Sample Characteristics

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**Number of survey respondents**

The survey included three waves, with one wave each year from 2021 to 2023. Total number of respondents per wave were the following:

- 2021: 9203 respondents

- 2022: 9708 respondents

- 2023: 5794 respondents

In addition to a broad national survey, participants were also specifically recruited at the four higher education institutions that are partners within the OPTIMA project:

- Lviv Polytechnic National University (LPU)
- Sumy State University (SumDU)
- Vasyl' Stus Donetsk National University (DonNU)
- Lutsk National Technical University (LutskNTU)

	2021	2022	2023
National	7987	7727	4560
LPU	754	1349	530
SumDU	257	306	327
DonNU	125	225	231
LutskNTU	80	101	146

Number of Survey Respondents by Survey and Year
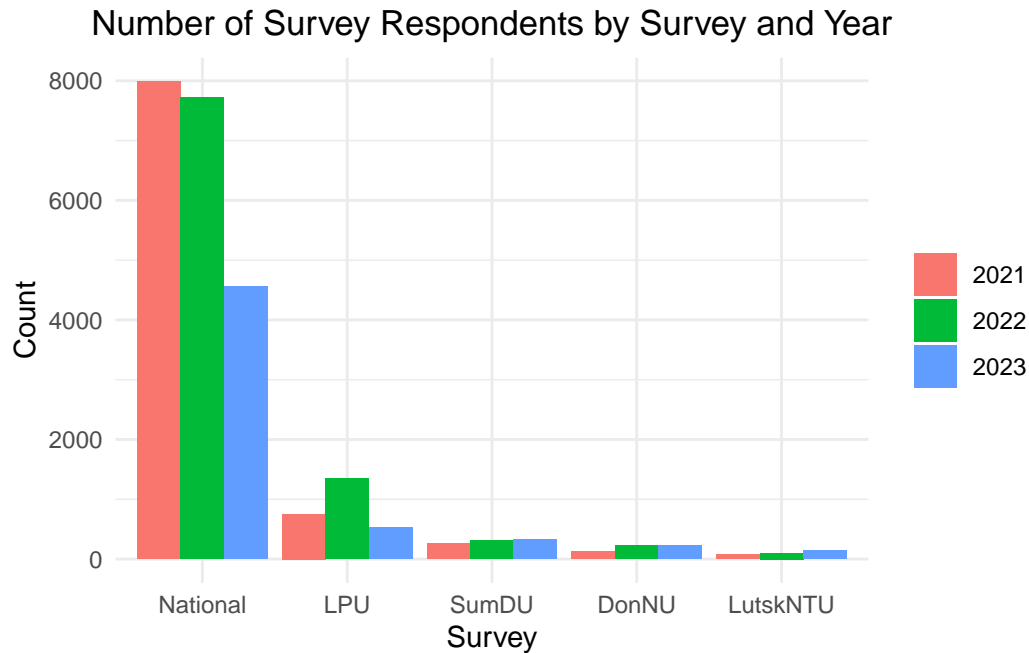
Academic role

Participants indicated what they are best described by in terms of academic roles: *"Which of the following best describes you?"*

	2021	2022	2023
student - 1st year	1337	1697	584
student - 2nd year	1118	1383	507
student - 3rd year	797	1326	486
student - 4th year	701	970	471
master student	703	903	691
doctoral student - PhD	458	298	342
doctoral student - ScD (higher doctorate)	44	37	24
faculty	3307	2522	2150
research staff	118	216	113
university administrator	193	150	156
librarian	223	84	90
other	204	122	180
NA	0	0	0

Gender

	2021	2022	2023
female	6090	6007	3731
male	3063	3636	2017
other	50	65	46

Degree

"What is the highest completed academic degree you have?"

	2021	2022	2023
none (still studying)	3731	5100	1906
bachelor	973	1083	779
master	1150	947	932
PhD	2499	1932	1590
ScD (higher doctorate)	850	646	587

Work experience

"How many years have you been working in higher education and/or research?"

