

## **Response to Recommender and Reviewers**

Thank-you so much for considering our manuscript and providing a positive and supportive stance on the work. Below we have provided responses to each feedback point, explaining how we have considered the feedback kindly provided. As you will find detailed below, all the comments have been actioned and have led to modest changes in the manuscript (followed in tracked changes on the attached document) which we believe add further clarity and rigor to the proposed work. As such, we are grateful to you all for your feedback!

We hope this helps process the next stages quickly, and we're all looking forward to implementing the project with our students this year! Thank-you!

## Reviewer 1 – Crystal Steltenpohl

Thank you for your submission to PCI RR. I am reviewing "Understanding the Role of Climate Change in Applied Research: A Qualitative Registered Report," which as I understand it is the green section of this double manuscript. I hope my comments are helpful as the authors hone their registered report.

### INTRODUCTION

The introduction is generally well-written; if there's one improvement I would suggest, it would be to elaborate specifically on how applied researchers have actually influenced policy or practice. One or two examples would probably suffice, especially if there are any relevant to climate change. There's some general discussion of this early on, but I struggled to make the connection between what applied researchers *can* do and what the authors are suggesting, that there is evidence that researchers *have actually* impacted climate change practice. I would argue that increased attention is not actually change. This may be a nitpicky point, but I think it would help people have a clearer picture of what kinds of changes are being discussed. If there aren't specific examples, it may be beneficial to walk back the sentences that suggest applied researchers have influenced practice and stick to the responsibility of applied researchers moving forward.

Thanks so much for your time and energy in reviewing this manuscript, we're extremely grateful for such helpful feedback.

We appreciate that the scope of what we're discussing (applied research) is very broad so in an attempt to give it a little more structure we've added a little more clarification. After the detailed example of occupational psychology, we've added some additional content to show how applied researchers can examine and improve climate mitigation and adaptation, and how this may be directly (through work on climate change) and indirectly (through different ways of working/prioritising). We hope this adds some vital context and demonstrates that applied researchers influence climate change practice on a daily basis more convincingly. "These may direct, for example, researchers across the spectrum of natural science can address vital societal demands for more effective policy/governance, like in how to improve ecological resilience in rainfed agriculture in Zimbabwe (Chikozho, 2010), or support local action, such as evaluating the efficacy and cost effectiveness of tree-planting initiatives to determine best practice (Tree Council, 2024)."

### METHOD

I just wanted to note I appreciate the international data collection efforts! Given the burden of climate change and relative power different countries have to impact pollution levels of their own and other countries, I think it would be good to pay attention to this aspect when analyzing the results. That is to say, I wonder if geographic region will affect people's reporting of their experiences, actions, and impacts. I don't think it's necessary to explicitly compare, but would be helpful to consider how this could be attended to.

I also appreciate the reflexivity that is being built into the process, and the balancing of privacy needs and reflection.

Thanks so much for this positive feedback – we took a long time to consider the best approach to navigating these priorities and are so glad to hear you think of them positively! We will absolutely be reflecting on the roles of geographical region as part of the analyses and discussion!

## PARTICIPANTS

Point of clarification: If the PhD work is applied in nature, is it still considered? In other words, are the authors excluding people who are just doing research because their degree requires it, without consideration of applied benefits, or are they excluding anyone doing PhD-level research, even if it's applied in nature? I *think* the authors mean the former, but want to be clear.

Thanks for highlighting where this wasn't sufficiently clear. If an individual's experience of applied research is based upon the PhD they are currently completing then we would exclude this individual as there are other factors (like supervision etc.) which are likely to be heavily dominant. However, if an individual has applied research experience and is doing a phd then they would be included because they have work outside of their PhD to draw upon. We've added a comment in text which hopefully clarifies this!: "Individuals completing research primarily for qualification purposes (e.g., research conducted for the purpose of a PhD) without previous applied research experience were excluded."

