



Research Integrity Training –

Needs and provisions in institutions in Japan

Springer Nature

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Executive summary

Top Level Takeaways and Key Figures

6%

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

“科学的な手続きに則り、捏造・改ざん・盗用なく、研究費を適正に使用すること”

73%

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

“剽窃を行わず、他の研究者に敬意を払う。研究データの捏造を行わず、再現可能な研究に関しては、再現の手順を示し、学問の発展に貢献する。”

81%

The proportion of respondents who support mandatory training on research integrity for early career researchers.

“しがらみや、個人の利益とは関係なく、ルールに基づいて研究を行い、価値を判断すること。”

78%

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

“研究倫理マニュアルに定められたルールを守ること。研究手順を明確にし、結果を正直に報告すること。責任を持って研究費を管理すること”（原文は英語）

41%

The proportion of respondents who feel confident their institution would support them in allocating time for integrity training & activities.

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2. What is understood by 'research integrity'
3. Current research integrity training provision
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5. Current training efficacy
6. Appendix

1.0

Introduction

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 to launch a series of surveys of researchers in different parts of the world to determine the level of understanding of research integrity and relevant training within the research community of each country surveyed. And, in partnership with the Japanese Association for the Advancement of Science (JAAS), the survey has been extended to Japan.

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 1,190 participants from more than 445 organisations across Japan.

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2.0

What is understood by
“research integrity”

Unprompted, 1 in 3 participants emphasized avoiding misconduct as integral to RI

Unprompted understanding of research integrity meaning

The Japan survey received 1,085 open text comments where participants described what Research Integrity (RI here after) meant to them. 65% of these comments were coded into the themes on the right.

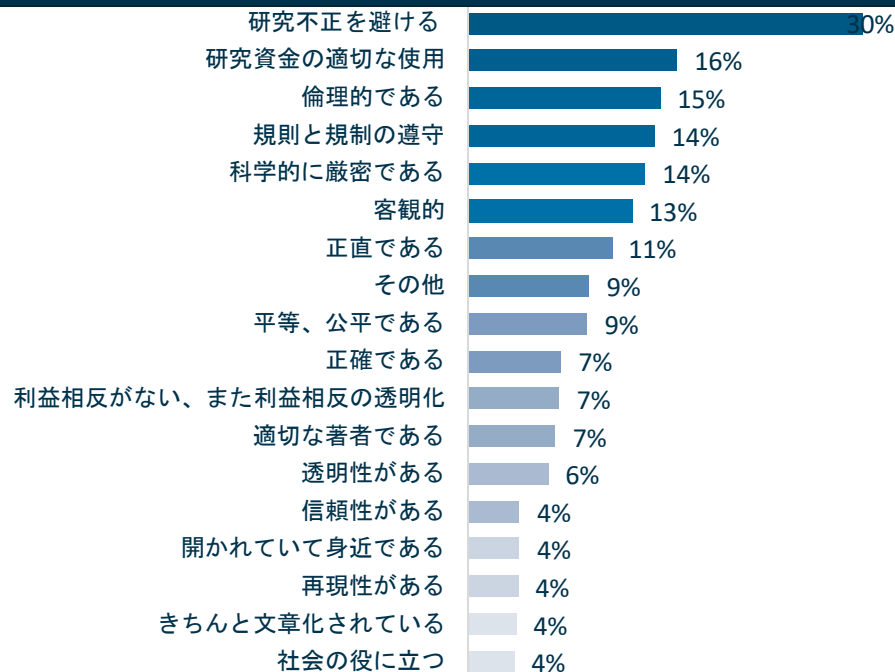
The predominant theme, emphasized the importance of preventing research misconduct (30%), such as fabricating or falsifying data. This was followed by the appropriate use and allocation of funds (16%), then ethical conduct (15%).

“研究の不正を行わず、倫理観を持って誠実に研究に取り組むこと”

“研究費の適正な運用と、捏造や剽窃などに一切与しない研究活動”

“研究内容や結果、成果を誠実に正確に公表し、研究の評価にあたってはバイアスなくフェアであること。また、研究活動の実施にあたって法令等を遵守すること。”

あなたにとって研究公正とはどのようなものでしょうか？研究公正に関連する実務を含め、ご説明ください。(701)



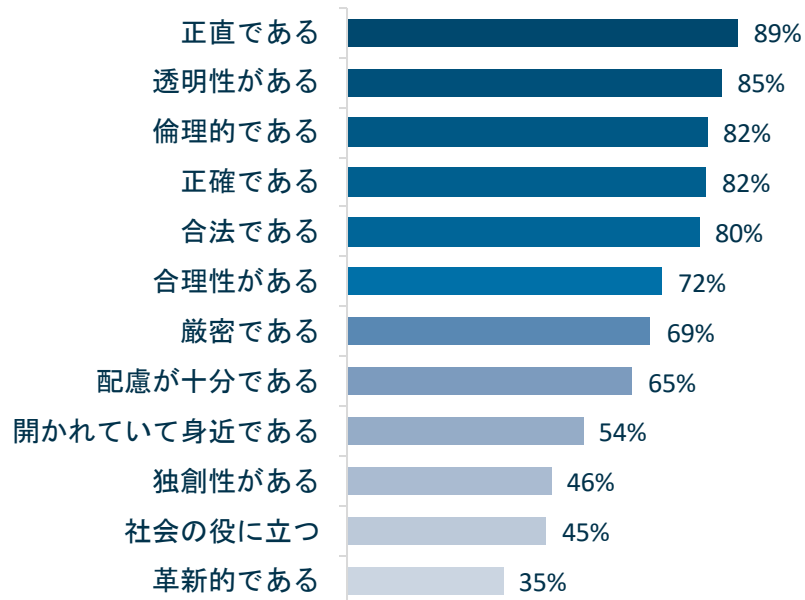
These figures represent the weighted proportion of respondents to give a particular response. Total may not = 100%.

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In prompted questioning, honesty and transparency take precedence

Prompted understanding of research integrity meaning

研究公正とその活動について、下記の項目はどの程度重要だと思いますか？(1,103)



In prompted questioning, participants prioritized honesty (89%) and transparency (85%) as the most crucial elements for Research Integrity. Despite being ranked 7th and 13th in unprompted comments, respondents most consistently rated honesty and transparency as either "extremely important" or "very important" to research integrity. This is closely followed by ethical conduct (82%), maintaining its position among the top 3 most important elements, as observed in unprompted questioning.

Transparency & disclosing COIs are seen as most important activities to maintain RI

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.”

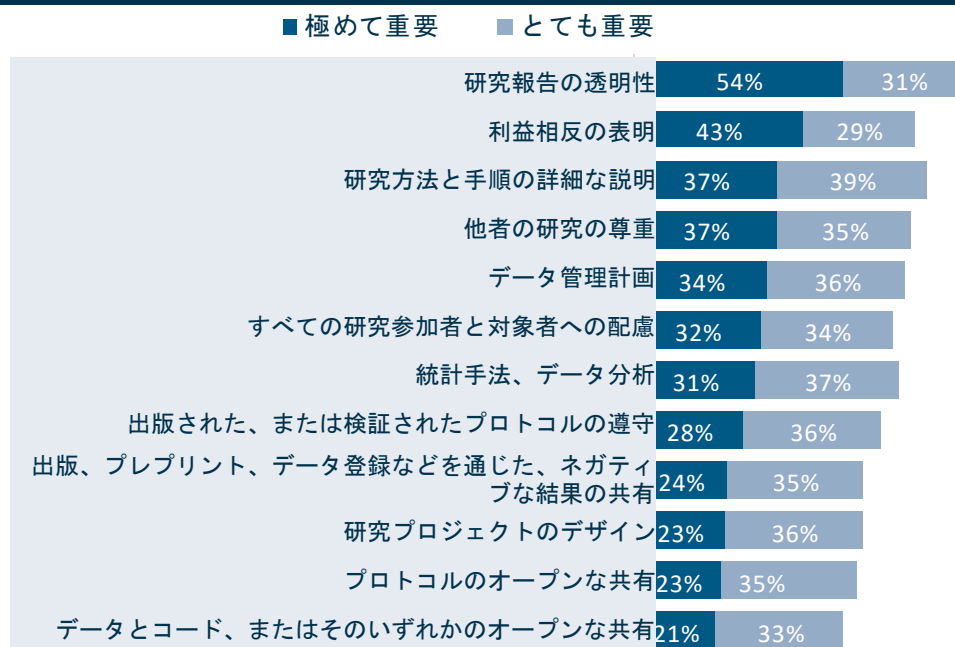
62% of respondents felt that definition reflected their understanding of Research Integrity either “Extremely well” or “Very well”.

