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ANALYSIS OF WIKIPEDIA SURVEY DATA

Topic: Age and Gender Differences

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Introduction

The purpose of this report is to investigate differences between genders and age cohorts of Wikipedia users and contributors, across several topics that were covered in the survey. The topics that are examined in this report are:

- demographics
  - formal education
  - relationship status
  - family status
  - employment status
  - user access level
- activities and contributions
  - activity type
  - contributor groups
  - time spent on contributing to Wikipedia
  - donation behaviour / attitudes
  - contributions to different Wikimedia projects
- motivations and remuneration
  - motivations to contribute to Wikipedia
  - ways to gain reputation

Age Cohorts and Gender

The respondents of the Wikipedia Survey can be allocated to four roughly equally large age cohorts: Wikipedians between 10 and 17 years, between 18 and 21 years, between 22 and 29 years, and between 30 and 85 years (Table 1).

Age quartiles	N	%
10-17 years	42681	24.2%
18-21 years	43093	24.5%
22-29 years	48206	27.4%
30-85 years	42212	24.0%
Total	**176192**	**100.0%**

Table 1: Age cohorts of Wikipedians - all respondents

The last group is characterised by the fact that its members started to use / contribute to Wikipedia at a comparably old age. However, since the age range of this group is very broad, it covers persons that grew up with the Internet as well as persons that had to learn to use new media past their school and university time. Therefore, in order to capture this technological differential between age cohorts, the group of older Wikipedians has been further separated into four age groups, distinguishing the Wikipedians between 30-33 years from those between 34-39 years, 40-49 years, and 50-85 years (Table 2).

Age quartiles of oldest group (30-85 years)	N	%
30-33 years	11367	26.9%
34-39 years	10528	24.9%
40-49 years	11146	26.4%
50-85 years	9171	21.7%
Total	**42212**	**100.0%**

Table 2: Age quartiles of the oldest group of Wikipedians (30-85 years)

The gender distribution of the age cohorts varies considerably. As illustrated in Figure 1, the share of female Wikipedians decreases continuously with growing age, from 31.7% in the youngest to 20.6% in the oldest cohort (average share of women in all Wikipedians: 24.9%).
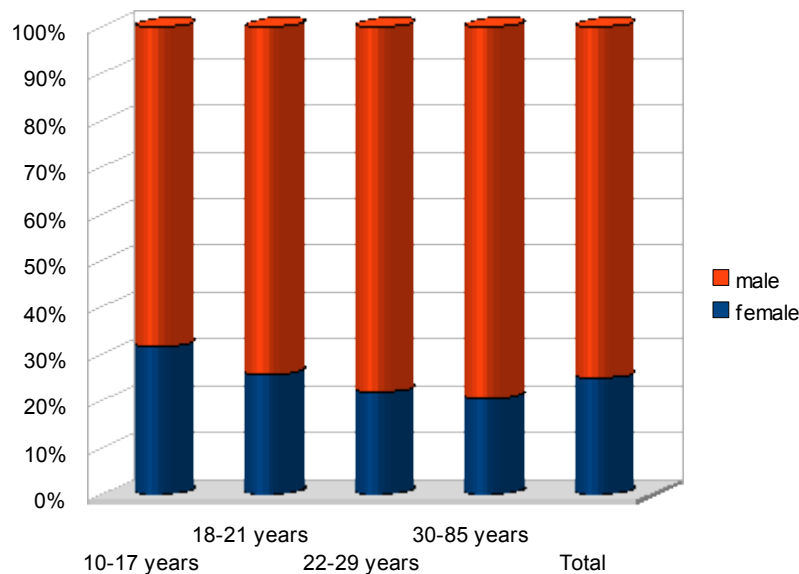
Figure 1: Gender structure of age cohorts - all respondents

However, as shown in Figure 2, this trend is reversed when only the oldest group of Wikipedians is considered. Instead of ever-decreasing shares of female Wikipedians we observe that their proportion remains relatively stable and even increases slightly over the age groups. While the share of women among the 30-85 years old Wikipedians is, on average, 20.6%, it increases from 19.9% in the cohort of the 30-33 years old to 21.5% in the 50-85 years cohort.
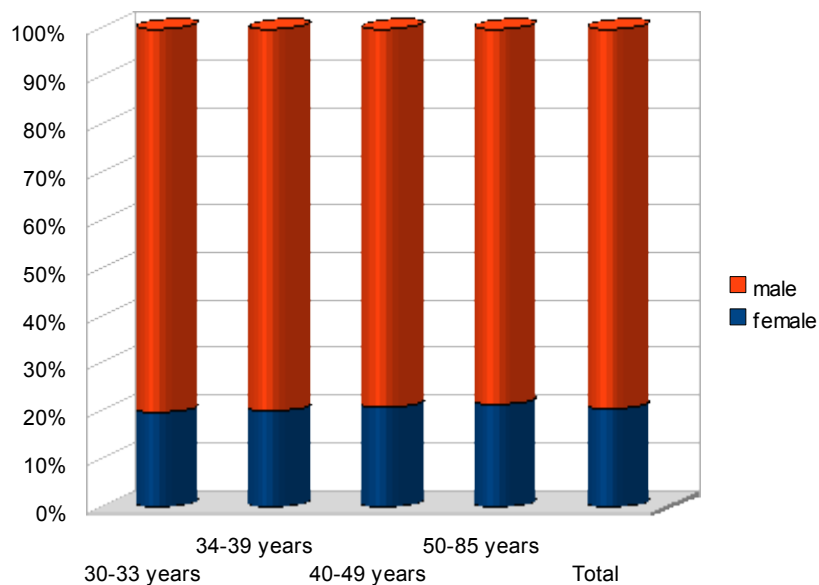
Figure 2: Gender structure of age cohorts - oldest Wikipedians

Demographics

Education

The educational structure of the age cohorts, measured by the highest educational degree of the respondents, is fully in accordance with expectations based on empirical evidence from comparative empirical studies of educational structures, such as provided by the OECD[1]: The youngest cohort is marked by primary and secondary education, the cohort of the 18-21 years old Wikipedians by secondary education, the third cohort by tertiary education excluding PhD degrees, and the oldest cohort by tertiary education including PhD degrees (see Table 3).

	10-17 years	18-21 years	22-29 years	30-85 years	Total
Primary education	38,7%	5,3%	1,7%	3,2%	11,8%
Secondary education	48,0%	56,3%	21,9%	19,4%	36,0%
Tertiary education undergraduate	2,3%	26,8%	39,5%	31,2%	25,5%
Tertiary education – Masters		5,6%	31,6%	31,4%	17,6%
Tertiary education – PhD			2,2%	10,0%	3,0%
Other	11,0%	6,0%	3,2%	4,9%	6,2%
Total	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Table 3: Educational structure of age cohorts of Wikipedians - all respondents

Naturally, the differences between the sub-cohorts of the oldest cohort are less manifest than between the overall cohorts (see Table 4). The only noticeable observations are that the 30-33 years old Wikipedians show a higher share of masters degrees while the oldest sub-cohort, 50-85 years shows high shares of PhDs and "other" degrees.

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1 OECD, 2006. Meeting of OECD Education Ministers - Higher Education: Quality, Equity and Efficiency. Background Report. Paris; OECD Education and Training Statistics, available at http://stats.oecd.org/l

	30-33 years	34-39 years	40-49 years	50-85 years	30-33 years
Primary education	2,4%	3,2%	3,6%	3,5%	3,2%
Secondary education	18,7%	21,0%	20,6%	16,9%	19,4%
Tertiary education undergraduate	32,2%	31,9%	30,5%	30,2%	31,2%
Tertiary education – Masters	35,6%	31,7%	29,8%	27,8%	31,4%
Tertiary education – PhD	7,7%	8,3%	10,4%	14,1%	10,0%
Other	3,5%	4,0%	5,2%	7,5%	4,9%
Total	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Table 4: Educational structure of the oldest cohort of Wikipedians

There are only very few noticeable gender differences between the age cohorts, all relating to the two middle cohorts (see Table 5): The 18-21 years old female Wikipedian show a significant lower share of secondary degrees but a higher share of tertiary undergraduate degrees than the male Wikipedians of this age cohort. Within the third cohort (22-29 years), male Wikipedians show a larger share of secondary degrees as highest educational degrees than female Wikipedians. I.e., female Wikipedians between 18-29 years old are significantly better educated than male Wikipedians of the same age; 30 years and above, though, males have the educational advantage due to a higher share of PhDs (10.4% vs 8.1%). . In this regard, the Wikipedia community differs considerably from the overall educational structures of many countries as reported by, for instance, the OECD[2]. In many OECD countries, the older age cohorts show a majority of males with higher education, and only in the younger cohorts the female population with higher education catches up or even surpasses their male counterparts. Within Wikipedia, these general trends can be observed, too, but they are not at all as pronounced as in the general populations of many countries.

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2   See http://stats.oecd.org

Gender	Highest educational degree	10-17 years	18-21 years	22-29 years	30-85 years	Total
female	Primary education	40,2%	4,1%	1,4%	2,3%	**14,1%**
	Secondary education	46,9%	52,4%	16,8%	17,8%	**35,2%**
	Tertiary education undergraduate	2,0%	30,1%	41,7%	33,8%	**25,0%**
	Tertiary education – Masters		5,6%	33,6%	31,8%	**15,9%**
	Tertiary education – PhD			2,1%	8,1%	**2,1%**
	Other	11,0%	7,8%	4,3%	6,2%	**7,6%**
male	Primary education	38,1%	5,6%	1,7%	3,3%	**11,0%**
	Secondary education	48,6%	57,7%	23,3%	19,8%	**36,3%**
	Tertiary education undergraduate	2,4%	25,7%	38,9%	30,6%	**25,7%**
	Tertiary education – Masters		5,6%	31,1%	31,4%	**18,2%**
	Tertiary education – PhD			2,2%	10,4%	**3,3%**
	Other	10,9%	5,4%	2,8%	4,5%	**5,6%**

Table 5: Educational structure of age cohorts of Wikipedians by gender – all respondents

The educational homogeneity of the Wikipedians becomes even stronger when only the oldest age cohort is considered (see Table 6). Only the oldest sub-cohort of the Wikipedians at the age of 50 or more years shows significant differences, as women show a significantly higher share of tertiary undergraduate degrees than men and men a higher share of PhD degrees than women.

