



# Research Integrity Training –

Needs and provisions in institutions in the  
United States of America

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Springer Nature  
December 2023

# Executive summary

## Top Level Takeaways and Key Figures

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6%

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

*“Research integrity is reporting research results in compliance with rules, regulations, and professional codes or norms.”*

56%

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

*“Research integrity is what makes research reliable and thought-provoking. Following sound ethical and methodological practices are part of it.”*

8%

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

68%

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

*“Research integrity requires that research institutions be void of internal conflicts established by financial instruments with pharmaceutical companies and other medical industries. Training staff that a contract cannot override research integrity is crucial.”*

59%

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

# Contents

1. Introduction
2. What is understood by 'research integrity'
3. Current research integrity training provision
4. Topic inclusion within training
5. Current training efficacy
6. Appendix

# 1.0

**Introduction**

# Introduction

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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 1962 participants from more than 862 organisations across the USA.

# 2.0

What is understood by  
“research integrity”

# Unprompted, Honesty is seen as the main key to research integrity

## Unprompted understanding of research integrity meaning

Of the 1962 open text responses describing what research integrity meant to researchers, 34% were coded into key overlapping themes provided opposite.

Most comments focused on particular positive research traits. Some respondents, however, defined research integrity in terms of research misconduct or were unable to come up with a definition.

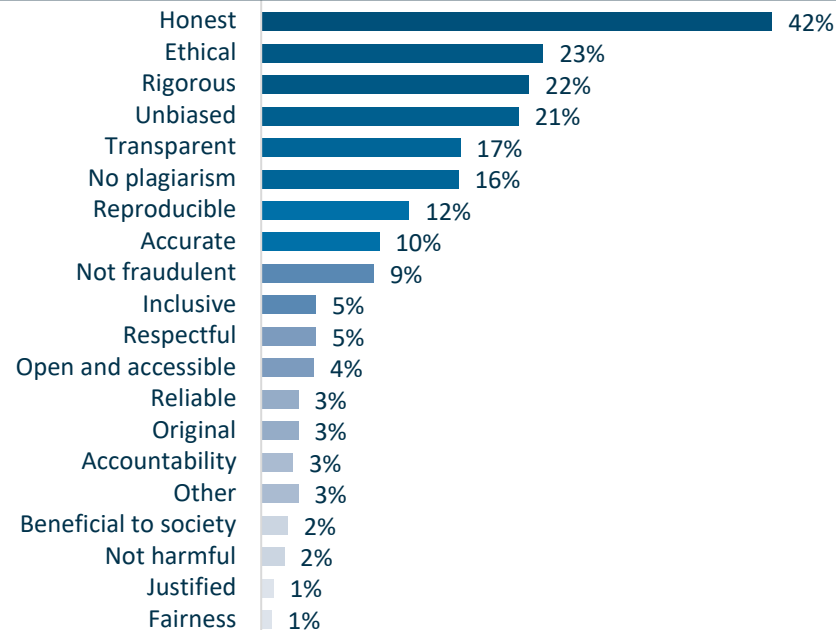
*"Using solid, honest and verifiable methods in research and reporting honestly research findings and being sensitive and respectful of accepted norms and practices."*

*"Complete honesty in reporting on research and in using the research of others."*

*"Not cheating, not falsifying data or making unbacked claims."*

*"Research Integrity is not something that can be described in a couple of line."*

Q. How would you describe Research Integrity, including the practices it relates to? (n=684)



These figures represent the weighted proportion of respondents to give a particular response.

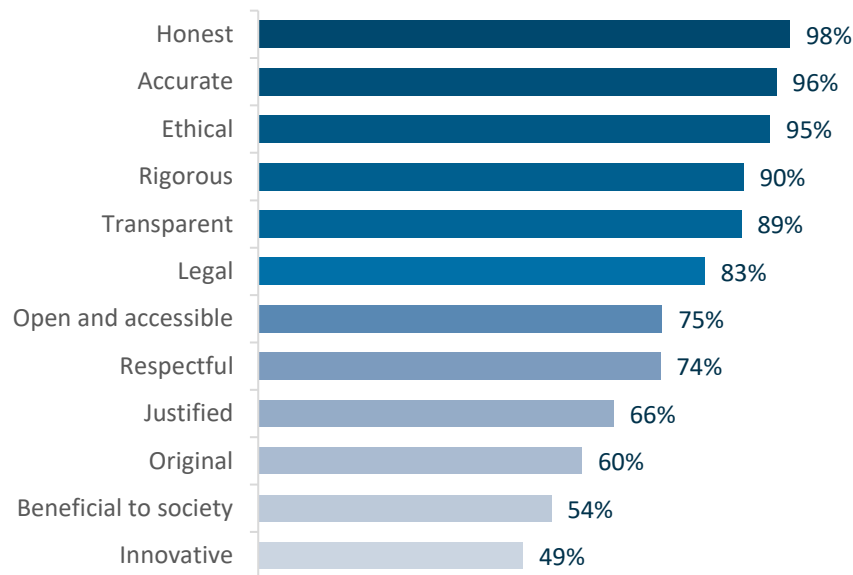
Many respondents named more than 1 factor. Total may not = 100%.

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# Prompted questioning is consistent with unprompted understanding

## 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=1936)



89% of the respondents rated the following 5 elements as either “extremely important” or “very important” with regards to research integrity: honest, accurate, ethical, rigorous and transparent activities.

Interestingly, senior researchers were *slightly* more likely to rate Rigorous, Ethical, and Original (in that order) as “extremely important”, and were *significantly* least likely to rate Beneficial to Society as such.

Mid-career researchers, were *slightly* more likely to pick Beneficial to Society, Innovative, and Original (in that order) as “extremely important,” and were *significantly* more likely to pick Rigorous as “not important at all.”

Early career researchers, were *slightly* more likely to rate Transparent, Respectful and Legal as “extremely important” (in that order), and were more likely to pick Ethical and Honest as “not important at all.”



