

ÜGK / COFO / VECOF 2024 (HarmoS 4) Field Trial

## **Parent Questionnaire: Technical Report**

*Cooperation ÜGK / DigiPrim*

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**Abstract:** This technical report offers support to researchers who intend to use the data from the parent questionnaire of the ÜGK / COFO / VECOF 2024 (HarmoS 4) Field Trial 2022. The report documents the main steps of the implementation of the parent questionnaire and provides detailed information on response rates and the progress of the field work. Its main aim is the documentation of the processes that generated the data in the Scientific Use File.

**Keywords:** ÜGKH4 field trial, survey data, parent questionnaire, large-scale assessment, field management, methodological report, survey methodology

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# 1 Introduction

The parent questionnaire within the ÜGK / COFO / VECOF 2024 (HarmoS 4) Field Trial 2022 (which is referred to here as the ÜGKH4 field trial) was developed and implemented by the Interfaculty Centre of Educational Research (ICER) of the University of Bern, Switzerland, in cooperation with the ÜGK / COFO / VECOF project team and the BeLEARN project DigiPrim. The parent questionnaire supplements the information provided by the students and helps to clarify or validate survey questions on socio-demographics. Parents of all students participating in the ÜGKH4 field trial were asked to complete an online questionnaire, available in multiple languages. The parent questionnaire covered two main topics: First, educationally relevant aspects of the family and children's home environment and second, aspects relevant for children's learning in a digital environment.

The target group of this study are parents of students at HarmoS level 4 (second grade) in Swiss primary schools. The ICER invited the parents via an invitation post card handed out to the students following their test session at school, as no names or address data of the parents were accessible to the ICER. The only case when the ICER had direct contact with personal data from the parents was when the parents actively contacted the ICER (e.g., via the support hotline). This technical report documents the main steps of the implementation of the parent questionnaire in the ÜGKH4 field trial.

# 2 Study design

The parent questionnaire asks parents of students participating in the ÜGKH4 field trial about educationally relevant aspects regarding their children within a 15-20 minutes online survey. The survey for parents is designed as a cross-sectional study. In preparation for the ÜGKH4 field trial and the main survey in 2024, a pre-field trial was conducted in September 2021. Key elements under investigation regarding the design of the ÜGKH4 field trial are:

- Parent questionnaires for all three language regions (German, French, Italian) and English
- Short multilingual questionnaires
- The validation of the children's responses on socio-economic background
- Gathering information on digitalization in the home environment

The data collection for all students took place between May and June 2022. Students participating in the ÜGKH4 field trial received an invitation post card following their test session. The invitation post card included personalized login details for the students' parents and a link to the online parent questionnaire. The landing page was in the respective school language, but it allowed parents to choose their preferred questionnaire language. A reminder post card was handed out to all students whose parents had neither filled out nor

actively refused to participate in the study seven days after the students had participated in the ÜGKH4 field trial.

Prior to their child's test session, all parents received a pre-notification letter announcing that their child had been randomly selected for participating in the ÜGKH4 field trial. The letter further informed the parents that they themselves would be contacted by the study conductors concerning a survey following their child's participation in the ÜGKH4 field trial. For further inquiries, a contact person was named and a toll-free telephone number was provided; reference was also made to the general homepage of the ÜGK / COFO / VECOF study.

Table 1: Study overview

Dimension	Details
Data collection instrument	Online questionnaire
Field time	May 2 – July 18, 2022
Sample	Main two-stage sample of ÜGKH4 field trial
Number of invited households	4,822
Languages	Main questionnaire: German, French, Italian, and English Short questionnaire: Spanish, Portuguese, Bosnian/Croatian/Serbian, Albanian, Arabian, Chinese (simple), Dari, Polish, Russian, Tamil, Tigrinese, and Turkish
Contact	Contact to the parents was established via an invitation post card and one reminder post card
Valid interviews	2,736
Reminder	1 <sup>st</sup> Reminder: Individual timing, one week after child participated in the ÜGKH4 field trial
Quality assurance	Weekly field monitoring Reaction to problems during the field (e.g., access to the parent questionnaire via the ÜGK / COFO / VECOF homepage)

### 3 Data collection instruments

#### 3.1 Overview of questionnaire content

The parent questionnaire contains 45 questions in the main version. Four questions (other or multiple languages spoken at home, possession of electronic car(s), working time mother, working time father) were displayed only if a filter condition was met, while three questions (house images) were modified depending on a filter condition in the question "housetype". Accordingly, the minimum number of displayed questions was 41.

The parent questionnaire consists of three parts (45 questions), covering the following topics:

- Part 1: General questions: Socio-demographics
  - Login (2 questions)
  - Language and origin information (5 questions)
  - Information on the child's living situation (15 questions)
  - Information on education and occupation (7 questions)
  - Information on the child's leisure activities (1 question)
- Part 2: Digitalization in the home environment
  - Digital divide, children's use (4 questions)
  - School-related activities (2 questions)
  - Digital divide, children's competencies (2 questions)
  - Digital divide, parents (3 questions)
  - Child competencies, general domain (1 question)
- Part 3: Questionnaire evaluation (3 questions)

Several questions were adopted from other studies. The most important sources for the parent questionnaire were: PISA ("Programme for International Student Assessment"), MIKE ("Medien, Interaktion, Kinder, Eltern"; Zürcher Hochschule für Angewandte Wissenschaften), KIM ("Kindheit, Internet, Medien"; Medienpädagogischer Forschungsverbund Südwest), ICILS ("International Computer and Information Literacy Study"), and GIP ("German Internet Panel").

The majority of questions were closed-ended text-based questions with multiple answer categories. For example: "Which language does your child speak the most at home?" (Categories: Swiss German, German, French, Italian, Ticinese dialect, Rhaeto-Romanic, Other). Several closed-ended questions were displayed together with an open text field offering space for indicating details or any "other" answers.

### **3.1.1 Modifications - Short questionnaire**

The parent questionnaire in its main (long) version was offered in four different languages: German, French, Italian, and English. To enable participation of parents without sufficient skills in one of these languages, a shorter version of the questionnaire was created and translated into 12 further languages (see below).

The short questionnaire contains 15 out of the 45 questions from the long version, focusing on the most important socio-demographic questions. The image questions from the main questionnaire (Part 1) were not included. Both the part on "digitalization in the home environment" (Part 2) as well as the questionnaire evaluation (Part 3) were removed for the short version. For more details, please refer to the questionnaire documentation.