Gender	Highest educational degree	30-33 years	34-39 years	40-49 years	50-85 years	Total
female	Primary education	1,7%	2,5%	2,6%	2,3%	**2,3%**
	Secondary education	15,2%	19,6%	20,7%	15,7%	**17,8%**
	Tertiary education undergraduate	34,0%	34,7%	31,8%	35,0%	**33,8%**
	Tertiary education – Masters	38,0%	31,0%	29,3%	28,4%	**31,8%**
	Tertiary education – PhD	7,3%	6,8%	9,0%	9,3%	**8,1%**
	Other	4,0%	5,4%	6,6%	9,3%	**6,2%**
male	Primary education	2,6%	3,2%	3,8%	3,8%	**3,3%**
	Secondary education	19,5%	21,3%	20,6%	17,2%	**19,8%**
	Tertiary education undergraduate	31,8%	31,3%	30,1%	28,9%	**30,6%**
	Tertiary education – Masters	35,1%	32,0%	29,9%	27,8%	**31,4%**
	Tertiary education – PhD	7,7%	8,6%	10,8%	15,3%	**10,4%**
	Other	3,3%	3,5%	4,8%	6,9%	**4,5%**

Table 6: Educational structure of age cohorts of Wikipedians by gender – oldest cohort

Tables 7 to 10 illustrate the educational level of the age cohorts (Table 9 andTable 10 also by gender) in terms of the number of years of formal education. In this perspective, the educational homogeneity – especially with regard to gender differences - of the Wikipedia community that was already observed with regard to highest educational degrees becomes even more striking. As described above, country populations often appear more heterogeneous in this regard.[3]

Age Cohorts	Years of formal education (mean)	N	Std. Deviation
10-17 years	10,38	39381	2,44
18-21 years	11,89	40903	4,05
22-29 years	12,91	46711	5,74
30-85 years	14,54	40745	5,87
Total	**12,46**	**167740**	**5,01**

Table 7: Number of years of education by age cohorts - all respondents

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3 See http://stats.oecd.org/

Table 8: Number of years of education by age cohorts – oldest cohort

Age Cohorts	Years of formal education (mean)	N	Std. Deviation
30-33 years	13,78	11006	6,08
34-39 years	14,42	10130	5,95
40-49 years	14,69	10749	5,75
50-85 years	15,42	8860	5,51
Total	**14,54**	**40745**	**5,87**

Age Cohorts	Gender	Mean	N	Std. Deviation
10-17 years	female	10,3	12361	2,4
	male	10,4	26669	2,4
	Total	**10,4**	**39030**	**2,4**
18-21 years	female	11,8	10475	4,2
	male	11,9	30111	4,0
	Total	**11,9**	**40586**	**4,1**
22-29 years	female	12,9	10161	5,9
	male	12,9	36259	5,7
	Total	**12,9**	**46420**	**5,7**
30-85 years	female	14,3	8333	6,0
	male	14,6	32088	5,8
	Total	**14,5**	**40421**	**5,8**
Total	**female**	**12,1**	**41330**	**4,9**
	male	**12,6**	**125127**	**5,0**
	Total	**12,5**	**166457**	**5,0**

Table 9: Number of years of education by age cohorts and gender – all respondents

Table 10: Number of years of education by age cohorts and gender – oldest cohort

Age Cohorts	Gender	Mean	N	Std. Deviation
30-33 years	female	13,8	2178	6,3
	male	13,8	8746	6,0
	Total	**13,8**	**10924**	**6,1**
34-39 years	female	14,1	2025	6,2
	male	14,5	8028	5,9
	Total	**14,4**	**10053**	**5,9**
40-49 years	female	14,4	2246	6,0
	male	14,8	8423	5,7
	Total	**14,7**	**10669**	**5,7**
50-85 years	female	15,2	1884	5,5
	male	15,5	6891	5,5
	Total	**15,4**	**8775**	**5,5**
Total	**female**	**14,3**	**8333**	**6,0**
	male	**14,6**	**32088**	**5,8**
	Total	**14,5**	**40421**	**5,8**

Relationship Status

Relationship status has been shown to be a useful indicator of the sustainability of communities of voluntary, collaborative creativity. E.g. the FLOSS surveys[4] showed an increasing professionalization of motives as free software contributors' family status led to increased personal responsibilities, due to relationships, marriage, children. The presence of contributors with such responsibilities in the volunteer community underlined its long-term sustainability.

The relationship status of the Wikipedians shows no surprising results: Only 8% of the youngest and 19% of the second youngest cohort have a life partner but 40% of the third and 67% of the oldest cohort. On average, one third of the respondents reported to have a life partner. The general trend of increasing shares of persons having a life partner with growing age continues within the sub-cohorts of the oldest age cohort: 61% of the respondents between 30 and 33 years have a life partner, 66% of the Wikipedians between 34 and 29 years, 70% of those in the age range of 40-49 years, and 74% of those at the age of 50 or more years.

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4   Ghosh et al, 2002. *Free/Libre and Open Source Software: Survey and Study. Part IV: Survey of Developers.* FLOSS Project / European Commission / UNU-MERIT: http://www.flossproject.org/report/Final4.htm

There are however significant gender differences regarding the relationship status of the respondents. As illustrated in Table 11, the shares of young female Wikipedians in a relationship with a life partner is considerably higher than the respective shares of young male respondents. Only in the oldest cohort the shares of male and female respondents with a life partner are equal. Table 12 shows that these shares remain equal in the three younger sub-cohorts of the oldest age cohort. Due to the fact that women usually have a longer life expectancy than men, in the oldest sub-cohort the shares of men in a relationship with a life partner exceeds the respective share of female Wikipedians (the majority of men that have reached a high age are in a relationship with a life partner while many women reaching a high age have lost their life partner).

Partnership with life partner	10-17 years	18-21 years	22-29 years	30-85 years	Total
female Wikipedians	9,5%	27,6%	48,9%	66,8%	**35,0%**
male Wikipedians	6,6%	16,4%	37,0%	67,7%	**33,1%**

Table 11: Relationship status of Wikipedians, age cohorts and gender - all respondents

Partnership with life partner	30-33 years	34-39 years	40-49 years	50-85 years	Total
female Wikipedians	64,9%	68,6%	70,3%	62,7%	**66,8%**
male Wikipedians	59,4%	65,5%	70,6%	77,3%	**67,7%**

Table 12: Relationship status of Wikipedians, age cohorts and gender – oldest cohort

Familial Status (Children)

Naturally, the shares of Wikipedians that have children increases with growing age. Across the age cohorts, this share increases from 0.4% in the youngest to 0.8% in the second, 8% in the third and finally 51% in the oldest age cohort. On average, 15% of the respondents have one or more children. This trend continues within the sub-cohorts of the oldest age cohort, where it subsequently grows from 31% in the first sub-cohort (30-33 years) to 45% in the second sub-cohort (34-39 years), to 59% within the third sub-cohort (40-49 years) and finally to 74% within the oldest sub-cohort (50-85 years).

Again we observe gender-specific differences, though these are less manifest than those regarding the respondents' relationship status. As illustrated in Table 13, the average share of males having children across the four main age cohorts is slightly higher than the respective share of female Wikipedians, though in fact a higher share of fathers than mothers occurs only within the youngest cohort. Table 14 shows that within the oldest age cohort the shares of mothers is higher than the shares of fathers, except for the oldest sub-cohort, which is probably again largely explained by the higher life expectancy of women.

Having children	10-17 years	18-21 years	22-29 years	30-85 years	Total
female Wikipedians	0,3%	1,3%	10,2%	54,9%	**13,7%**
male Wikipedians	0,4%	0,7%	7,7%	50,3%	**15,1%**

Table 13: Wikipedians with children by age cohorts and gender – all respondents

Having children	30-33 years	34-39 years	40-49 years	50-85 years	Total
female Wikipedians	35,6%	49,6%	64,3%	71,9%	**54,9%**
male Wikipedians	30,1%	43,7%	57,8%	74,3%	**50,3%**

Table 14: Wikipedians with children by age cohorts and gender – oldest cohort

Employment Status

Like relationship status or children, the employment status of a person is highly correlated to the age of this person. Accordingly, we observe that the two youngest cohorts of the respondents consist mainly of students, while the two oldest cohorts are dominated by full-time employed persons. In addition, the third and especially the fourth age cohort also show above average shares of part-time employees, self-employed and freelancers / contractors. Finally, by nature the oldest cohort is also characterised by an above average share of retired persons (see Table 15). Table 16 illustrates that self-employment and freelancing is marked among people in their 40s. The oldest sub-cohort is of course mainly characterised by a low share of full-time employed and a very large share of retired persons.

Employment status	10-17 years	18-21 years	22-29 years	30-85 years	Total
full-time employed	n.a.	9,9%	49,6%	58,6%	**30,2%**
part-time employed	2,2%	5,1%	6,1%	6,0%	**4,9%**
self-employed (i.e. I own a firm with employees)	n.a.	n.a.	2,9%	7,2%	**2,8%**
freelancer / contractor (i.e. I work on my own, without employees)	n.a.	2,2%	5,8%	11,3%	**5,0%**
unemployed	1,1%	2,2%	4,4%	3,9%	**2,9%**
student	91,8%	78,4%	28,5%	2,6%	**49,8%**
stay-home parent	n.a.	n.a.	n.a.	1,7%	**0,7%**
retired	n.a.	n.a.	n.a.	5,4%	**1,3%**
unable to work because of disability	n.a.	n.a.	n.a.	2,0%	**0,7%**
other non-working	2,9%	1,0%	1,4%	1,6%	**1,7%**

Note: For reasons of anonymity protection, all cells containing percentages lower than 1 have been labelled "n.a."

Table 15: Employment status of Wikipedians by age cohorts - all respondents

Employment status	30-33 years	34-39 years	40-49 years	50-85 years	Total
full-time employed	65,8%	65,3%	60,5%	39,6%	**58,6%**
part-time employed	5,9%	5,9%	6,2%	6,2%	**6,0%**
self-employed (i.e. I own a firm with employees)	5,5%	7,0%	8,7%	7,5%	**7,2%**
freelancer / contractor (i.e. I work on my own, without employees)	8,9%	10,6%	13,1%	12,8%	**11,3%**
unemployed	4,4%	3,6%	3,7%	3,7%	**3,9%**
student	5,4%	2,7%	1,2%	n.a.	**2,6%**
stay-home parent	1,7%	1,9%	1,8%	1,1%	**1,7%**
retired	n.a.	n.a.	n.a.	23,2%	**5,4%**
unable to work because of disability	n.a.	1,4%	2,1%	3,6%	**2,0%**
other non-working	1,4%	1,3%	1,8%	1,7%	**1,6%**

Note: For reasons of anonymity protection, all cells containing percentages lower than 1 have been labelled "n.a."

