Research Integrity Training –

Needs and provisions in institutions in the United Kingdom

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Executive summary

Top Level Takeaways and Key Figures

7% The proportion of respondents who felt that researchers in their field were not using honest and verifiable methods.

51% The proportion of respondents who indicated that their institution provided training on research integrity.

4% The proportion of respondents who do not support mandatory training on research integrity.

67% The proportion of respondents who felt that research integrity training provided by their institution is effective.

63% The proportion of respondents who are unsure whether training providers are regularly assessed for the quality of training they provide.

"Research Integrity is the requirement to conceive, conduct and report research in an honest and transparent manner. Researchers should be fair and accurate when representing their interactions with peers, be open about any potential conflicts of interest that might emerge within their research and ensure that they protect research participants, maintaining their dignity and rights throughout the life time of the research."

"[Research integrity includes] Fostering and maintaining honesty, trust, rigor, and fairness in research practices, and supporting courageous action where lack of integrity is identified."

"Training was very good at covering big mistakes, but not so good at showing the best ways to do things. Additionally, it was quite generic […] More subject specific training would be great."

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Introduction

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Introduction

In 2019, Nature hosted a meeting of stakeholders from all parts of the Australian research community — including representatives from business, government bodies, university and research institutes, and funding organisations — to discuss research integrity and good research practices.

One of the most striking outcomes of this meeting was the realisation of how little anyone knew about the level of understanding or training offered to researchers in research integrity. This led us, initially, to launch a survey of researchers at all levels of seniority, from PhD students to Vice-Chancellors, at institutions throughout Australia, to determine the level of understanding of research integrity and relevant training within the Australian research community. We have subsequently extended the survey to researchers in the UK and the USA, with more countries to follow.

These surveys aim to address the following:

- To determine the scale of training on research integrity (as defined by the NIH) and good research practices provided to researchers, including how it is provided, who provides it, and with what frequency.
- To understand the perceived need and quality of such training.
- To understand what topics are covered and whether they align with the researchers' needs (as identified by them).

The following report describes the survey results received from 1078 participants from more than 287 organisations across the UK.

2.0

What is understood by “research integrity”

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Unprompted, 44% of researchers included “Honest” in their RI definition

Unprompted understanding of research integrity meaning

The UK survey received 722 open text responses describing what researchers felt Research Integrity meant (unprompted). All of these comments were coded into overlapping themes provided on the right. The top 3 themes describing RI: Honest, Ethical and Transparent.

Researchers from the Humanities & Social Sciences field were significantly more likely than other researchers to include “Ethical” in their RI descriptions, whereas, researchers from the Physical Sciences (including Chemistry & Maths) were significantly less likely than other researchers to include “Ethical” in their descriptions. Instead, the latter group were significantly more likely than others to feel that RI that research must be “open and accessible.”

> “Encompasses honesty and ethical practice in relation to all research and evaluation activities.”

> “Honest, transparent and open. Driven by curious mind to solve problems and find answers and understand the world, rather than financial, reputational, institutional or personal gain.”

Q. How would you describe Research Integrity, including the practices it relates to? (n=722)

These figures represent the weighted proportion of respondents to give a particular response. Many respondents named more than 1 factor. Total may not = 100%.

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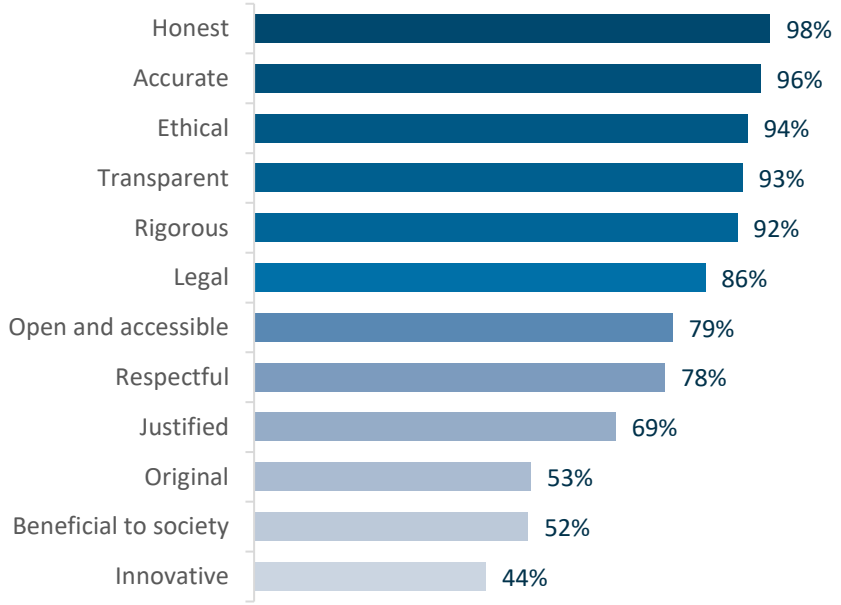
Prompted, 98% of researchers rated “Honest” as important for Research Integrity

Prompted understanding of research integrity meaning

Q. How important, if at all, would you rate each of the following with regards to Research Integrity? (n=785)



Researchers’ prompted answers are mostly consistent with their unprompted understanding of Research Integrity – as Honest, Ethical and Transparent remain in the top 5 elements that are rated as “extremely important” or “very important” with regards to Research Integrity.

However, prompted questioning finds that Accurate and Rigorous increased in importance, compared with unprompted understanding, as they climb the ranking into the top 5 elements with regards to Research Integrity.

Interestingly, mid-career researchers were significantly less likely than early-career or senior researchers to feel that Accurate and Rigorous are important factors for Research Integrity.

And those who were self-employed were significantly more likely than others to feel that Innovative was an important part of Research Integrity. However, Innovative was most likely to be rated as “not important at all” by all other researchers.