### **3.1.2 Translation process**

#### **Main questionnaire**

The main questionnaire was developed originally in German. A pre-field trial of the parent questionnaire (only general questions) was conducted in 2021. In the first months of 2022, the questionnaire was supplemented by the questions on the digitalization in the home environment. The questionnaire was then evaluated by the cooperating institutions in the French- and Italian-speaking language regions. Subsequently, a first translation of the questionnaire in French and Italian was performed by the ÜGK / COFO / VECOF project team. Whenever possible, this translation adopted original translations of scales taken from other studies. The translations were then refined in an iterative process between the ÜGK / COFO / VECOF project team and the cooperating institutions. The latter evaluated the appropriateness of the questionnaire content and language for the specific contexts of French- and Italian-speaking Switzerland.

#### **Short questionnaire**

The short questionnaire in German was translated into 12 languages (Spanish, Portuguese, Bosnian/Croatian/Serbian, Albanian, Arabian, Chinese (simple), Dari, Polish, Russian, Tamil, Tigrinese, and Turkish). The translation process included the simplification of language at certain points. The selection of languages was based on an evaluation of the translations usually offered by the cantonal departments for education on their websites. The translations were externally performed by the translation company Interserv AG.

## **3.2 Implementation of questionnaire**

### **3.2.1 Online survey software**

The online questionnaire was implemented using the online survey system LimeSurvey, Version 5.3.24+220711. The survey was implemented using the free and open source "LimeSurvey Community Edition", hosted on a server of the ICER located in Bern, Switzerland. The access to the survey was conditional on access to the personalized login details that parents received through the invitation cards. Parents who did not have the login details had to call the support hotline in order to receive new login details. The online questionnaire was optimized and tested for both desktop and mobile (touchscreen and small screen) use.

### **3.2.2 Predefined lists**

Parental occupations were surveyed through combo box (combination of a text box and a drop-down box) in the main questionnaire. The drop-down suggestions were based on an occupation list provided by the Swiss Federal Statistics Office offering 8,854 different occupation titles in the main survey languages (German, French, Italian, English), including both female and male occupation titles. The list and the corresponding database is optimized

for the context of Switzerland, as it enables linking occupation titles directly to standardized occupational codes (e.g., national or ISCO codes).

### **3.2.3 Questionnaire design**

Respondents were able to jump back and forth between questions. No questions were mandatory. Some questions showed warning messages when answers did not match the required format, but it was still possible to proceed to the next question. No pop-up messages were displayed in case no answer was given to a question. It was not possible to "unclick" initial answers in matrix questions, but it was always possible to change the selection.

The questionnaire had no progress bar. A "continue later" button was constantly visible at the top right of the page, which saved the answers of the current page (however, some browser privacy settings could have disabled this function). The latest answers were always saved regardless of the completion of the questionnaire by the respondents.

### **3.2.4 Pre-field trial**

An official pre-field trial was performed in autumn of 2021 for the student and the parent questionnaires (parent  $n = 225$ , student  $n = 429$ ). The parent questionnaire for the pre-field trial was restricted to the general questions (see section on data collection instruments). Just like the parent questionnaire in the ÜGKH4 field trial, the parent questionnaire for the pre-field trial was offered in 16 languages, including a main and a short questionnaire version.

### **3.2.5 Pretesting**

Pretests of the implemented parent questionnaire for the ÜGKH4 field trial were conducted within the project team and by external scientists. After the online implementation, internal pretests and editing, the final parent questionnaire was approved by the Kosta HarmoS (Coordination staff for the application of the intercantonal agreement on harmonisation of compulsory education in Switzerland).



## 4 Field monitoring

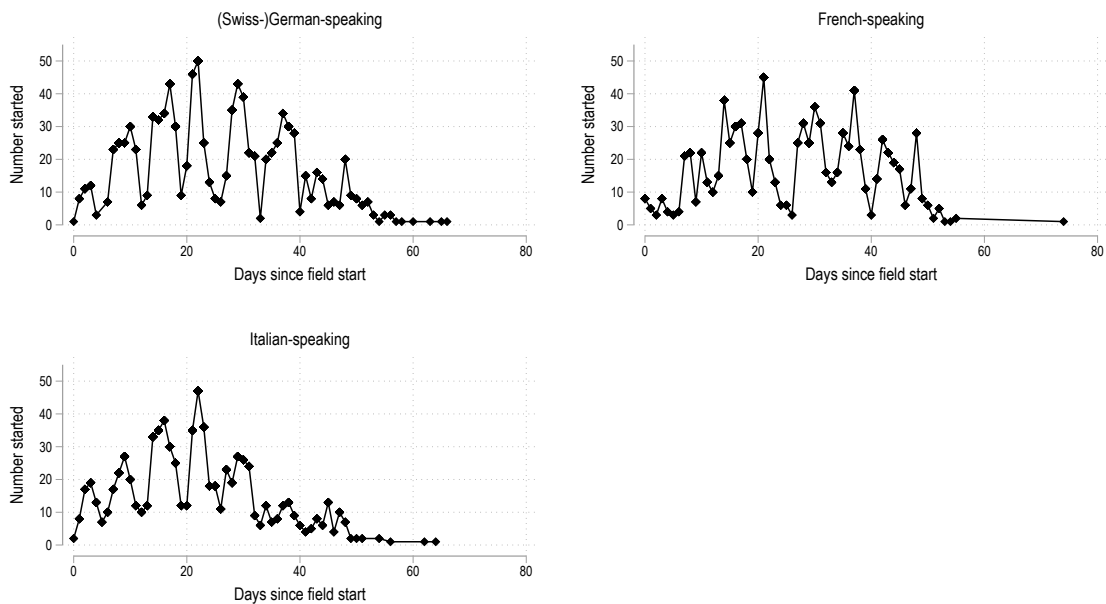
In total, 2,736 respondents (parents) participated in the ÜGKH4 field trial. Participation is defined as giving a valid answer to at least one question. Of the 2,736 respondents, 130 (4.8%) filled in a short questionnaire, the remaining 2,606 respondents (95.2%) filled in the main questionnaire. 77.3% of respondents indicated to be the mother (or the first legal guardian) of the child participating in the ÜGKH4 field trial and 22.0% indicated to be the father (or the second legal guardian).

