Mobility Survey

Dr. Udo Payer and Students of Class 3DK 2016/2017 - BHAK-Weiz

Dr. Karl Widdmannstraße 40, 8160 Weiz, Austria

Abstract

While running the Erasmus+ EU-project "Green Car", we came up with the idea to find out all diverse ways of transportation, which were used to go to school or to get to any other adolescent *activity-area. Within the scope of this project, we were interested in an age-band between 17 and 20, because this is the age range of participating students.*

Furthermore, we were interested, if there are different behavior patterns in different counties. Based on this idea, we started a survey in two languages: German and English. A little later, the present survey was translated into Croatian.

1. The Survey

To connect the design of a survey to the curriculum of a secondary business school (*with a focus on informatic*), I left the choice of tools to the students and was interested in the number of proposed solutions. Beside several freeware solutions, some students started to write their own survey-solution, since the range of survey-functions, predefined databases or statistical analysis libraries did not comply to their initial concept. The students started to use C# or PHP in combination with MySQL and standard statistical libraries to realize their projects. But very soon, they found out, that even writing a simple survey software is not that easy as expected. Thereafter, they found out, that standardized survey-question-formats would be helpful and that questions must be divided into a fixed set of question types.

In our survey, we needed dichotomous questions to distinguish between yes or no, true or false or any other dichotomous answers. Furthermore, we need questions based on the level of a measurement to ask for the rank of preferences.

Finally, contingency questions are needed, to find out how many times a specific means of transportation is used. All these questions need to be represented and need to be stored in a database to be evaluated and graphically presented in appropriate charts.

But this was the time, when all my students decided to use an already existing survey solution and the restricted range of function was accepted overnight.

After a short comparison of workable solutions, "LimeSurvey" was our first choice, because it is free and it is easy to use. LimeSurvey is written in PHP and based on MySQL. Thus, even small modifications and changes can be realized by the students itself – or a better understanding can be generated by simply discussing the available source code.

2. The Questions

The presented survey was assembled to enquire the movement-behavior of young people at the age of 17 up to 20. In doing so, we were especially interested in the housing situations, the set of possible means of transportation as well as the distances between the places of residence and destination.

Furthermore, we were interested in the fact, if younger people –*having already got their driving licenses*– would make use of their own car or their family cars.

Another focus was on the use of bicycles and the average distances which were covered.

To get a better understanding of the set of questions, the whole questioner is given in the annex of this document.

3.   The Evaluation

In this chapter, some representative questions are listed and resultant answers are discussed. In our understanding, a representative question is a question which is related to the living environment and mobility behavior of upper class students.

Especially living environments in combination with preferred transport means and the country of origin of interviewed students were the primary interests of the presented survey.

What means of transportation do you have in your household?
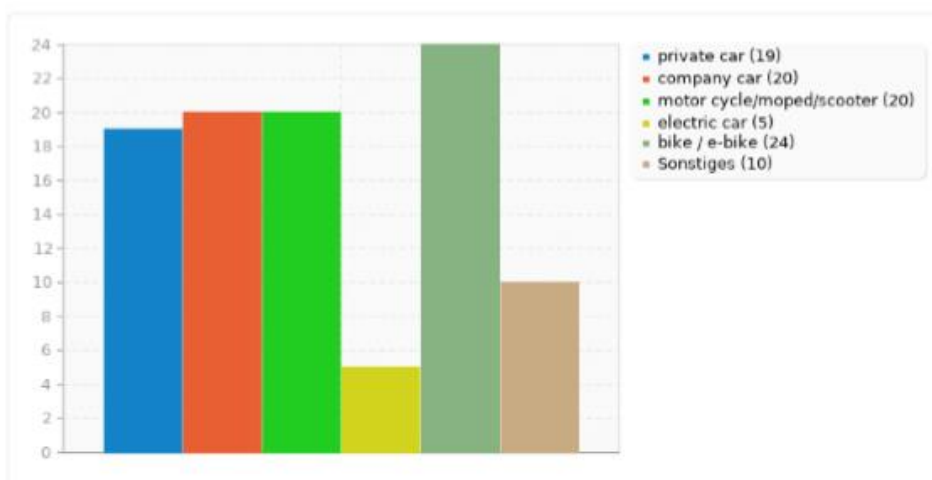
As expected, most households have at least one private car available. The presented survey differs between real private cars and company cares, which are supplied by the employers of one or both parents. As far as all given answers are right, the number of private cars is almost the same as the number of available company cars.

We can also see that one in two household has got a motor cycle or moped available. This high number can be explained by the age of the interviewed students.

As see in the graph, even some electric cars are available. But I think that the high number do not correspond to the real number of electric cars in the households.