この（上記）定義は、研究公正に対するあなたの理解をどの程度反映していますか？ (1,188)

■ 極めてよく反映している ■ とてもよく反映している
 ■ 反映している ■ いくらか反映している
 ■ 反映していない/分からない



NIHによる研究公正の定義を踏まえ、研究公正に関して以下の各項目はどの程度重要だと思いますか？ (1,167)





3.0

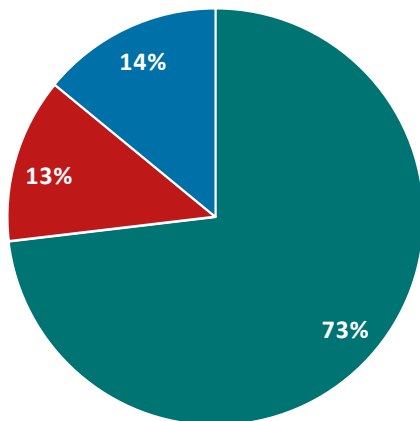
**Current research integrity
training provision**

Awareness of research integrity training based on seniority and workplace

Availability of training in research integrity

あなたの機関では研究公正のトレーニングを実施していますか？(1,165)

■ はい ■ いいえ ■ 分からない



“Yes” broken down by seniority



大学、研究所、公的研究機関の役職者 - 79%



シニア研究者 - 86%



中堅研究者 - 68%



若手研究者 - 54%



その他 - 43%

“Yes” broken down by workplace



研究所、公的研究機関 - 84%



大学 - 84%



非営利団体 - 19%



民間企業 - 44%



自営業 - 26%

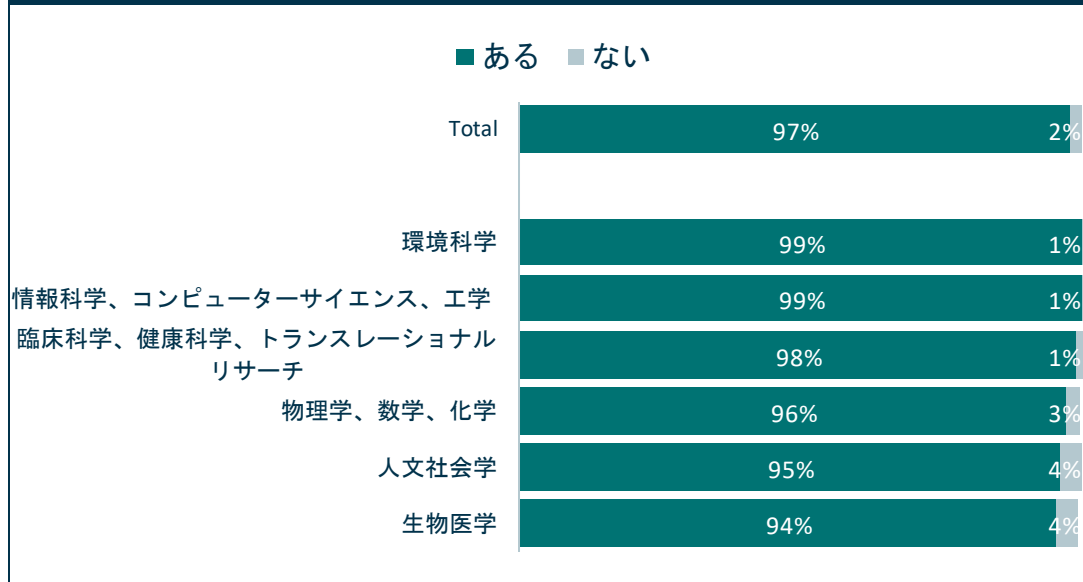


その他 - 27%

97% confirmed they have undertaken RI training provided by their institutions

Who has taken training in research integrity?

あなたは現在所属している機関が実施する研究公正のトレーニングを受講したことがありますか？(838)



Please note, this question was only shown to those who answered “はい” to the question “あなたの機関では研究公正のトレーニングを実施していますか？” on slide 10.

Participants indicated high levels of undertaking research integrity training that was provided to them by their institutions, with about 97% confirming their participation.

By field, participants working in the earth and environmental sciences and computer science and engineering have the highest levels of uptake at 99%, while those working in biomedical sciences have the lowest but still considerable participation rate at 94%.

Moreover, respondents affiliated with universities or higher education institutions are most likely to have undergone research integrity training, whereas those in the industry are more inclined to indicate that they have not participated in such training.

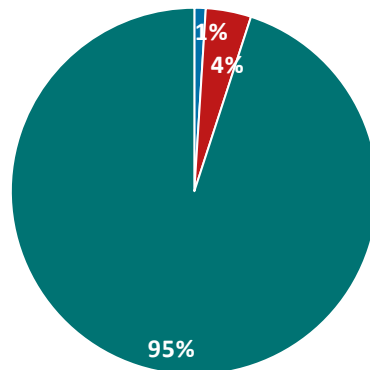
Most RI training is mandatory and provided online

How is research integrity training provided?

そのトレーニングは受講が必須でしたか？ それとも任意でしたか？(811)

- Respondents working at universities or other higher education institutes were most likely to indicate their RI training was mandatory.
- Participants working in non-profits were, as well as those that were funded by industry, most likely to indicate that it was optional.

■ 分からない ■ 任意だった ■ 必須だった



トレーニングはどのような方法で実施されていますか？(846)



両方 - 28%



オンライン - 67%



対面 - 5%

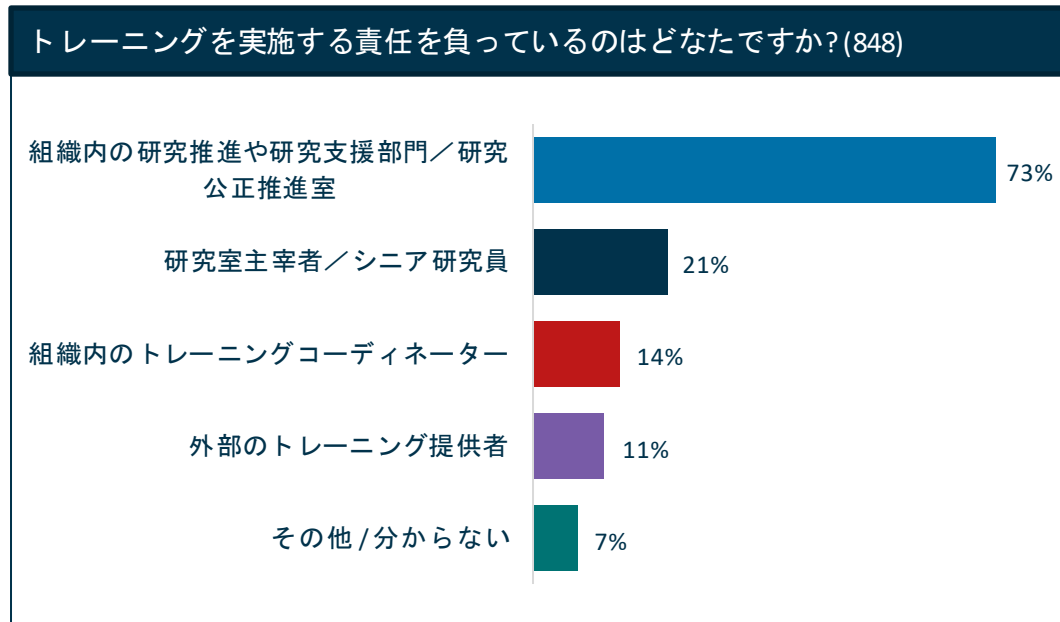
Please note, this question was only shown to those who answered “ある” to the question “あなたは現在所属している機関が実施する研究公正のトレーニングを受講したことがありますか？” on slide 11.

RI training is most often conducted by research offices and administrations

Who is responsible for conducting training?

Almost 3 out of 4 (73%) participants indicated that the Research Office / Research Administration is responsible for conducting RI training at their institution.

