Track 1 Paper: Surveying the U.S. National Postdoctoral Association Regarding Software Use and Training in Research

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Motivation

- We know software is important to research, but don't know how much, to what research, to which researchers

- 2014 UK survey of academics in Russell Group universities attempted to find out

  - S. Hettrick, "It's impossible to conduct research without software, say 7 out of 10 UK researchers," Software Sustainaiblity Institute, 2014. Available at: https://www.software.ac.uk/blog/2016-09-12-its-impossible-conduct-research-without-software-say-7-out-10-uk-researchers
  - S.J. Hettrick, M. Antonioletti, L. Carr, N. Chue Hong, S. Crouch, D. De Roure, et al, "UK Research Software Survey 2014", Zenodo, 2014. doi: https://doi.org/10.5281/zenodo.14809

- Results:

  - 92% of academics use research software
  - 69% say their research would not be practical without it
  - 56% of respondents develop their own software
  - 21% of them have no training in software development

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Our survey

- Similar questions (as much as possible)
- Different population (members of US National Postdoctoral Association)
- Different time (2014 vs March-April 2017)
- Similar response rate (3% vs 3.33%)

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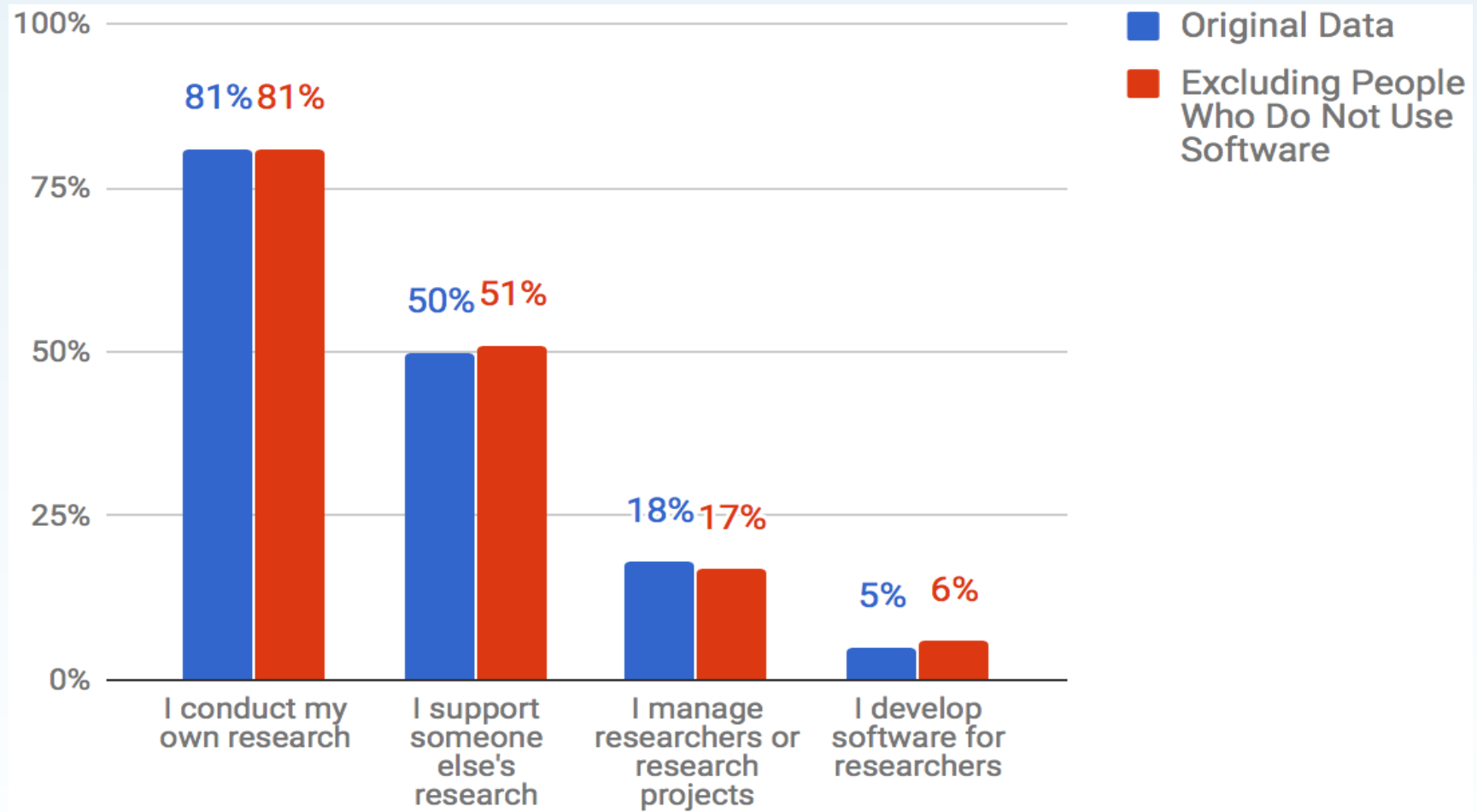# Survey Metrics

Total Population Emailed	6281
Total Views	4473
Total Click-Backs	432
Total Responses	209
Response Rate	3.33%

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Survey Respondents

Gender	Male	Female	Other/ prefer not to answer
	42.3%	55.3%	2.4%
Research Discipline	STEM	Non-Stem	Other
	89.5%	10.5%	0%