	2021	2022	2023
I have never worked in this sphere	4379	5998	2682
less than 1 year	323	229	168
1-5 years	682	525	372
5-10 years	542	378	312
more than 10 years	3277	2578	2260

Field/Discipline

"What is your field of study or work?"

	2021	2022	2023
Agricultural and food sciences	173	386	105
Architecture and construction	186	304	151
Automation and instrumentation	107	113	97

	2021	2022	2023
Biology	185	197	101
Chemical and bioengineering	234	208	183
Civil security	102	64	36
Culture and art	256	245	185
Education/pedagogy	1462	1200	885
Electrical engineering	113	193	105
Electronics and telecommunications	100	126	78
Health care	871	633	317
Humanities	752	590	522
Information technology	605	1081	478
Journalism	56	91	46
Law	1145	728	592
Management and administration	428	484	319
Mathematics and statistics	169	202	118
Mechanical engineering	154	339	170
Military sciences, national security, state border security	238	203	44
Natural sciences	309	302	188
Production and technology	142	281	140
Public management and administration	178	253	121
Service industry	81	163	83
Social and behavioral sciences	878	886	493
Social work	102	115	89
Theology	13	10	9
Transportation	91	231	88
Veterinary medicine	73	80	51

Publications

"How many research outputs (articles, monographs, conference papers) have you published in the last 3 years?"

	2021	2022	2023
0	3673	5165	1996
1-5	2094	1945	1581
6-10	1268	1026	880
11-20	1159	846	707
21-30	443	313	281
more than 30	566	413	349

Peer review

"How many peer reviews of research outputs (articles, monographs, reports) have you written in the last 3 years?"

	2021	2022	2023
0	5716	6929	3471
1-5	2237	1934	1558
11-20	309	219	216
21-30	120	67	53
6-10	677	481	393
more than 30	144	78	103

Type of institution

"What type of higher education institution do you study or work at?"

|	2021	2022	2023
agricultural	377	797	274
artistic	114	103	53
classical	1780	2005	1399
cultural	12	21	11
economical	363	402	180
humanitarian	203	212	101
law	390	294	201
medical	668	506	268
military and internal security (army, police, civil defense, etc.)	1282	596	316
other	259	520	253
pedagogical	1517	1363	975
pharmaceutical	277	55	11
physical education and sports	39	84	32
technical	1912	2745	1710
theological	10	5	10

Location

*"Your higher education institution is located in"...*

In 2022, this question was extended to *"Your higher education institution is located in (this refers to the original location before 02/24/2022)"*. For the 2023 survey, the phrasing of the question was again reduced to the one first employed in 2021.

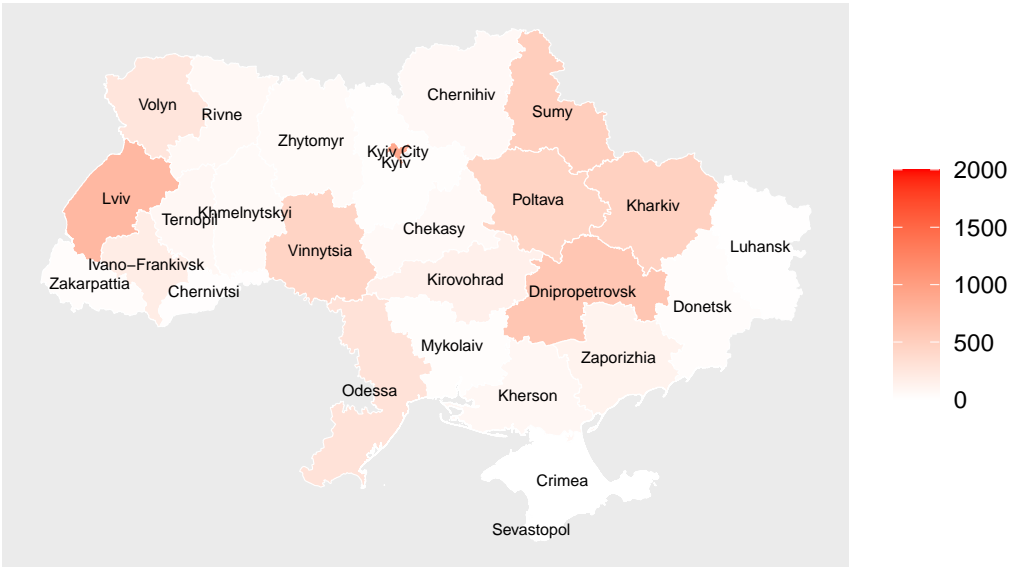Spatial data for the country of Ukraine and its Oblasts were retrieved from GADM for visualizations.