### 4.1 Field work evolution

As described in the Study Design section, parents could only access the parent questionnaire with personalized login details and these login details were handed out to the children following their participation in the ÜGKH4 field trial. Because test session dates of the ÜGKH4 field trial were distributed unevenly between May 02, and June 14, 2022, parents received the invitation cards on different dates. Test session dates also varied between language regions.

Figure 1 plots the daily number of started parent questionnaires (both main and short questionnaires), by main language of the child's school. Day 0 corresponds to the date of the first test session of the ÜGKH4 field trial (May 02, 2022). The last test session took place on day 43 after the start of field work. Correspondingly, only a minority of parents started the questionnaire after this date. The figure demonstrates that despite the individual dates, the field work proceeded rather similarly between language regions.

Figure 1: Number of started parent questionnaires per day, by school main language



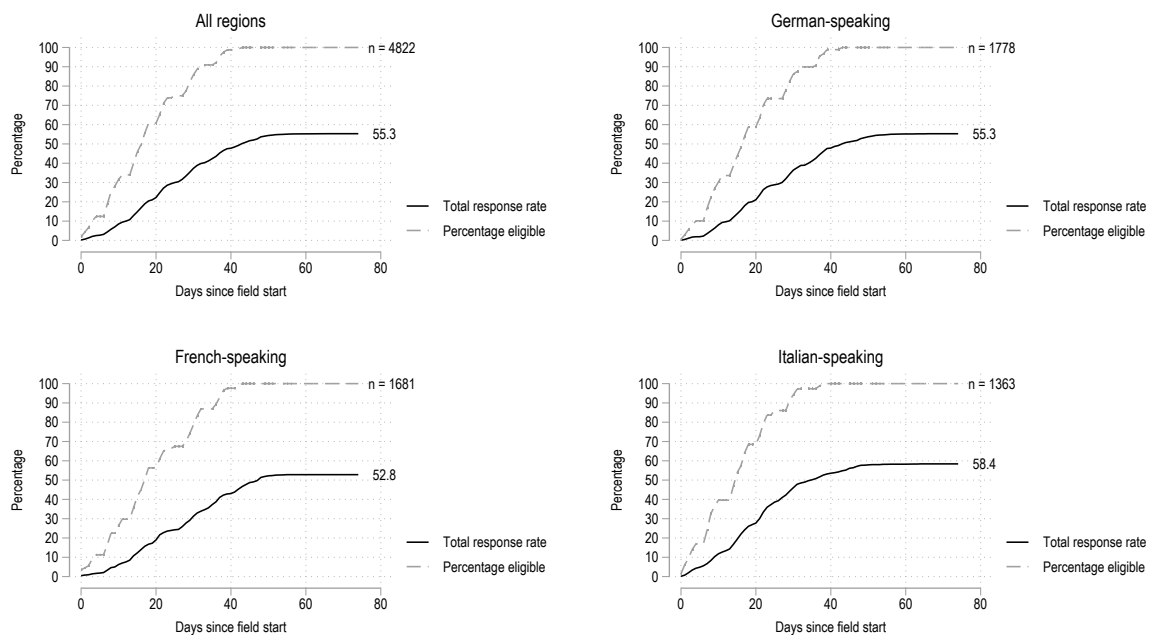
## 4.2 Unit nonresponse - Participation

Figure 2 displays the response rate over the course of the field work (straight line), overall and by language region. The response rate was calculated following the AAPOR standard definition (American Association for Public Opinion Research (2017); Response Rate 2). The cumulated number of completed (more than 80% of questions answered) and partial (at least 50% of questions answered) parent questionnaires on a given day after field start is divided by the constant number of all potentially invited parents. The response rates presented here include both participation via the main and the short questionnaire.

The response rate among parents whose children attend a school where (Swiss-)German is the main school language was 55.3%, which coincides with the total response rate over all language regions (55.3%). The response rate in the French language region is the lowest with 52.8%, and it is the highest (58.4%) in the Italian language region. The overall response rate levels off approximately 40 days after field start. The dashed lines (percentage of all parents invited over time) illustrate that the levelling off of the response rates coincides with the end of the field work phase.

Because some data users might be interested in specific questions posed in the beginning of the questionnaire only, all respondents with at least one valid answer were included in the scientific use file (SUF). Figure 14 in the Appendix shows the alternative response rate(s) if these cases were counted as partial interviews instead of breakoffs. According to this alternative calculation, the overall response rate is slightly higher (56.7%).

Figure 2: Response rate parents vs. invited parents



### 4.2.1 Examining possible nonresponse bias

High participation rates in surveys do not necessarily imply no bias in survey data estimates (selection or nonresponse bias). Hence, the realized sample composition needs further investigation. In the following, "non-participation" means that parents who were selected and invited to participate in the ÜGKH4 field trial (because their child participated in the ÜGKH4 field trial) did not participate in the study at all.

First, a so-called benchmark comparison is calculated (absolute relative mean bias), where the benchmark is the data from all students and this is compared against the data from the students whose parents participated in the survey (only variables with a low number of missing values are used). Second, the same comparison is also performed for pairs of variables and the differences between correlation coefficients are compared. Third, so-called R-indicators is estimated, which indicate the representativeness of the realized sample in relation to the drawn sample. Finally, a nonresponse model is estimated. These results give an impression on whether univariate, bivariate or multivariate analysis based on the realized sample might suffer from nonresponse bias. For subgroups, analysis were partly estimated with a package by Rohr (2023).

Figure 3 shows a coefficient diagram for the relative difference in the values of the various characteristics of the participating parents compared to the entire parent population (measured here on the basis of the information provided by the students, since information is available for both non-participating and participating parents). The absolute average relative bias is 9.7% for all the characteristics that were under investigation here. Generally, parents of students with special educational needs and a migration background participate less in the study.

Furthermore, parents of students 9 years and older, those who do not speak the school language exclusively, or those who speak only other languages, seem to have participated less in the parent questionnaire. Also, parents of children with a high number of siblings or one or no computer at home participate less. Households, who have few books in the household are under-represented in the survey. In contrast, households in which only the school language is spoken, that have many bathrooms and a lot of books participated to a larger extend in the study. Furthermore, parents of the French-speaking part of Switzerland seem to participate less in the study.

Figure 3: Coefficients (with confidence intervals) of the relative difference between the data of the students whose parents (not) participated in the survey (EFB) and the data of all students (benchmark).