UK respondents: 62% male

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Researcher's Role (vs software usage)

UK respondents: 95%, 25%, 36%, 17%

Researcher's Role (vs gender)

Use of Research Software

5.3%

94.7%

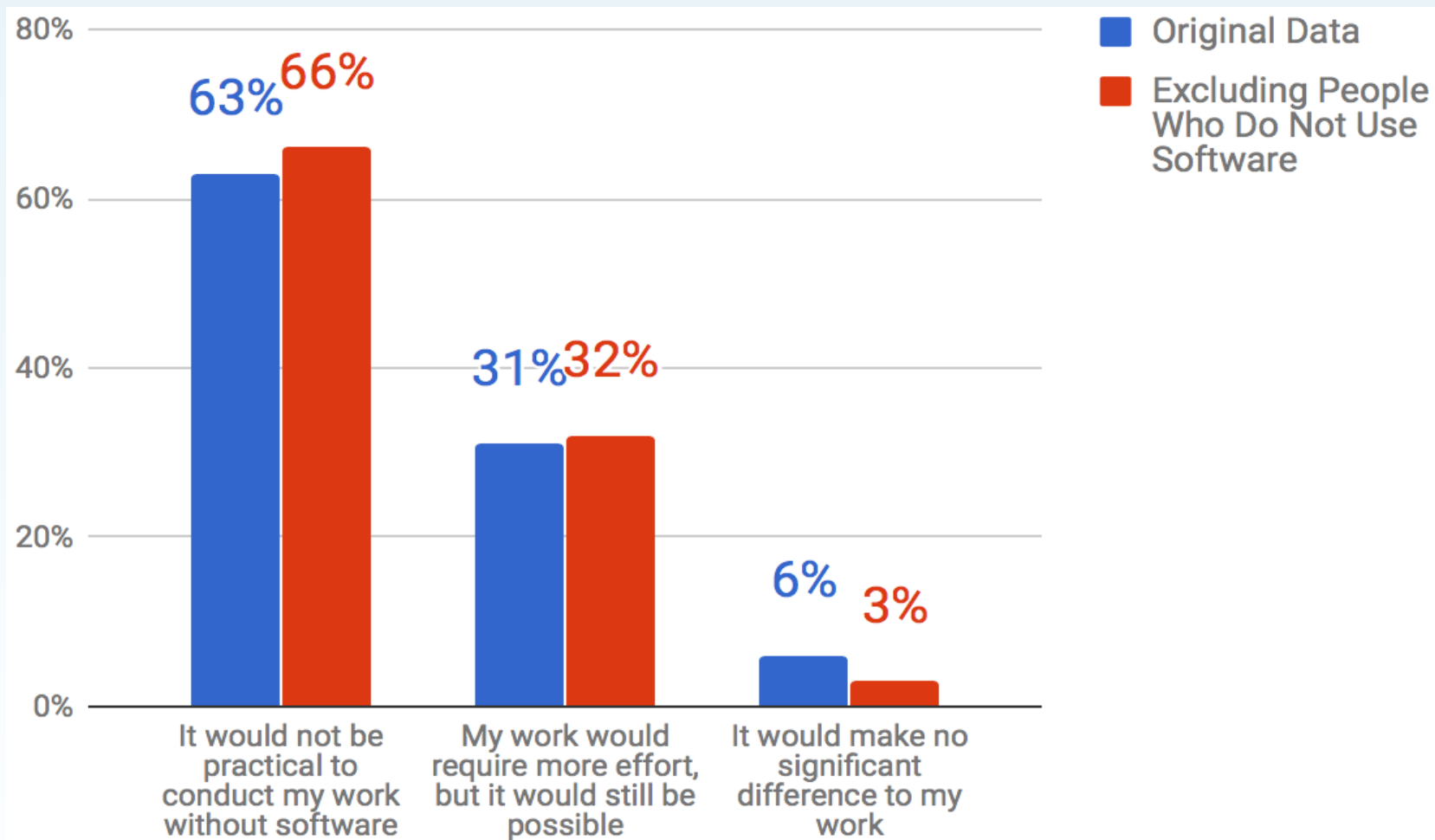● Yes - I do use research software   ● No - I do not use research software
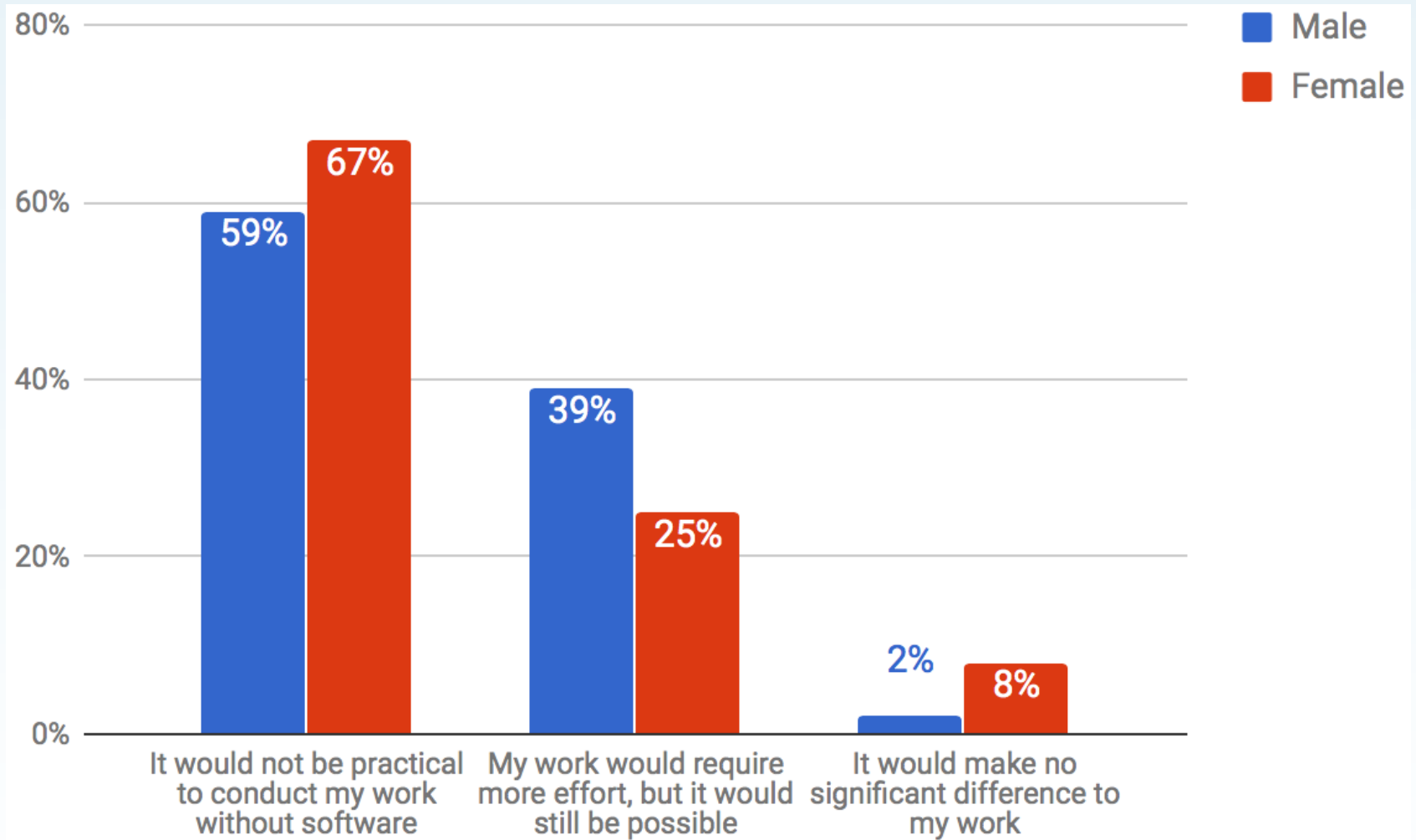
UK respondents: 92% use research software