Respondents by Location in 2021
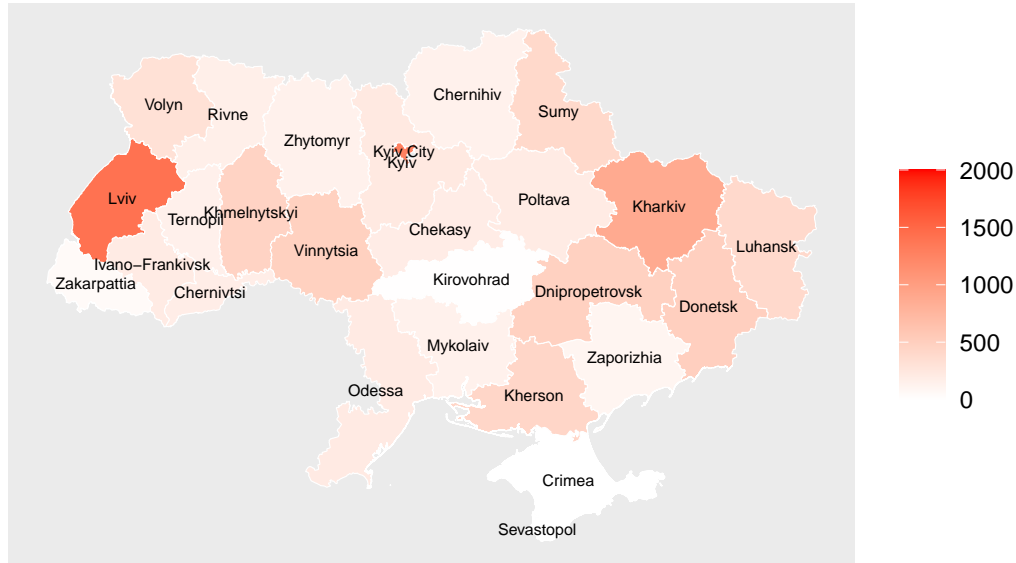
## Respondents by Location in 2022
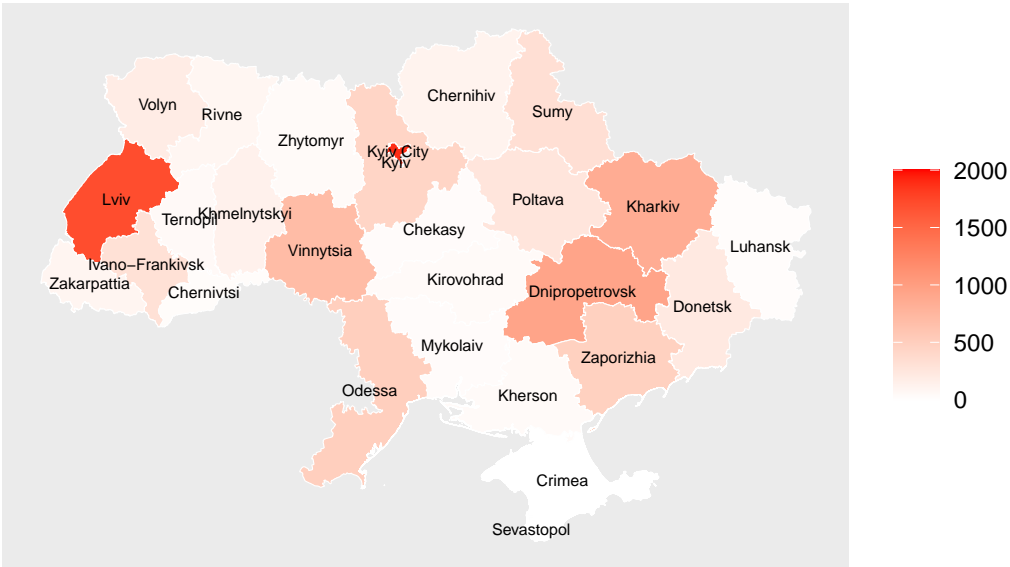
Respondents by Location in 2023