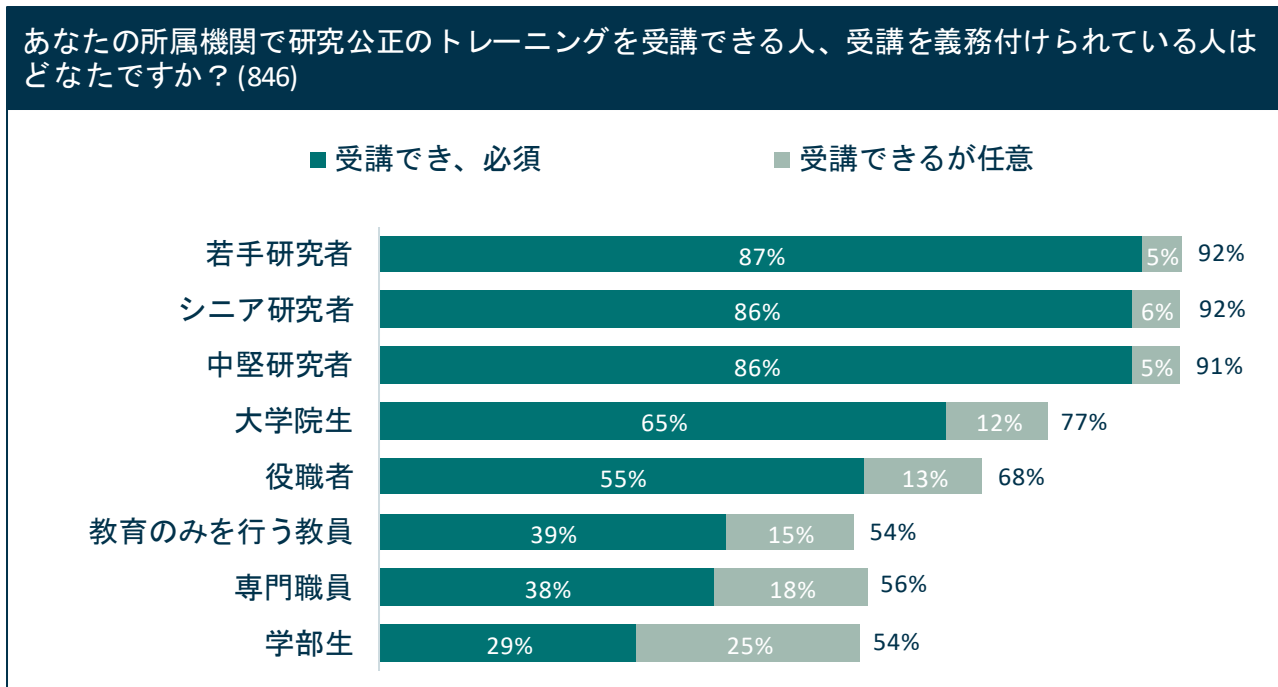
Participants that work in industry (i.e. pharma, biotech, consulting), however, were most likely to indicate that responsibility lies with supervisors / senior leaders as well as internal training coordinators.



Please note, this question was only shown to those who answered “はい” to the question “あなたの機関では研究公正のトレーニングを実施していますか？” on slide 10. Additionally, these figures represent the weighted proportion of respondents to give a particular responses, therefore, may not =100%

Active researchers, compared to students and staff, have highest access to RI training

To whom is research integrity training offered?

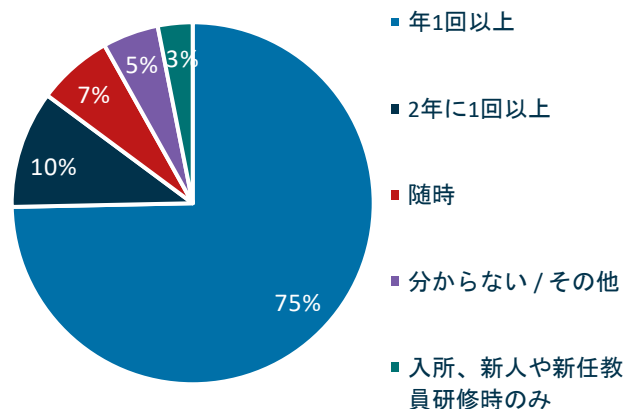


Please note, this question was only shown to those who answered “はい” to the question “あなたの機関では研究公正のトレーニングを実施していますか？” on slide 10.

3 in 4 reported that they are required to take RI training at least once a year

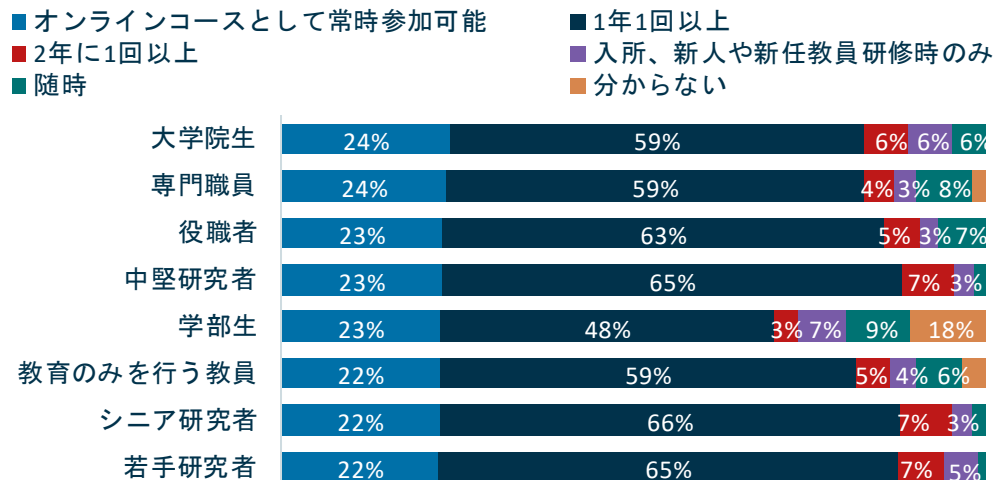
How frequently is training in research integrity taken and provided?

あなたの所属機関において、研究公正のトレーニングはどのくらいの頻度で受講が義務付けられていますか？(773)



Please note, this question was only shown to those who answered “必須だった” to the question “そのトレーニングは受講が必須でしたか？ それとも任意でしたか？” on slide 12.

研究公正のトレーニングを受講できる人についてお伺いします。トレーニングはどのくらいの頻度で実施されていますか？ あるいはどのくらいの頻度で受講可能ですか？(250 - 769)

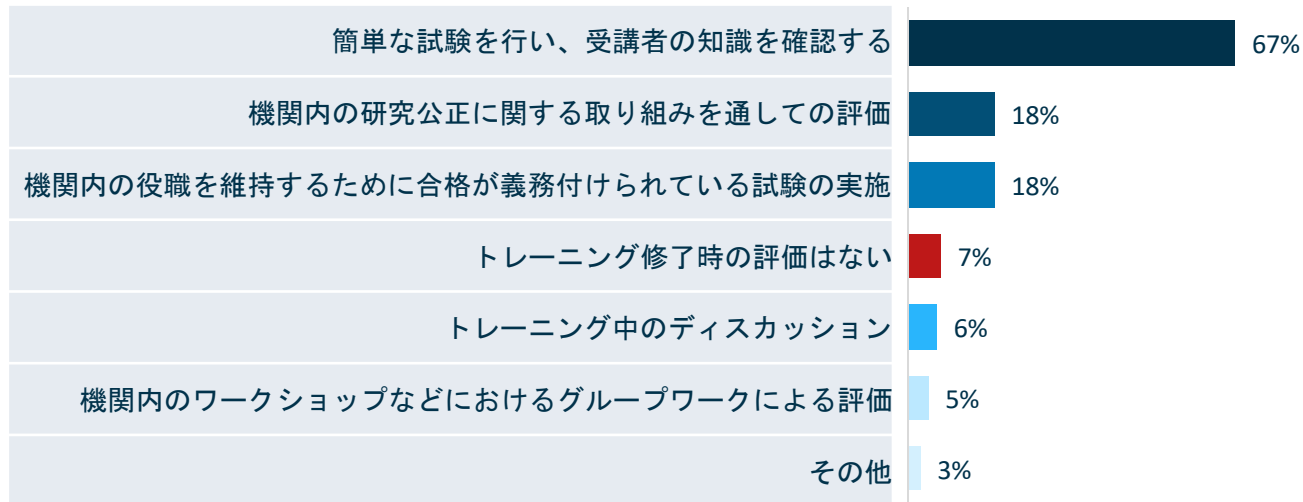


Please note, this question was only shown to those who indicated these groups did have access to Research Integrity training on slide 14.