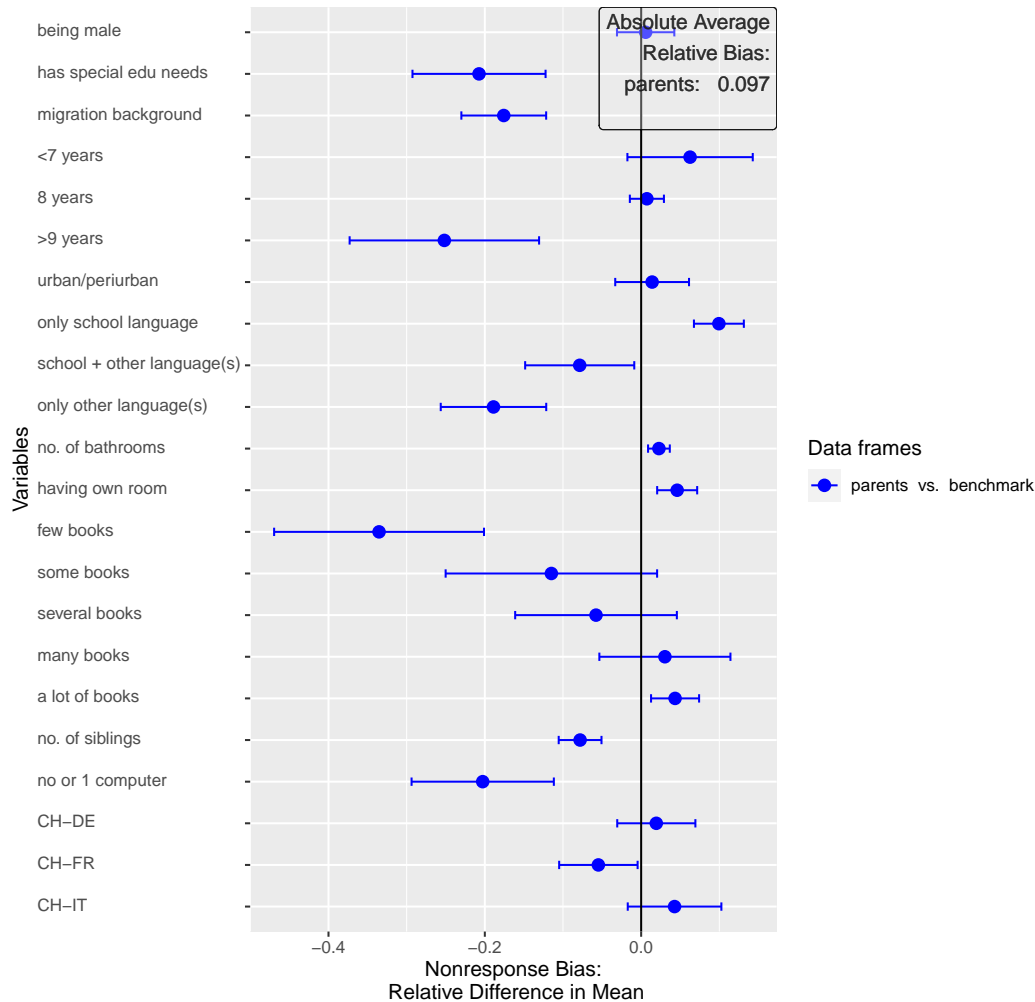
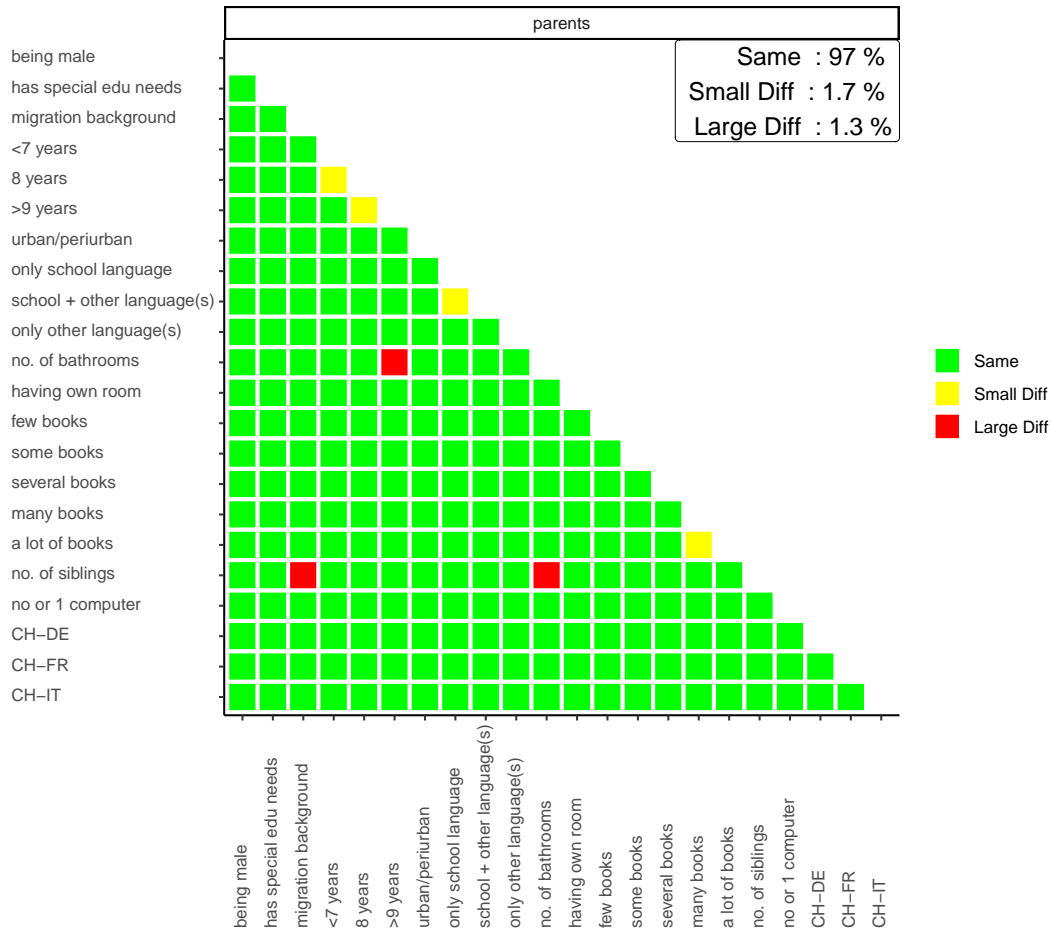


Figure 4 shows the same characteristics as Figure 3, only in a bivariate context. The color of the squares indicates the size of the difference in correlation between the target sample and the realized parent sample (green = no differences; yellow = small differences; red = large differences). 96.5% of the correlations are the same in the realized parent sample and in the targeted sample. Only 1.3% of the correlations show large differences between the non-participating and the participating parents. For example, the correlation between the number of bathrooms and the number of siblings is biased.