Investigation of Response Times

Time stamps were collected within the survey for start and finish. Total response duration was calculated as the difference between those two time stamps in minutes. These were examined more closely to estimate the risk of part of the sample only responding superficially and therefore very quickly.

First, basic descriptive statistics are examined for total response time. Additionally, a simple boxplot is created.

	vars	mean	sd	median	mad	min	max	range	skew	se
X1	1	16.21	84.9	9.07	4.15	0	5289.05	5289.05	34.04	0.54

Boxplot of Total Response Times
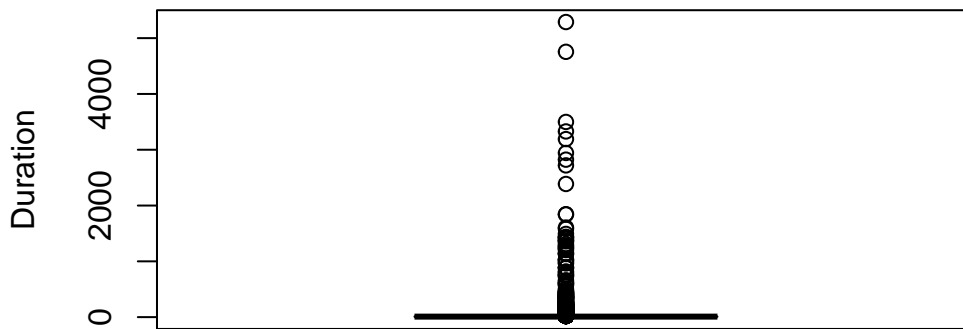
Especially the range of response times from 0 to over 5000 minutes (about three and a half days) is interesting. There are some outliers where respondents might have had the survey open for some days before finally submitting it. The survey took a median time of about 9 minutes to complete.

To have a closer look at the distribution of total response times, a histogram is created. Only times ranging from 0 to 30 minutes will be plotted for better visibility (extreme outliers are omitted).

Histogram of Total Response Times
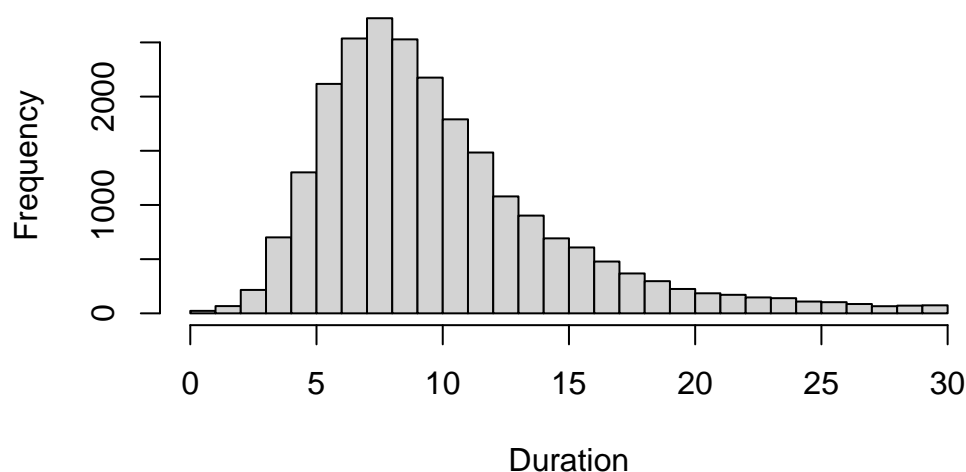
Only a small share of respondents finished the survey in less then 3 minutes. The peak in the distribution can be seen between 7 and 8 minutes.