Declaring conflicts of interest was rated as the most important activity for integrity

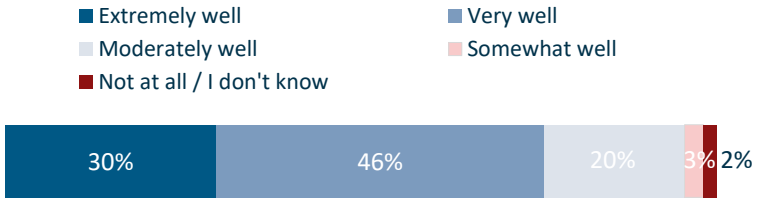
Important aspects for maintaining integrity in research

After initial questions (see slide 6 & 7) respondents were provided with a definition of research integrity to provide context and consistency for further questioning:

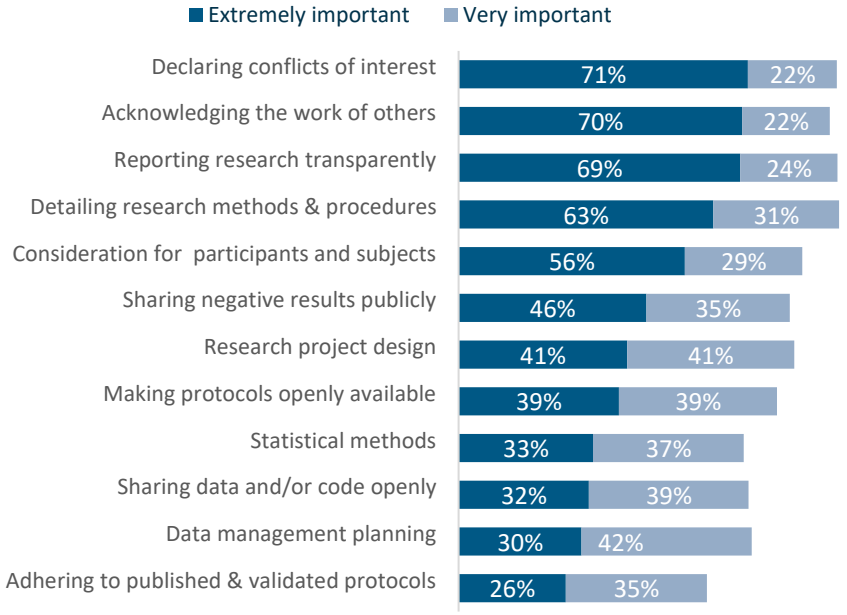
"The use of honest and verifiable methods in proposing, performing, and evaluating research and reporting research results with particular attention to adherence to rules, regulations, guidelines, and commonly accepted professional codes and norms."

76% of respondents felt that definition reflected their understanding of Research Integrity either "Extremely well" or "Very well".

Q. To what extent does this definition reflect your understanding of Research Integrity? (n=756)



Q. How would you rate the importance of each of the below activities with reference to NIH definition of research integrity? (n=740)



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Current research integrity training provision

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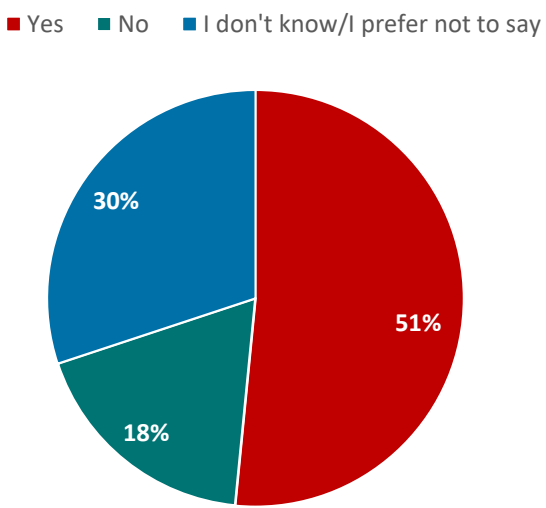
Awareness of research integrity training based on seniority and work place

Availability of training in research integrity

Q. Does your institution provide training in research integrity? (n=737)



"Yes" broken down by seniority

- Institutional Management – 71%
- Senior researcher –58%
- Mid-level researcher – 29%
- Early career researcher – 54%
- Non-academic staff – 27%
- Other– 36%

"Yes" broken down by work place

- Research organizations– 47%
- Academia– 58%
- Not for profit– 38%
- Government– 13%
- Industry – 32%
- Self employed – 22%
- Other – 27%

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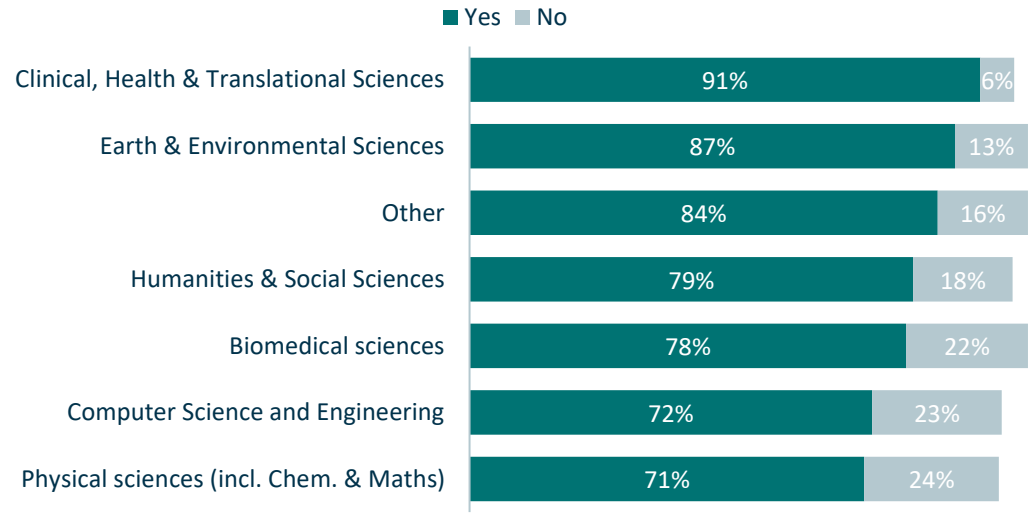
On average, 81% of respondents who've been offered training have taken it

Who has taken training in research integrity?

Q. Have you undertaken training in research integrity as provided by your current institution? (n=368)



Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.

On average, 81% of respondents answered "yes" to whether they have taken Research Integrity training at their current institution.

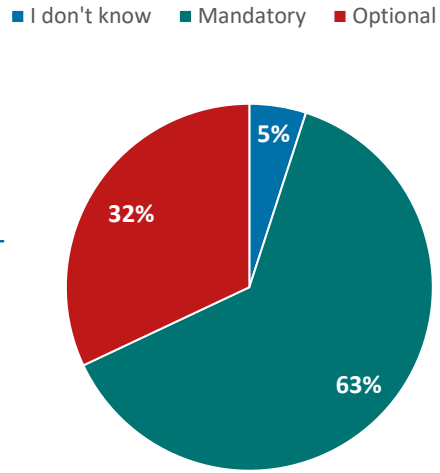
Specially, respondents from the Clinical, Health & Translational sciences were most likely to indicate that they have undertaken Research Integrity training at 91%, and researchers from the physical sciences (including chemistry and maths) were least likely to indicate the same at 71%.

63% of training provided is mandatory, 54% involves both online & in person

How is research integrity training provided?

Q. Was the training in which you participated mandatory or optional? (n=294)

- Respondents from Clinical, Health & Translational Sciences as well as the Physical sciences (including Chemistry & Maths) were more likely to state that their institution provided mandatory training – however, please note, this is not *statistically significant*.
- Respondents from Humanities & Social Sciences were least likely to state their institution provided mandatory training – however, please note, this is not *statistically significant*.