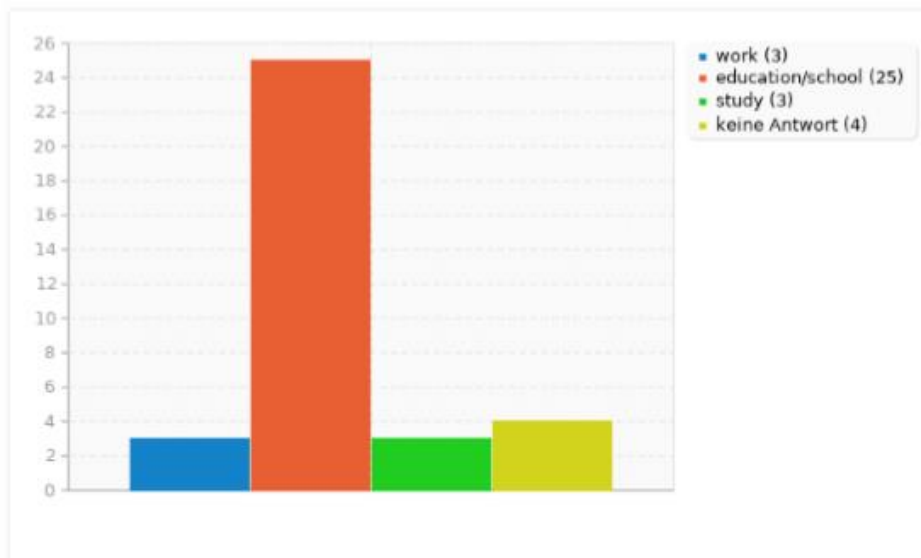Do you have a season ticket for public transport services?
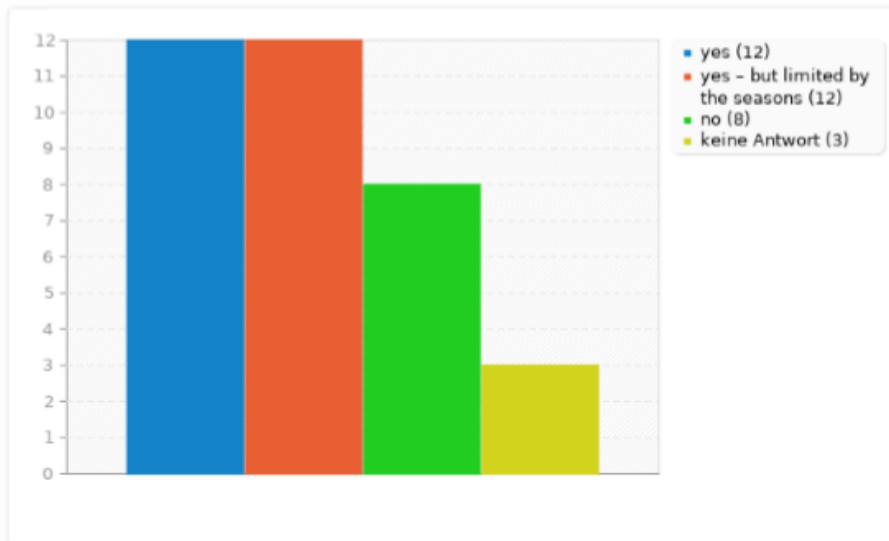
This graph shows the fact, that many students make regularly use of public transport services. But this depends on the season.

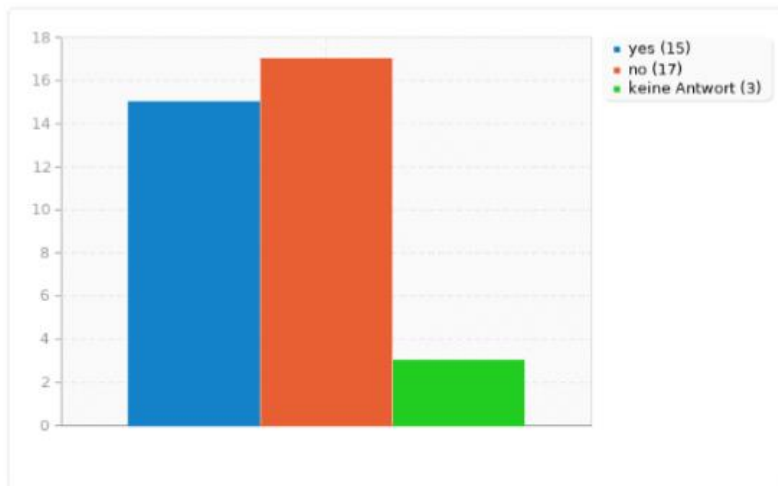Why do you have to commute between where you live and your school (university or workplace)?