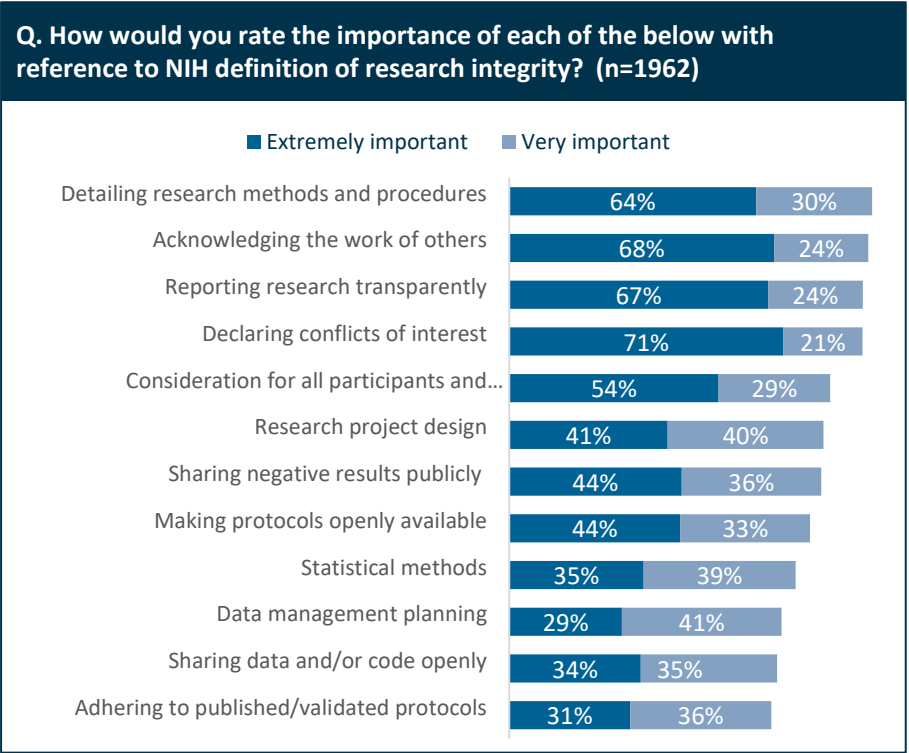
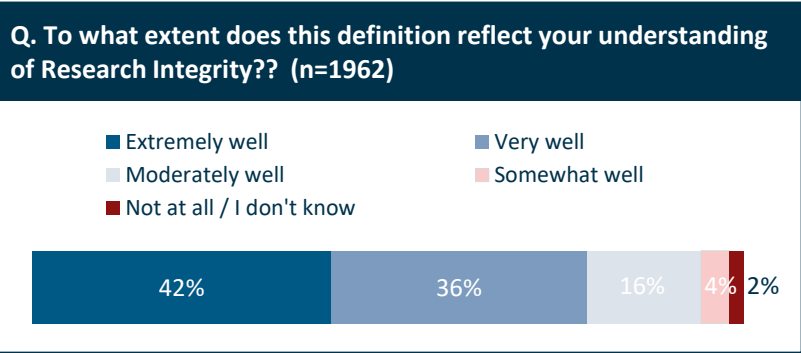
# Activities linked to methodology & procedure perceived most important for integrity

## Important aspects for maintaining integrity in research

After initial questions (see slides 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.”*

78% of respondents felt that definition reflected their understanding of Research Integrity either “Extremely well” or “Very well”.





# 3.0

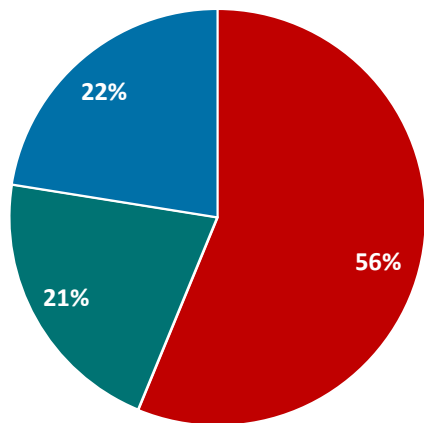
**Current research integrity  
training provision**

# Awareness of research integrity training based on seniority and sector

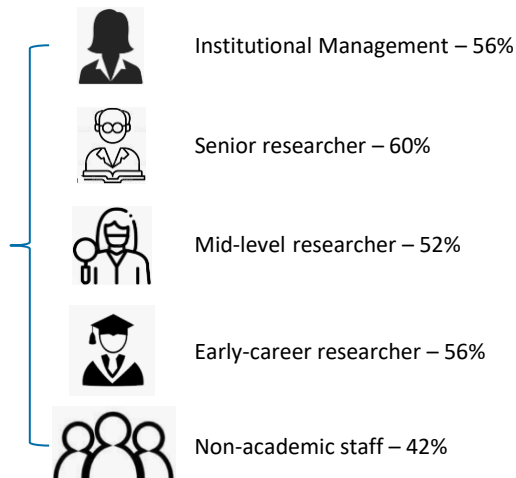
## Availability of training in research integrity

Q. Does your institution provide training in research integrity? (n=1933)

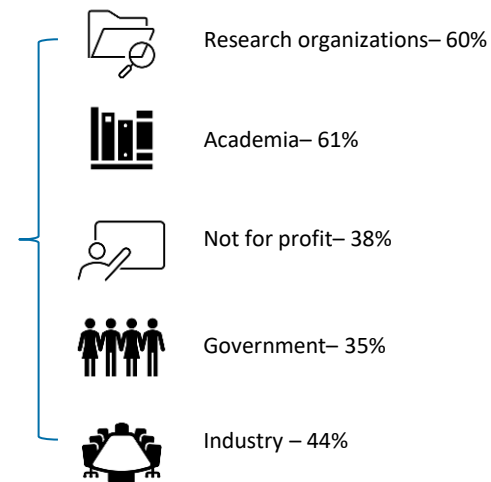
■ Yes ■ No ■ I don't know/I prefer not to say



"Yes" broken down by seniority



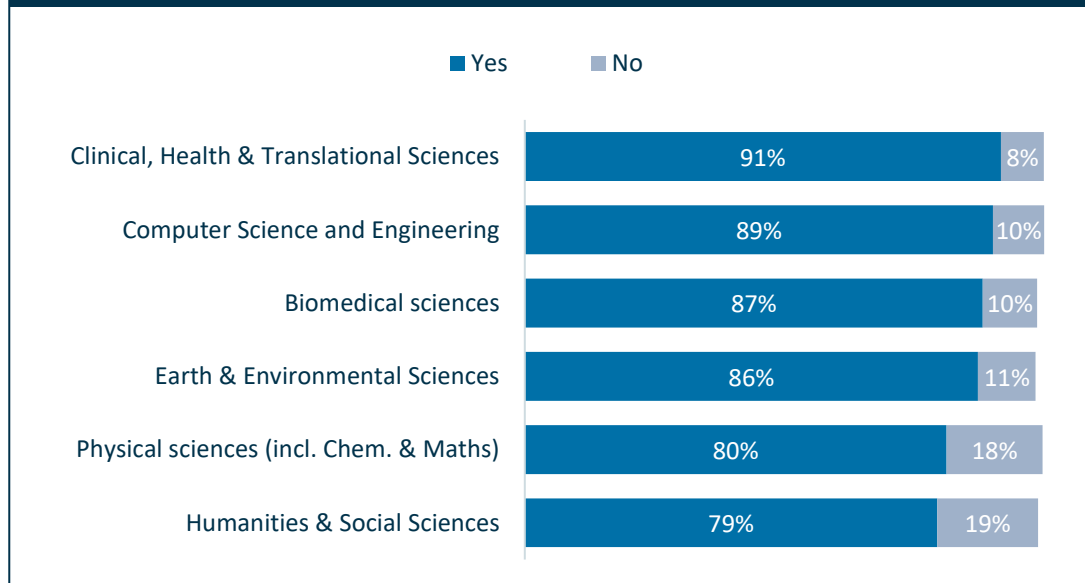
"Yes" broken down by sector



## At least 79% 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=1077)



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

On average, 84% of respondents answered "yes" to whether they have taken Research Integrity training at their current institution.

Respondents from the Clinical, Health and Translational Sciences were most likely to indicate that they have undertaken training in research integrity at 91%. Although it does not vary significantly, respondents from the Humanities and Social Sciences were least likely to indicate the same at 79%.