Table 16: Employment status of Wikipedians by age cohorts – oldest cohort

Table 17 visualises a number of gender-specific differences regarding the employment status and age cohorts of the Wikipedians that took part in the survey. In line with overall socio-economic patterns of many countries, the (full-time) employment ratio of women is significantly lower than that of men while the share of women staying at home in order to take care of children is significantly higher than the respective share of men. Apart from that, the share of students is significantly higher among female than among male Wikipedians. Table 18 confirms that these observations hold true for the sub-cohorts of the oldest age cohort – and become partially reinforced, as, for instance, the gender gap regarding the full-time employment ratio.

	Employment status	10-17 years	18-21 years	22-29 years	30-85 years	Total
female	full-time employed	n.a.	8,0%	46,0%	47,3%	**22,7%**
	part-time employed	1,8%	4,8%	8,2%	11,2%	**6,0%**
	self-employed (i.e. I own a firm with employees)	n.a.	n.a.	1,4%	5,1%	**1,4%**
	freelancer / contractor (i.e. I work on my own, without employees)	n.a.	1,2%	5,1%	12,0%	**4,0%**
	unemployed	n.a.	1,8%	4,2%	4,0%	**2,5%**
	student	93,5%	82,4%	29,7%	4,0%	**57,6%**
	stay-home parent	n.a.	n.a.	3,0%	6,6%	**2,2%**
	retired	n.a.	n.a.	n.a.	5,0%	**1,0%**
	unable to work because of disability	n.a.	n.a.	n.a.	2,4%	**0,7%**
	other non-working	2,7%	n.a.	1,7%	2,3%	**1,9%**
male	full-time employed	n.a.	10,5%	50,7%	61,7%	**32,8%**
	part-time employed	2,3%	5,2%	5,6%	4,7%	**4,5%**
	self-employed (i.e. I own a firm with employees)	n.a.	1,0%	3,3%	7,7%	**3,2%**
	freelancer / contractor (i.e. I work on my own, without employees)	n.a.	2,6%	6,0%	11,1%	**5,3%**
	unemployed	1,2%	2,3%	4,4%	3,8%	**3,0%**
	student	91,2%	77,1%	28,1%	2,2%	**47,3%**
	stay-home parent	n.a.	n.a.	n.a.	n.a.	**0,2%**
	retired	n.a.	n.a.	n.a.	5,5%	**1,4%**
	unable to work because of disability	n.a.	n.a.	n.a.	1,8%	**0,6%**
	other non-working	3,0%	1,0%	1,3%	1,3%	**1,6%**

Note: For reasons of anonymity protection, all cells containing percentages lower than 1 have been labelled "n.a."

Table 17: Employment status of Wikipedians by age cohort and gender - all respondents

	Employment status	30-33 years	34-39 years	40-49 years	50-85 years	Total
female	full-time employed	54,7%	52,6%	47,7%	32,5%	**47,3%**
	part-time employed	10,2%	11,2%	13,0%	10,3%	**11,2%**
	self-employed (i.e. I own a firm with employees)	3,8%	4,4%	6,2%	6,0%	**5,1%**
	freelancer / contractor (i.e. I work on my own, without employees)	8,5%	11,2%	14,1%	14,2%	**12,0%**
	unemployed	4,3%	4,2%	4,1%	3,5%	**4,0%**
	student	7,4%	4,9%	2,4%	1,1%	**4,0%**
	stay-home parent	7,7%	8,1%	6,7%	3,7%	**6,6%**
	retired	n.a.	n.a.	n.a.	21,1%	**5,0%**
	unable to work because of disability	1,0%	1,7%	2,3%	5,0%	**2,4%**
	other non-working	2,2%	1,5%	2,9%	2,6%	**2,3%**
male	full-time employed	68,7%	68,7%	64,0%	41,6%	**61,7%**
	part-time employed	4,8%	4,6%	4,4%	5,1%	**4,7%**
	self-employed (i.e. I own a firm with employees)	6,0%	7,6%	9,4%	7,8%	**7,7%**
	freelancer / contractor (i.e. I work on my own, without employees)	8,9%	10,4%	12,8%	12,5%	**11,1%**
	unemployed	4,4%	3,4%	3,7%	3,8%	**3,8%**
	student	4,9%	2,1%	n.a.	n.a.	**2,2%**
	stay-home parent	n.a.	n.a.	n.a.	n.a.	**0,4%**
	retired	n.a.	n.a.	n.a.	23,9%	**5,5%**
	unable to work because of disability	n.a.	1,3%	2,0%	3,2%	**1,8%**
	other non-working	1,2%	1,3%	1,4%	1,4%	**1,3%**

Note: For reasons of anonymity protection, all cells containing percentages lower than 1 have been labelled "n.a."

Table 18: Employment status of Wikipedians by age cohort and gender - all respondents

Wikipedia contributors: access levels

As a final demographic feature of the respondents – specifically, those who are Wikipedia contributors – we consider their Wikipedia user access level. We focus only on unregistered versus registered users and administrators, as the shares of those classifying themselves in other categories was not significant for this examination.

One may expect that the willingness to register as a user of Wikipedia would increase the more familiar the Internet, new media, and Web 2.0 technologies are to users, which would in fact result in larger shares of registered users among the young age cohorts. However, as illustrated by Table 19, the likelihood of being a registered Wikipedia user increases strongly with age. Also, the "administrator" access level is far more often given to older cohorts than to younger Wikipedians.

user access level	10-17 years	18-21 years	22-29 years	30-85 years	Total
unregistered user	43,5%	42,9%	37,0%	27,7%	**37,3%**
registered user	55,2%	55,4%	60,0%	67,8%	**60,0%**
administrator	1,0%	1,4%	2,5%	3,7%	**2,3%**
bureaucrat	n.a.	n.a.	n.a.	n.a.	**0,3%**
steward	n.a.	n.a.	n.a.	n.a.	**0,2%**

Table 19: Wikipedia contributors: access level by age cohorts

As can be seen from Table 20, the trends regarding the shares of registered and unregistered users continue across all sub-cohorts of the oldest age cohort. This may be interpreted as differences in the underlying usage patterns of the Internet and new media by the younger and the older generation in the sense that older people tend to use these technologies in a more formal way that includes revealing one's own identity and to formally register with the service that is used while younger people show a stronger preference to remain unseen and anonymous. As younger people show a marked lack of concern for their own online privacy while using social network services, an alternative explanation may be that their greater familiarity with new media leads them to not bother to register when it is not required. These interpretations challenge the observation of researchers (e.g. the Pew Survey on Social Media and Young Adults[5]) that the Internet and new media is a means especially for young people to express themselves and to become visible to a wider public. For younger Wikipedia contributors, at least, the convenience of unregistered, anonymous contribution, and perhaps the perceived privacy benefits, are clearly more important than gaining public recognition through contributing as registered users.

user access level	30-33 years	34-39 years	40-49 years	50-85 years	Total
unregistered user	32,4%	28,2%	24,5%	25,6%	**27,7%**
registered user	63,3%	66,8%	71,1%	70,4%	**67,8%**
administrator	3,5%	4,2%	3,8%	3,3%	**3,7%**
bureaucrat	n.a.	n.a.	n.a.	n.a.	**0,5%**
steward	n.a.	n.a.	n.a.	n.a.	**0,2%**

*Table 20: Wikipedia contributor access level by age cohorts*

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5 Lenhardt et al, 2010: Social Media and Young Adults, Pew Internet & American Life Project, 2010. Available online at http://www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults/Summary-of-Findings.aspx?r=1

There are very strong gender-specific differences regarding the Wikipedia user access levels, affecting the size of the shares rather than trends. The overall share of unregistered users among female Wikipedians is significantly higher than the respective share within male Wikipedians (52% vs. 35%). While the share of the unregistered users within the female Wikipedians continuously declines from 64% in the youngest age cohort to 37% in the oldest age cohort, it declines from 39% to 27% within the male Wikipedians. Correspondingly, the overall share of registered users is significantly higher among men (62%) than among women (46%). The share of registered users within female Wikipedians rises from 36% to 59% across the four age cohorts while it increases from 60% to 69% within the male community. These trends hold on between the age of 30-49 years and then keep on the level that has been reached by the age of 49. This gender difference is not surprising, and is probably explained by female Wikipedians being more protective of their privacy than male Wikipedians, and thus less likely to register.

Activity Types and Activity Patterns

Readers vs. Contributors

Figure 3 illustrates that the share of readers in the age cohorts decreases while the share of contributors[6] increases with growing age. As shown in our report on quality issues of Wikipedia, these trends result from the fact that contributing to Wikipedia obviously depends highly on a certain degree of experience in one or more thematic fields, which requires a certain period of time in order to be built up.
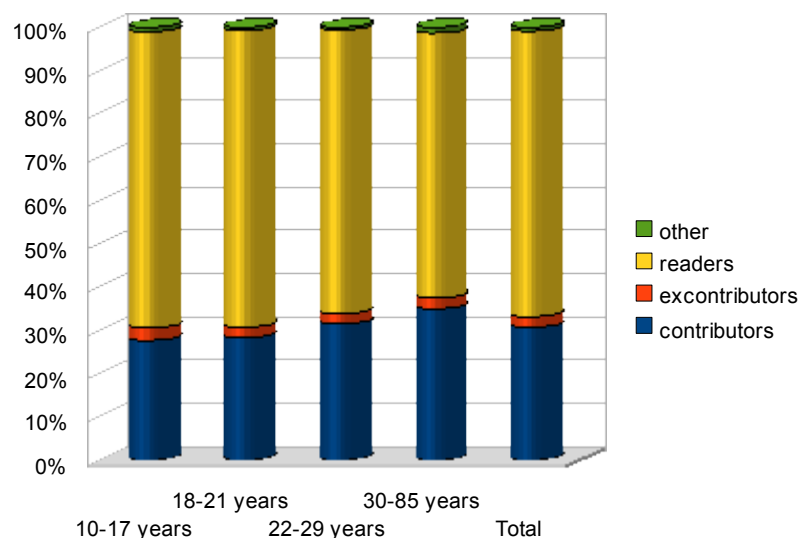
Figure 3: Activity structure of age cohorts - all respondents

Ex-contributors provide an overall share of only 2.5%. While the three older cohorts are more or less in line with the average, the youngest group shows a relatively little over-representation of this activity type (2.8%). This observation seems to imply that giving up contributing to Wikipedia is relatively often related to experimenting for a short while with new things at a young age, rather than ending their contribution because discontent based

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6 "Contributors" are defined as those that contribute to Wikipedia content. Contributors are in fact also readers.

on long-term experience in the community.