Q. How is this training provided? (n=379)

Blended – 54%

Online – 32%

In person – 11%

Don't know– 4%

Please note, this question was only shown to those who answered "Yes" to the question "Have you undertaken training in research integrity as provided by your current institution?" on slide 11.

Research Offices & Research Administrations are most likely responsible for RI training

Who is responsible for conducting training?

- Respondents in academia were *significantly more likely* to indicate that research offices and research administration were responsible for delivering training on research integrity.
- However, those working in Industry (e.g. pharma, biotech, consultancy), were *significantly least likely* likely to indicate the same, and were slight more likely, along with those working in non-profits, to indicate that responsibility for training in research integrity was held by supervisors and senior leaders.

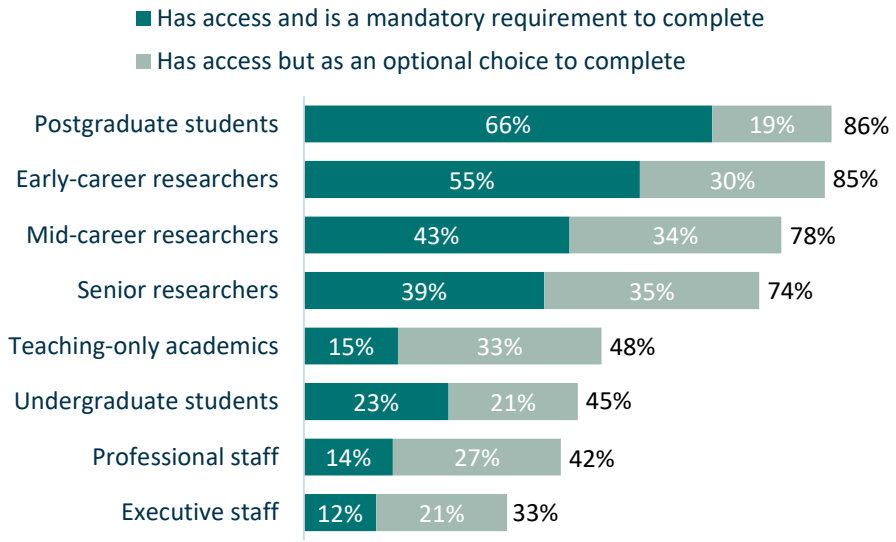
Q. Who is responsible for conducting the training within your institution? (n=375)

Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.
Additionally, these figures represent the weighted proportion of respondents to give a particular responses, therefore, may not =100%

Research Integrity Training is most commonly offered to postgraduate students

To whom is research integrity training offered?

Q. Who within your institution has access and is required to undertake training in research integrity? (n=366)



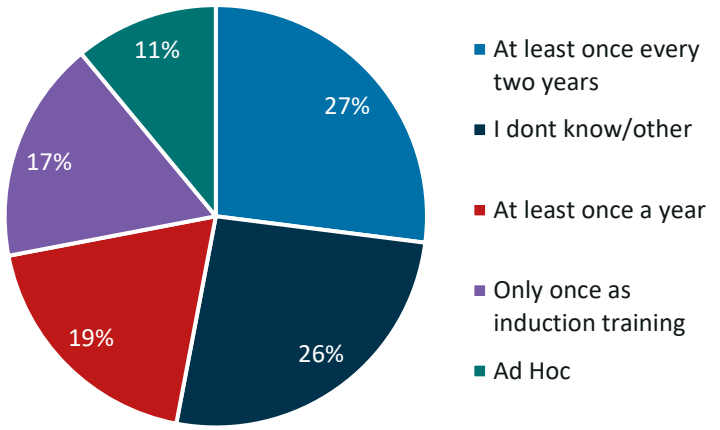
Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.

- Postgraduate students have the most access to Research Integrity training (86%) and are most likely to have the training be mandatory (66%).
- Interestingly, teaching-only academics have more access to Research Integrity training (48%) than undergraduates (45%).
- 33%-48% of respondents indicated that their institution provided access to training in research integrity to their non-research active staff (i.e. teaching-only academics, professional staff and executive staff).

34%-44% of respondents say training offered is permanently available online

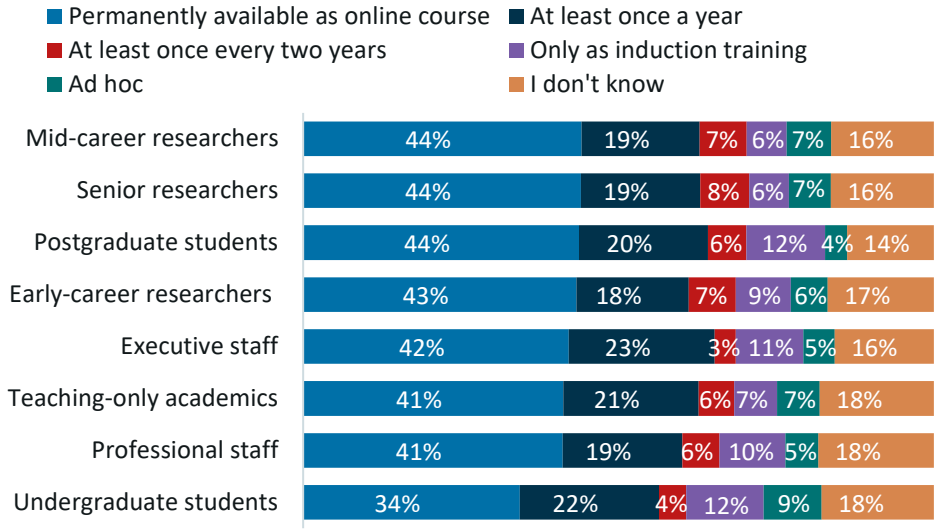
How frequently is training in research integrity taken and provided?

Q. How frequently are you required to undertake training in research integrity? (n=185)



Please note, this question was only shown to those who answered "Mandatory" to the question "Was the training in which you participated mandatory or optional?" on slide 12.

Q. For those who have access, how often is training in research integrity provided/made available by your institution? (n=121)



Please note, this question was only shown to those who indicated these groups did have access to Research Integrity training on slide 14.