## ANALYSIS

Are there any reflexive practices that are built in for the analysts?

Thanks for raising this – we considered this built into the collaborative process we set out for analysis but we didn't make this argument explicitly. This probably most closely aligns to 'Collaborative Reflection' (Olmos-Vega et al., 2023). As such we've added a sentence to clarify that "Within each team-based discussion, space was protected for a collaborative reflection (e.g., Olmos-Vega et al., 2023), allowing contributors to question the decisions and assumptions being made in a supportive and collaborative environment."

I have no other comments. I am happy to look at the manuscript again if needed, but am also fine if the recommender feels the authors have addressed my comments fully (or that they can ignore certain suggestions). I look forward to seeing how the registered report turns out!

Thanks so much for your time and we're grateful for all the kind words and helpful feedback!!!

## Reviewer 2: Lisa Hof

P2: Not sure if they should? As the focus is on identifying which processes and practices they already use, it's hard to state that they should improve the use of these practices to increase societal impact maybe. Maybe there is opportunity for greater societal impact, if they do not adopt certain practices that could be beneficial in this regard.

This is a fair comment and we've revised the wording as such: "Recommendations are provided to identify whether, and if so where, open scholarship practices can complement the workflow of applied researchers towards greater societal impact."

P2: What's the definition of basic research?

We have provided a brief definition which we hope is suffice to provide context: "where the priority is to advance academic understanding or theory, but not application".

P4: And to which extend would they like to use these mechanisms?

Wording has been updated: RQ1: To what extent are applied researchers aware of, interested in, and using, contemporary practices and feedback mechanisms established through the open scholarship movement?

P4: Such as?

We've provided examples to help clarify: "Feedback is vital not only in evaluating and improving research quality, and thus the subsequent impact of the work, but also in providing important functions for the researcher's emotions (e.g., affect and mood) and self-perceptions (e.g., of competency), and broader culture of work (Evans & Dobrosielska, 2019)."

P4: I'd say a big one is that applied researchers also work on a tighter timeline than most academics. We value research integrity and take a long time to create reliable methods etc. However, most applied researchers work in collaboration with non-researchers (e.g. communities, governments, etc.) these agents do not have the time to wait for peer feedback etc. The time pressure is generally higher for applied researchers.

Thanks, we've added this as a further example, thanks for this excellent suggestion!!  
"For example, an applied research project may be considered less suitable for publication due to changes in design mid-study, limited or more sensitive timeframes, operating in a complex context where findings cannot be explained without disclosing sensitive information, or due to a lower sample size limited by a finite population."

P6: Sentence does not really flow well. I also do not instantly connect worsening inequalities with general inaction or non-efficient action to mitigate. Would make these two separate sentences. Or I would connect this better. E.g. current actions to address climate change fall short of addressing these worsening inequalities or even increase these inequalities most of the time. Climate change adaptation has also been subject to these kinds of effects. Where green spaces are placed in already affluent neighbourhoods for example. Worsening the effects of climate change for already disadvantaged neighbourhoods.

Thanks for this excellent suggestion and advice. We have revised the argument in line with your recommendations: "Furthermore, current actions to address climate change are disparate, modest and incremental, often falling short of addressing these

inequalities, and in some cases worsening them. For example, the introduction of green spaces to already affluent neighbourhoods (EEA, 2022).”

P6: Do not get what you are trying to communicate here. (“from groups with higher power”)

“Although all members of society have a responsibility for climate action, and this need for change is generally acknowledged and supported (Andre et al., 2024), changes are most impactful in regions where pollution is high, and from groups with higher power, privilege, or influence (Moorcroft et al., 2024, Nielsen et al., 2021).” – By this we were trying to make it clear that in addition to there being disproportionate impacts upon different groups, that different groups have disproportionate impacts e.g., politicians could champion climate change at a policy level which would have much greater impact than any given individual changing their recycling habits in their own household. I hope this clarifies things but we’re happy to make this example or idea more explicit in-text should that be of benefit.