A closer look at the oldest age cohort (see Figure 4) shows that the major trends of growing shares of contributors and decreasing shares of readers with growing age go on until the age of 49 but reverse in the oldest sub-cohort (50-85 years).
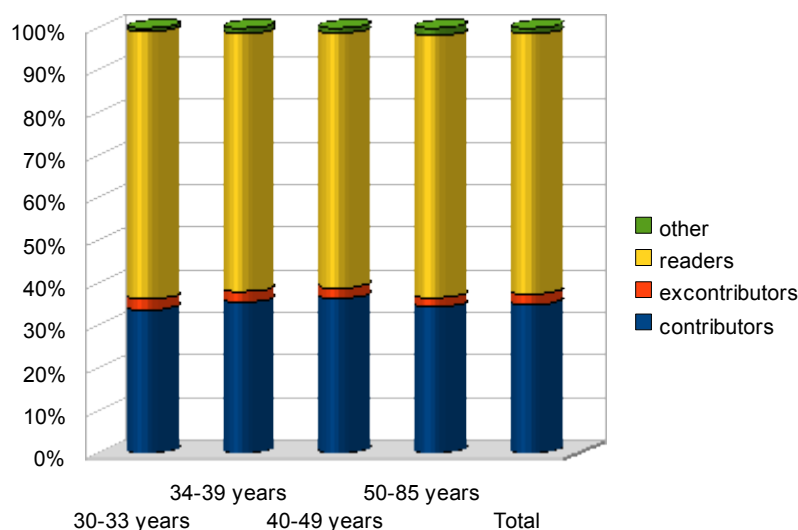
Figure 4: Activity structure of age cohorts - oldest cohort

Across all age cohorts, female Wikipedians show considerably lower shares in contributors and higher shares in readers than male Wikipedians (see Figure 5). In both genders, the share of contributors increases after the age of 21 has been passed.

Figure 5: Activity structures of age cohorts by gender - all respondents by gender
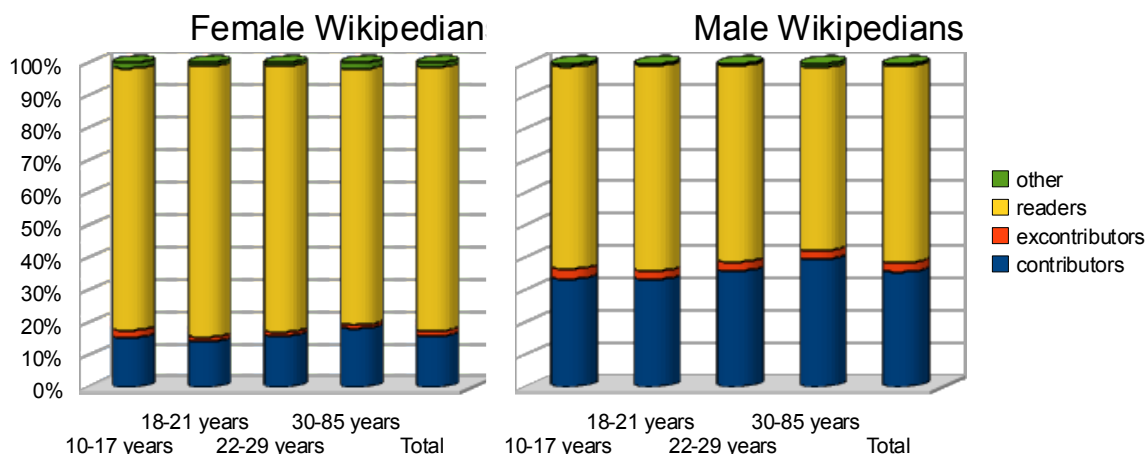
The share of ex-contributors within 10-17 years old female Wikipedians is 3.1% and exceeds thus by far the respective share of this group in the youngest male age cohort (2.2%). In both genders, this share declines with growing age, but this decline is less pronounced among the female community members (where the share decreases to 2.7%) than among their male counterparts (where the share diminishes – in the oldest cohort - to half of the share that was observed within the youngest cohort).

A closer examination (see Figure 6) of the oldest cohort illustrates that the share of contributors among men remains twice as large as among women in the Wikipedia community. However, there is a striking gender difference in the oldest sub-cohort: While the share of contributors among men decreases (from 41% to 38.3%), the share of contributors among female Wikipedians increases slightly (from 19.4% to 20%). It is thus only the sub-cohort of the 50-85 years old Wikipedians where the gender gap regarding the share of contributors closes, though only marginally.

Figure 6: Activity structures of age cohorts - oldest cohort by gender
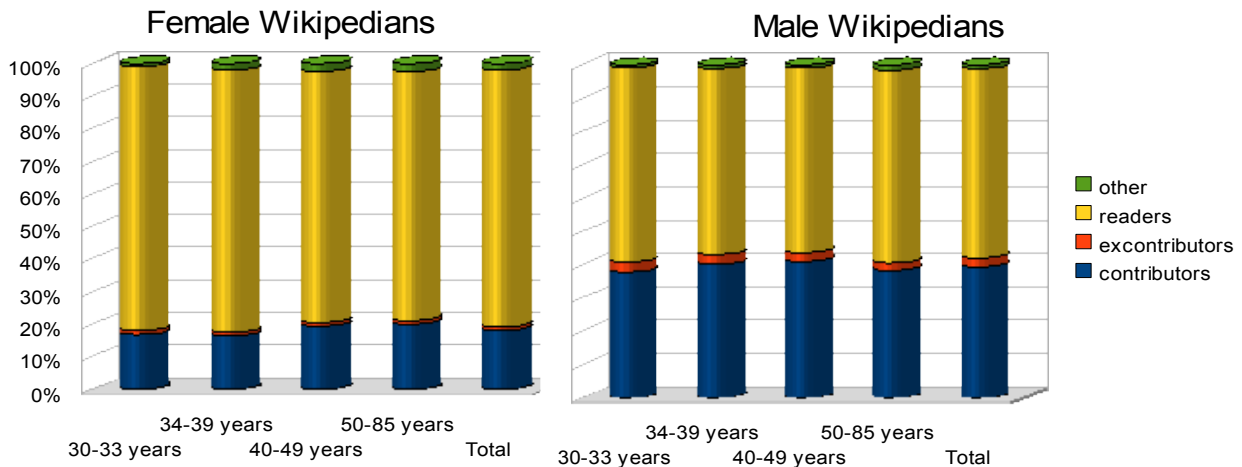
The share of ex-contributors among males in the oldest age cohort remains stable across all sub-cohorts, whereas the share of this group decreases slightly but continuously across the sub-cohorts of the female Wikipedians.

Types of Contributors

Wikipedia contributors can be distinguished by their thematic interests. A cluster analysis of these interests revealed that more than half of the whole group consists of contributors that cannot be allocated to a group of specific thematic fields, so that they are regarded as the "undecided" (see Table 21). The second largest group, the "civilisationalists", consists of Wikipedians mainly contributing to topics like geography, history and cultural sciences. The third largest group consists of "scientists", i.e. community members that mainly contribute to natural science, technology, mathematics, and logic. The fourth group of Wikipedia contributors are "philosophers", they focus on subjects like philosophy, religious belief systems, and social sciences. Finally, "generalists" contribute to almost all thematic fields. They provide the smallest group of contributors.

Types of contributors	N	%
Undecided (no specific field)	27961	51,7%
Civilisationalists (geography, history, cultural sciences)	12391	22,9%
Scientists (natural sciences, technology, mathematic, logic)	6817	12,6%
Philosophers (philosophy, religion, social sciences)	4579	8,5%
Generalists (all fields)	2286	4,2%
Total	**54034**	**100,0%**

Table 21: Clusters of Wikipedia contributors

Age plays a significant role with regard to the contributor types (see 24). Naturally, the shares of the undecided is largest among the youngest cohort and smallest among the oldest cohort.

Figure 7: Types of Wikipedia contributors by age cohorts - all respondents
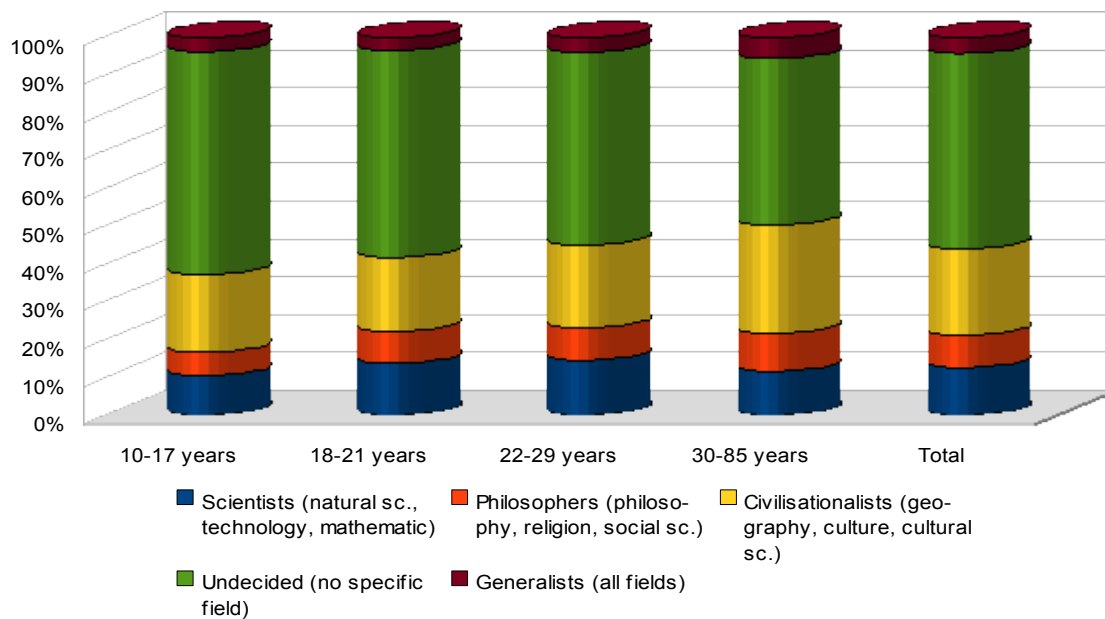
The share of scientists increases over the three younger cohorts but decreases considerably (from 14.5% to 11.6%) in the oldest cohort. The shares of the remaining contributor types (philosophers, civilisationalists, and generalists) remain relatively stable in the younger cohorts but increase considerably in the oldest cohort. This applies especially to the civilisationalists, which share decreases from 21.9% in the third cohort to 28.6% in the fourth cohort. The middle cohorts show above average shares of scientists, while the youngest cohort shows an above average share only of the undecided.