Since different groups in the academic context might vary in their familiarity with the topic, they might differ in their response times. To detect possible pronounced differences, distribution of total response time is plotted separately by academic role indicated (again limiting the range of visualized values from 0 to 30).

Distribution of Total Response Times by Academi…
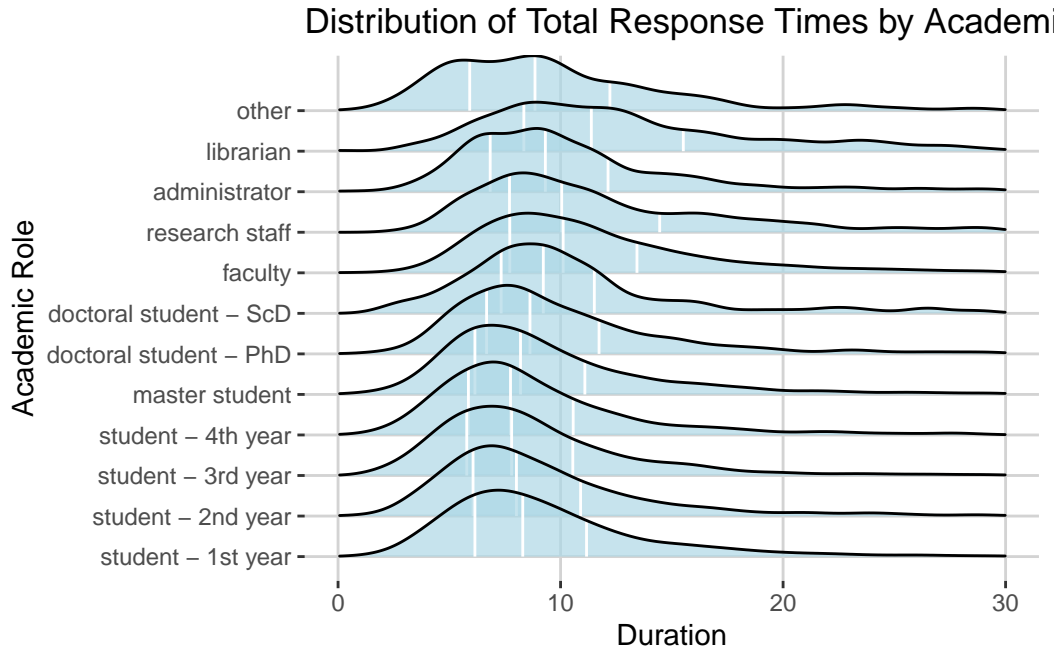
While students have a lower median than, e.g., faculty, there are no major differences in distributions upon closer inspection. The groups do not appear substantially different in their response times.
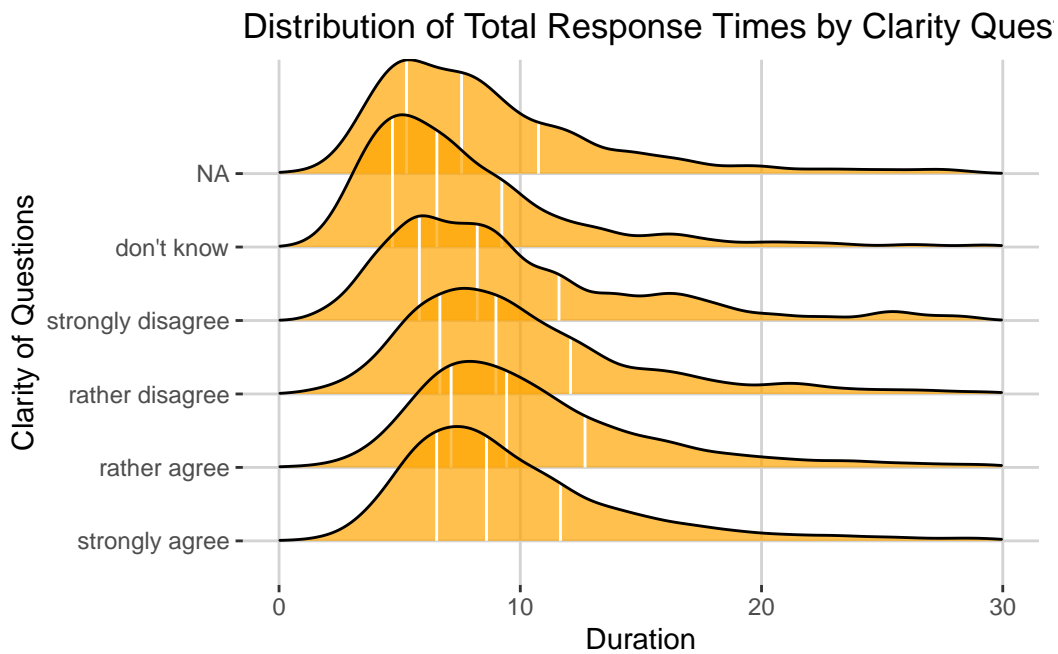
Clarity