67% had simple awareness tests, while 18% needed to pass testing to maintain position

How is training in research integrity assessed?

あなたの所属機関では、研究公正のトレーニングの成果はどのように評価されていますか？(834)



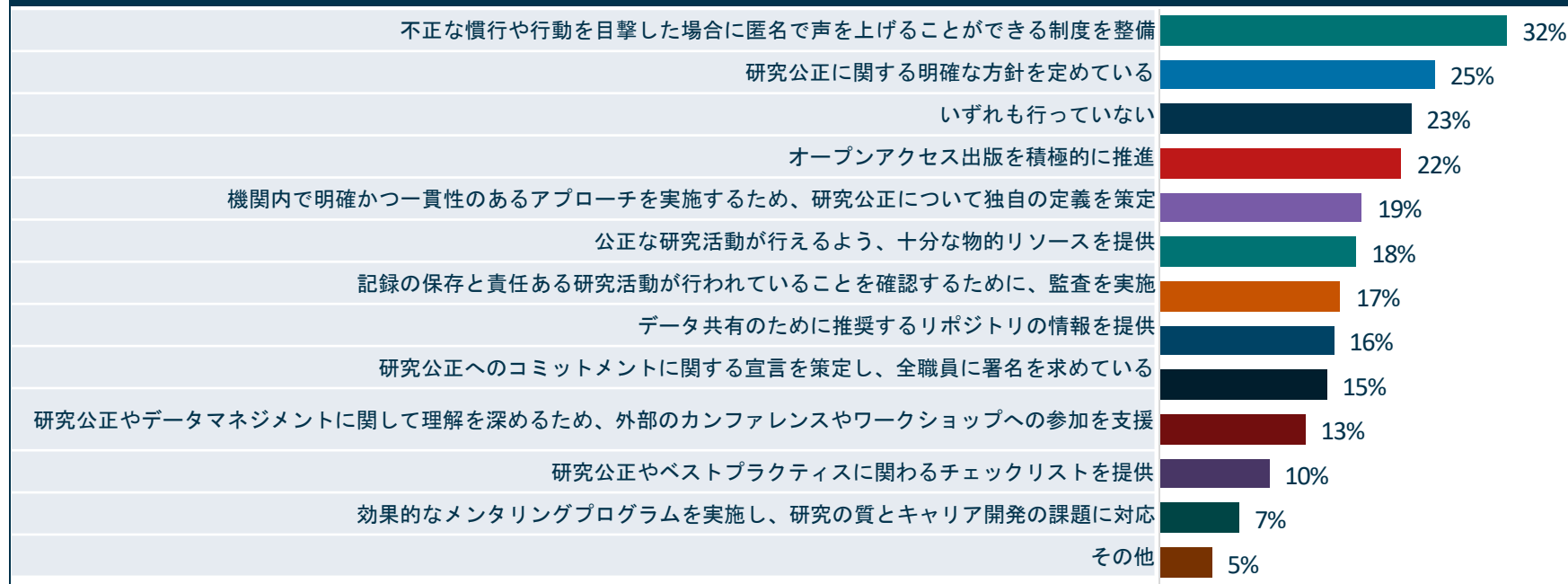
Please note, this question was only shown to those who answered “はい” to the question “あなたの機関では研究公正のトレーニングを実施していますか？” on slide 10.

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

1 in 3 participants indicated their institution encourages RI through “speak out” systems

How else do institutions encourage research integrity?

正式なトレーニングの機会とは別に、あなたの所属機関ではどのような方法で研究公正の推進や進展に取り組んでいますか？
(1,117)



4.0

**Topic inclusion within
training**

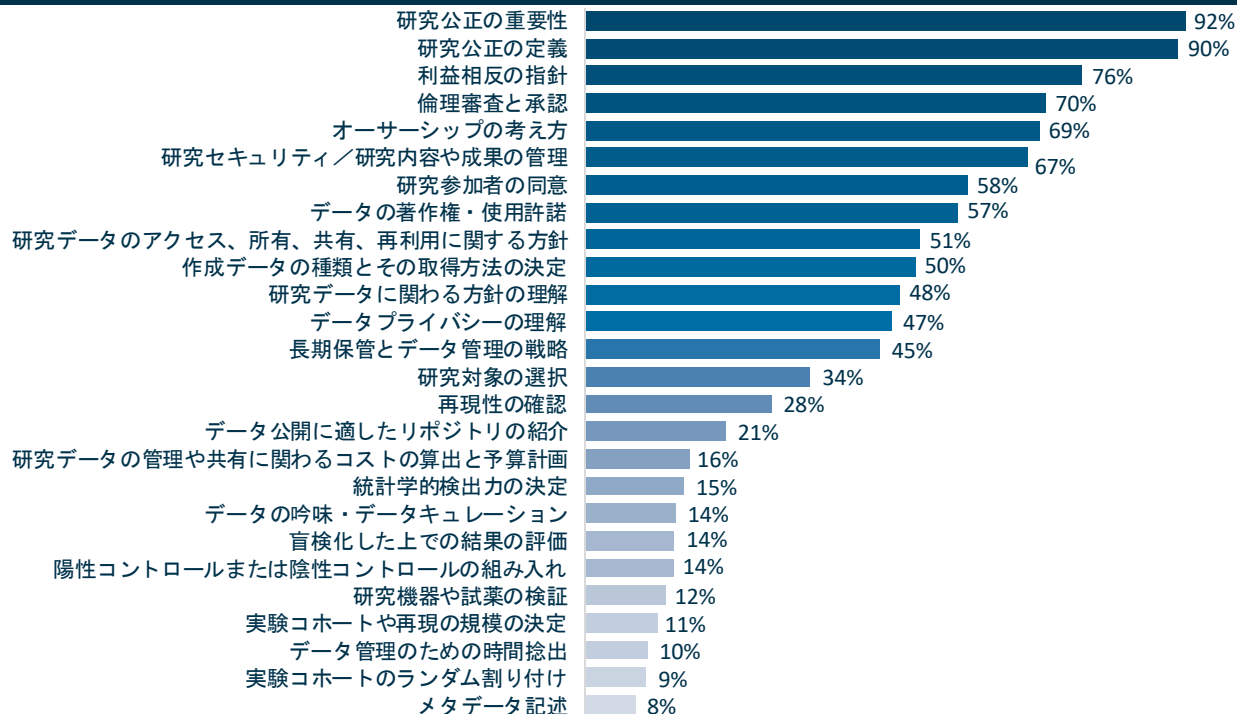
Over 90% of participants indicated that their institutions' training covers RI fundamentals

Topics covered in institutional research integrity training

Participants indicate that the most prevalent topics included in their research integrity training are the fundamentals: its importance (92%) and its definition (90%).

Interestingly, however, students were less likely than working researchers to indicate that their training covered the importance of research integrity.

あなたの所属機関の研究公正関連のトレーニングでは、どのような内容が含まれていますか？ (807)