Considering the sub-cohorts of the oldest cohort (Figure 8), we see that

● the share of the undecided decreases until the age of 49 but increases marginally in the oldest sub-cohort

● the share of generalists remains largely the same across all sub-cohorts

● the share of scientists variates between 11% and 13% within the three younger sub-cohorts but decreases relatively sharply to 9.3% within the oldest sub-cohort

● the share of civilisationalists increases from 25% to 30% within the two youngest sub-cohorts and then remains at this level

● the share of philosophers increases continuously from 9% to 12% over the four sub-cohorts, with the strongest increase in the oldest sub-cohort[7]

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7 Whether these differences reflect different generational preferences or a shift of interests over time or age remains subject to further data exploration.

Figure 8: Types of Wikipedia contributors by age cohorts - oldest cohort
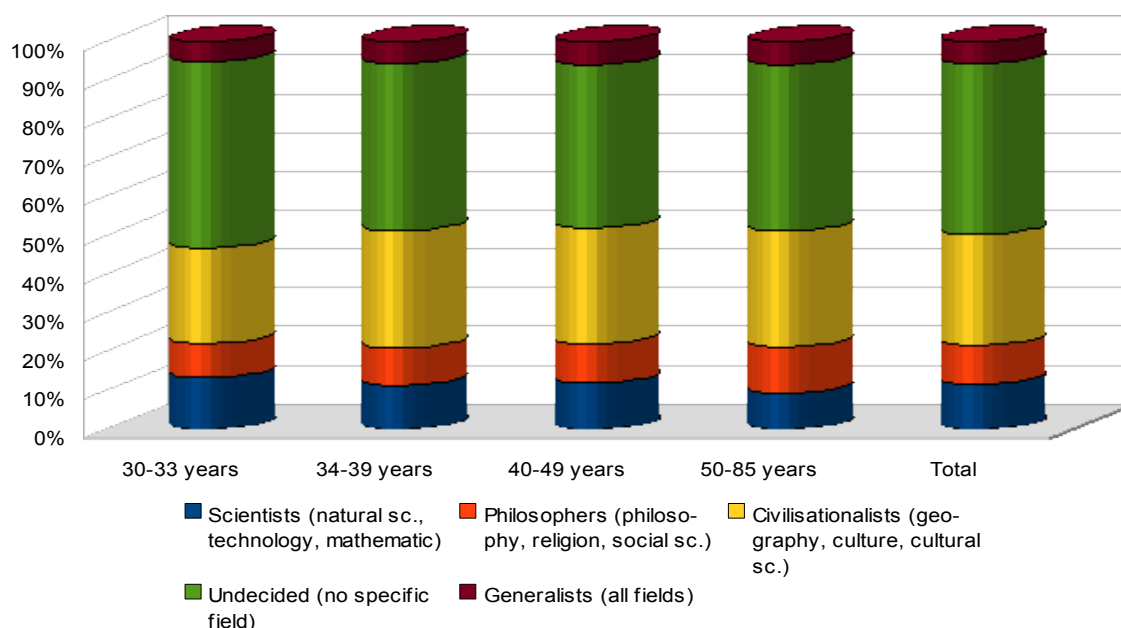
A closer look at the gender differences with regard to the contributor types (see Figure 9) shows that the share of the undecided among female contributors of the youngest cohort is 6.7 percent points larger than the respective share of this group in the youngest male cohort (64.4% vs. 57.8%) and that this gap increases continuously over all age cohorts until it reaches a differential of 10.5 percent points in the oldest age cohort. Thus, female contributors to Wikipedia appear less specialised in thematic fields than their male colleagues, and while their degree of specialisation increases with age, this increase is is less for male Wikipedia contributors.

In accordance with overall patterns of education and labour markets in many economies, the share of scientists among male contributors is about three times larger than the share of scientists among female contributors.

Another gender specific is that female contributors tend to focus on philosophy, religion (belief systems) and social sciences at a young age while male contributors focus on these thematic fields in the oldest age cohort.

Figure 9: Types of Wikipedia contributors, age cohorts and gender - all respondents
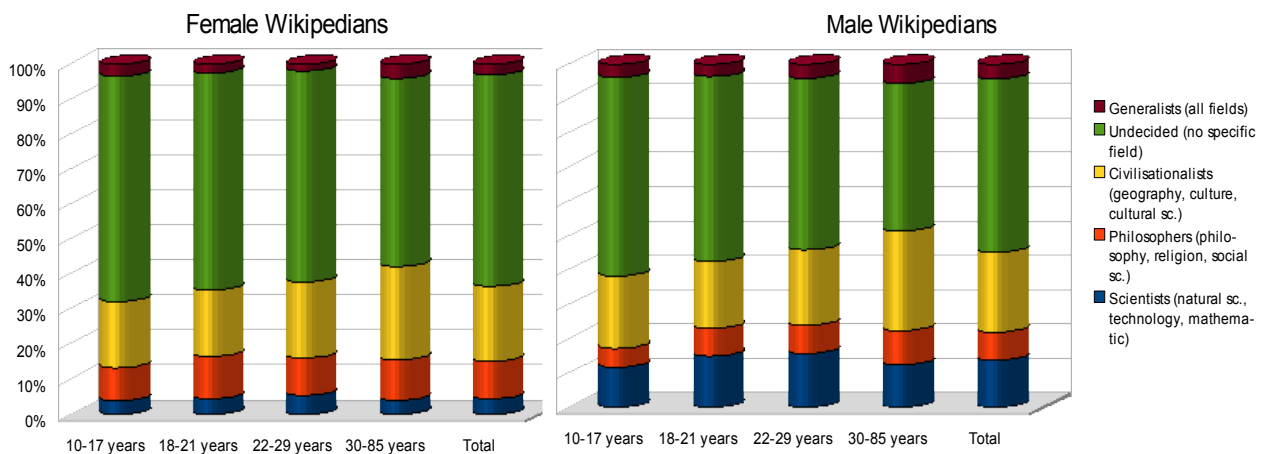
Regarding the contributors in the oldest quartile of Wikipedians (see Figure 10) there are two main findings: First, the share of scientists is decreasing in both genders but decreases with a slower pace among male contributors, so that the gender gap that has been observed in all age groups continues growing within the sub-cohorts of the oldest age cohort. This seems to be a manifestation of global generational patterns rather than Wikipedia-specific. Second, the observed gender gap regarding the shares of the undecided does not widen more within the sub-cohorts of the oldest age quartile of Wikipedians.

Figure 10: Types of Wikipedia contributors, age cohorts and gender - oldest age cohort
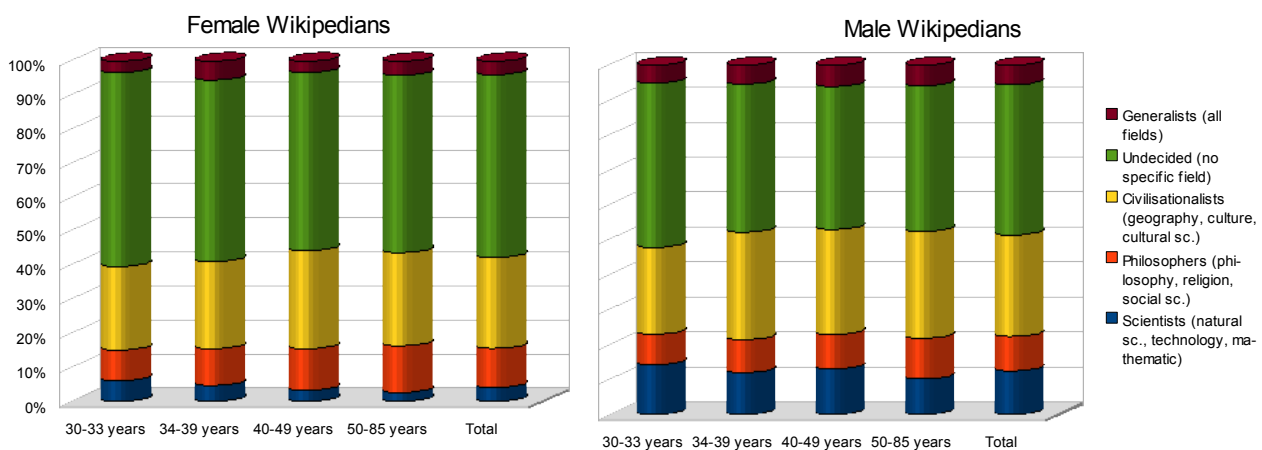
Time Spent on Contributing to Wikipedia Content

On average, Wikipedia contributors spent 6.4 hours per week in order to create Wikipedia content.[8] This represents an effort equivalent to a full-time staff of 5091 people contributing

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8 The respondents were asked to specify the average number of hours per week spent on contributing to Wikipedia content during the past three months before they have filled in the survey.

to Wikipedia each week[9].

41% claimed that they spent, on average, only one hour per week on this task, another 15% spent 2 hours per week on creating content, and another 19% reported that they spent 3-5 hours per week on this subject. Thus, 75% of all contributors spend less than the overall average amount of time on creating Wikipedia content; in other words, 25% of contributors spend 50% of the time spent on creating Wikipedia content. Such skewed distributions of contribution are typical in many fields, and this distribution is actually much less concentrated than for, say, free software projects where the top 10-15% of developers write 50-70% of the code[10].

As illustrated in Table 22, it is the youngest and the oldest age cohort that spends the largest time on creating Wikipedia content, which is explained by the fact that these cohorts consist of the groups with the largest proportions of available free time – students and retired persons. As further detailed in Table 23, within the oldest age cohort it is the group of those being 50 years old or older that spend most time on working on Wikipedia content. Thus, students and seniors provide a significant contribution to Wikipedians in terms of time spent.

Age Cohorts	Mean	N	Std. Deviation
10-17 years	6,79	7571	15,93
18-21 years	5,21	6748	11,49
22-29 years	5,55	8339	11,02
30-85 years	7,71	9161	13,65
Total	**6,4**	**31819**	**13,22**

Table 22: Time spent creating Wikipedia content by age - all contributors

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9 "Full-time" defined as 40 hours per week. This estimate is limited to actual survey respondents, and excludes the large share of known contributors who did not respond to the survey. Extrapolating to all contributors is non-trivial as they need to be matched to the characteristics of the survey respondents.