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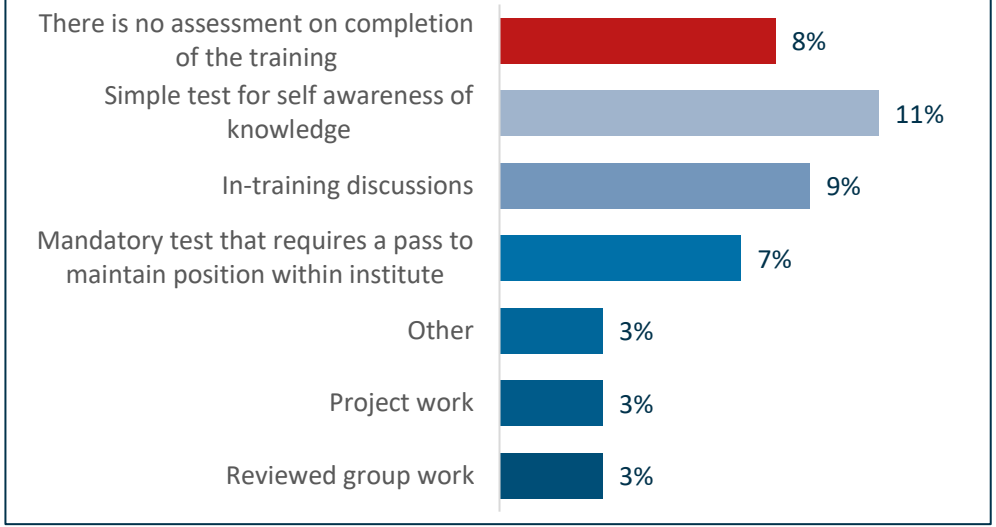
Only 7% indicated they are required to prove their understanding to maintain their role

How is training in research integrity assessed?

- 7% of respondents indicated that they are required to go through mandatory testing to prove their understanding of Research Integrity in order to maintain their position within the institution.
- 8% of respondents indicated that there is absolutely no assessment upon completion of Research Integrity training. This was *statistically significantly more likely* so for senior researchers than early and mid-career researchers and job roles.

Q. How, if at all, is learning from the training on research integrity assessed? (n=349)



Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.
Additionally, these figures represent the weighted proportion of respondents to give a particular responses, therefore, may not =100%

A third (or less) of institutions encourage Research Integrity in other ways

How else do institutions encourage research integrity?

Q. Aside from formal training opportunities, how else does your institution encourage and develop research integrity? (n=649)

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Topic inclusion within training

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Current training coverage focuses overarching Research Integrity concepts

Topics covered in institutional research integrity training

Q. Which aspects associated with research integrity are included in your institution's training? (n=282)

Please note, this question was only shown to those who answered "Yes" to the question "Have you undertaken training in research integrity as provided by your current institution?" on slide 11.

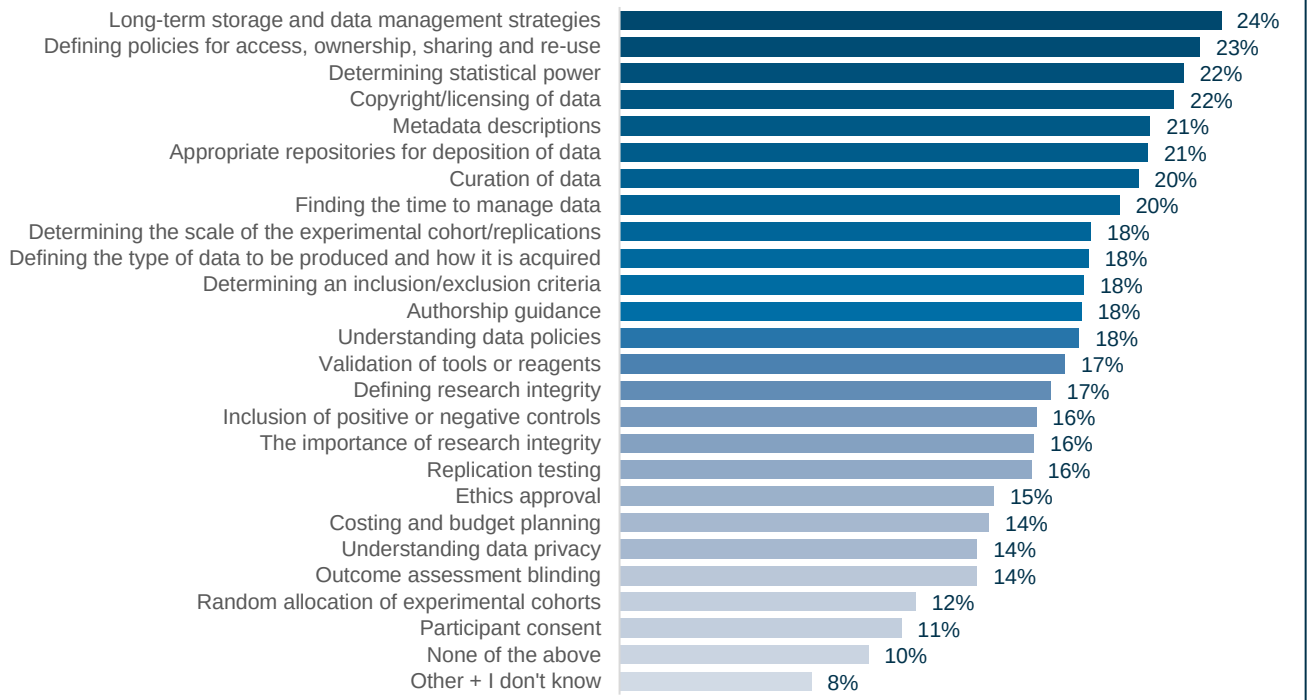
Senior researchers were *significantly* more likely than mid- and early career researchers to have the following topics included in their research integrity training: **the importance of research integrity, ethics approval, defining research integrity, understanding data privacy, and conflict of interest guidance.**

However, mid- and early career researchers also indicated that these topics were sometimes included in the integrity trainings provided for them.

Current desire for training focuses on data management, sharing & copyright/licensing