At the end of the survey, one question asked respondents whether they agreed to following statement: *"All the questions in this questionnaire were clear to me."*

	2021	2022	2023
strongly agree	3846	3762	3055
rather agree	3711	3749	1945
rather disagree	774	984	389
strongly disagree	120	132	91
don't know	342	538	231
NA	410	543	83

Clarity of Survey Questions by Year
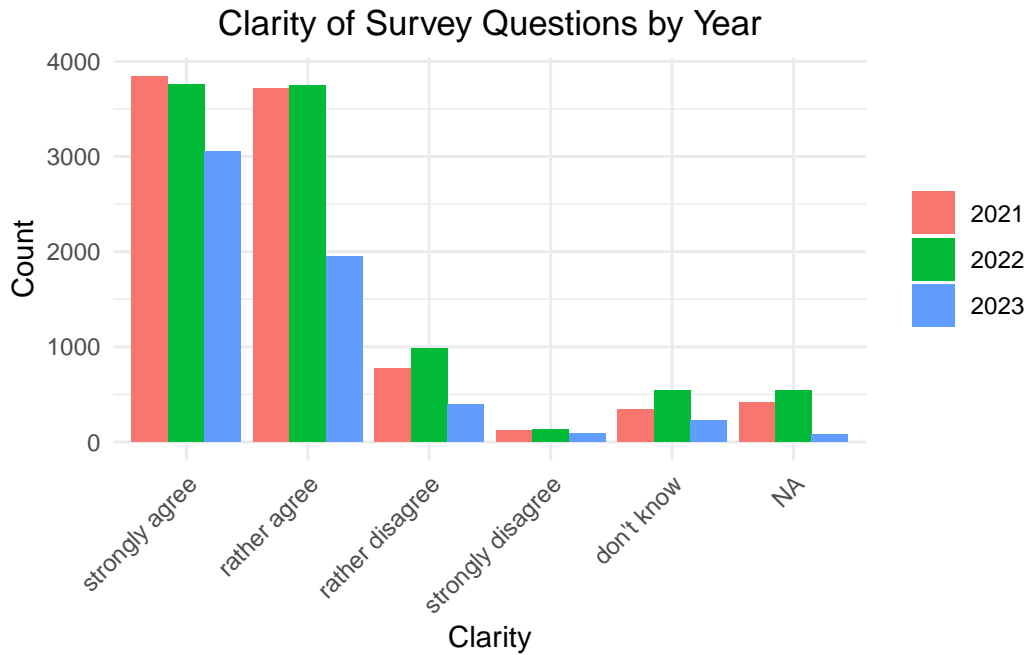
While the survey questions were clear to the large majority of respondents, there is still a considerable number of people disagreeing on this statement.