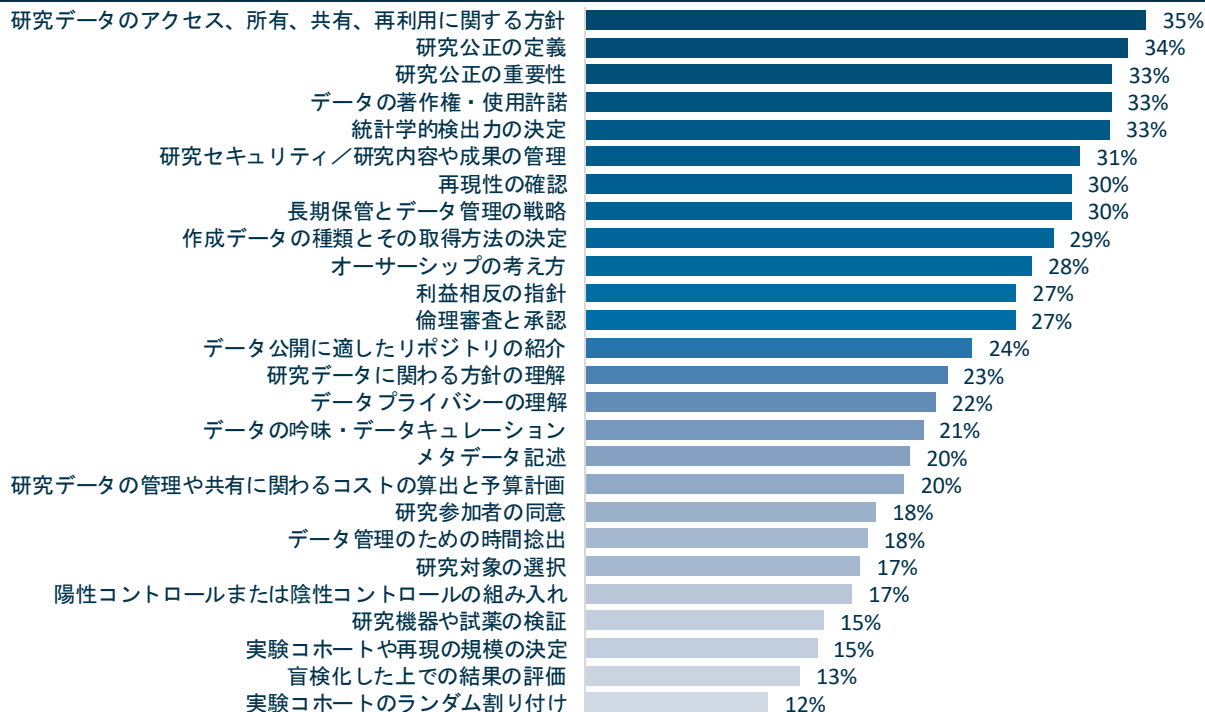


Please note, this question was only shown to those who answered “ある” to the question “あなたは現在所属している機関が実施する研究公正のトレーニングを受講したことがありますか？” on slide 11.

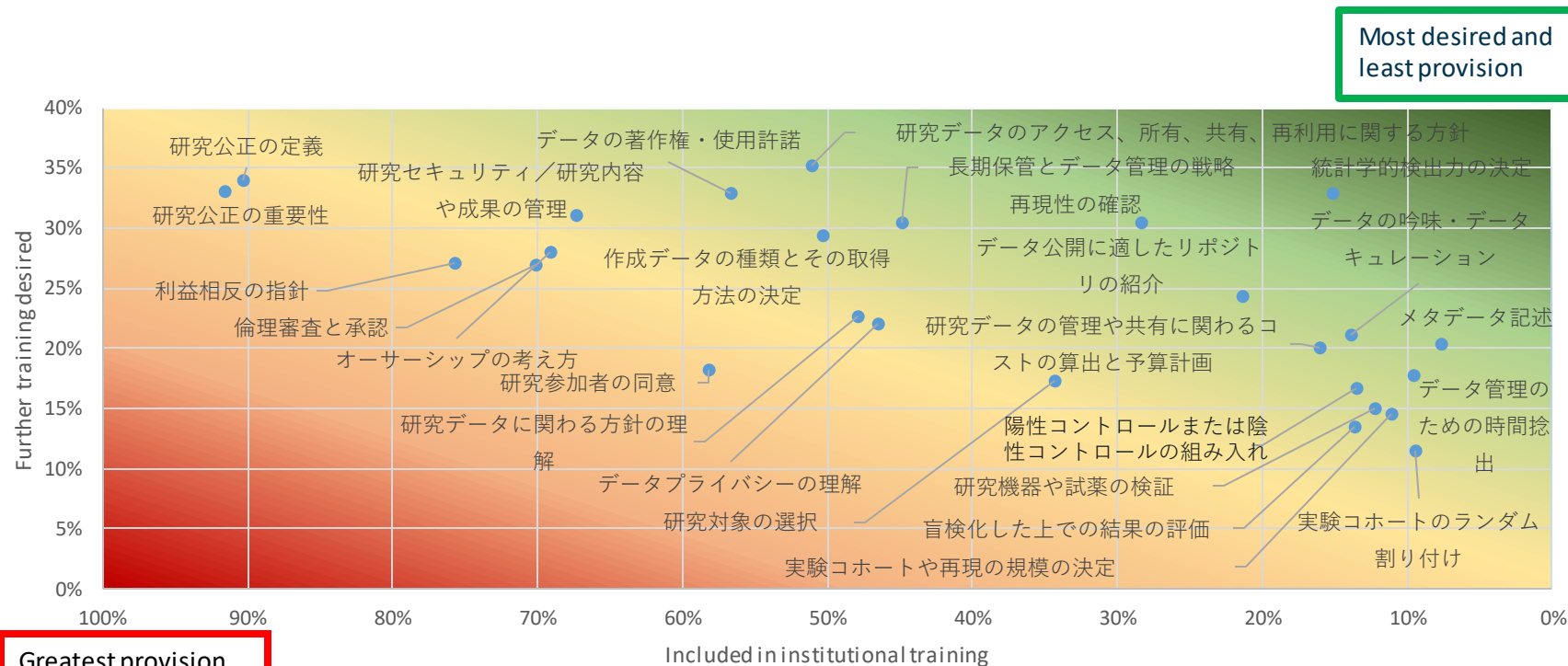
Defining data policies is the top desired topic for RI training, followed by RI fundamentals

Topics desired from research integrity training

研究公正に関して、さらなるトレーニングを受けることがご自身にとって有益だと思われるテーマが以下の中にあれば、当てはまるものをすべて選んでください。(1,129)

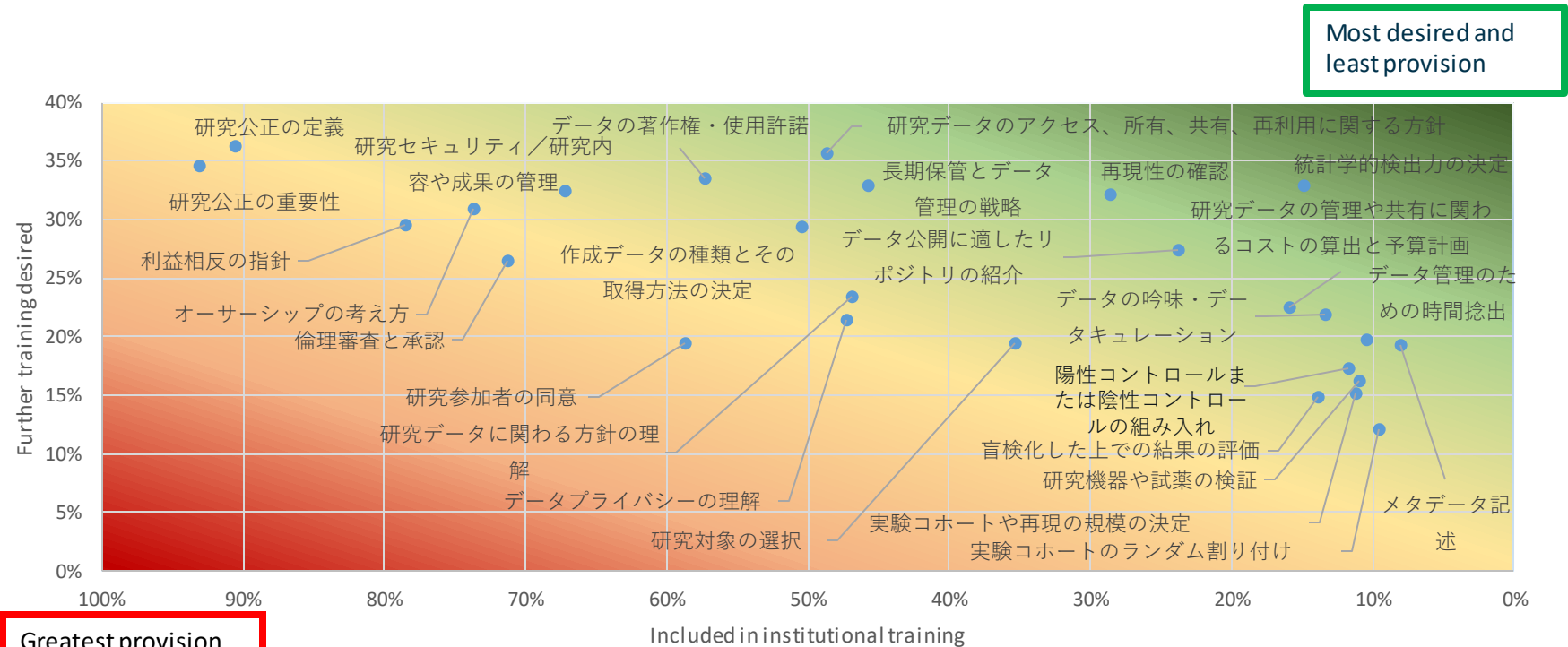


Cross-plot of training topics provided and training topics needs identify key institutional training development areas