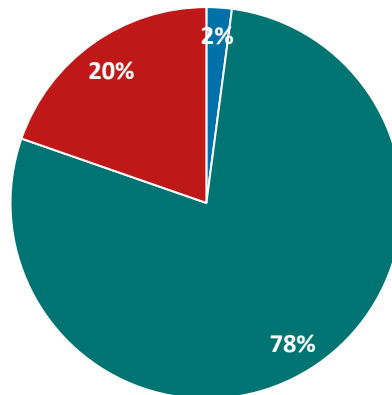
# Most training is mandatory but varies in delivery style

## How is research integrity training provided?

Q. Was the training in which you participated mandatory or optional? (n=910)

- Respondents from Clinical, Health & Translational Sciences as well as the Physical sciences (incl. Chem. & Maths) were more likely to state that their institution provided mandatory training.
- Respondents from Computer Science and Engineering were least likely to state their institution provided mandatory training

■ I don't know ■ Mandatory ■ Optional



Q. How is this training provided? (n=1102)



Blended – 51%



Online – 35%



In person – 12%



Don't know – 3%

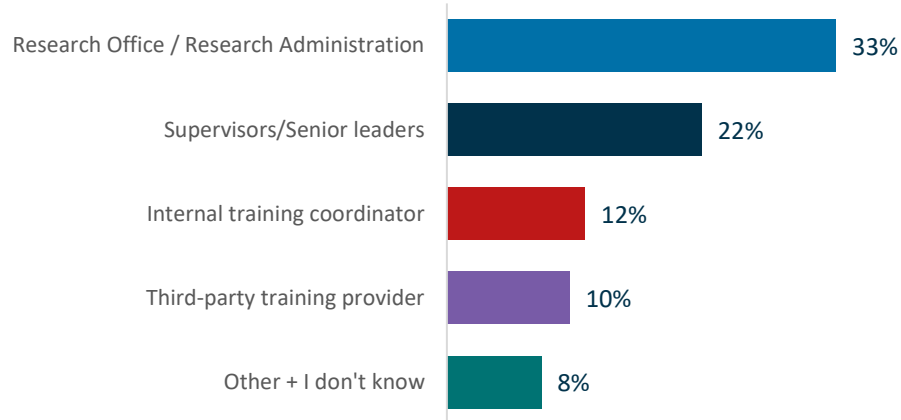
*Please note, this question was only shown to those who answered "Yes" to the question "Have you undertaken training in research integrity as provided by your current institution?" on slide 11.*

# Responsibility for training lies with Research Offices and Administration

## Who is responsible for conducting training?

- Respondents in academia were most likely to indicate that they felt research offices and administration were responsible for delivering training on research integrity.
- However, those in working in research institutes as well as Industry (e.g. pharma, biotech, consultancy), were more likely to indicate that supervisors and senior leaders were responsible for delivering training on research integrity.

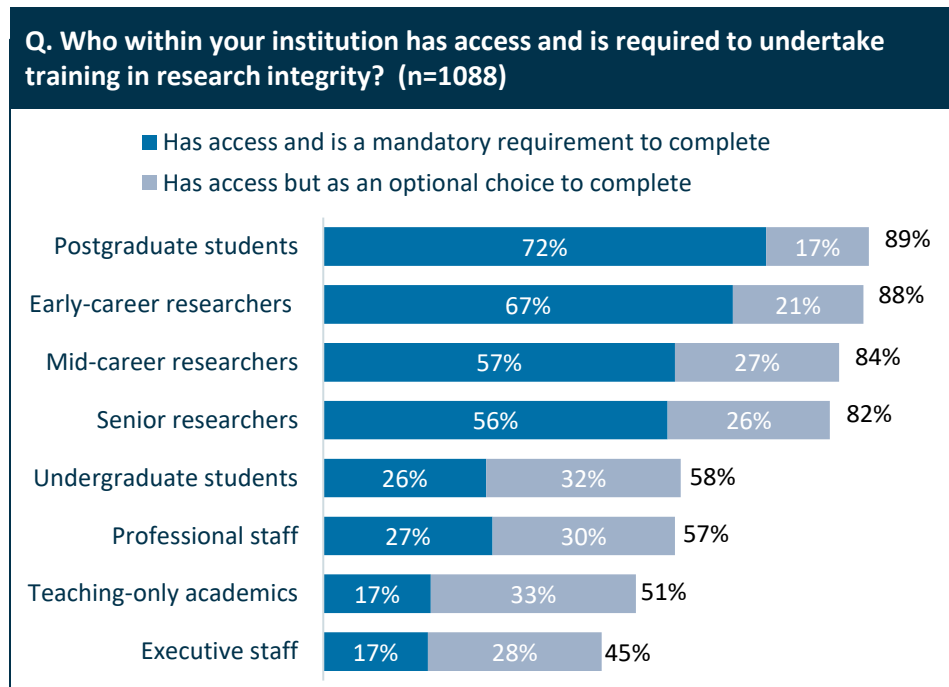
### Q. Who is responsible for conducting the training within your institution? (n=1102)



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?



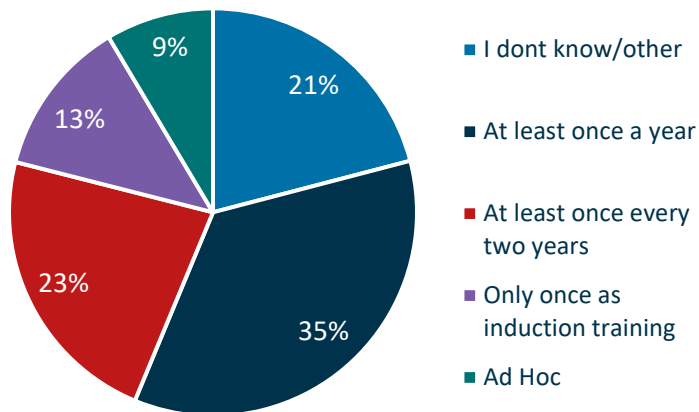
Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.

- At least 45% 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).
- Interestingly, respondents from Humanities & Social Sciences and researchers from the Clinical, Health & Translational Sciences were *statistically significantly* more likely to indicate that non-research staff had access to research integrity training than other fields.