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Need for Research Software (vs sofware usage)
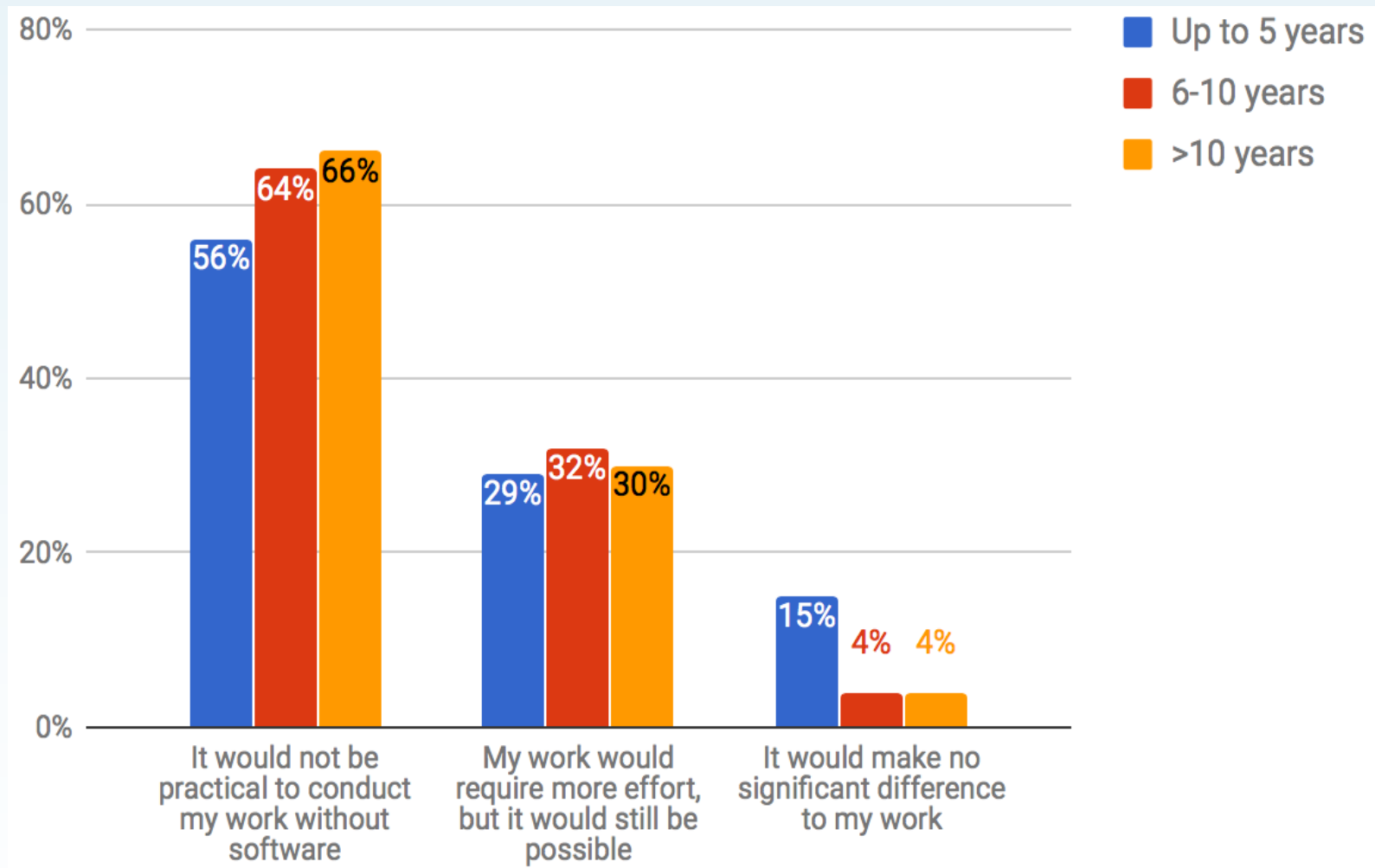