As expected, most interviewed students must commute between their home and school. Obviously, all other answers are joke-answers, since only students were interviewed.
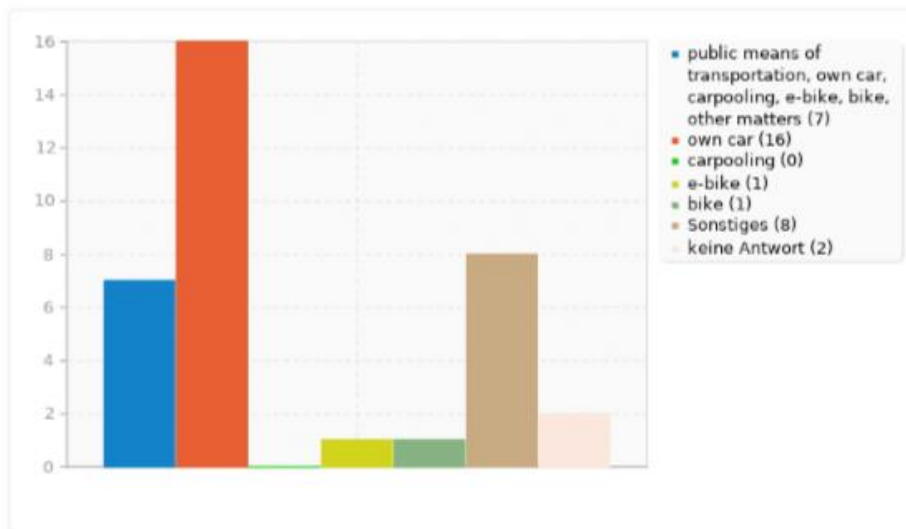
As documented by the question before last, we already know that one in two students use different transport services – depending on the season.
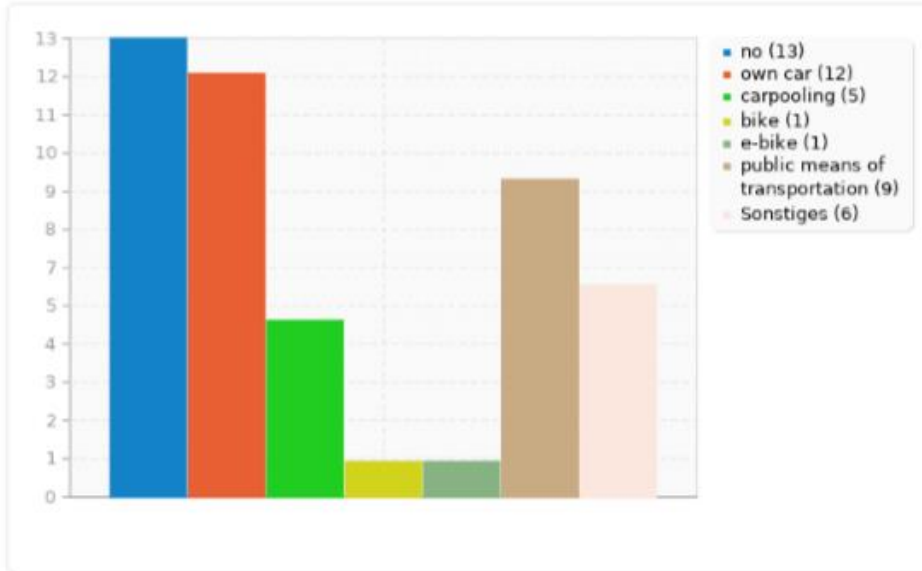
I think, that due to the age of interviewed students (students have just received their driving licenses) the number of used cars is higher than in other classes.

Do you use any other means of transport in combination on this way?

no (13)
own car (12)
carpooling (5)
bike (1)
e-bike (1)
public means of transportation (9)
Sonstiges (6)

As compared with preceeding questions, the number of used private cars is about as high as the number of used public services. But I think that this graph represents the real distribution much better than all previous graphs.