# At least 39% of respondents say training offered is permanently available online

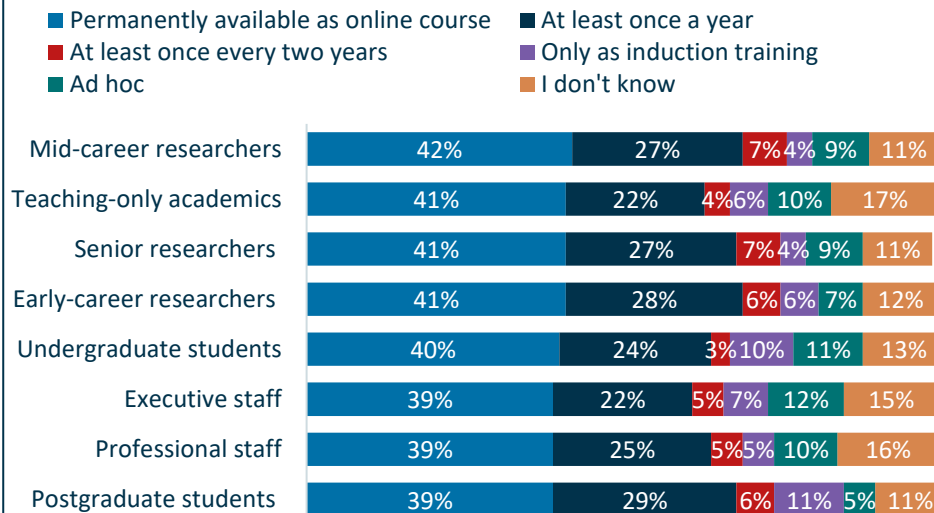
## How frequently is training in research integrity taken and provided?

Q. How frequently are you required to undertake training in research integrity? (n=956)



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=711)



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

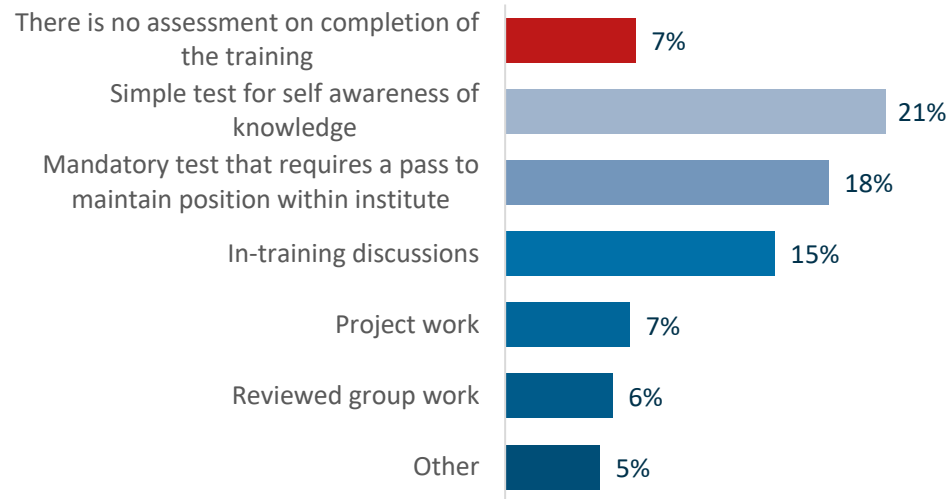


# Only 18% are required to prove their understanding to maintain their role

## How is training in research integrity assessed?

- 7% of respondents said they don't receive any assessment at all.
- The largest reported mode of assessment at 21% was simple testing for self-awareness.
- Only 18% were required to take mandatory testing to assess their knowledge.

### Q. How, if at all, is learning from the training on research integrity assessed? (n=1039)



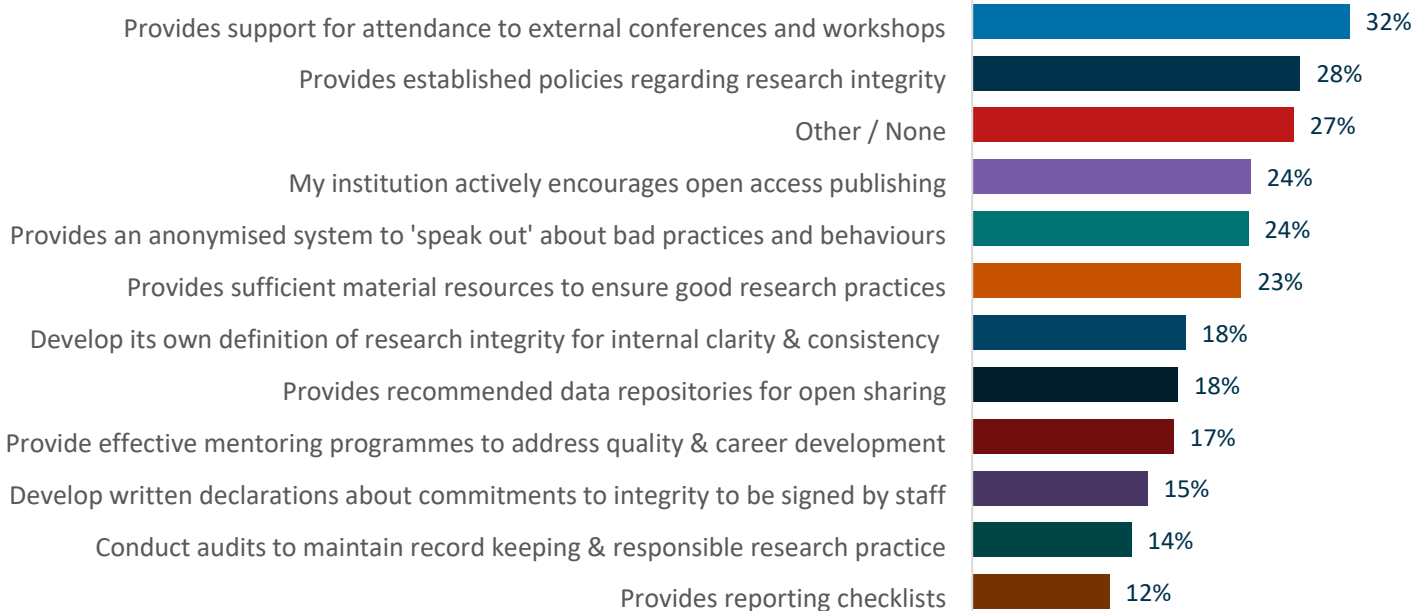
Please note, this question was only shown to those who answered "Yes" to the question "Does your institution provide training in research integrity?" on slide 10.

Additionally, these figures represent the weighted proportion of respondents to give a particular responses, therefore, may not =100%

## Less than a third of institutions encourage integrity in research 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=1962)



# 4.0

**Topic inclusion within  
training**

# Current training has a greater focus on policy and guidance than practical skills

## Topics covered in institutional research integrity training

Q. Which aspects associated with research integrity are included in your institution's training? (n=884)



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, defining research integrity, ethics approval, participant consent, and conflict of interest guidance.**

However, these topics were also the top 5 topics included in the integrity trainings for mid- and early career researchers.

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.