Figure 4: Comparison of correlations between individual characteristics of students whose parents participated in the survey (x-axis) and all students (y-axis).

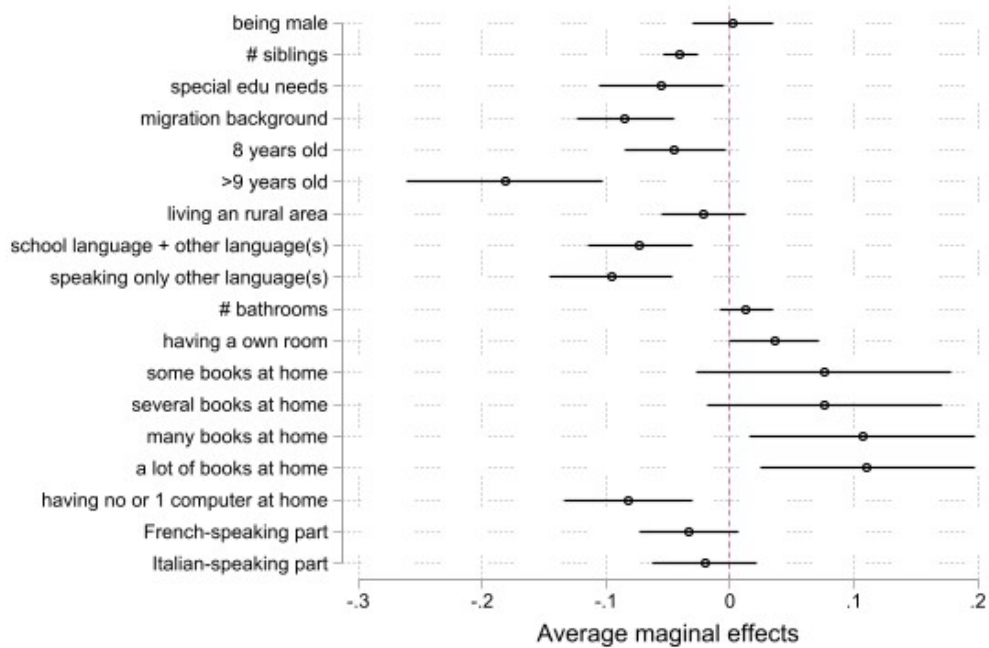


R-indicators describe the variance in the probability of sample members to respond to (participate in) a given survey Schouten et al. (2012). The higher the variance in response probabilities (and hence, the higher the R-indicator), the more likely the sample of parents is unbalanced (implying reduced "representativeness"). A higher R-indicator further indicates, theoretically, a higher likelihood for non-participation bias regarding other variables that correlate with respondents' probability to participate in the study. R-indicators are normalized to a scale of zero to one, where one indicates strong representativeness and zero indicates the greatest possible deviation from representativeness from the target sample, based on the characteristics investigated. The estimated R-indicator for a model with the variables present in Figure 3 and 4, is 0.75 ( $SE = 0.00$ ), which indicates a moderate data quality and is thus not consistent with the very low bias in the relative differences in the mean and in the correlations presented above.

Figure 5 presents a coefficient plot of average marginal effects, based on a logistic regression of parents' non-participation in the study ( $n = 3,270$ ; pseudo  $R^2 = 0.05$ ). The pseudo

$R^2$  shows very low explanatory power of the characteristics used for non-response models (other characteristics of parents not available here might contribute more to non-participation mechanism). Nevertheless, we find some significant associations. According to figure 5, parents of children with a migration background are less likely to participate in the survey compared to parents who were born in Switzerland. This finding is consistent with Figure 3, which showed that parents of students with migration background are under-represented in the realized sample. Additionally, parents with more children and parents of older children (compared to parents of children aged 7 and younger) are less likely to participate in the survey. Not speaking the school language exclusively and having no or less than one computer in the household also affects the likelihood of participation negatively. Parents with many books in the household participate with a higher likelihood compared to parents with few books at home.

Figure 5: Logistic regression of parents' non-participation in the survey.



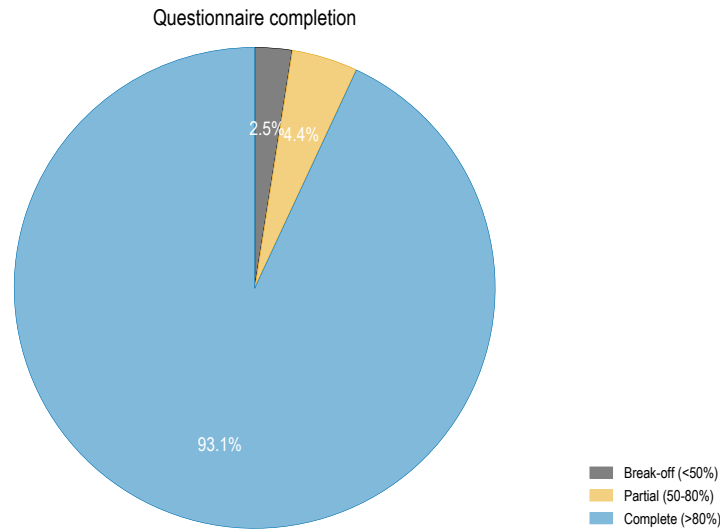
### 4.3 Item nonresponse and interview duration

#### 4.3.1 Questionnaire completion

Figure 6 reports the distribution of questionnaires (both main and short) over the questionnaire completion status, following the AAPOR standard definition (American Association for Public Opinion Research 2017). The share of complete questionnaires (>80% of questions answered) is 93.1%, which is high considering the length of the main questionnaire. 2.5% of respondents who started a questionnaire answered less than 50% of all questions. These cases can be technically considered as breakoffs, they are included in the SUF nev-

ertheless. 4.4% of respondents completed the questionnaire partially (50-80% of questions answered).