What means of transport do you use during the cold season?

public means of transportation, own car, carpooling, e-bike, bike, other matters (21)
own car (18)
carpooling (5)
e-bike (1)
bike (1)
Sonstiges (6)
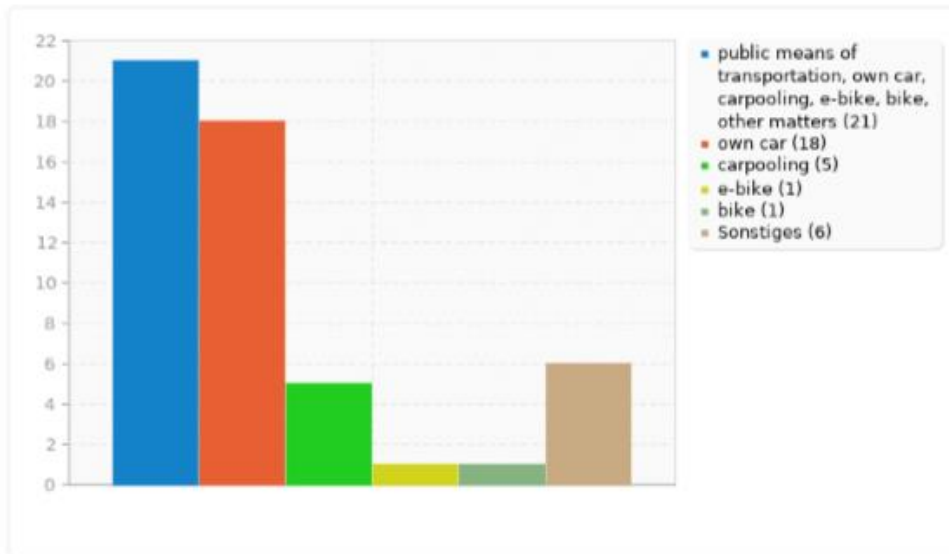
Really strange is the fact, that students do not use the care as often in the cold season as in the warm season. Well, an inverse result was expected.

Do you use any other means of transport in combination on this way?

Legend:
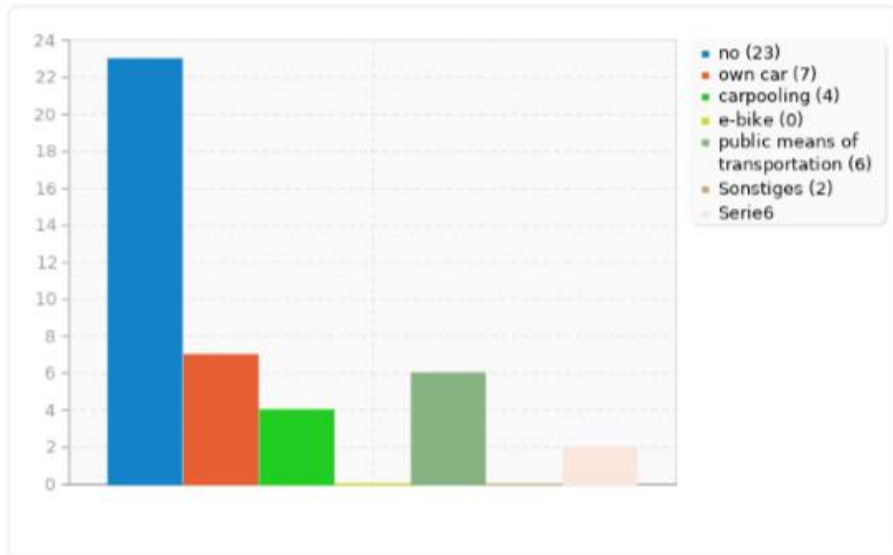- no (23)
- own car (7)
- carpooling (4)
- e-bike (0)
- public means of transportation (6)
- Sonstiges (2)
- Serie6

And again, the own care is an appropriate alternative to public transport services, which is obviously used more often than quoted by the students.

If you are using a bike, what are your motivations?

Legend:
- it is not the case, no car, avoid congestion, to expensive parking prices, to less parking places available, fuel is too expensive, unfavourable timetable, distance to the station is to great, for environmental reasons, to promote health/sport, trend/fashion, other matters (19)
- no car (3)
- avoid congestion (1)
- to expensive parking prices (0)
- to less parking places available (1)
- fuel is too expensive (0)
- unfavourable timetable (0)
- distance to the station is to great (1)
- for environmental reasons (2)
- to promote health/sport (9)
- trend/fashion (2)
- Sonstiges (4)