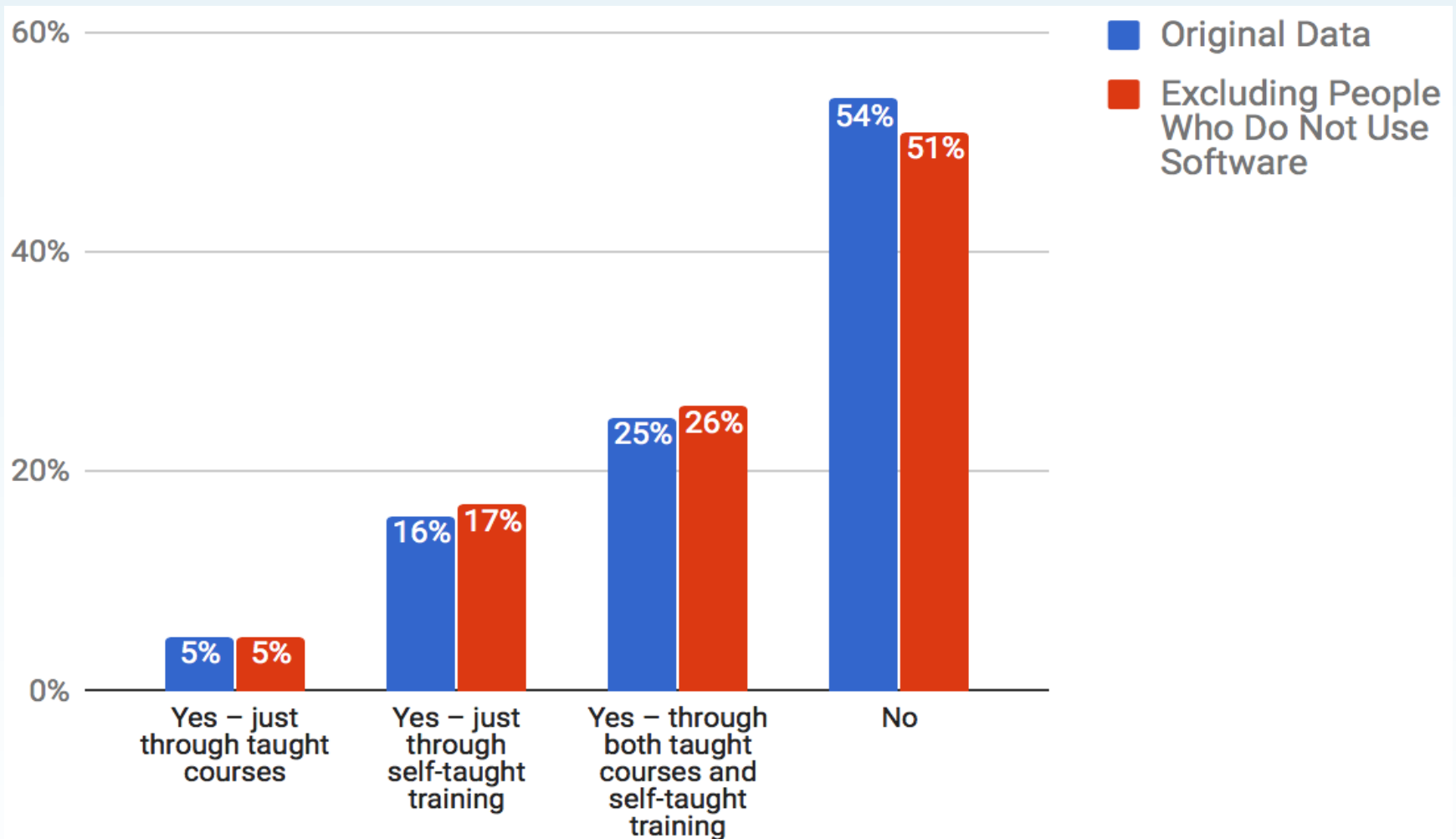UK respondents: 69%, 21%, 10%

Need for Research Software (vs gender)