10 See e.g. Rishab Aiyer Ghosh and Paul David, 2003. "The nature and composition of the Linux kernel developer community: a dynamic analysis," SIEPR–Project NOSTRA Working Paper; draft available at http://dxm.org/papers/licks1/

Age sub-cohorts	Mean	N	Std. Deviation
30-33 years	6,63	2206	12,69
34-39 years	7,36	2283	13,86
40-49 years	7,61	2599	13,1
50-85 years	9,38	2073	14,88
Total	**7,71**	**9161**	**13,65**

Table 23: Time spent creating Wikipedia content by age – contributors of oldest cohort

Although women are a minority among Wikipedians, they contribute slightly more than their fare share: female contributors spend on average 0.2 hours more per week on creating Wikipedia content than their male counterparts (see Table 24). While there is no gender difference in time spent within the youngest cohort, and the second age cohort shows a slightly larger amount of time spent by male contributors, after the age of 21 women spend more time on Wikipedia content creation than men. This difference is particularly marked in the oldest cohort, where women spend 1.2 hours per week on average more than men.

Age Cohorts	Gender	Mean	N	Std. Deviation
10-17 years	female	6,7	1141	17,1
	male	6,8	6363	15,6
	Total	**6,8**	**7504**	**15,8**
18-21 years	female	4,7	726	10,7
	male	5,2	5953	11,4
	Total	**5,2**	**6679**	**11,3**
22-29 years	female	5,9	751	11,7
	male	5,5	7534	11,0
	Total	**5,6**	**8285**	**11,1**
30-85 years	female	8,6	789	15,6
	male	7,4	8273	12,7
	Total	**7,5**	**9062**	**13,0**
Total	**female**	**6,5**	**3407**	**14,5**
	male	**6,3**	**28123**	**12,8**
	Total	**6,3**	**31530**	**13,0**

Table 24: Time spent creating Wikipedia content by age and gender - all contributors

Table 25 shows that the gap between male and female contributors regarding the time they spend on creating Wikipedia content begins to grow after the age of 32 has passed and is largest within this sub-cohort. The reasons why women in this age cohort spend more than 2 hours more per week than men have to be further analysed, but the fact that women at this age are less often full-time employed, often stay at home in order to care for children, and often work as freelancers may play a role here.

Age sub-cohorts	Gender	Mean	N	Std. Deviation
30-33 years	female	6,6	174	10,7
	male	6,5	2010	12,6
	Total	**6,6**	**2184**	**12,4**
34-39 years	female	9,3	165	21,2
	male	7,1	2091	12,8
	Total	**7,3**	**2256**	**13,6**
40-49 years	female	8,3	240	14,3
	male	7,4	2337	12,3
	Total	**7,4**	**2577**	**12,5**
50-85 years	female	10,1	210	15,3
	male	8,9	1835	13,2
	Total	**9,0**	**2045**	**13,4**
Total	**female**	**8,6**	**789**	**15,6**
	male	**7,4**	**8273**	**12,7**
	Total	**7,5**	**9062**	**13,0**

Table 25: Time spent creating Wikipedia content by age and gender – contributors of oldest cohort

Donations to Wikipedia

Overall, only 0.4% of the respondents said that they regularly donate money to Wikipedia. Figure 11 illustrates the shares of the age cohorts that either donate regularly or – which is the majority – sometimes. It is the third and especially the oldest age cohort that show the largest shares of donors, while the two youngest cohorts, probably due to the fact that a majority of them is still finalising their formal educational career, donate rarely.

A closer look at the oldest age cohort shows that the shares of donors remains at about 8% to 9% until the age of 49 but then decreases again, which might be explained by the fact that many members of the oldest age cohort are retired and do not earn as much money as they have earned during their active working life.

Yes, I have donated money to Wikipedia (sometimes or regularly)
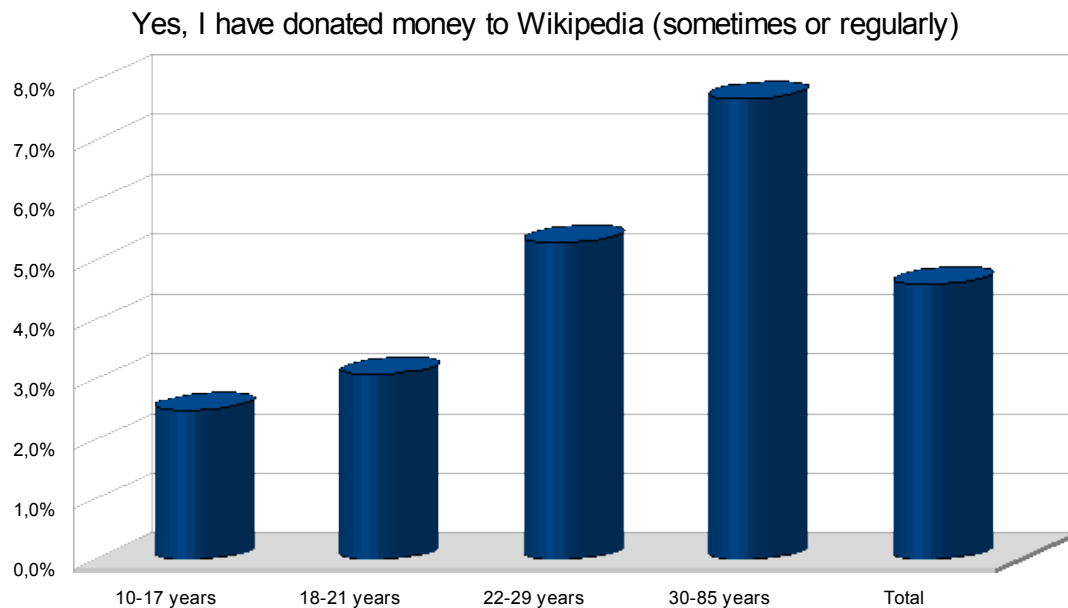
Figure 11: Donating money to Wikipedia by age cohorts - all respondents

Men are obviously more willing to donate money to Wikipedia than women, as they show considerably higher shares of donors in all age cohorts, whereby the differential increases with growing age (see Figure 12). A closer look at the oldest age cohort revealed no noticeable additional insights in this subject.

Figure 12: Donating money to Wikipedia by age cohorts and gender - all respondents
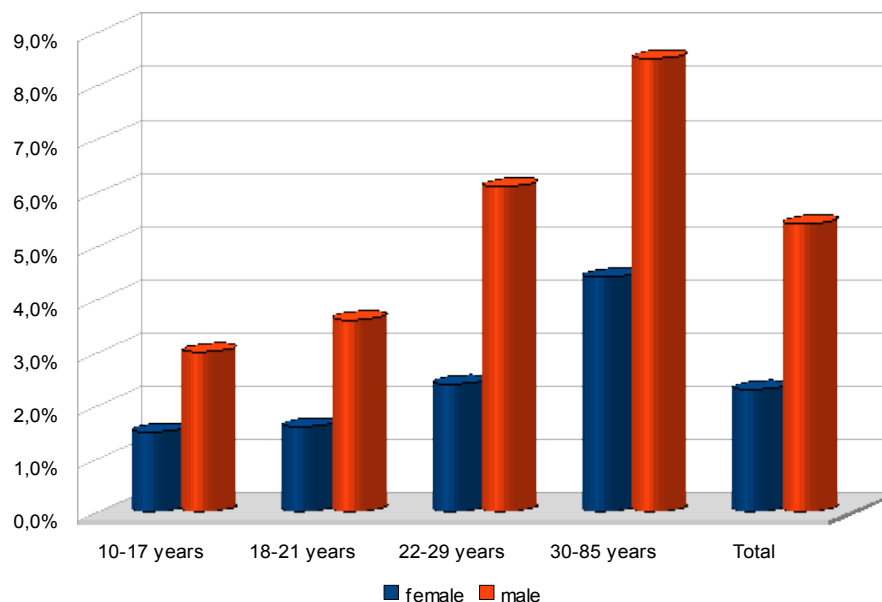
There are a number of significant gender differences when the reasons for not donating money to Wikipedia are considered (Table 26). Overall, it appears that female Wikipedians are less informed or want to be asked to make donations, whereas male Wikipedians prefer to spend time rather than money; think that there are enough others who donate; never donate to charities; or do not donate because these donations are not tax-deductable where they live.

Reasons not to donate	female	male	Total
I can't afford to make a donation	44,3%	44,9%	44,8%
I was never asked to / wouldn't know how.	29,8%	20,5%	22,9%
I don't know how to do that	25,3%	20,8%	21,9%
I donate my time instead of money	13,6%	20,5%	18,8%
I did not know it is supported by a non-profit organisation	32,4%	13,8%	18,5%
It seems that enough other people are making donations to keep the project running	12,8%	17,7%	16,5%
I do not trust that my donation will be used wisely	15,6%	14,7%	14,9%
I never donate to charities	11,5%	15,6%	14,5%
I don't know	9,5%	10,1%	10,0%
Donations to the Wikimedia Foundation are not tax-deductible where I live	2,9%	4,8%	4,3%
I disagree with Wikipedia's policies and practices	1,0%	2,0%	1,7%

Table 26: Reasons not to donate money to Wikipedia - by gender

As illustrated in Table 27, only the youngest age cohort shows significant differences to other cohorts with regard to reasons for not donating money to Wikipedia. Not surprisingly, the youngest mostly do not donate to Wikipedia because they either cannot afford to do so, are not informed enough, or expected to be asked directly.

Reason not to donate	10-17 years	18-21 years	22-29 years	30-85 years	Total
I can't afford to make a donation	49,9%	55,0%	43,7%	30,0%	44,8%
I was never asked to / wouldn't know how.	29,1%	22,3%	20,5%	19,7%	22,8%
I don't know how to do that	29,6%	23,0%	20,2%	14,9%	21,9%
I donate my time instead of money	20,9%	17,3%	17,7%	19,5%	18,8%
I did not know it is supported by a non-profit organisation	23,2%	18,7%	16,3%	15,9%	18,5%
It seems that enough other people are making donations to keep the project running	17,8%	17,1%	16,7%	14,1%	16,5%
I do not trust that my donation will be used wisely	15,4%	15,8%	15,7%	12,7%	15,0%
I never donate to charities	13,2%	16,7%	16,6%	11,3%	14,5%
I don't know	10,3%	7,6%	9,1%	13,1%	10,0%
Donations to the Wikimedia Foundation are not tax-deductible where I live	3,9%	3,5%	4,6%	5,2%	4,3%
I disagree with Wikipedia's policies and practices	1,4%	1,4%	1,9%	2,5%	1,8%

Table 27: Reasons not to donate money to Wikipedia - by age cohorts

Contributions to Other Wikimedia Projects

Wikimedia offers a lot more projects than Wikipedia, e.g. Wikisource or Wikibooks. Respondents to the survey could describe their relation to these other projects by using following scale of activity:

- I use it and I contribute to it (1)
- I use it but don't contribute to it (2)
- I have heard of it, but I do not use it (3)
- I have not heard of it (4)

The values (1-4) allow to create a numeric index in order to measure the activity level, where 1 means the highest level of activity and 4 the lowest. Table 28 shows how the average activity levels of the respondents with regard to the various Wikimedia projects differs by gender. The fact that the mean values, i.e. the average activity degrees, range from 2.9 to 3.6 indicates that these other projects are scarcely used by Wikipedians or that they are often unknown to them. Since the same holds true for differences between age cohorts we abstain from a detailed description and discussion of these differences.