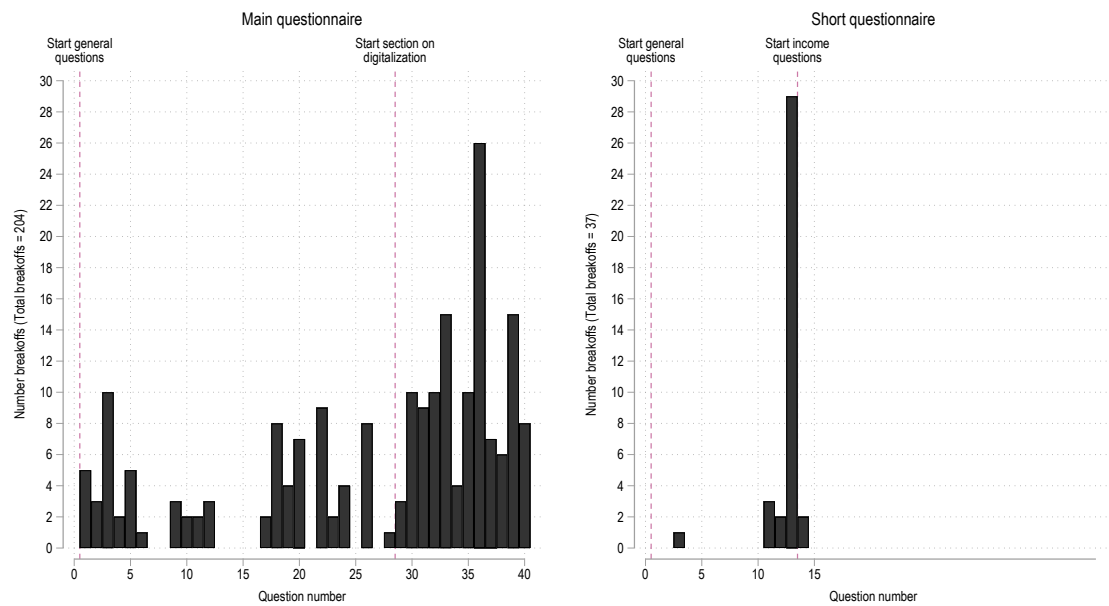
Figure 6: Share of breakoffs, partial and complete questionnaires



#### 4.3.2 Breakoff positions

Figure 7 displays the number of respondents who terminated the questionnaire after each question. The graph on the left indicates that in the main questionnaire, many parents terminated the questionnaire within the section on digitalization. This may result from either a dislike of the content of the questions or from the fact that the response times were higher than anticipated for many participants, possibly leading to a content-independent decision to terminate the survey. The highest number of breakoffs ( $n = 26$ ) occurred prior to the item battery on children's informational digital skills (Question 37). The open answers suggest that the offered response categories (e.g., storing and retrieving documents) were possibly considered as not adequate for 8-year-olds. In the short questionnaire, most breakoffs ( $n = 29$ ) occurred prior to the final questions on parental income, pointing to the higher sensitivity of questions on personal income.

Figure 7: Survey breakoffs by position of last question answered



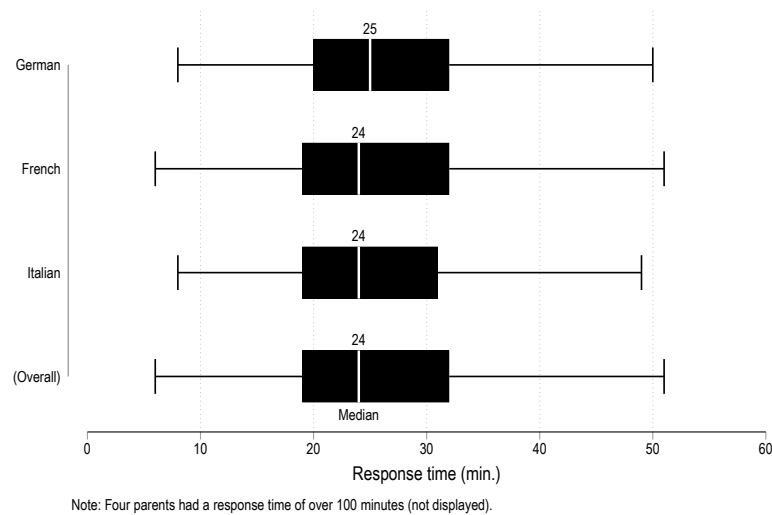
### 4.3.3 Interview duration

Figure 8 presents boxplots summarizing the distribution of response times (the time respondents who completed the questionnaire (more than 80% of questions answered) spent on the questionnaire), overall and separately by questionnaire language. The left and right borders of the black boxes indicate the positions of the 25%- and the 75%-percentiles, the white line in the middle of the boxes indicates the medians (50%-percentiles; annotated).

The estimated response time for the (main) survey that was communicated to the potential respondents beforehand was 15-20 minutes. Many respondents took considerably more time than estimated, with the overall median (24 minutes) laying somewhat, however not grossly beyond the estimated questionnaire length. The distribution of response times was very similar between the main survey languages (Swiss-)German, French and Italian.



Figure 8: Response time of completed surveys by language, main questionnaire



## 4.4 Evaluation of the survey

### 4.4.1 Evaluation by the parents

Figure 9 shows the general satisfaction with the main parent questionnaire. Overall satisfaction was good, with around half (49.9%) of the respondents indicating they found the questionnaire either "good" or "very good", and 32.4% responding with "average". 8.9% of parents found the questionnaire "not so good", and 2.2% did not like it at all. 6.7% of respondents were unsure.