Topics desired from research integrity training

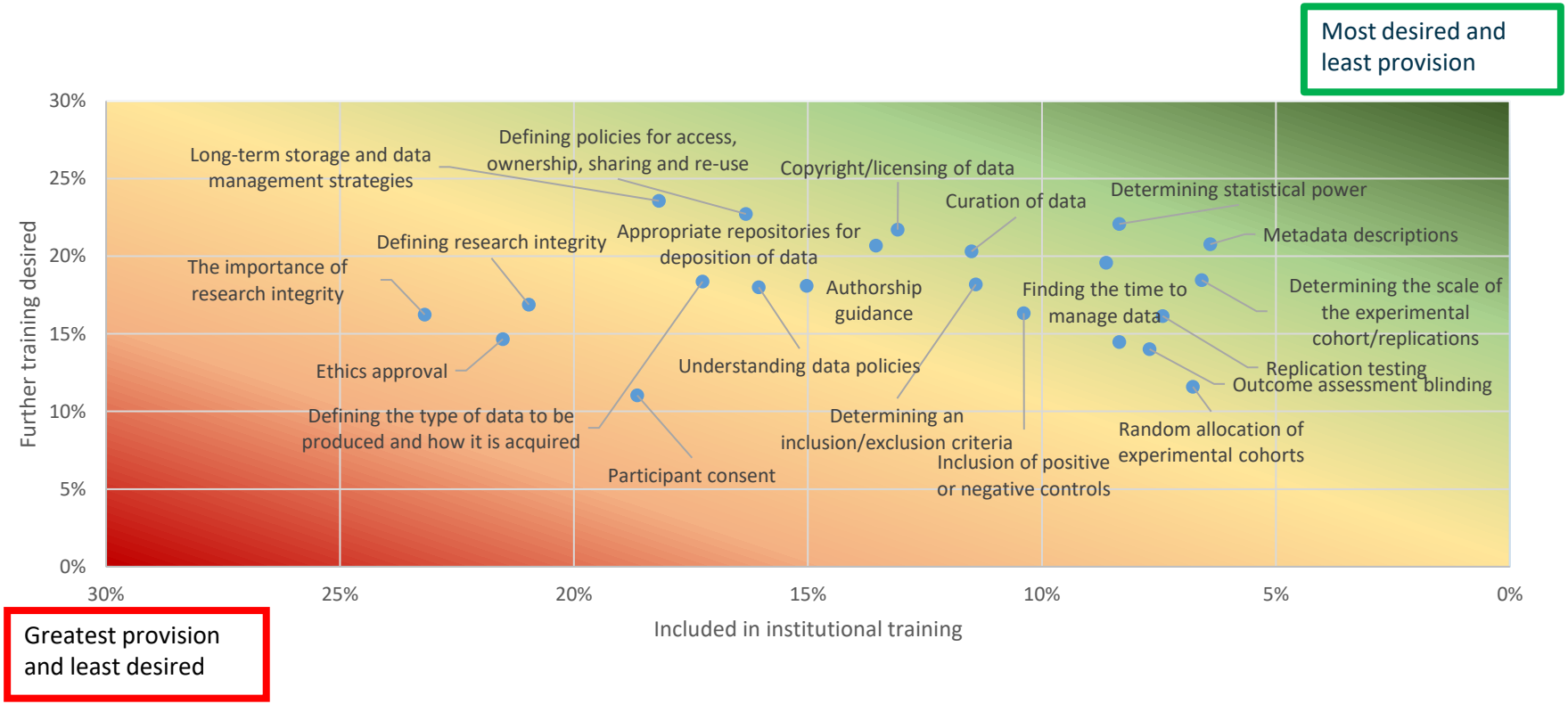
Q. Which of the following topics in RI do you feel you would benefit from further training in? (n=676)



Senior researchers were *significantly more likely* than mid- and early career researcher to feel that they would benefit from training on **Appropriate repositories for deposition of data**.

And researchers in the Computer Science and Engineering field were *significantly more likely* than researchers in other fields to feel like they needed training on **Inclusion of positive or negative controls**.

Cross-plot of training topics provided and training topics needs identify key institutional training development areas



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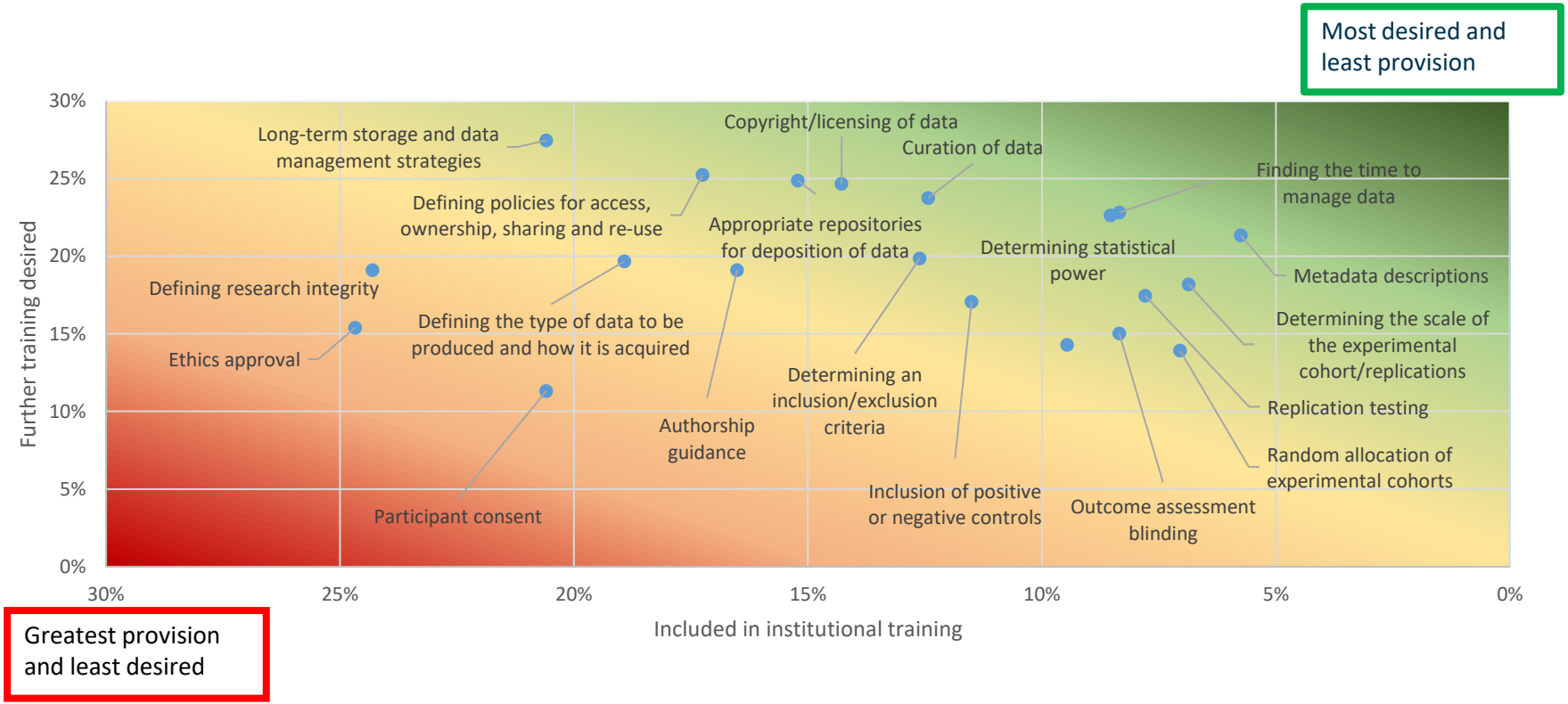
Senior researchers' cross-plot of training topics provided and training topics needs