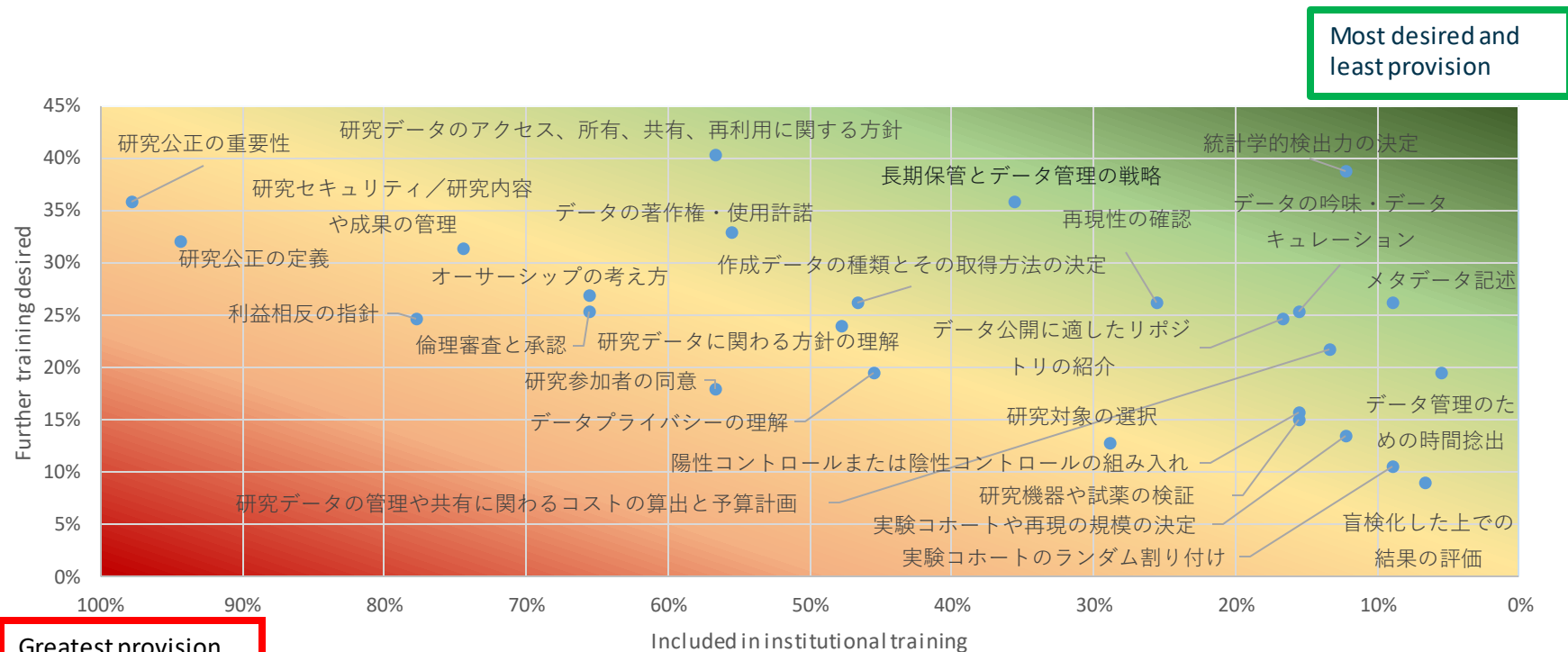
Senior researchers' cross-plot of training topics provided and training topics needs

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



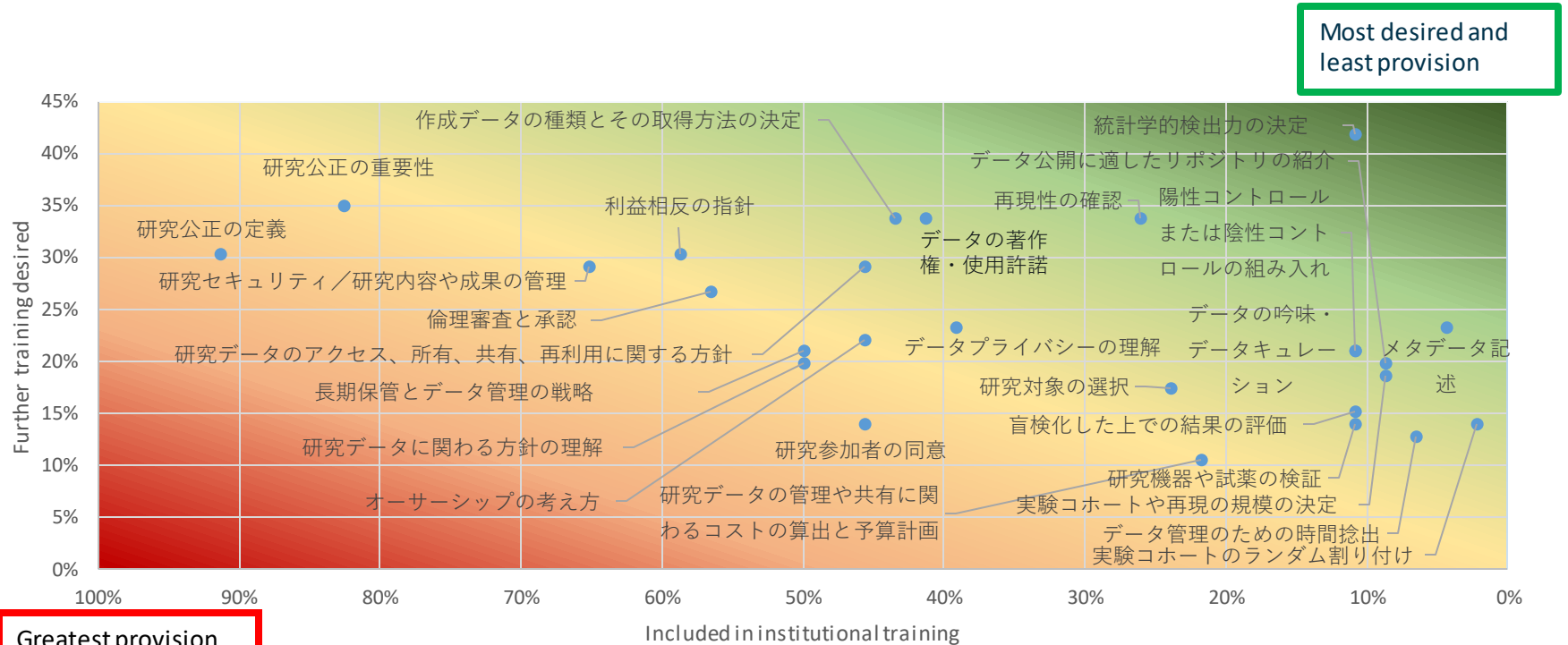
Mid-career researchers' cross-plot of training topics provided and training topics needs