Figure 9: Overall evaluation of main questionnaire by respondents

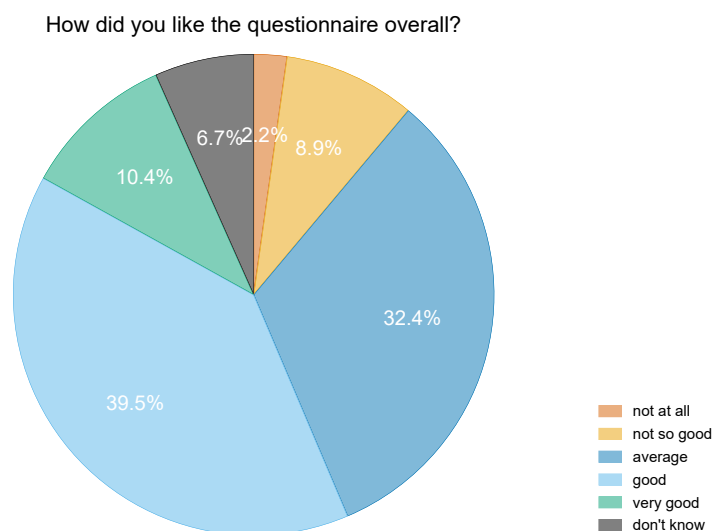
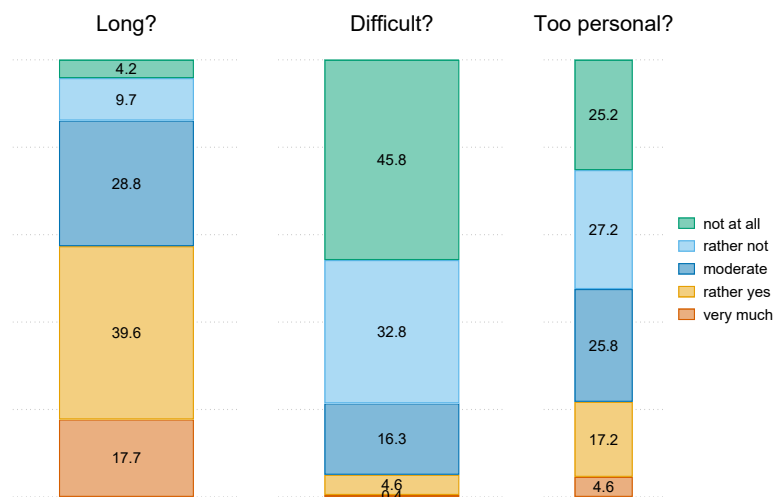


Figure 10 shows the overall satisfaction with certain aspects of the main parent questionnaire. A majority of respondents found the questionnaire to be long (17.7 % responded with "very much" and 39.6% said "rather yes"), which is unsurprising given the average response times being higher than estimated and communicated (see Figure 8). The vast majority of parents did not find the questionnaire difficult (45.8% said "not at all" and 32.8% said "rather not"). Regarding the question whether the questions were "too personal", the picture is more mixed. Around a quarter of parents each indicated that they found the questionnaire not too personal at all, rather not too personal, or replied with "moderate". 21.8 % said they found the questionnaire too personal. However, 17.2 % said "rather yes" instead of "very much".

Figure 10: Respondents' evaluation of certain aspects regarding the main questionnaire



In total, 258 parents used the open text fields at the end of the survey to make further comments (about 9.4% of respondents). 107 comments (41.5%) came from parents in the German, 89 (34.5%) from parents in the French, and 62 (24.2%) from parents in the Italian language region. 12.3% of parents from the German, 11.7% of parents from the French, and 8.2% of parents from the Italian language region made comments.

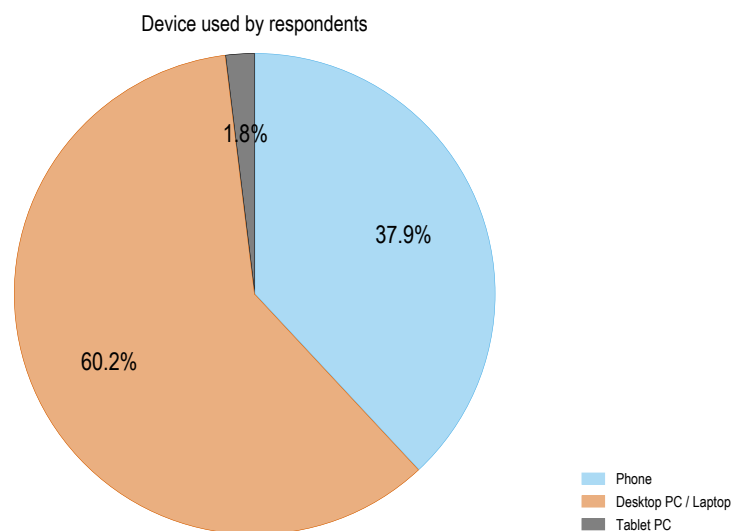
The majority of comments referred to the content of the questionnaire: 59 respondents critiqued the overall content or would have preferred other topics. 23 respondents found the overall questionnaire content not adequate regarding the age of their children. 26 respondents specifically argued that the digitalization questions were age-inadequate. 12 respondents said they did not understand the purpose of the parent questionnaire. 9 respondents commented on the ÜGK in general. 46 respondents elaborated on their child's digital media use or their own general opinion on the topic.

28 respondents critiqued the questionnaire design, seven respondents stated that they felt that the questions were too personal and eleven respondents found the questionnaire too long. 89 further comments referred to other topics (many of those comments said "thank you" or expressed interest in the results of the ÜGKH4 field trial).

## 4.5 Devices used to access questionnaire

Figure 11 presents the distribution of devices used by respondents when answering the questionnaire. 37.9% (18.5% (Android) + 19.4% (iOS)) of respondents accessed the questionnaire on a mobile phone. Including the additional 1.8% of respondents who used a Tablet PC, approx. 40.0% of respondents used a mobile (touchscreen) device, underlining the importance of mobile optimization of the questionnaire. The share of completed questionnaires was higher among respondents who used a desktop or laptop PC compared to those who used a phone (96.1% vs. 88.4%). This suggests that it was easier or less burdensome to complete the questionnaire on a larger screen. However, the share of 88.4% completed questionnaires on mobile phones gives no reason for larger concerns regarding technical problems in the mobile questionnaire version. Median response times did not differ between desktop computers and laptop users on the one and phone users on the other hand (median = 24 minutes; only complete main questionnaires).