# Current desire for training focuses on data handling, management and sharing

## Topics desired from research integrity training

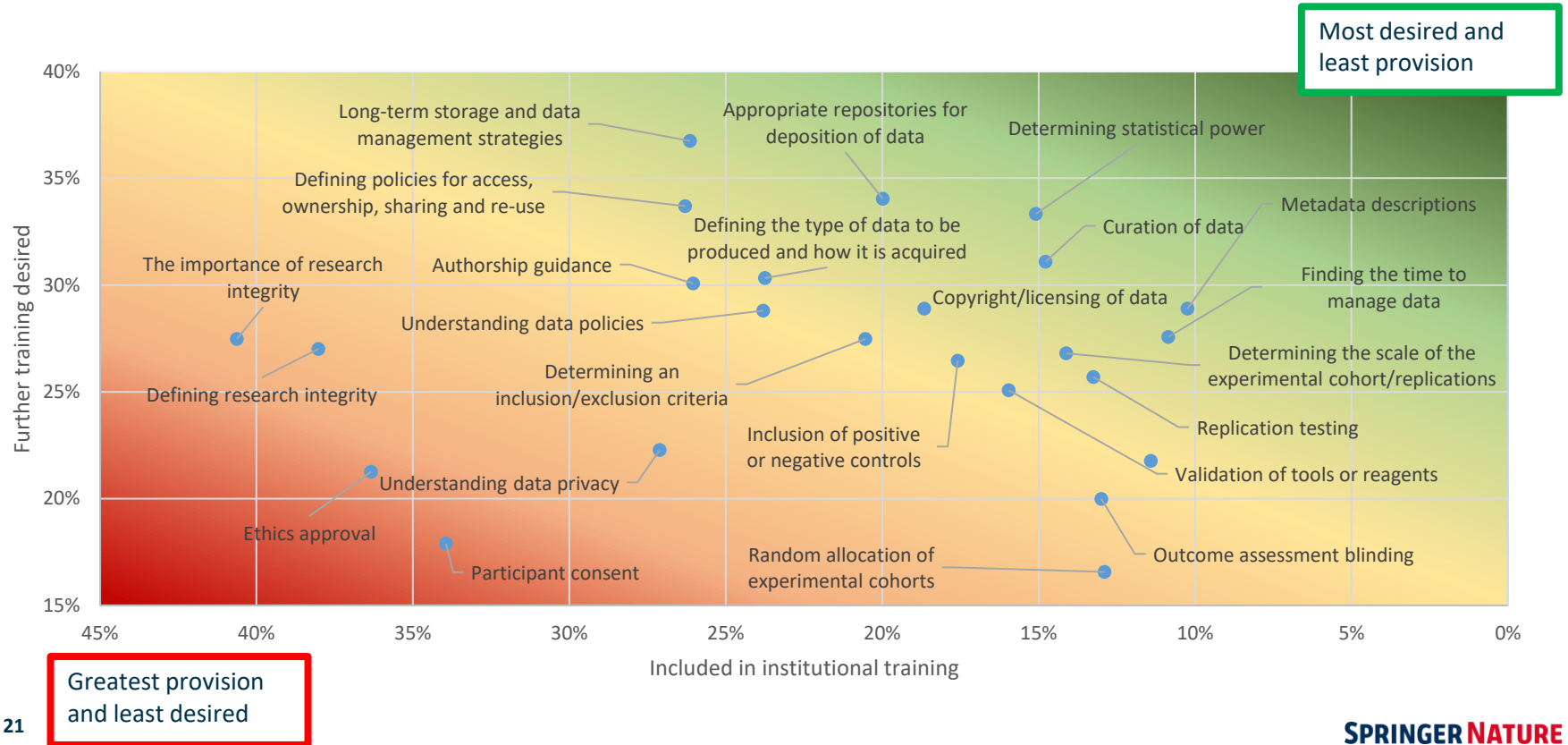
Q. Which of the following topics in RI do you feel you would benefit from further training in? (n=1799)



Senior researchers were *significantly* less likely than mid- and early career researcher to feel they needed **training on authorship and guidance, determining an inclusion/exclusion criteria, understanding data privacy, ethical approval, and outcome assessment.**

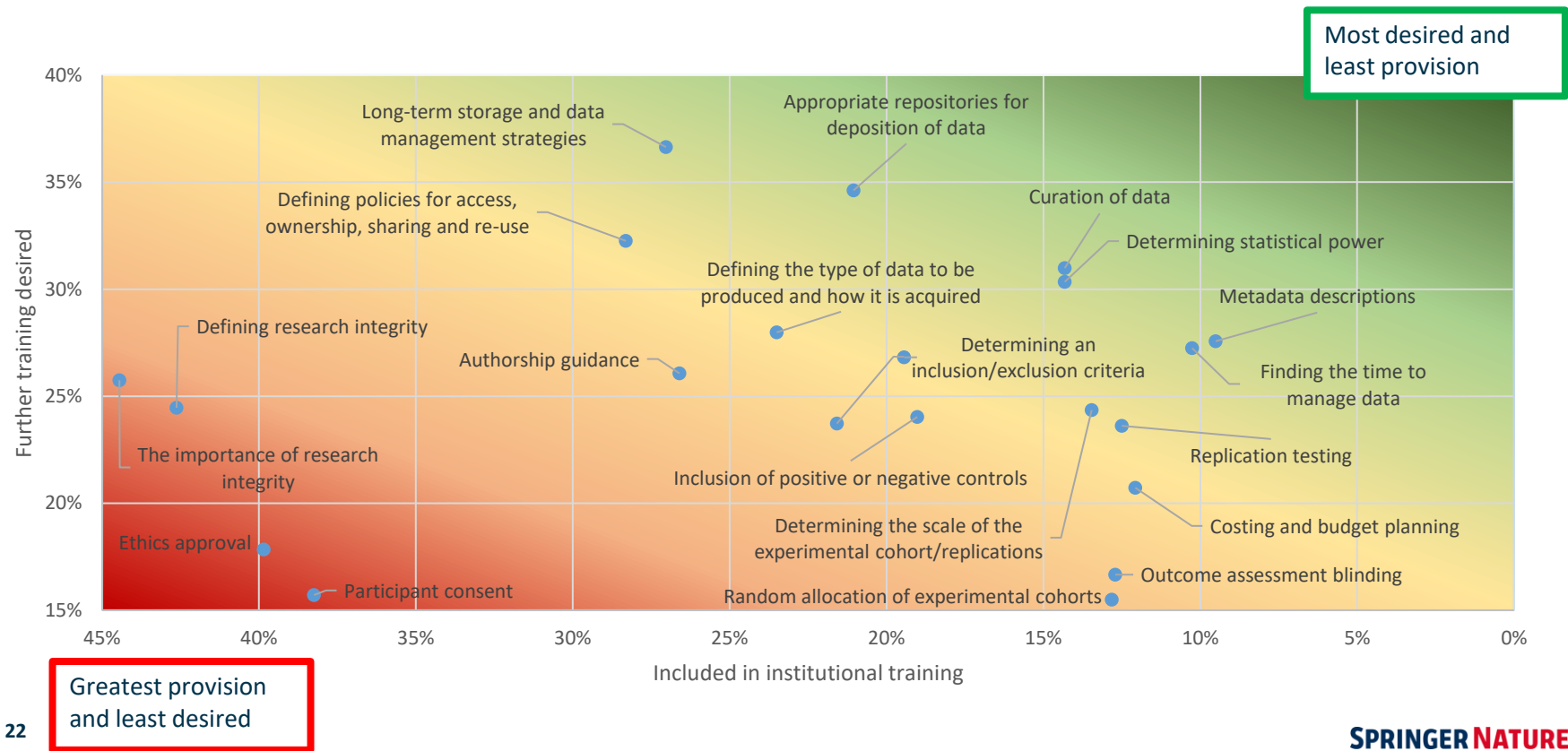
Early career researchers were *significantly* more likely than other groups to feel they needed more training in **determining statistical power and determining an inclusion/exclusion criteria.**