Topics covered in research integrity training versus topics desired by seniority group



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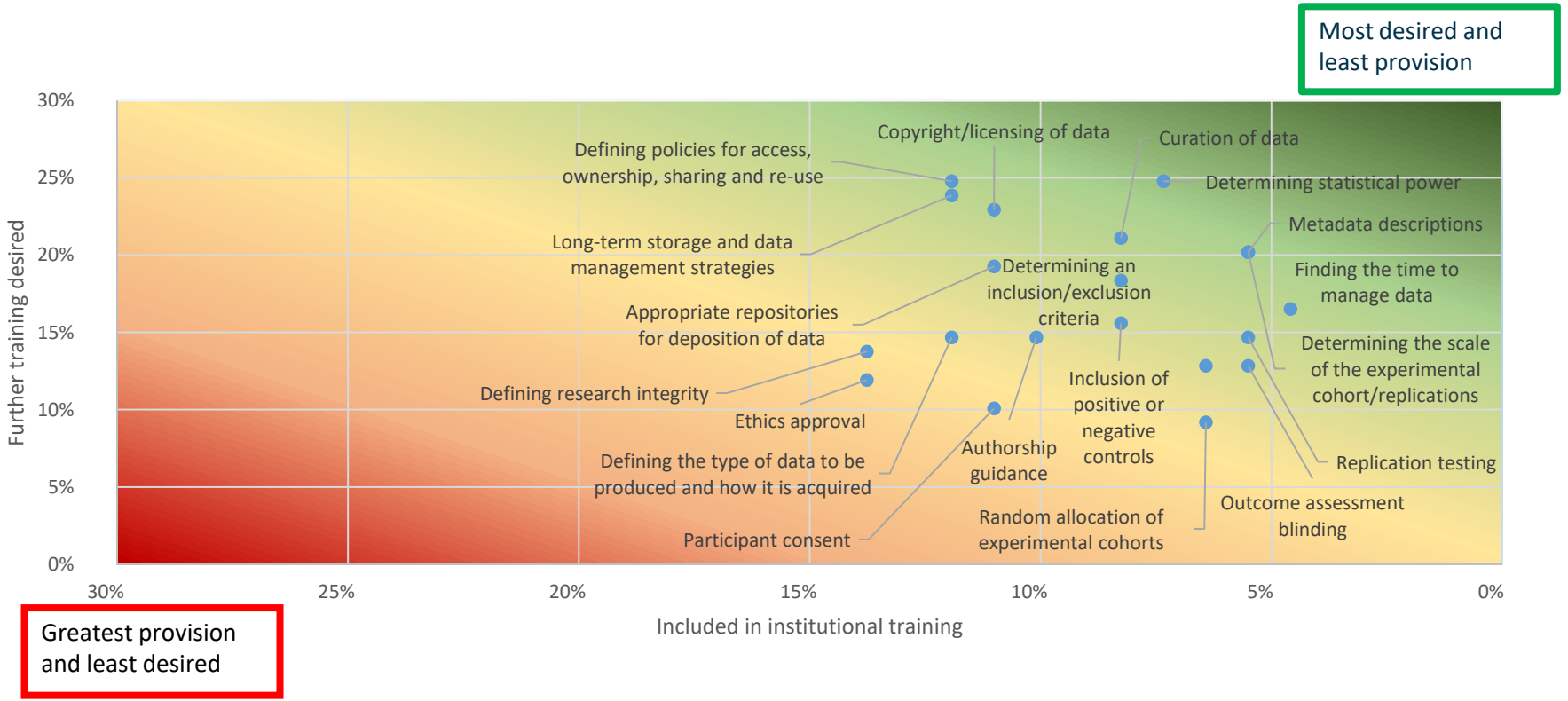
Mid-career researchers' cross-plot of training topics provided and training topics needs

Topics covered in research integrity training versus topics desired by seniority group



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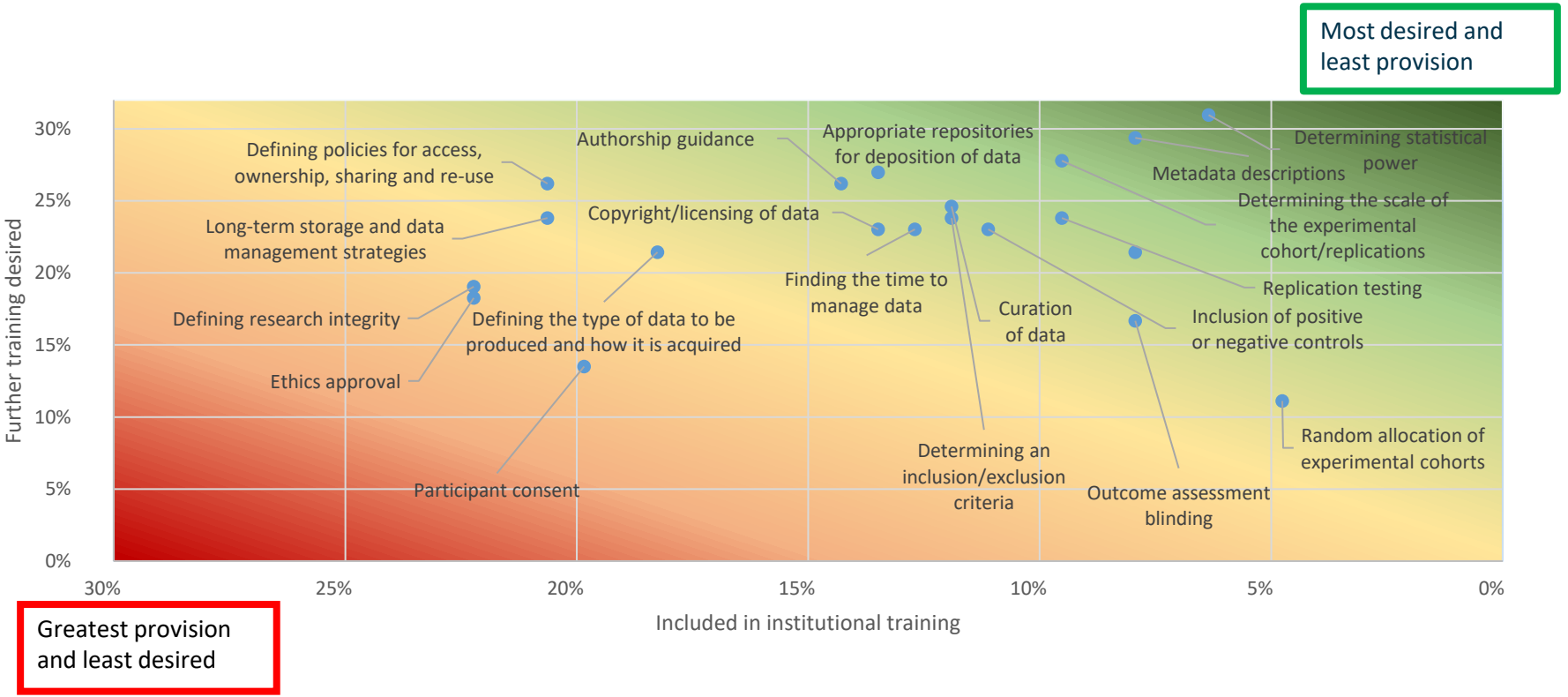
Early career researchers' cross-plot of training topics provided and training topics needs