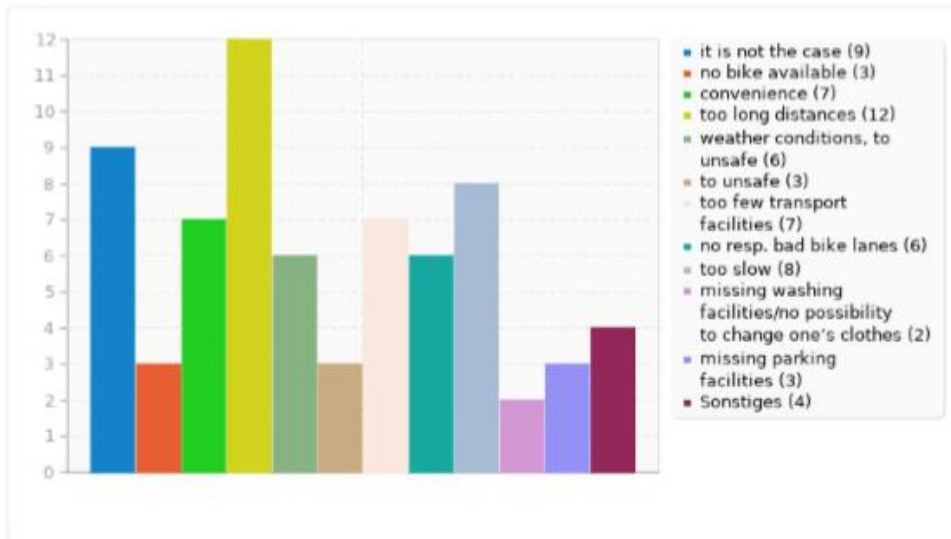This graph represents the fact that most students do not use a bike to go to school. Only health and sport can be a noteworthy motivator to do so.

If you do not use a bike regularly, what are your motivations?
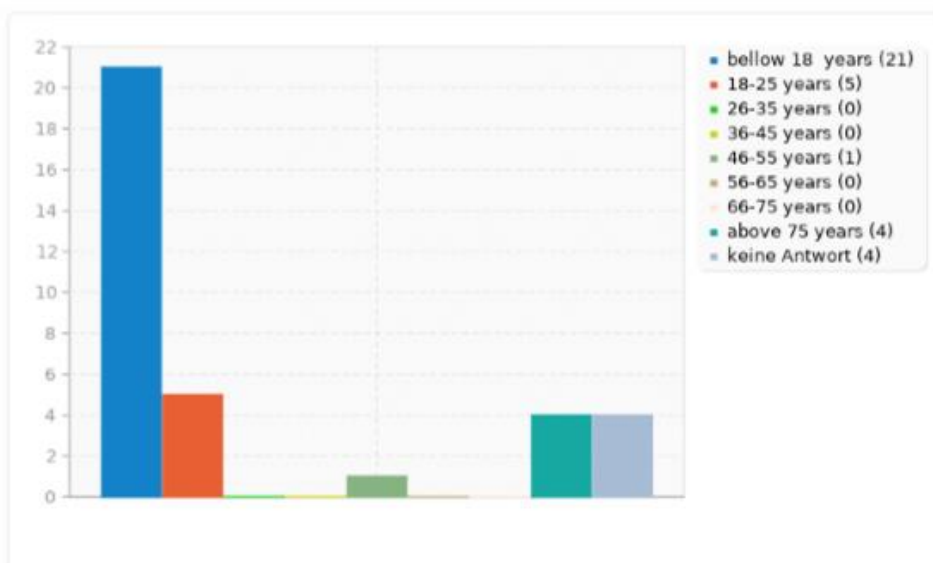

Too long distances are the main reason why bikes are not used by our students.
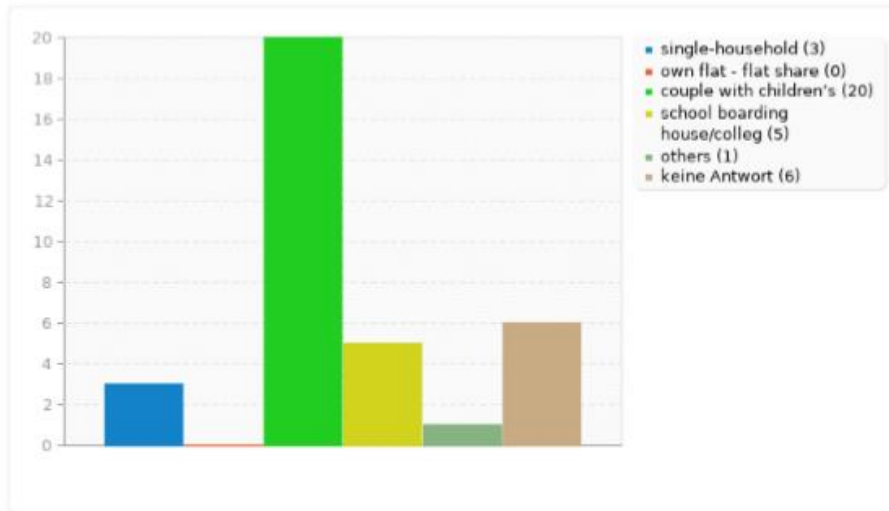
Please select an age group.