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





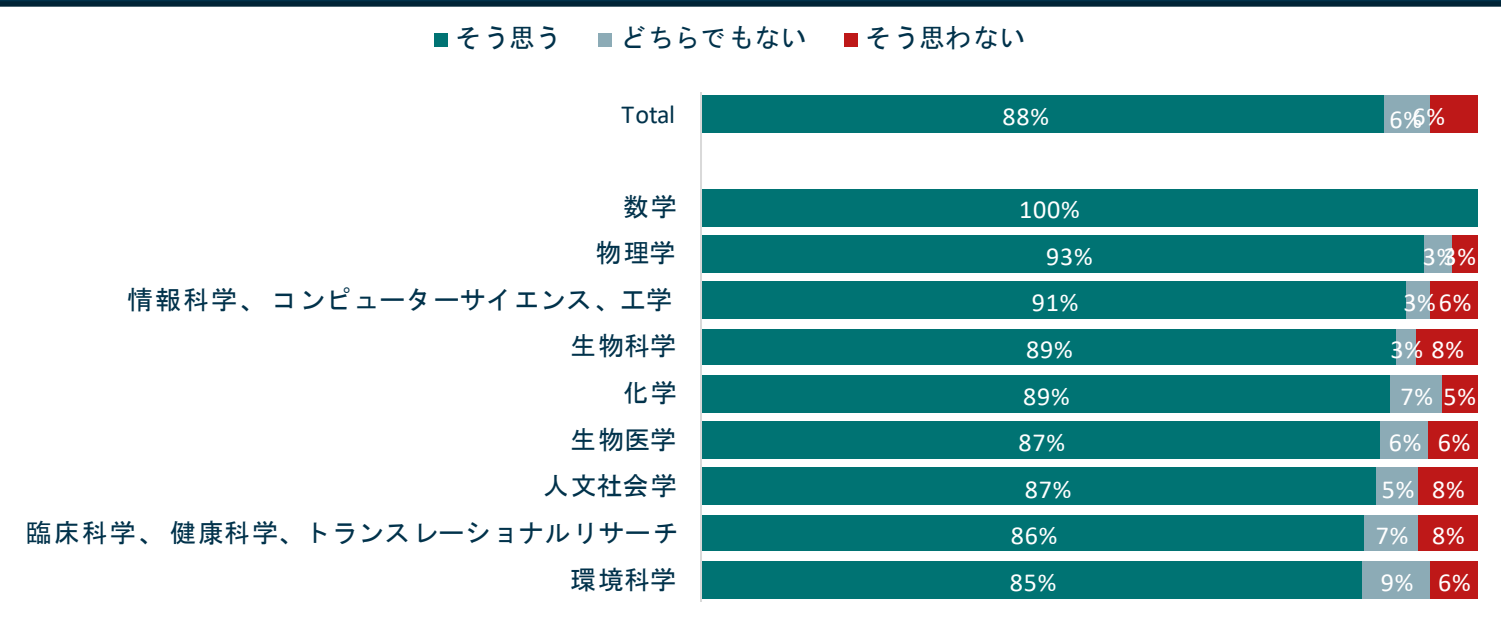
5.0

Current training efficacy

Participants working in mathematical sciences report highest levels of RI in practice

Field specific perceptions of problems associated with research integrity

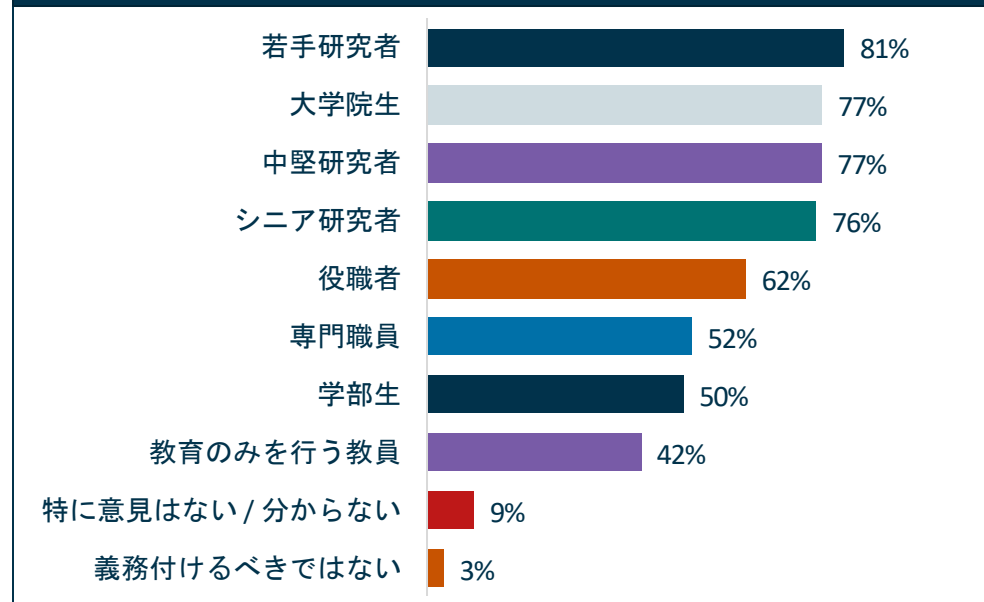
あなたが属する分野の研究者は、「研究の提案・実施・評価および研究結果の報告において、誠実かつ検証可能な方法」を用いていると思いますか？(1,145)



81% support mandatory training for younger researchers, while 3% oppose for all

Who should training in research integrity be mandatory for?

研究公正のトレーニングは、誰を対象に義務付けるべきだと思いますか？ (1,144)



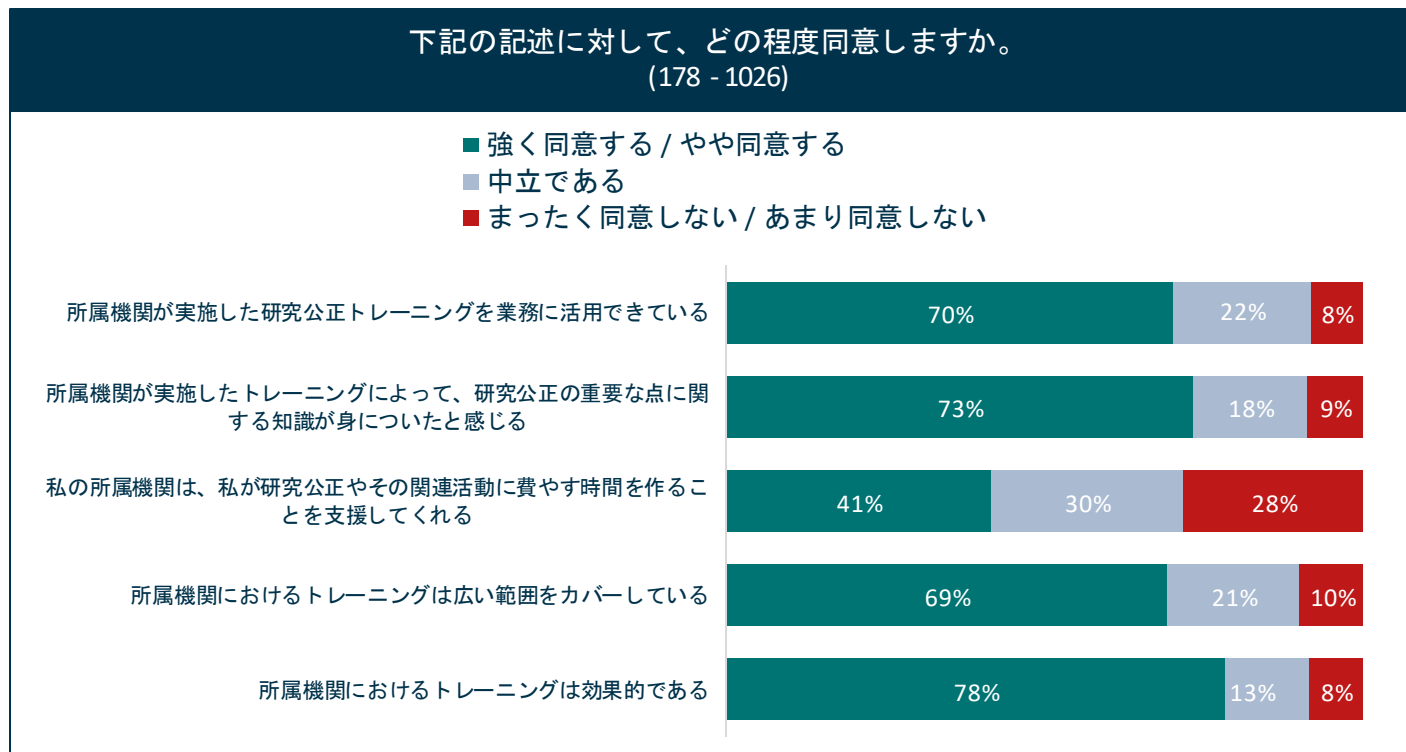
These figures represent the weighted proportion of respondents to give a particular response. Many respondents chose more than 1 answer. Total may not = 100%.

Most participants believe that training in RI should be mandatory for early-career researchers at 81%. In contrast, only a minimal 3% believe that it should never be mandatory for anyone.

Those working in universities and higher education institutions were more likely than those working in other places to indicate that RI training should be mandatory for everyone. Whereas those working in industry were least likely to indicate the same.