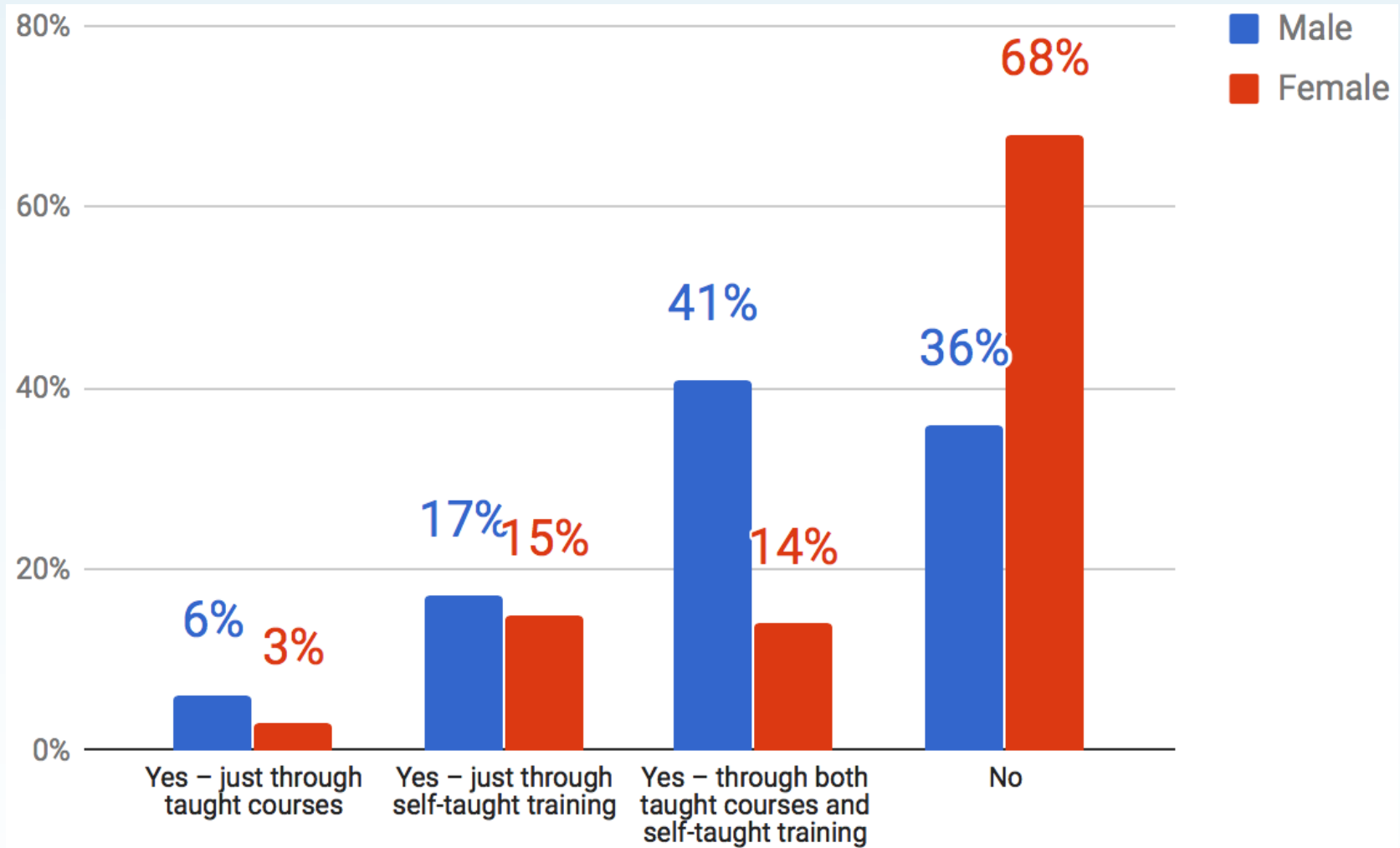
Need for Research Software (vs experience)
