions of the survey.

The following two tables contain the names of university and high school students who participated in the surveys:

24 For example, observations of the students made it clear that our initial question about 'the other side' was often problematic for the respondents. This problem was handled by providing a better and more profound preparation for the students.

25 Pedestrians and cyclists demonstrated certain different features than the vehicle passengers, such as their different social background, age, education, and status.

Table 1: Questionnaire survey, summer 2014

ELTE, Faculty of Sciences	
1	BLASKÓ Gergő Miklós
2	BOZA Kristóf
3	BÖRÖCZI Belián
4	BÖRÖNDI Dávid
5	GYENES Ádám
6	KOVÁCS Dániel
7	LENDVAI Péter
8	PÁVEL András
9	SZÉKELY Zoltán Imre
10	TALABÉR Ádám András
High School in Štúrovo	
11	SZÉKELY Mónika
12	ZSITVA Szandra

Table 2: Questionnaire survey, spring 2015

ELTE, Faculty of Sciences	
1	BAK Fruzsina
2	BÖRÖNDI Dávid
3	EGYÜD Regina
4	FÁBICS Gergely
5	KOVÁCS Tibor
6	MAGYAR Tamás László
7	MOLNÁR Alexandra
8	ŐSZI Viktor
9	STEINMANN Vilmos
10	VÁGÁNY Norbert
11	VAJDA Lilla