Distribution of Total Response Times by Clarity Ques

When investigated in relation to response time, the most notable deviation in distribution can

be seen in those not answering the clarity question or answering "don't know" to this question. These respondents tended to finish the survey more quickly.

However, the number of respondents who took less than three minutes for the survey and indicated low clarity (or did not answer the clarity question) only lies at 88.

"Don't know" Answers

Participants were able to answer the agreement and frequency questions with "don't know" (39 question in total). Comparing the frequency with which this answer was chosen between groups might also help to investigate response behaviors more closely. Participants responded to a mean of 7.58 questions with "don't know" ($SD = 7.16$), ranging from 0 to 39 such answers. Number of these answers is correlated with total response time with a Kendall correlation coefficient of 0.04. Participants will not be excluded from the entire set, but it has to be considered in analysis that quite a lot of questions were answered with "don't know". Differences in academic groups might also be of interest here, since some might be more familiar with the topics of the survey than others.

Distribution of "don't know" answers
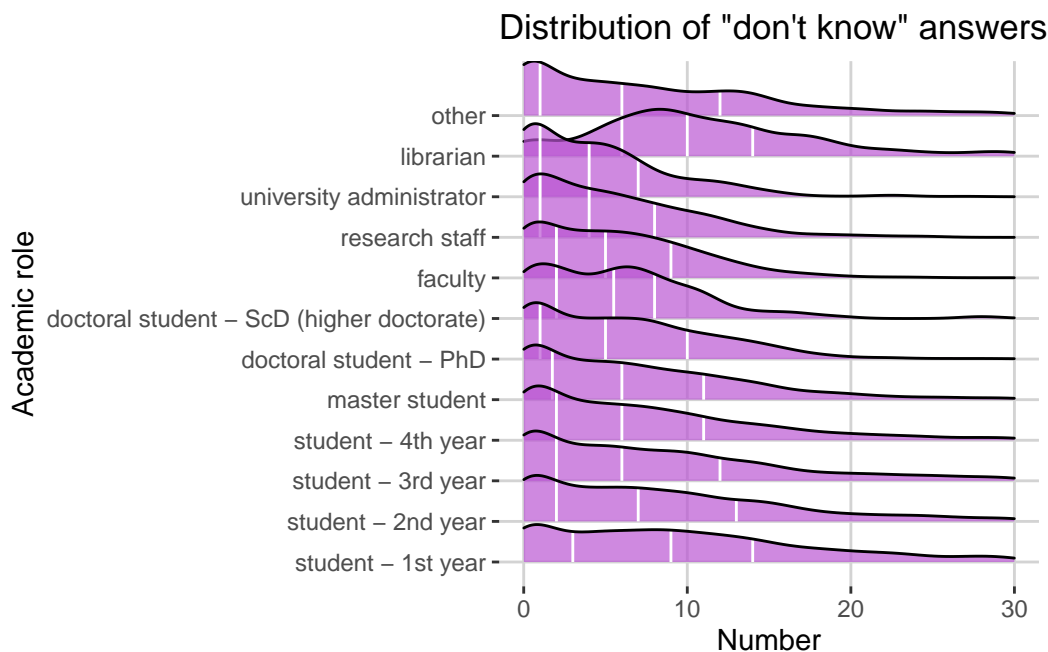
In the plot some groups appear to have answered quite rarely with "don't know", mainly university administrators and research staff. Students in their early years of study might also be less familiar with the topic. One notable outlier can be seen in librarians who indicated that they were not able to answer a question the most (however, this is one of the smallest groups among survey respondents).