The blue column represents the real age of interviewed students
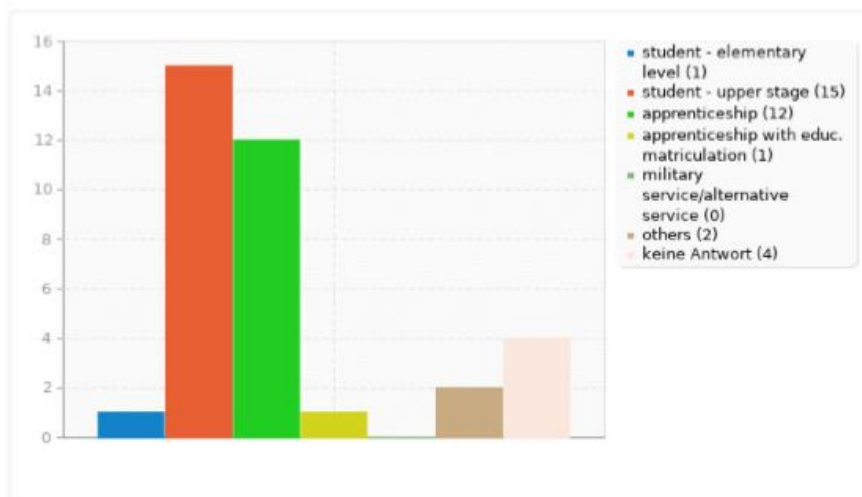
In which kind of household do you live?

Most of our students live together with their parents.

You are now:

All our students are upper stage students. No one of our students did an apprenticeship.

4. Conclusion

While running the design phase of the available survey, it was planned to run 3 surveys in the actual language of all project member states. The basic idea was to make a comparison of students-moving-behaviors in all project member states. Finally, we ended up with only two surveys. One in English and another one in German. We also have a complete set of questions in Croatia. But the Croatian version was never carried out.

The German version was used to run the survey in Austria, while the English Version was used to interview a small set of Croatian and Slovenian students. Unfortunately, we did not have enough time to run a comprehensive interview. Thus, we have got only a small number of Croatian and Slovenian answers on our questions. Due to the unrepresentative number of answers, we decided to put all answers together to run a single data-analysis. I'm sad to say that a comparison of different countries was not possible.

When having a look at the results, we can see that most students live together with their parents in the same household, sharing the same means of transportation.

Since most of our students have long routes to our school, they typically use public transport services like busses or trains.

Obviously, the mean age of interviewed students is 18. This can be derived from the fact that 50 percent of all students claim to us a car to go to school very often. In fact, the car is used rather seldom, since only a few of all students have their own care. Most students share the family's- or mum's car.

5. Annex

   a. Mobility Service in three different Languages
     i. English Questions

1. Where do you live?
2. What means of transportation do you have in your household?
3. Do you have a season ticket for public transport services?
4. Do you have to travel regularly between where you live and your school (university or workplace)?
5. Why do you have to commute between where you live and your school (university or workplace)?
6. Where do you have to commute?
7. Which average distance do you have to cover?
8. Do you change your transport behaviour depending on the season?
9. What means of transport do you use during the warm season?
10. Do you use any other means of transport in combination on this way?
11. What means of transport do you use during the cold season?
12. Do you use any other means of transport in combination on this way?
13. If you are using a bike, what are your motivations?
14. If you do not use a bike regularly, what are your motivations?

15. Do you plan to use another means of transportation to go to school, university or workplace)?
16. How important do you think personally are the following offers to use a bike?
17. Which further reasons – concerning the use of a bike – can you entitle?
18. Please select an age group.
19. Your sex.
20. In which kind of household do you live?
21. How many people live in your household?

ii. English Answers

1. Site, zip code
2. Private car, company car, motor cycle/moped/scooter, e-bike, bike, other matters
3. yes, no, yes – but limited by the seasons
4. yes, no (continue with 18.)
5. work, education/school, study
6. Site, zip code
7. minutes, kilometres
8. yes, no
9. public means of transportation, own car, carpooling, e-bike, bike, other matters
10. no, public means of transportation, own car, carpooling, e-bike, bike, other matters
11. public means of transportation, own car, carpooling, e-bike, bike, other matters
12. no, public means of transportation, own car, carpooling, e-bike, bike, other matters
13. it is not the case, no car, avoid congestion, to expensive parking prices, to less parking places available, fuel is too expensive, unfavourable timetable, distance to the station is to great, for environmental reasons, to promote health/sport, trend/fashion, other matters
14. it is not the case, no bike available, convenience, too long distances, weather conditions, to unsafe, too few transport facilities, no resp. bad bike lanes, too slow, missing washing facilities/no possibility to change one's clothes, missing parking facilities, other matters
15. *yes or no for all following transport facilities:* public services, private car, car-sharing, e-bike, bike, car pool
16. (1 very important | 5 unimportant) for: road sign/road signposts, cleaning of cycle lanes, additional cycle lanes, more cycle lanes on ordinary streets, parking places on public transport stations, baggage storage, bike pickup services in public transport services, information/traffic shaping, bike campagnas, bike rental systems,
17. TEXTBOX
18. bellow 18, 18-25, 26-35, 36-45, 46-55, 56,65, 66-75, above 75
19. female, male