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



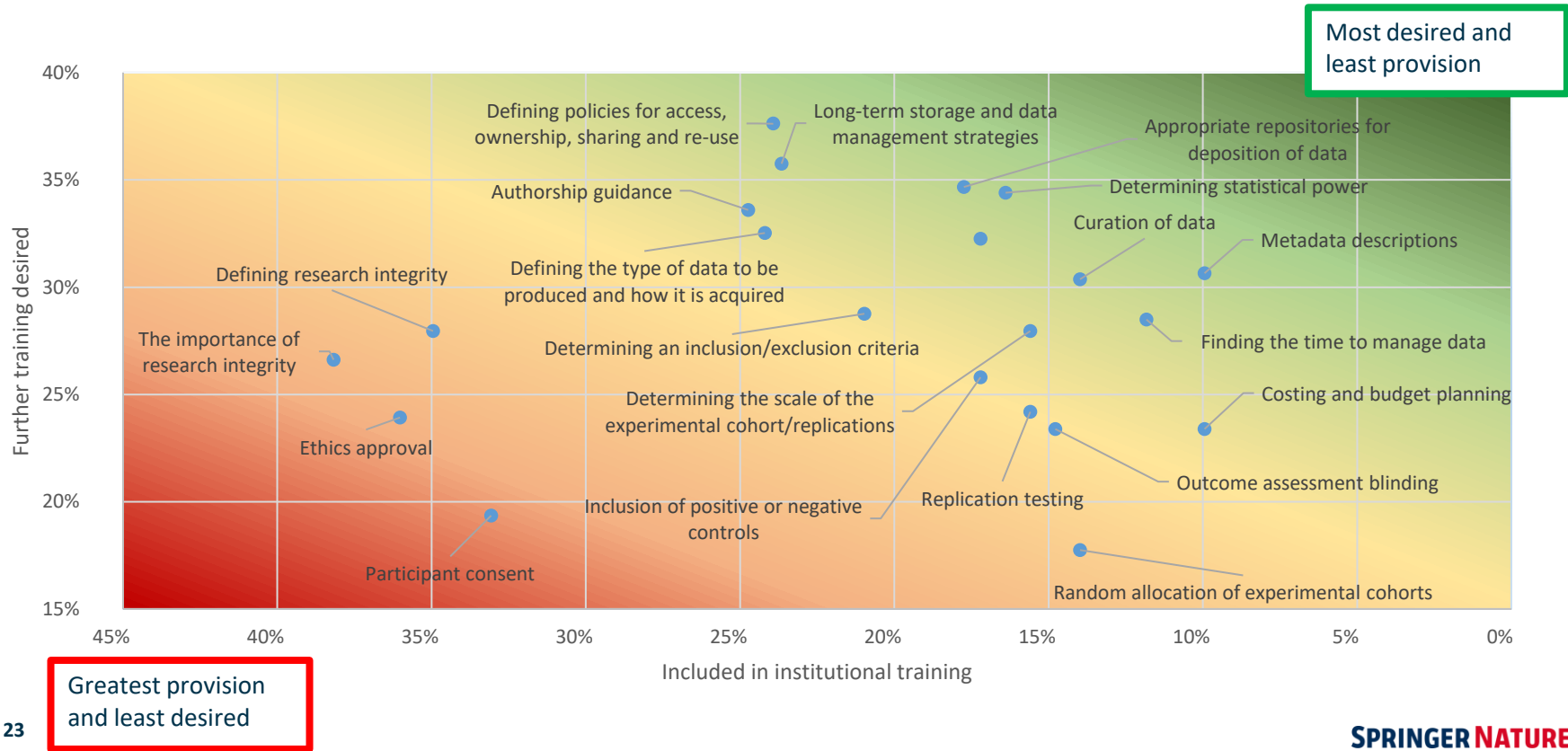
# Senior researchers' cross-plot of training topics provided and training topics needs

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



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

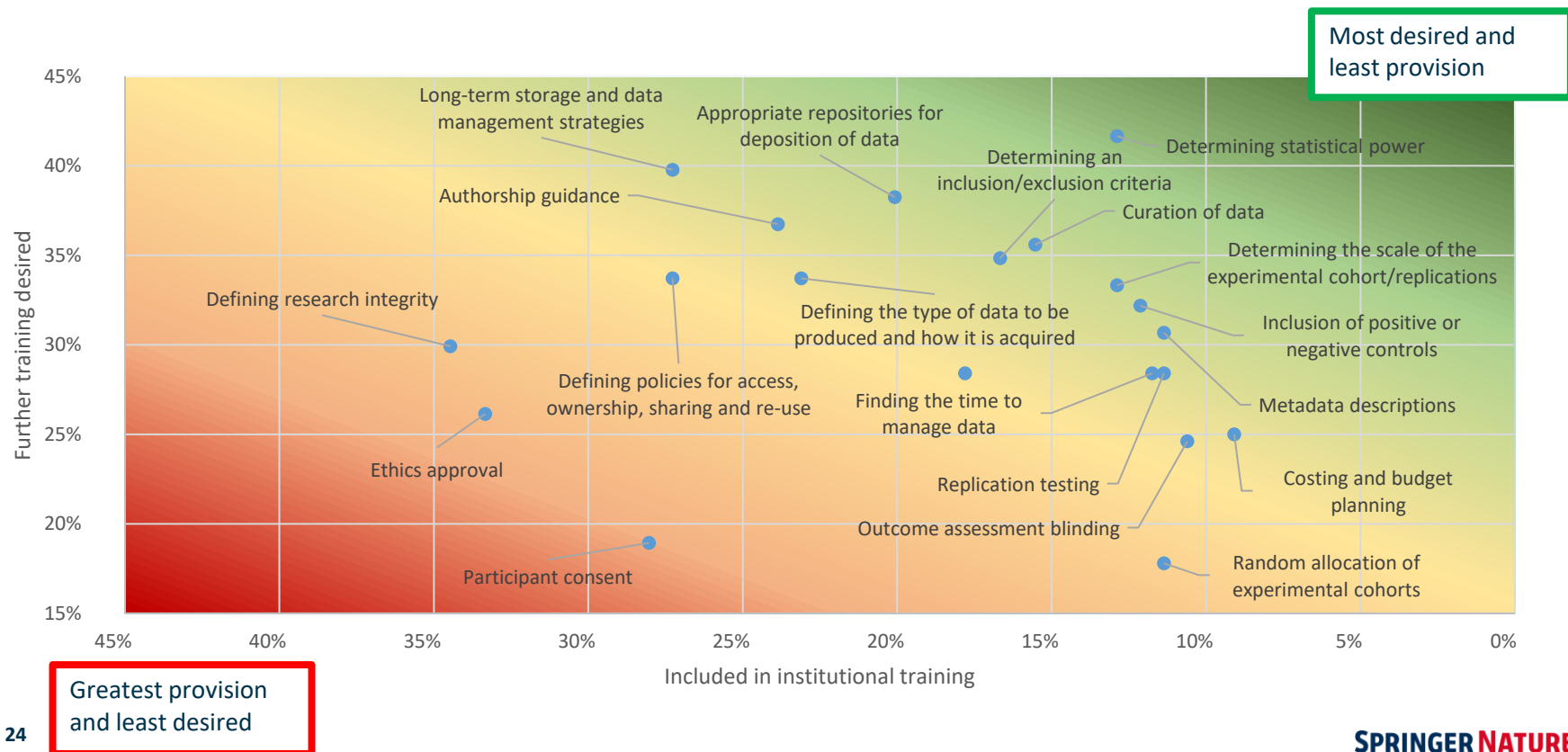
## Topics covered in research integrity training versus topics desired by seniority group