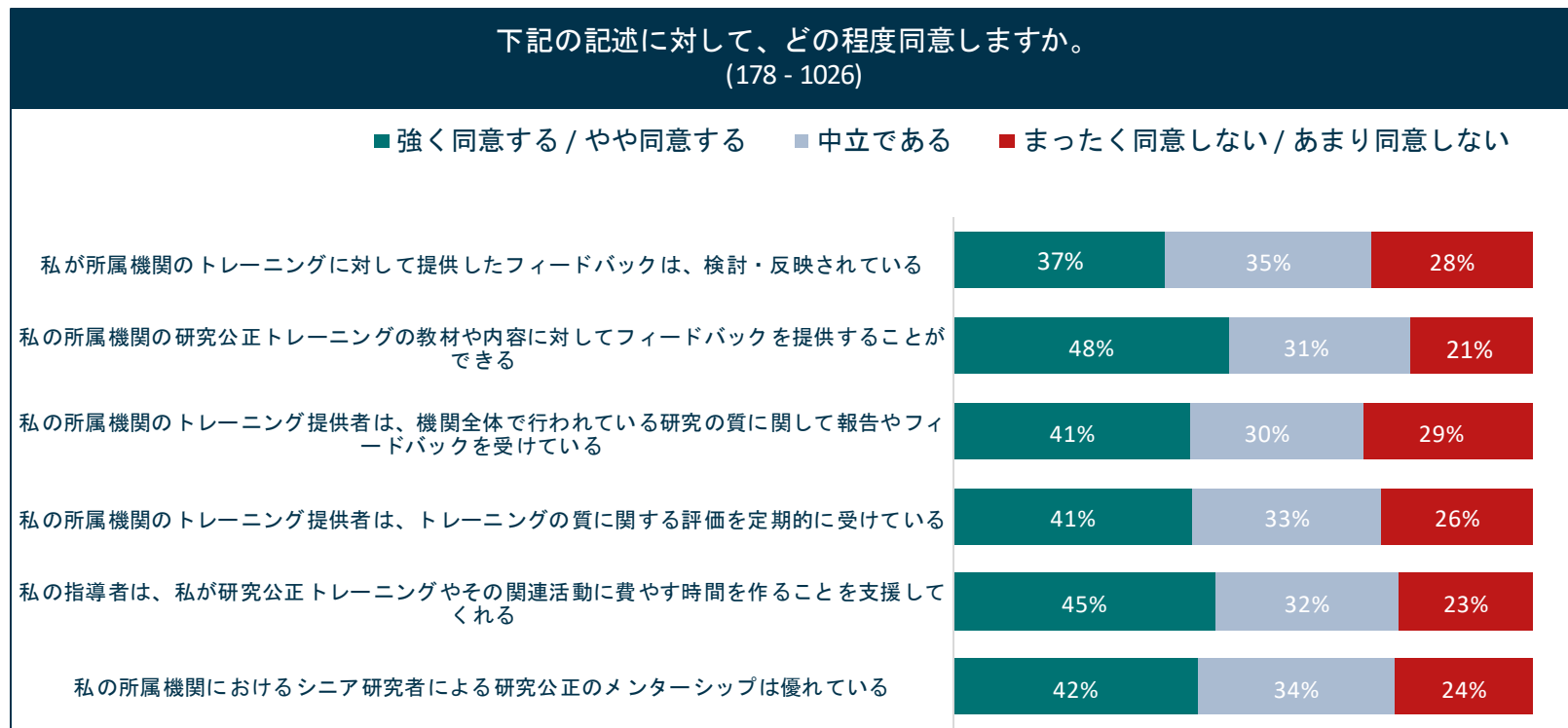
3 in 4 participants indicated their institution's RI training is effective

Perceived quality of current research integrity training provision



Almost half of participants feel able to provide feedback on RI training provided

Perceived quality of training providers and feedback mechanisms



For a few, RI training is seen as routine, and limited, particularly in data management

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

前の質問で研究公正に関するトレーニングが効果的、または包括的でないと回答された方にお伺いします。このご回答について、詳しくご説明ください。(32)

❖ Box-ticking exercise

- “研究倫理の包括的な理解を示すことよりも、それを修了したことを示すことの方が重要なように見える。”（原文は英語）
- “倫理に関するトレーニングを受けることのみが重視されており、組織の慣行は研究公正の一面だけを重視するなど、組織として公正性の実現方法を真剣に考えていると思えない。”

❖ Limitation with content

- “自分の専門分野についてのトレーニングの範囲が狭いように思う。”
- “データのキュレーションや統計手法などの具体的なデータ取り扱いに関する内容は含まれないため。”
- “研修の言語が日本語に限定されることもある。”（原文は英語）

研究公正トレーニングの中で、最も需要が満たされていないトレーニングはどのような内容だと思いますか？(97)

❖ データ管理

- “研究データの取り扱い関連（データの帰属などを含む）”
- “長期間の保存に備えてデータのデジタル化を行う。”
- “データ全般について、研究公正のトレーニングでは行われていません。”
- “データ保管の方法などが研究者個人に依存することがどの研究機関でも多いと感じる。”

❖ オーサードシップの考え方

❖ データ分析と統計手法

- “適切な統計解析方法の選択”
- “統計的有意差に関するもの”
- “統計学的検出力の決定”
- “陽性コントロールや陰性コントロール、統計などデータの根底に関わる知識”

❖ 再現性

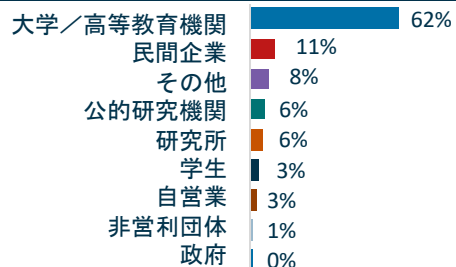
6.0

Appendix

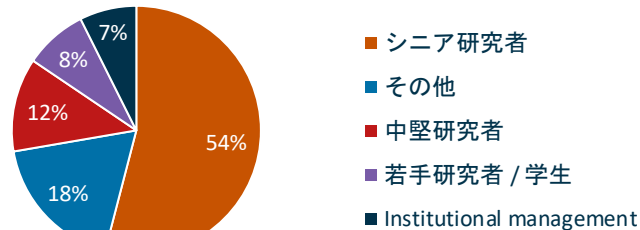
Respondents' profiles

Demographics (1/2)

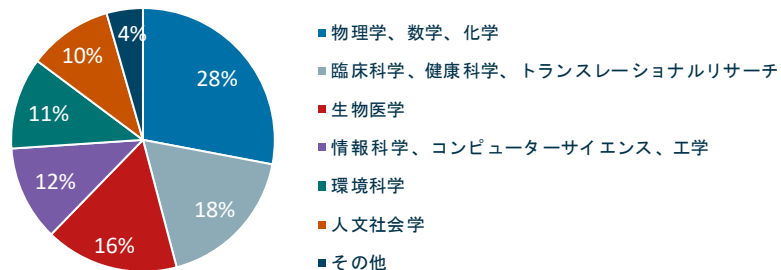
あなたの所属について、最も近いものを下記から選んでください。(1,190)



Job role / Seniority (1,151)



あなたの主要な研究分野は何ですか？(1,190)



あなたは下記のいずれかの職務を担当していますか？(1,190)



職員や研究者が受けるべきトレーニングを決定する
17%



職員や研究者が受けるトレーニングの予算を配分する
6%

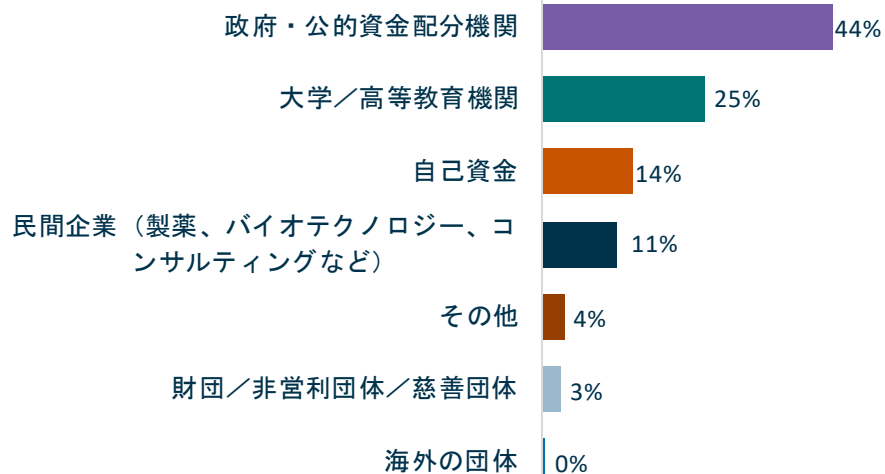


どちらも担当していない
82%

Respondents' profiles

Demographics (2/2)

あなたが現在行っている研究の主たる資金提供者はどなたですか？(1,190)



Thank you