20. single-household, single parent, couple with children's, living community, couple without children's
21. Tbx_1: altogether: | Tbx_2: of these bellow 18 years Self-employed, employed person, in school/education/study, retired, other matters, unemployed

iii. German Questions

1. Wo wohnen Sie?
2. Über welche Verkehrsmittel verfügt Ihr Haushalt?
3. Sind Sie im Besitz einer Zeitkarte öffentlicher Verkehrsmittel?
4. Pendeln Sie regelmäßig zur Arbeit, zum Studium oder zur Schule
5. Zu welchem Zweck pendeln Sie?
6. Wohin pendeln Sie?
7. Welchen durchschnittlichen Weg legen Sie zurück?
8. Ändern Sie Ihr Verkehrsverhalten saisonbedingt?
9. Welches Verkehrsmittel nutzen Sie dabei vorwiegend für Ihren Weg in der warmen Jahreszeit?
10. Nutzen Sie dabei weitere Verkehrsmittel in Kombination auf Ihrem Weg?
11. Welches Verkehrsmittel nutzen Sie dabei vorwiegend in der kalten Jahreszeit?
12. Nutzen Sie dabei weitere Verkehrsmittel in Kombination auf Ihrem Weg?
13. Falls Sie regelmäßig das Fahrrad nutzen, welches sind Ihre Beweggründe?
14. Falls Sie nicht regelmäßig das Fahrrad nutzen, welches sind Ihre Beweggründe?
15. Beabsichtigen Sie zukünftig ein anderes Verkehrsmittel für Ihre Wege zur Arbeit, zum Studium, zur Schule zu wählen?
16. Wie wichtig erachten Sie für sich persönlich folgende Angebote zur Fahrradnutzung?
17. Welche weiteren Angebote bezüglich der Fahrradnutzung würden Sie begründen?
18. Bitte wählen Sie Ihre Altersgruppe
19. Ihr Geschlecht
20. Welcher Haushaltstyp trifft auf Sie zu?
21. Wie viele Personen wohnen in Ihrem Haushalt?
22. Sie sind zurzeit:

iv. German Answers

1. Ort, Postleitzahl
2. Privat-PKW, Dienst-PKW, Motorrad/Moped/Motorroller, Elektrofahrrad, Fahrrad, Sonstiges
3. Ja, nein, ja-aber saisonal begrenzt
4. Ja, nein (weiter mit 18.)
5. Arbeit, Ausbildung/Schule, Studium
6. Ort, Postleitzahl

7. Minuten, Kilometer
8. Ja, Nein
9. Öffentliche Verkehrsmittel, eigenes Auto, Fahrgemeinschaft, Elektrofahrrad, Fahrrad, Sonstiges
10. Nein, Öffentliche Verkehrsmittel, eigenes Auto, Fahrgemeinschaft, Elektrofahrrad, Fahrrad, Sonstiges
11. Öffentliche Verkehrsmittel, eigenes Auto, Fahrgemeinschaft, Elektrofahrrad, Fahrrad, Sonstiges
12. Nein, Öffentliche Verkehrsmittel, eigenes Auto, Fahrgemeinschaft, Elektrofahrrad, Fahrrad, Sonstiges
13. Trifft nicht zu, kein Auto, Staugefahr umgehen, Parkgebühren zu hoch, zu wenig Parkplätze vorhanden, Kraftstoff zu teuer, ungünstige Fahrplangestaltung, Entfernung zu Haltestelle zu groß, aus Umweltgründen, Gesundheitsaspekte/Sport, Trend/Mode, Sonstiges
14. Trifft nicht zu, kein Fahrrad zur Verfügung, Bequemlichkeit, zu lange Wege, Wetterbedingungen, zu unsicher, wenig Transportmöglichkeiten, keine bzw. schlechte Radwege, zu langsam, fehlende Waschgelegenheiten/Umkleidemöglichkeiten, fehlende Abstellmöglichkeiten, sonstiges
15. *Ja oder Nein für jeweils folgende Verk.-Mittel:* Öffentliche Verkehrsmittel, Privatauto, Car-Sharing, E-Bike, Fahrrad, Fahrgemeinschaft
16. (1 sehr wichtig | 5 unwichtig) für: Wegweisung/Beschilderung, Straßenreinigung der Radwege, weitere Radwege, mehr markierte Radstreifen auf Fahrbahnen, Abstellanlagen an Haltestellen, Gepäckaufbewahrungsmöglichkeiten, Fahrradmitnahme in öffentlichen Verkehrsmitteln, Information/Verkehrsbildung, Fahrradkampagnen, Fahrradverleihsysteme,
17. TEXTBOX
18. Unter 18, 18-25, 26-35, 36-45, 46-55, 56,65, 66-75, über 75
19. Weiblich, männlich
20. Single-Haushalt, alleinerziehend, Paar mit Kindern, WG, Paar ohne Kinder
21. Tbx_1: Insgesamt: | Tbx_2: davon unter 18 Jahre
    a. Selbstständig, im Angestelltenverhältnis, in Schule/Ausbildung/Studium, in Pension, sonstiges, arbeitslos