Wikimedia Project	Gender	N	Mean	Std. Deviation	Std. Error	95% Conf. Int. for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Wiktionary	female	41490	3,0	0,9	0,0	3,0	3,0	1	4
	male	125450	2,9	0,9	0,0	2,9	2,9	1	4
	Total	166940	2,9	0,9	0,0	2,9	2,9	1	4
Wikiquote	female	41195	3,2	0,9	0,0	3,2	3,2	1	4
	male	124628	3,0	0,9	0,0	3,0	3,1	1	4
	Total	165823	3,1	0,9	0,0	3,1	3,1	1	4
Wikibooks	female	40951	3,4	0,8	0,0	3,4	3,4	1	4
	male	123899	3,2	0,8	0,0	3,2	3,2	1	4
	Total	164850	3,2	0,8	0,0	3,2	3,3	1	4
Wikisource	female	40752	3,4	0,8	0,0	3,4	3,4	1	4
	male	123369	3,3	0,8	0,0	3,3	3,3	1	4
	Total	164121	3,3	0,8	0,0	3,3	3,4	1	4
Wikispecies	female	40570	3,7	0,7	0,0	3,6	3,7	1	4
	male	123075	3,5	0,7	0,0	3,5	3,5	1	4
	Total	163645	3,6	0,7	0,0	3,6	3,6	1	4
Wikinews	female	40511	3,4	0,8	0,0	3,4	3,4	1	4
	male	122944	3,2	0,8	0,0	3,2	3,2	1	4
	Total	163455	3,3	0,8	0,0	3,3	3,3	1	4
Wikiversity	female	40648	3,6	0,7	0,0	3,6	3,7	1	4
	male	123325	3,5	0,7	0,0	3,5	3,5	1	4
	Total	163973	3,6	0,7	0,0	3,6	3,6	1	4
Wikimedia Commons	female	41070	3,4	0,8	0,0	3,4	3,4	1	4
	male	124462	3,1	1,0	0,0	3,1	3,1	1	4
	Total	165532	3,1	1,0	0,0	3,1	3,2	1	4

Table 28: Average activity levels of respondents in other Wikimedia projects - by gender

Motivations

The survey offered Wikipedians 18 possible reasons for contributing to Wikipedia, of which four could have been selected, ranked by importance. The 17 motivational items the respondents could choose from are:

1. I do it for professional reasons (it belongs to my professional tasks)
2. I like the idea of sharing knowledge and want to contribute to it
3. I saw an error I wanted to fix
4. I saw a red link so I wrote a new article
5. I want to learn new skills / acquire new knowledge
6. I think the Internet provides a better medium for encyclopediae than traditional media
7. Just to see if it is really open for anyone to edit
8. I want to demonstrate my knowledge to a wider public / community
9. I want to make topics more popular that are not widely known yet
10. To improve my job / career opportunities
11. Because I like Wikipedia's philosophy of openness and collaboration
12. Because I think information should be freely available to everyone
13. Because I like mass collaboration/cooperation
14. To gain a reputation in the Wikipedia community
15. Because friends of mine are doing it and motivated me to join
16. To make the world a better place
17. To earn money
18. Don't know/can't remember/no real reason

"Most important" was translated into value 1, the least important of the four reasons that were possible to give was attributed the value 4. Table 29 shows gender differences in the motivations to contribute to Wikipedia. Apparently, there are no significant gender differences regarding what motivates people to contribute to Wikipedia. The most cited motivation to contribute to Wikipedia is evidently its capacity to allow sharing knowledge (this is similar to free software communities – the FLOSS Survey showed that "sharing knowledge" was second only to "learning" as a motivator). Another strong motivator is the impulse to correct things when an error was found. Finally, the professional context of Wikipedians plays an important role in motivating people to contribute to Wikipedia. Motivations related to skills development, gaining a reputation and finding jobs are strong in free software communities, where the link to employment in software-related fields is clear. It is perhaps surprising that such motivations are also fairly strongly cited by Wikipedia contributors, where the link to career development is less direct and spread across many fields.

Motivation	Gender	N	Mean	Std. Deviation	Std. Error	95% Conf. Int. for Mean Lower Bound	Upper Bound	Minimum	Maximum
I do it for professional reasons	female	744	2,2	1,2	0,0	2,1	2,3	1	4
	male	3900	2,3	1,2	0,0	2,3	2,4	1	4
	Total	4644	2,3	1,2	0,0	2,3	2,3	1	4
I like the idea of sharing knowledge	female	4453	1,8	1,0	0,0	1,8	1,9	1	4
	male	34046	1,7	0,9	0,0	1,7	1,7	1	4
	Total	38499	1,7	0,9	0,0	1,7	1,7	1	4
I saw an error I wanted to fix	female	4663	1,8	1,0	0,0	1,7	1,8	1	4
	male	31474	2,0	1,0	0,0	1,9	2,0	1	4
	Total	36137	1,9	1,0	0,0	1,9	1,9	1	4
I saw a red link so I wrote a new article	female	662	2,8	1,0	0,0	2,7	2,8	1	4
	male	4691	2,9	0,9	0,0	2,9	2,9	1	4
	Total	5353	2,9	0,9	0,0	2,9	2,9	1	4
I want to learn new skills	female	1728	2,4	1,0	0,0	2,4	2,5	1	4
	male	11611	2,5	1,0	0,0	2,4	2,5	1	4
	Total	13339	2,5	1,0	0,0	2,4	2,5	1	4
Internet encyclopedias are better	female	1522	2,9	0,9	0,0	2,8	2,9	1	4
	male	13189	2,9	0,9	0,0	2,8	2,9	1	4
	Total	14711	2,9	0,9	0,0	2,8	2,9	1	4
To see if it is really open for anyone	female	587	3,1	0,9	0,0	3,1	3,2	1	4
	male	2174	3,2	0,9	0,0	3,2	3,3	1	4
	Total	2761	3,2	0,9	0,0	3,2	3,2	1	4
To demonstrate my knowledge	female	643	2,9	1,0	0,0	2,8	2,9	1	4
	male	4939	2,9	1,0	0,0	2,8	2,9	1	4
	Total	5582	2,9	1,0	0,0	2,8	2,9	1	4
To make topics more popular	female	1183	2,8	1,0	0,0	2,7	2,9	1	4
	male	8030	2,8	1,0	0,0	2,8	2,8	1	4
	Total	9213	2,8	1,0	0,0	2,8	2,8	1	4
To improve job / career opportunities	female	172	2,8	1,0	0,1	2,7	3,0	1	4
	male	782	2,9	0,9	0,0	2,9	3,0	1	4
	Total	954	2,9	1,0	0,0	2,9	3,0	1	4
I like the Wikipedia philosophy	female	1753	2,8	0,9	0,0	2,8	2,9	1	4
	male	14033	2,9	0,9	0,0	2,9	2,9	1	4
	Total	15786	2,9	0,9	0,0	2,9	2,9	1	4
Information should be freely available	female	2426	2,7	1,0	0,0	2,7	2,8	1	4
	male	17521	2,7	1,0	0,0	2,7	2,7	1	4
	Total	19947	2,7	1,0	0,0	2,7	2,7	1	4
I like mass collaboration/cooperation	female	649	3,1	0,9	0,0	3,1	3,2	1	4
	male	3872	3,2	0,9	0,0	3,1	3,2	1	4
	Total	4521	3,2	0,9	0,0	3,1	3,2	1	4
To gain reputation	female	85	3,3	0,9	0,1	3,1	3,5	1	4
	male	1100	3,3	0,9	0,0	3,2	3,3	1	4
	Total	1185	3,3	0,9	0,0	3,2	3,3	1	4
Friends of mine are doing it	female	140	3,1	1,0	0,1	2,9	3,2	1	4
	male	411	3,2	1,0	0,0	3,1	3,3	1	4
	Total	551	3,1	1,0	0,0	3,1	3,2	1	4
To make the world a better place	female	1098	3,0	1,0	0,0	2,9	3,1	1	4
	male	9374	3,0	1,1	0,0	2,9	3,0	1	4
	Total	10472	3,0	1,1	0,0	3,0	3,0	1	4
To earn money	female	26	3,0	1,1	0,2	2,5	3,4	1	4
	male	219	3,0	1,1	0,1	2,9	3,2	1	4
	Total	245	3,0	1,1	0,1	2,9	3,2	1	4
Don'tknow / can't remember	female	691	2,7	1,3	0,0	2,6	2,8	1	4
	male	3215	2,8	1,3	0,0	2,7	2,8	1	4
	Total	3906	2,7	1,3	0,0	2,7	2,8	1	4

Table 29: Motivations to contribute to Wikipedia - by gender

Table 30 illustrates the motivational differences between age cohorts. There are a few differences between the oldest and the youngest cohort, e.g. with regard to the wish to learn new skills, which is, not surprisingly, less pronounced within the oldest than within the youngest cohort. In addition, the youngest cohort shows a stronger interest in improving career opportunities than older cohorts and they are less interested in earning money from contributing to Wikipedia, both of which is either no surprise. Thus, a striking finding is again the great degree of homogeneity that can be observed.