Topics covered in research integrity training versus topics desired by seniority group



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Current training efficacy

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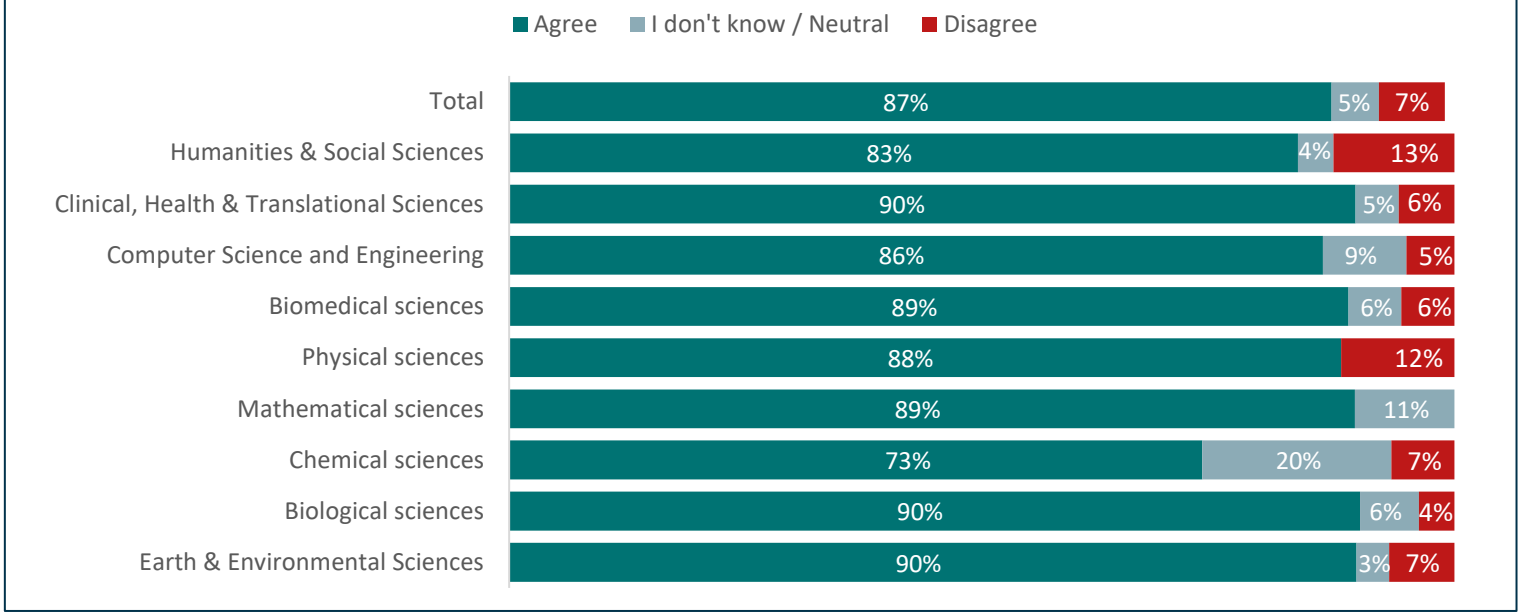
Researchers from the Humanities field feel the greatest problem with research integrity

Field specific perceptions of problems associated with research integrity

Q. To what extent do you agree/disagree that researchers within your field are using "honest and verifiable methods in proposing, performing, and evaluating research and reporting research results"? (n=739)



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4% of respondents do not feel training in RI should be mandatory

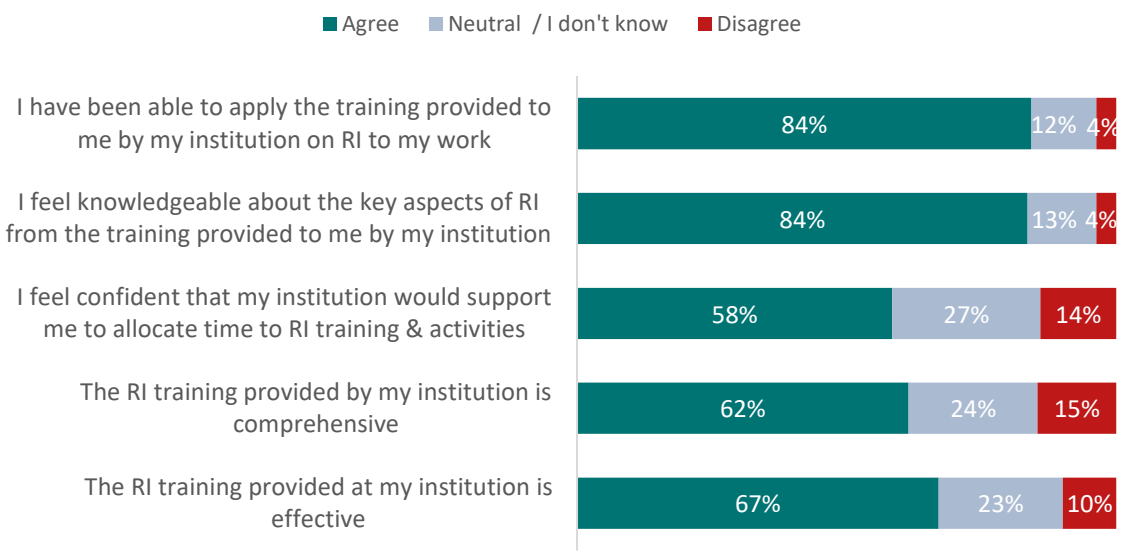
Who should training in research integrity be mandatory for?

These figures represent the weighted proportion of respondents to give a particular response. Many respondents chose more than 1 answer. Total may not = 100%.