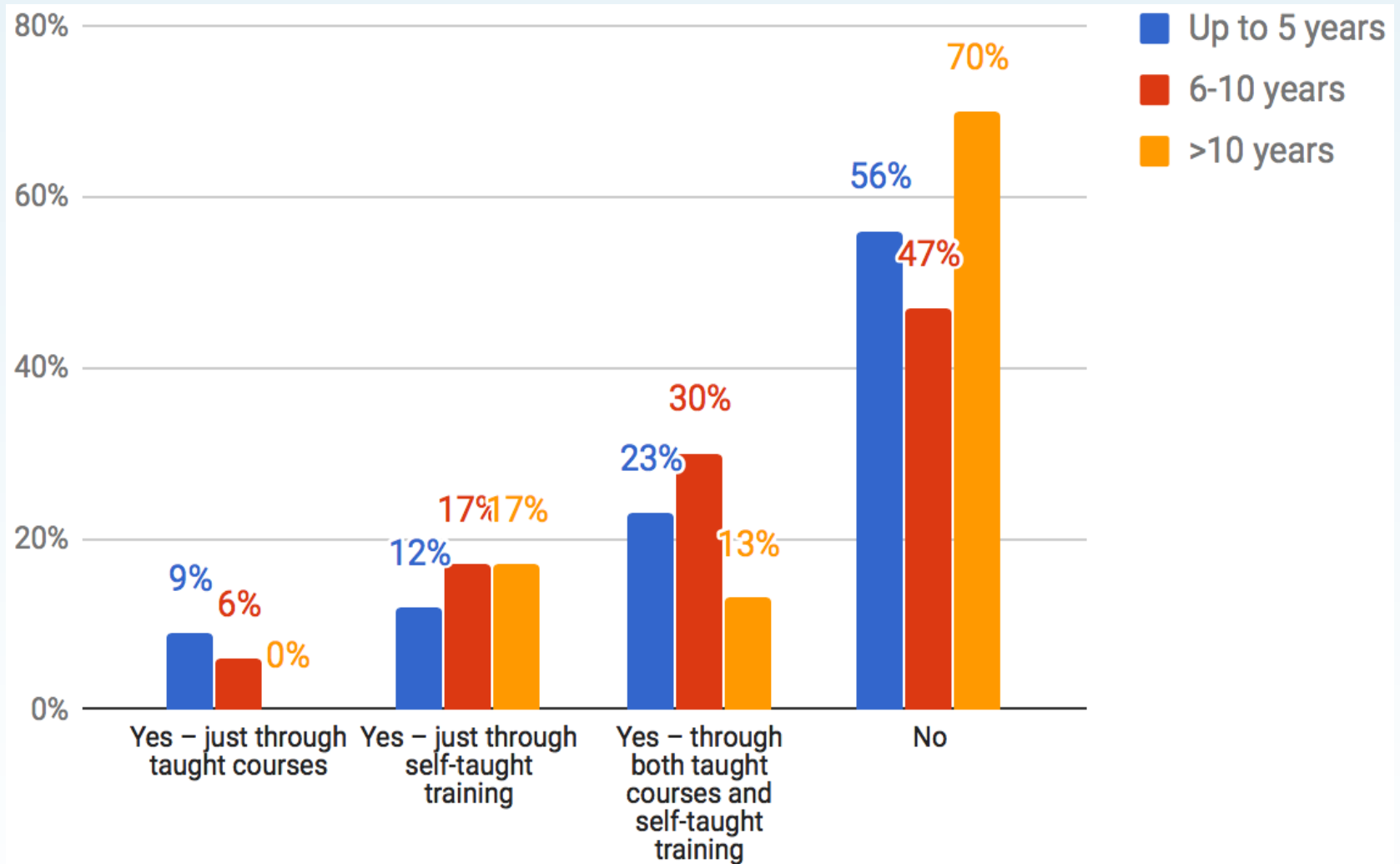
Training (vs software usage)
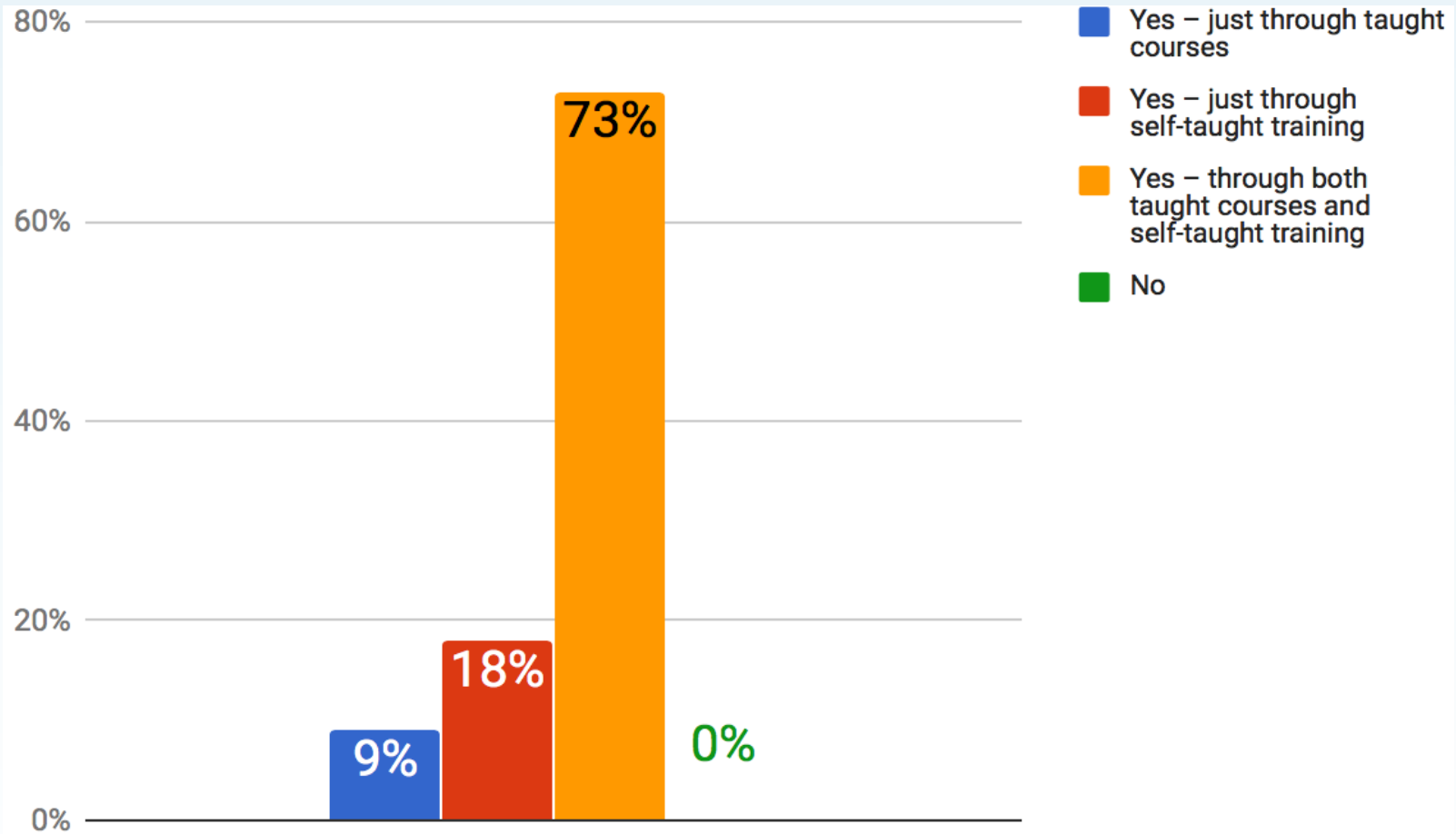