v. **Croatian Questions**

1. Gdje vi stanujete?
2. Kakva prevozna sredstva imate vi kod kuće?
3. Jeli imate vi raspored za javni prijevoz?
4. Jeli vi vozite svaki dan na poso, školu, ili u univerzitet?
5. Zašto vi vozite svaki dan?
6. Gdje vi vozite svaki dan?
7. Koliko od prilike vozite vi svaki dan?
8. Jeli vi mjenjate vaš plan vožnje u sezoni?

9. Koja prevozna sredstva koristite vi u ljeto?
10. Jeli vi upotrebljavate i druga vozila za srestva u putu?
11. Koji prevoz upotrebljavate u zimu?
12. Jeli vi upotrebljavate i druga vozila za srestva u putu?
13. Ako bicikl regularno trebate, zašto vi pretežno trebate?
14. Ako ne idete sa biciklom, zašto ne?
15. Jeli vi planirate u budućnost neko drugo prevozno sredstvo sa vaš put na poso, školu, ili u univerzitet birati?
16. Šta mislite vi o ponudi bicikla (1 veoma važno | 5 nevažno)
17. Kakve bi bile vaše ideje za ponudu bicikla?
18. Koliko godina vi imate?
19. Pol: ženski pol || muški pol
20. Koji tip od domaćinstva odnosi na vas?
21. Koliko osoba stanuje kod vas?
22. Vi ste sad: neoženjen | oženjen

vi. Croatian Answers

1. Mjesto, poštanski broj
2. Privatno auto, radno auto, motor, električno vozilo, bicikl, drugo vozilo
3. Da, ne, sezonska karta
4. Da, ne (dalje sa 18)
5. Poso, Škola, Studija
6. Mjesto, poštanki broj
7. Minuta, kilometer
8. Da, ne
9. Javni prevoz, privatno auto, zajednička vožnja, električno vozilo, bicikl, drugo vozilo
10. Ne, Javni prevoz, privatno auto, zajednička vožnja, električno vozilo, bicikl, drugo vozilo
11. Javni prevoz, privatno auto, zajednička vožnja, električno vozilo, bicikl, drugo vozilo
12. Ne, Javni prevoz, privatno auto, zajednička vožnja, električno vozilo, bicikl, drugo vozilo
13. Nije primjenjivo, bez auta, izbjeći gužve, parking naknade previsoka, premolo parking mjesta, gorivo preskupo, javni prevoz preskup, raspored vožnje nepovoljan, predaleka stanica, iz ekoloških razloga, za zdravlje, moda, drugi razlog
14. Nije primjenjivo, bez bicikl, pogodnost, dugi putovi, vrijeme, nije sigorno, premalo prevoza, loše biciklističke staze, prepolagano, nema mogućnosti za preobuku, nema mjesta za ostavu, drugi razlog
15. Da, ne (dalje sa 16) | prevozna sredstva, privatno auto, zajednička vožnja, Car-Sharing, električno biciklo, bicikl, razlog vožnje
16. 1: Vrlo važna | 5: nevažan: Znakovi vožnje, čistoća biciklistički staza, više biciklistički staza, više znakova i linija na cesti, mjesta za ostavu na stajalištu, mjeso za prtljagu, bicikl u javni prevoz unijeti, informacije, bicikl-kampanja, iznajmljivanje bicikla, koji drugi prijedlog bi vi predložili?

17. TEXTBOX
18. Ispod 18, 18-25, 26-35, 36-45, 46-55, 56,65, 66-75 iznad 75
19. Pol: muški | ženski
20. Sam, samohrani roditelj, par sa djecom, zajednica sa prijatelima, par bez djece
21. Tbx_1: Ukupno, Tbx_2: od tog ispod 18 godina
22. Samostalan, radnik, učenik/student, penzioner, nezaposlen, drugo