2 out of 3 of respondents who were offered training felt that it was effective

Perceived quality of current research integrity training provision

Q. Level of agreement with statements relating to the provision of training in research integrity? (n=263-696)

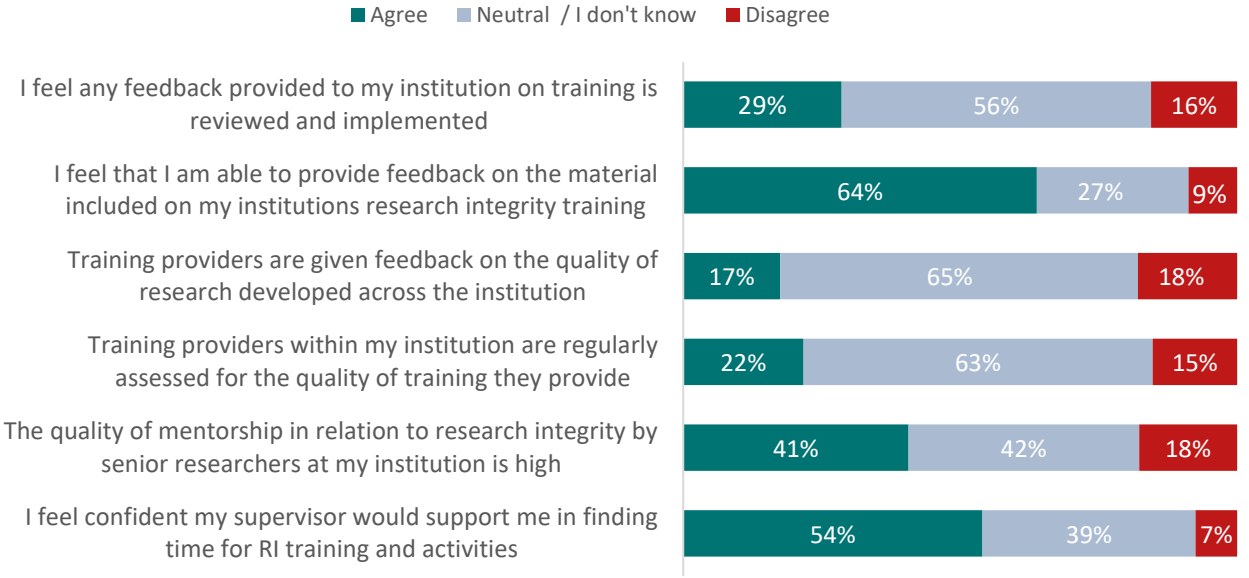


- 84% of respondents felt knowledgeable about the key aspects of Research Integrity based on the training provided by their institution.
- 84% of respondents confirm that they were able to apply Research Integrity training provided to their work.
- 15% of respondents do not feel the Research Integrity training provided by their institution is comprehensive.
- 14% of respondents do not feel their institution would support them to take the time for Research Integrity training and activities.

64% of respondents feel they are able to provide feedback on the RI training provided

Perceived quality of training providers and feedback mechanisms

Q. Level of agreement with statements relating to the providers of training and feedback routes? (n=263-696)



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Comments emphasize the desire for comprehensive, engaging & mandatory training

Why is training not effective and what is your biggest unmet need in training?

Q. You indicated that your institution's research integrity training was not effective and/or comprehensive. Please say more. (n=39)

1. **Insufficient Coverage and Relevance: Training is too generic**
   - *"Training was very good at covering big mistakes, but not so good at showing the best ways to do things. Additionally, it was quite generic […] More subject specific training would be great."*
   - *"The training offered could be far more comprehensive and cover more areas. It is very STEM-focused and misses many integrity issues with social science and humanities research."*
   - *"Many aspects not covered in detail."*

2. **Lack of Engagement: Training is viewed as a box-ticking exercise**
   - *"Training consists of video and online questions. There is no scope for discussion nor feedback for improving training. It confuses training with legal requirements. It does not invite further enquiry and so is seen as a box-ticking exercise."*
   - *'The current training provision appears mostly as a box-checking exercise to demonstrate to funders that "something is being done", but when it comes to implementation, the approach is not well-coordinated nor is research integrity very prominent at all in internal discussions. It does not appear to be valued by many senior researchers."*

Q. What do you feel is the biggest unmet need in training in research integrity? (n=229)

1. **Many comments focused on the need to have any or mandatory research integrity training programmes:**
   - *"It is the lack of comprehensive and standardized training programs."*
   - *"A formal training programme."*
   - *"Within the international development and humanitarian sector, I do not believe that research integrity is something that is generally considered."*
   - *"That training is not mandated, for example, like health and safety."*
   - *"Ensuring ECR academics have adequate training."*
   - *"Training courses at every level"*

2. **Topic specific needs include:**
   - *Data management, handling and sharing*
   - *Statistical methods*
   - *Experiment methodology and design*
   - *Ethics*

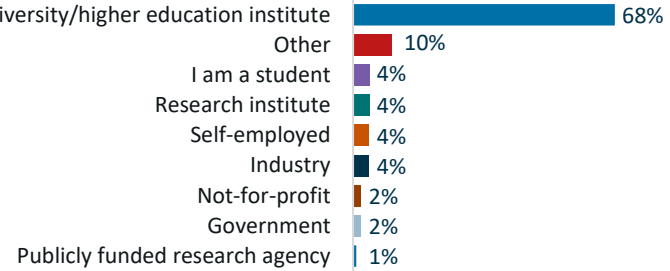
6.0

Appendix

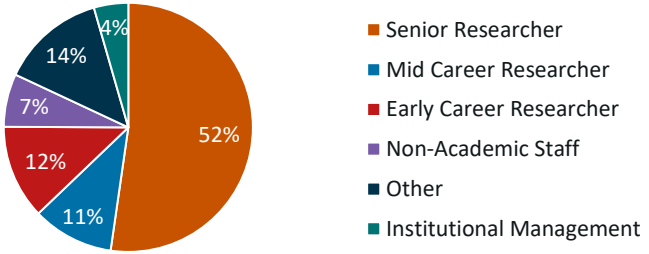
Respondents profiles

Demographics

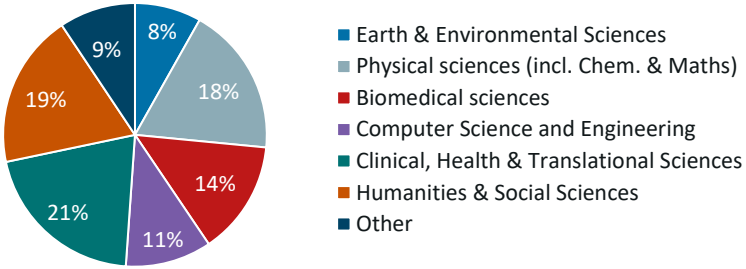
Workplace or student status (n=1078)



Job role / Seniority (n=1031)



Primary field of interest (n=1078)



Training responsibility (n=1078)

Decision-making responsibility: **33%**

Budget-assigning responsibility: **17%**

No decision responsibility: **65%**

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Thank you

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