UK respondents: 0%, 15%, 40%, 45%

Training (vs gender)

Training (vs experience)

Training (for developers who develop for others)

UK respondents: developers for others with no training: 21%

Conclusions & Future Steps

- Highlights:
  - 95% of surveyed use research software
  - 63% of surveyed couldn't do their research without software
    - 31% could, but with more work
  - 46% of surveyed trained in software development
    - 100% who develop for others trained in development

- US and UK results – generally similar, but some significant differences too

- Why? Different populations (researchers vs postdocs)? Different times (2014 vs 2017)? Different countries (UK vs US)?

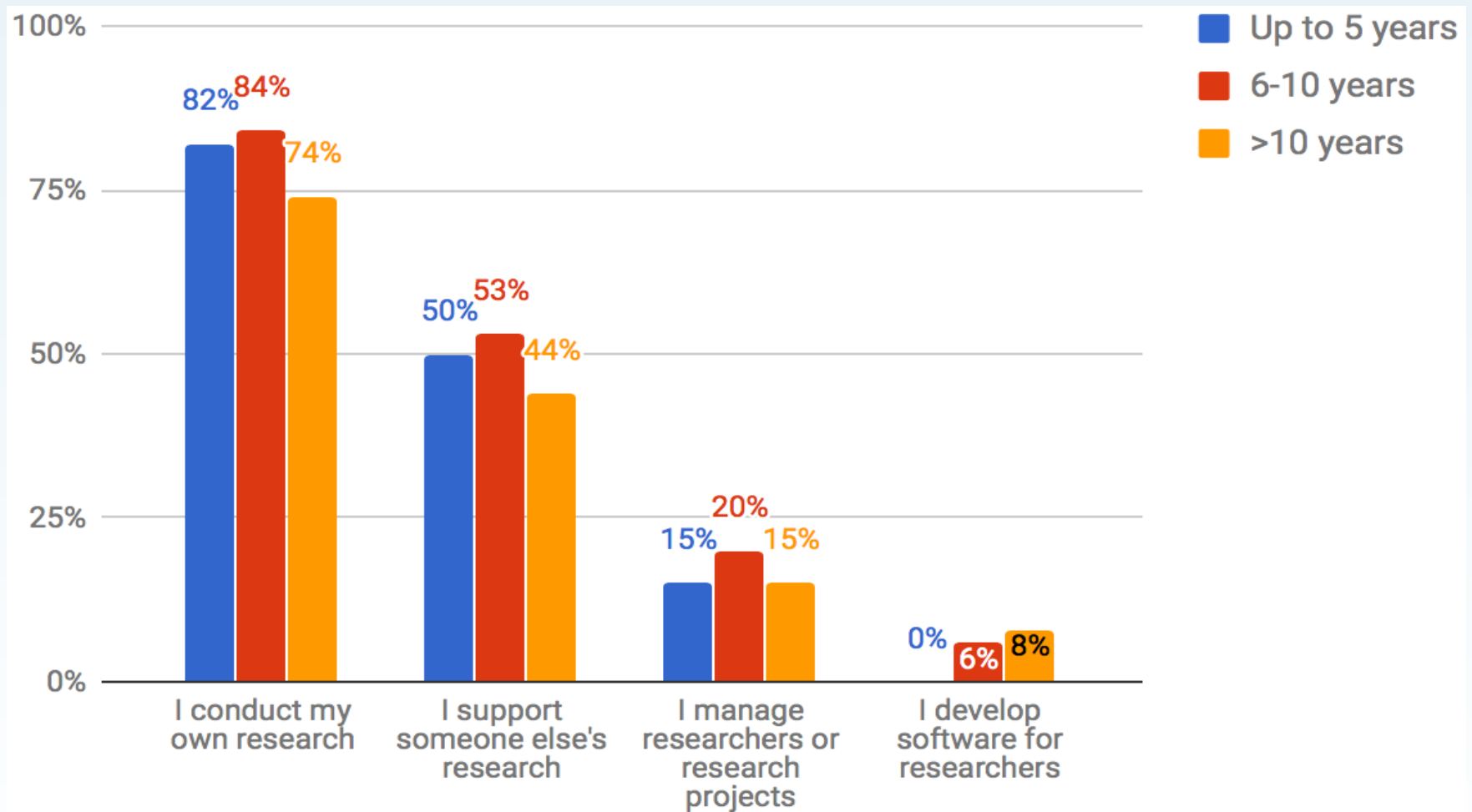NCSA | I

Future Steps

- To find out why, need:
  - More comprehensive study in US
  - Other studies in other places
  - Same/similar questions to allow comparisons
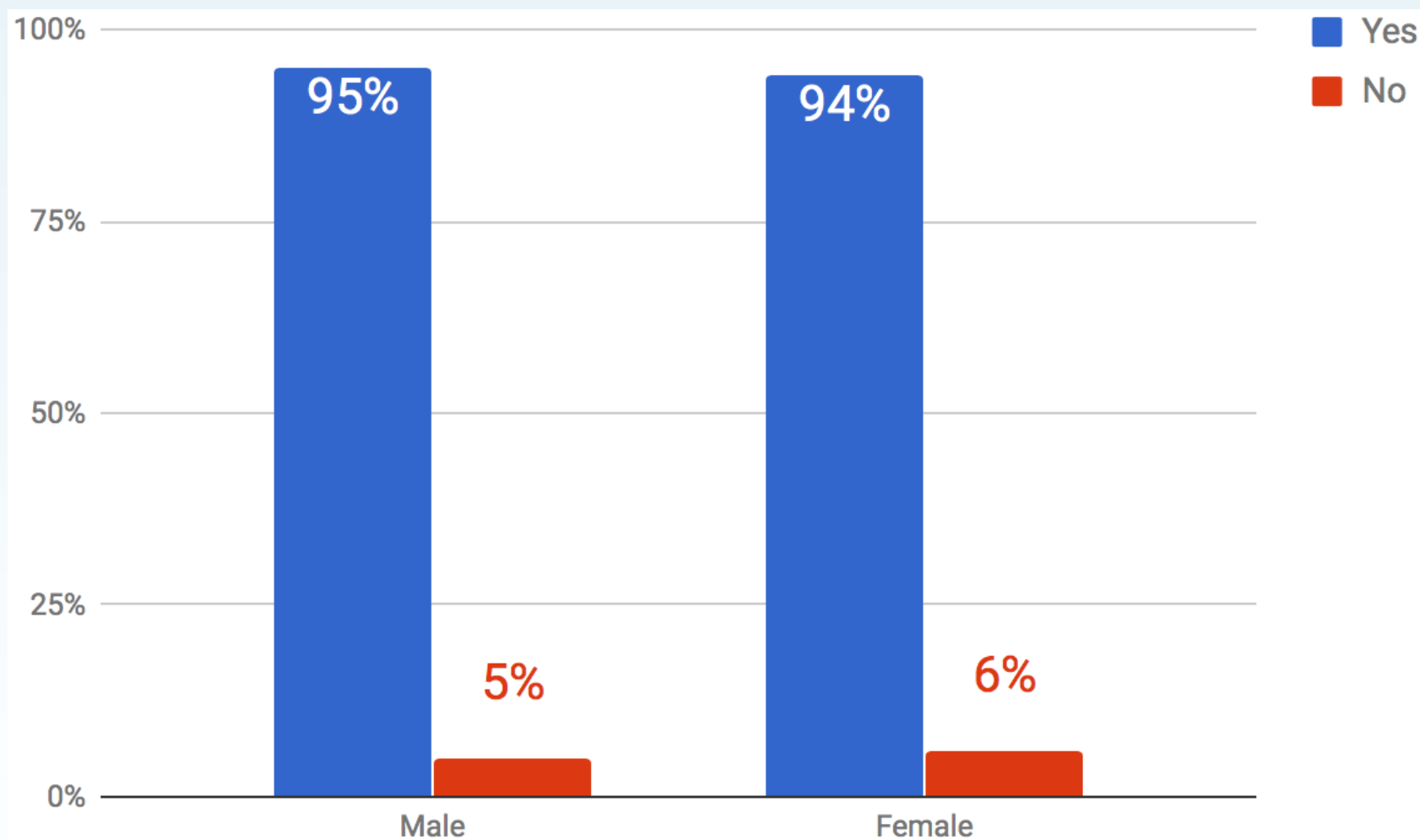 - Need to encourage higher response rate

References

- UK webpage: S. Hettrick, "It's impossible to conduct research without software, say 7 out of 10 UK researchers," Software Sustainaiblity Institute, 2014. Available at: https://www.software.ac.uk/blog/2016-09-12-its-impossible-conduct-research-without-software-say-7-out-10-uk-researchers

- UK data: S.J. Hettrick, M. Antonioletti, L. Carr, N. Chue Hong, S. Crouch, D. De Roure, et al, "UK Research Software Survey 2014", Zenodo, 2014. doi: https://doi.org/10.5281/zenodo.14809

- This paper: Udit Nangia and Daniel S. Katz, "Track 1 Paper: Surveying the U.S. National Postdoctoral Association Regarding Software Use and Training in Research" figshare, 2017. doi: https://doi.org/10.6084/m9.figshare.5328442.v1

- This data: U. Nangia and D. S. Katz, "Survey of National Postdoctoral Association – Dataset," [Data set], Zenodo, 2017. doi: https://doi.org/10.5281/zenodo.843606

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Additional data

Researcher's Role (vs experience)

Use of Research Software (vs gender)

Use of Research Software (vs experience)