Motivation	Gender	N	Mean	Std. Deviation	Std. Error	95% Conf. Int. for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
I do it for professional reasons	10-17 years	1049	2,4	1,3	0,0	2,3	2,5	1	4
	18-21 years	924	2,3	1,2	0,0	2,3	2,4	1	4
	22-29 years	1380	2,3	1,2	0,0	2,2	2,3	1	4
	30-85 years	1367	2,3	1,2	0,0	2,2	2,3	1	4
	Total	4720	2,3	1,2	0,0	2,3	2,3	1	4
I like the idea of sharing knowledge	10-17 years	7740	1,8	1,0	0,0	1,8	1,8	1	4
	18-21 years	8356	1,8	0,9	0,0	1,7	1,8	1	4
	22-29 years	11190	1,7	0,9	0,0	1,7	1,7	1	4
	30-85 years	11543	1,6	0,9	0,0	1,6	1,6	1	4
	Total	38829	1,7	0,9	0,0	1,7	1,7	1	4
I saw an error I wanted to fix	10-17 years	7611	1,9	1,0	0,0	1,9	1,9	1	4
	18-21 years	8369	1,9	1,0	0,0	1,8	1,9	1	4
	22-29 years	10527	1,9	1,0	0,0	1,9	1,9	1	4
	30-85 years	9969	2,0	1,0	0,0	2,0	2,0	1	4
	Total	36476	1,9	1,0	0,0	1,9	1,9	1	4
I saw a red link so I wrote a new article	10-17 years	1462	2,8	0,9	0,0	2,7	2,8	1	4
	18-21 years	1226	2,8	1,0	0,0	2,8	2,9	1	4
	22-29 years	1298	2,9	0,9	0,0	2,9	3,0	1	4
	30-85 years	1419	3,0	0,9	0,0	3,0	3,1	1	4
	Total	5405	2,9	0,9	0,0	2,9	2,9	1	4
I want to learn new skills	10-17 years	3746	2,3	1,0	0,0	2,3	2,3	1	4
	18-21 years	3123	2,4	1,0	0,0	2,4	2,5	1	4
	22-29 years	3474	2,5	1,0	0,0	2,5	2,5	1	4
	30-85 years	3110	2,6	1,0	0,0	2,6	2,7	1	4
	Total	13453	2,5	1,0	0,0	2,4	2,5	1	4
Internet encyclopedias are better	10-17 years	3151	2,8	0,9	0,0	2,8	2,8	1	4
	18-21 years	3352	2,9	0,9	0,0	2,8	2,9	1	4
	22-29 years	4085	2,9	0,9	0,0	2,9	2,9	1	4
	30-85 years	4234	2,8	0,9	0,0	2,8	2,9	1	4
	Total	14822	2,9	0,9	0,0	2,8	2,9	1	4
To see if it is really open for anyone	10-17 years	841	3,1	1,0	0,0	3,1	3,2	1	4
	18-21 years	762	3,2	0,9	0,0	3,2	3,3	1	4
	22-29 years	697	3,2	0,9	0,0	3,1	3,3	1	4
	30-85 years	492	3,3	0,9	0,0	3,2	3,4	1	4
	Total	2792	3,2	0,9	0,0	3,2	3,2	1	4
To demonstrate my knowledge	10-17 years	1512	2,9	1,0	0,0	2,8	2,9	1	4
	18-21 years	1173	2,9	0,9	0,0	2,8	2,9	1	4
	22-29 years	1393	2,9	1,0	0,0	2,8	2,9	1	4
	30-85 years	1555	2,9	1,0	0,0	2,8	2,9	1	4
	Total	5633	2,9	1,0	0,0	2,8	2,9	1	4
To make topics more popular	10-17 years	1861	2,8	1,0	0,0	2,8	2,8	1	4
	18-21 years	1955	2,8	1,0	0,0	2,8	2,8	1	4
	22-29 years	2591	2,8	1,0	0,0	2,7	2,8	1	4
	30-85 years	2898	2,8	1,0	0,0	2,7	2,8	1	4
	Total	9305	2,8	1,0	0,0	2,8	2,8	1	4
To improve job / career opportunities	10-17 years	269	2,8	1,0	0,1	2,7	2,9	1	4
	18-21 years	209	3,0	0,9	0,1	2,8	3,1	1	4
	22-29 years	262	3,0	0,9	0,1	2,9	3,1	1	4
	30-85 years	222	3,0	1,0	0,1	2,8	3,1	1	4
	Total	962	2,9	1,0	0,0	2,9	3,0	1	4
I like the Wikipedia philosophy	10-17 years	2544	2,9	1,0	0,0	2,9	2,9	1	4
	18-21 years	3373	2,9	0,9	0,0	2,8	2,9	1	4
	22-29 years	4846	2,9	0,9	0,0	2,9	2,9	1	4
	30-85 years	5158	2,9	0,9	0,0	2,8	2,9	1	4
	Total	15921	2,9	0,9	0,0	2,9	2,9	1	4
Information should be freely available	10-17 years	3981	2,8	1,0	0,0	2,7	2,8	1	4
	18-21 years	4562	2,7	1,0	0,0	2,7	2,8	1	4
	22-29 years	5913	2,7	1,0	0,0	2,7	2,7	1	4
	30-85 years	5686	2,7	1,0	0,0	2,7	2,7	1	4
	Total	20142	2,7	1,0	0,0	2,7	2,7	1	4
I like mass collaboration/cooperation	10-17 years	1059	3,1	0,9	0,0	3,0	3,2	1	4
	18-21 years	983	3,2	0,9	0,0	3,1	3,2	1	4
	22-29 years	1187	3,1	0,9	0,0	3,1	3,2	1	4
	30-85 years	1320	3,2	0,9	0,0	3,2	3,3	1	4
	Total	4549	3,2	0,9	0,0	3,1	3,2	1	4
To gain reputation	10-17 years	475	3,2	0,9	0,0	3,1	3,3	1	4
	18-21 years	283	3,4	0,9	0,1	3,3	3,5	1	4
	22-29 years	228	3,3	0,9	0,1	3,2	3,4	1	4
	30-85 years	210	3,4	0,8	0,1	3,3	3,6	1	4
	Total	1196	3,3	0,9	0,0	3,2	3,3	1	4
Friends of mine are doing it	10-17 years	218	3,1	1,0	0,1	2,9	3,2	1	4
	18-21 years	116	3,2	0,9	0,1	3,0	3,3	1	4
	22-29 years	136	3,2	0,9	0,1	3,1	3,4	1	4
	30-85 years	94	3,1	1,0	0,1	2,9	3,3	1	4
	Total	564	3,1	1,0	0,0	3,0	3,2	1	4
To make the world a better place	10-17 years	2382	2,9	1,1	0,0	2,8	2,9	1	4
	18-21 years	2550	3,0	1,1	0,0	2,9	3,0	1	4
	22-29 years	3059	3,0	1,1	0,0	3,0	3,1	1	4
	30-85 years	2588	3,0	1,1	0,0	3,0	3,0	1	4
	Total	10579	3,0	1,1	0,0	3,0	3,0	1	4
To earn money	10-17 years	72	2,6	1,1	0,1	2,4	2,9	1	4
	18-21 years	53	3,2	1,0	0,1	2,9	3,5	1	4
	22-29 years	59	3,0	1,2	0,2	2,7	3,3	1	4
	30-85 years	75	3,1	1,1	0,1	2,9	3,4	1	4
	Total	259	3,0	1,1	0,1	2,8	3,1	1	4
Don'tknow / can't remember	10-17 years	1474	2,7	1,3	0,0	2,6	2,7	1	4
	18-21 years	954	2,7	1,3	0,0	2,7	2,8	1	4
	22-29 years	912	2,8	1,3	0,0	2,7	2,9	1	4
	30-85 years	622	2,8	1,3	0,1	2,7	2,9	1	4
	Total	3962	2,7	1,3	0,0	2,7	2,8	1	4

Table 30: Motivations to contribute to Wikipedia - by age cohorts

Conclusions

There are two contradictory age and gender trends within the global Wikipedia community: Overall we see the shares of female Wikipedians declining with growing age, but within the oldest age quartile (30-85 years) we see this trend reversed, i.e. Wikipedia appears to be especially attractive for women after they have reached the fourth decade of their life, which may be related to stages of their educational and professional career.

The share of contributors is twice as high among men than among women. In both genders the share of contributors increases in the third and fourth age cohort but decreases within the oldest sub-cohort, i.e. the rise of the share of contributors takes place between 22 years and 49 years while their share decreases after the age of 50 years. While the gender gap regarding the share of contributors remains very stable across all age cohorts it closes marginally in the oldest sub-cohort, i.e. in the age between 50 and 85 years. Thus, the activity level – in terms of contributing to Wikipedia content – decreases in the oldest sub-cohort, and this decrease is fully explained by the behaviour of male Wikipedians.

Following the general trend, the thematic specialisation of Wikipedia contributors grows with age. It is therefore no wonder that thematic specialisation is most pronounced within the oldest and least pronounced within the youngest cohort. The strongest boost within the oldest cohort was observed with the "civilisationalists", which implies that subject fields such as geography, history and cultural sciences seem to be most attractive to Wikipedians 30 or older. Younger Wikipedians prefer natural sciences, mathematics, logic and technology. Female contributors appear less specialised than the males, and the gender difference for specialisation grows with age.

In contrast, female contributors are somewhat more active than the male Wikipedians in terms of the average time they spend contributing, and the youngest and the oldest (50 years and above) spend significantly more time creating Wikipedia content than those in between. While this observation can easily be explained by the greater free time available to students and retired persons, it should be noted that these two cohorts play a significant role for Wikipedia, as a resource of the creation and editing of content.

Regarding the financial resources of Wikipedia, people between 30 and 50 years are the most willing and capable to donate money, which is consequence of the fact that these cohorts earn relatively stable and high salaries as compared to the younger and older cohorts. Strikingly, there are no significant age or gender differences with regard to the reasons not to donate to Wikipedia. However, it appears that the youngest cohort and female Wikipedians have a needfor more information about the Wikimedia Foundation and a more direct approach when it comes to donations. Of course, the financial means of the youngest cohort must be considered limited, as compared to older cohorts.

Regarding the activity of Wikipedians in other Wikimedia projects, there is only one conclusion: Wikipedians do Wikipedia, and have little interaction with other Wikimedia projects, regardless of gender or age.

Finally, we could see that the wish to share knowledge is the strongest motivator to contribute to Wikipedia, with few gender or age differences. On the one hand this can be considered as an advantage in that Wikipedia has no strong discriminatory effects. However, as Wikipedia attracts a relatively small share of women contributors, one explanation may be that it apparently only attracts women that have a similar set of preferences and motivations as male Wikipedians. With regard to age, the conclusion to be drawn appears to be similar. In terms of behaviour and motivation, Wikipedia shows no effect of age discrimination. However, there is a clear under-representation of older users

among contributors. They appear to be a resource with neglected potential, as they provide a significant stock of time and expertise that could be tapped for Wikipedia.