# 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





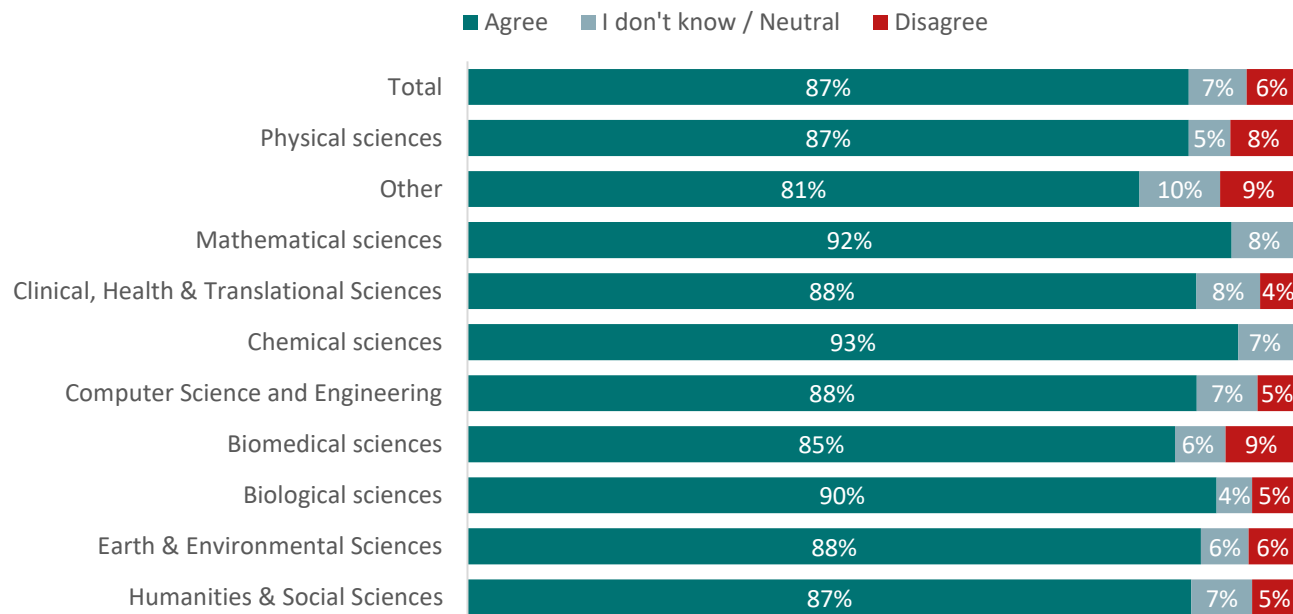
# 5.0

**Current training efficacy**

# The biomedical sciences 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=1962)

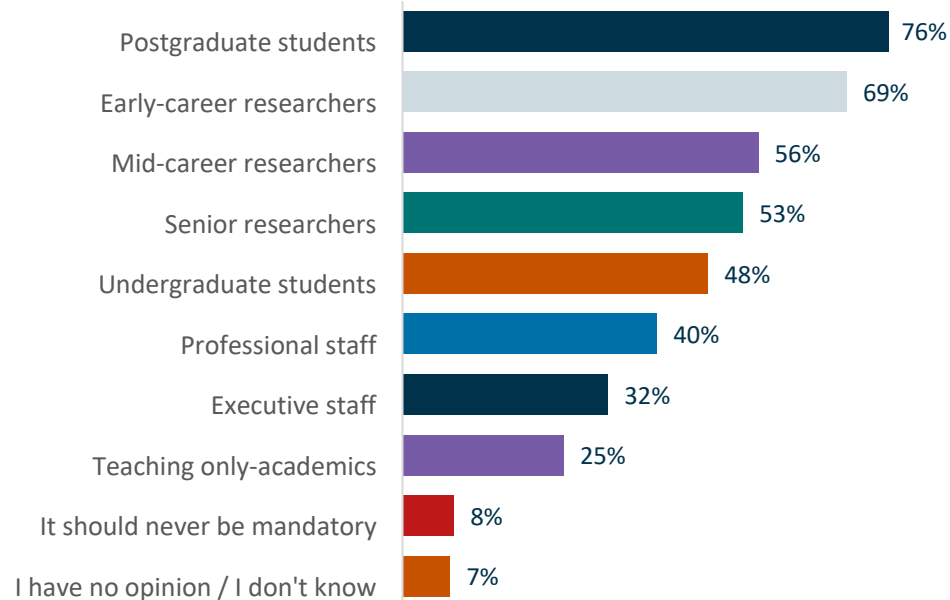


## 8% of respondents indicated that they do not feel training in RI should be mandatory

### Who should training in research integrity be mandatory for?

- Although respondents from the biomedical field felt the greatest problem with research integrity, it is interesting that they were the most likely group to indicate that training should be mandatory for everyone across all study levels and job roles. Respondents from the Clinical, Health & Translational Sciences were the second group to feel the importance of mandatory training for all.
- Respondents from the Physical Sciences (incl. Chem. & Maths) as well as the Humanities & Social Sciences were slightly less likely to believe research integrity training should be mandatory.

#### Q. For whom should training in research integrity be mandatory? (n=1962)



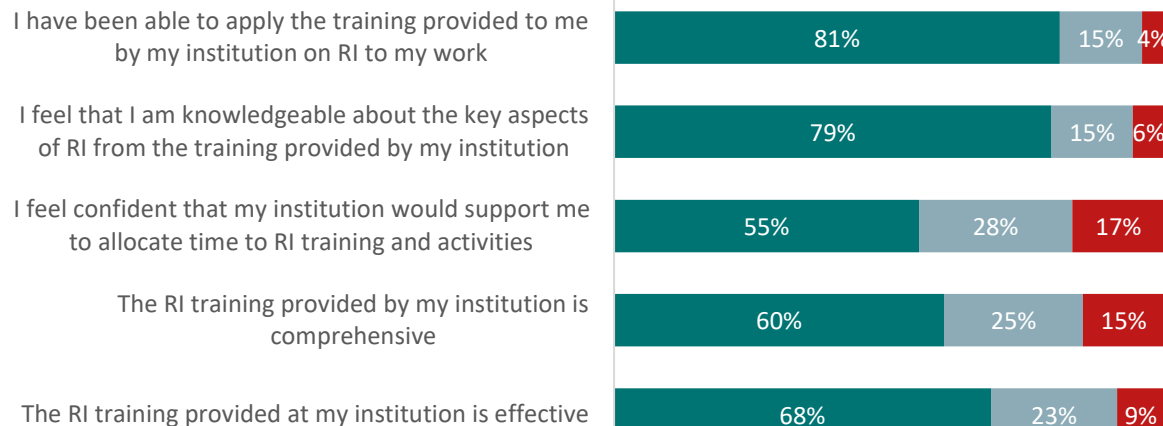
*These figures represent the weighted proportion of respondents to give a particular response. Many respondents chose more than 1 answer. Total may not = 100%.*