Figure 11: Device type used for accessing the parent questionnaire, all formats



## 4.6 Support hotline

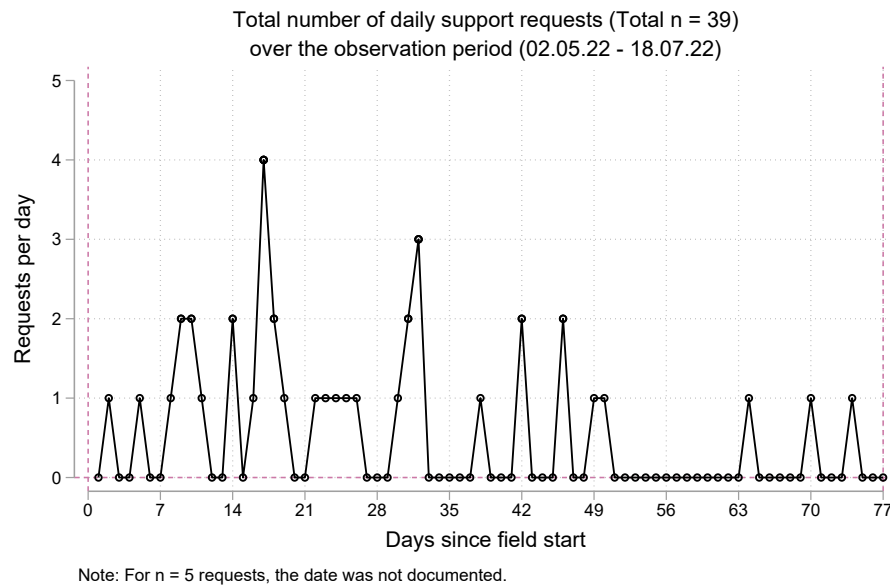
Respondents were offered a support for any questions or problems via both telephone and E-mail. The telephone hotline was available during office hours (9 a.m. to 5 p.m.) on working days (Monday to Friday). The hotline was offered in the respective schools' main language (German, French, or Italian) and in English.

### 4.6.1 Frequency of support requests

Parents issued 44 support requests in total, 30 via phonecall and 14 via email. Figure 12 shows how the number of support requests developed over the course of the fieldwork. Con-

sidering that 2,736 parents took part in the online survey, the number of support requests was rather low (1.6%).

Figure 12: Number of support requests per day regarding the parent questionnaire

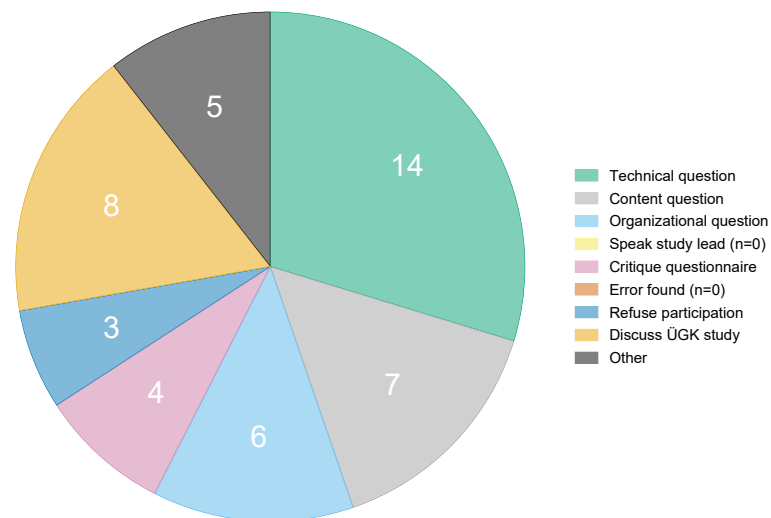


#### 4.6.2 Content of support requests

Figure 13 shows that the largest share of requests referred to technical aspects (e.g., accessing the survey or saving the answers). Questions regarding the content of certain questions were posed by seven parents. Six parents had organizational questions, e.g., if both parents could complete a separate questionnaire, or whether accessing the results would be possible. Four parents critiqued the content of the questionnaire for various reasons.

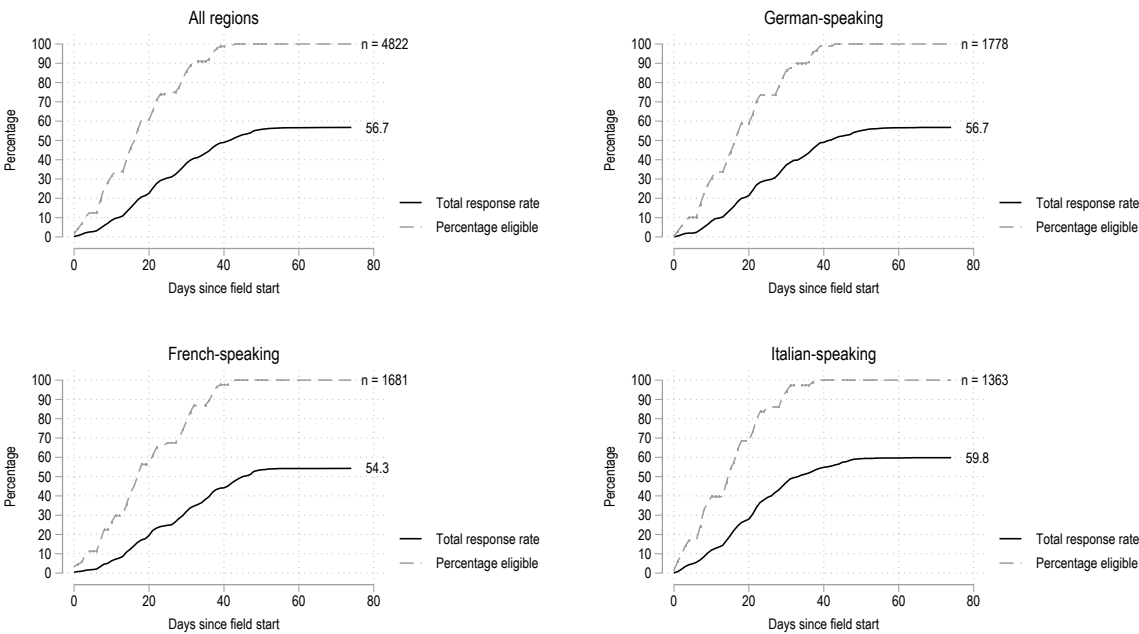
Eight requests referred to the general study ÜGK / VECOF / COFO, not the parent questionnaire. Three parents stated that they refused to take part in the survey. No parent requested speaking to the principal investigator (PI) or reported errors in the questionnaire. Please note that multiple reasons per request were possible.

Figure 13: Number of support requests regarding the parent questionnaire by topic in absolute numbers



# 5 Appendix

Figure 14: Response rate parents vs. invited parents, including breakoffs



## References

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