# 68% 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=852-1855)

■ Agree ■ Neutral / I don't know ■ Disagree

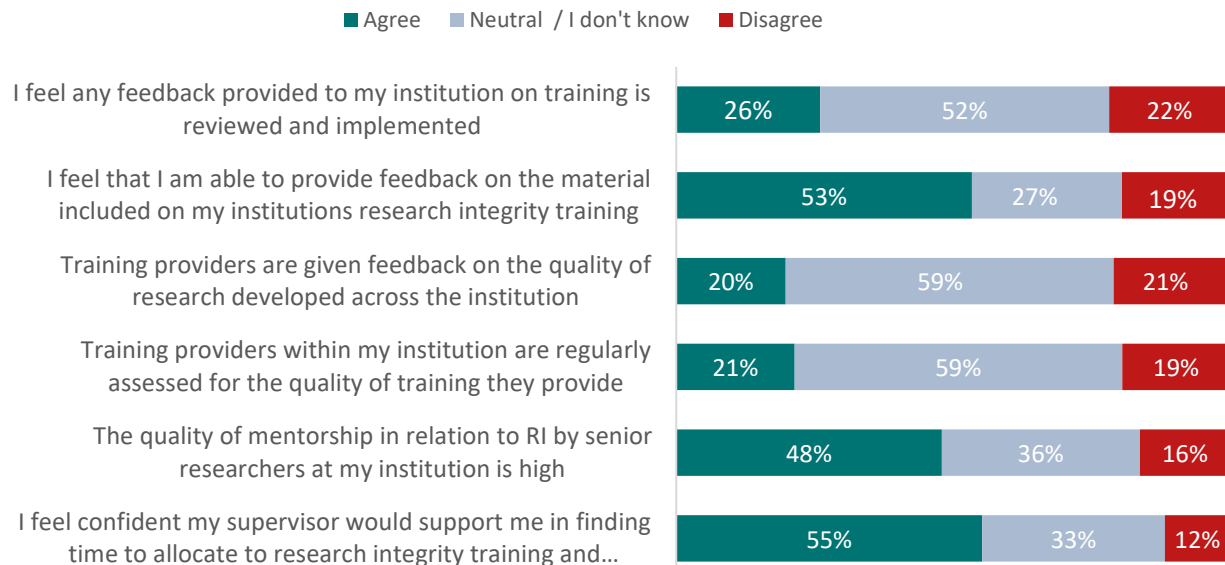


- 79% of respondents whose institution provided research integrity training felt knowledgeable about the key aspects with 81% agreeing that they were able to apply it to their work

## 48% of respondents agree that the quality of mentorship by senior researchers is high

### Perceived quality of training providers and feedback mechanisms

Q. Level of agreement with statements relating to the providers of training and feedback routes?  
(n=852-1855)



# Most open text comments emphasize the need for comprehensive & effective 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=126)

- Most comments focused on how the training they were given was **too general**. As such, general trainings aren't comprehensive.
  - *"The variations in knowledge and skills in research integrity varies by subdisciplines, i.e. it is different between insect systematics and human physiology. Thus concepts addressed for one do not always apply to the other."*
- Other comments discussed how researchers who chose not to be honest are **not doing it out of ignorance**.
  - *"coursework makes to change in their dishonesty, laziness."*
  - *"it is not part of the culture. The main interest is compliance [e.g. privacy] to prevent legal issues."*
  - *"whether a researcher is honest will have nothing to do with such a course."*
- Some comments highlighted how training and practice of research integrity is highly **unregulated and unenforced**.
  - *"it is left up to the individual instructors and professors."*
  - *"we aren't asked to apply it in our own work."*

### Q. What do you feel is the biggest unmet need in training in research integrity? (n=605)

- Most comments indicated that there **isn't enough** (mandatory) training in and practice of research integrity.
  - *"Any training at all."*
  - *"Lack of training in its entirety."*
  - *"It should be mandatory for all in academia."*
  - *"There has developed a degree of dishonesty that is considered acceptable by many researchers."*
- Many felt the trainings were **not comprehensive**, highlighting key areas of missing training.
  - *Data management and handling.*
  - *Ethics and transparency training.*
  - *Statistical methods.*
- Some felt that **lack of funding and limited time** were obstacles.
  - *"Funding agencies don't allow for enough slack in budgets to cover all the things we need to do that aren't research."*
  - *"There is no time for additional workload."*



# 6.0

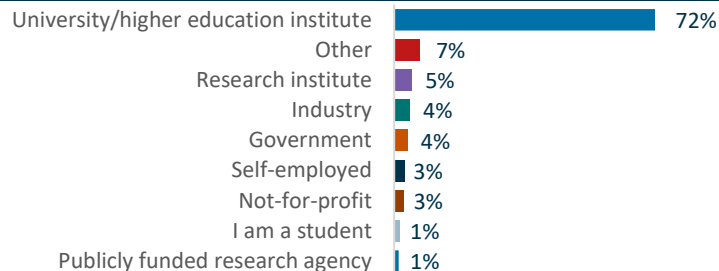
**Appendix**



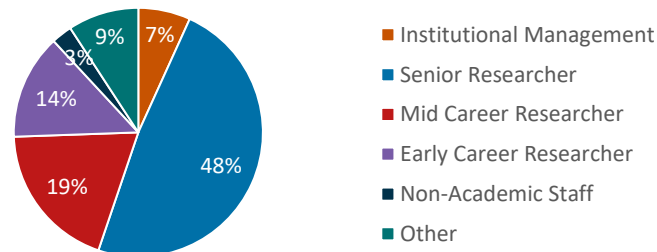
# Respondents profiles

## Demographics

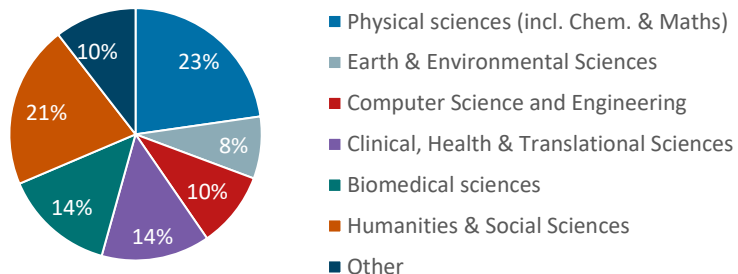
### Workplace or student status (n=1962)



### Job role / Seniority (n=1933)



### Primary field of interest (n=1962)



### Training responsibility (n=1962)



Decision-making  
responsibility:  
**43%**



Budget-assigning  
responsibility:  
**25%**



No decision  
responsibility:  
**55%**

**Thank you**