P10: I do not have experience with Trainee-led data collection. But very transparent methods and practices. I could replicate based on this, and the promised material in OSF.

This is exactly what we were trying to achieve so were thrilled by this feedback, thank-you!!

P12: Source. Also, what is a problematic belief in relation to climate action? This is also in contrast with the fact that most EU citizens want more climate mitigation action by governments. Individual and collectivist cultures might also stimulate or inhibit various climate actions respectively (e.g. community-level adaptation vs individual-level adaptation). Would help to define problematic beliefs here, and source accordingly.

Thanks for this thought-provoking comment. We have clarified the sentence to make the results of the work clearer: “Cultural individualism has been associated with lesser belief in climate change, however no meaningful effect on climate action has been reported (Goldwert et al., 2024). As the current work focused upon actions rather than beliefs, and our research questions aim to represent diversity in experiences, rather than consensus in practice, we found insufficient evidence to justify limiting participation by geography.”

All typographical/wording suggestions were accepted! Thanks again for such a thorough and helpful review.

### Reviewer 3: Jay Patel

This is my first PCI review and first time reviewing programmatic Registered Reports, though I've reviewed many other documents over the past decade across disciplines.

I found the study ideas intriguing and am most curious about the Open Scholarship Registered Reports given my interest in applied research. I'm looking forward to reading the eventual paper! My critical comments are below.

Thanks so much for your feedback, it was very helpful and much appreciated!

-----  
Programmatic Registered Report 1  
Open Scholarship

#### Introduction

Citation/explication needed for "However, such open scholarship practices have been nearly exclusively applied to basic and quantitative academic research, and there are many reasons why these practices may not be common or considered so favorably in applied settings..." You should find several specific citations, but here is one to get started with citation tracing:

Survey of open science practices and attitudes in the social sciences

By Joel Ferguson, Rebecca Littman, Garret Christensen, Elizabeth Levy Paluck, Nicholas Swanson, Zenan Wang, Edward Miguel, David Birke, John-Henry Pezzuto  
Container: Nature Communications  
Year: 2023  
Volume: 14  
Issue: 1  
DOI: 10.1038/s41467-023-41111-1  
URL: <https://www.nature.com/articles/s41467-023-41111-1>

Thanks for this suggestion – we've broken up the sentence into two different arguments and provided a citation for each!: "However, such open scholarship practices have been nearly exclusively applied to basic research (where the priority is to advance academic understanding or theory, but not application) and quantitative academic research (Huma & Joyce, 2022). There are many reasons why open scholarship practices may not be so common or considered so favourably in applied settings (e.g., wider and more transparent reporting of conclusions that are disliked by stakeholders; Evans et al. 2023)."

Citation needed for each practice mentioned in "wide range of practice." Great list, by the way! This is my first encounter with pre-mortems, and they remind me of methodological review panels (Lakens: <https://pubmed.ncbi.nlm.nih.gov/36596953/>). You can also remove the parentheses in that paragraph mentioning the "wide range of practices" and simply italicize each practice like "premortems to try and anticipate..." This is for ease of reading.

Actioned exactly as requested.

RQ1: Remove the dual commas: ", and using," because they are not needed.

Revised based upon changes from other reviewer!

I would revise: "contemporary practices and feedback mechanisms" to read "contemporary research reform practices and study feedback mechanisms for authors..." as that is more specific and clear if readers are skimming. In general, your use of "feedback mechanisms"

seems broad throughout the paper and a more specific term would help. I like "research plan feedback mechanisms", "study feedback strategies", or something similar.

This is a really interesting line of thought, and we've tried to use words which have as few assumptions or connotations associated with it. For example, research plan feedback mechanisms might be considered exclusively limited to questions surrounding study design or preregistration rather than considering the whole research cycle. Similarly, 'author' suggests contributions to writing but perhaps not other dimensions of the research cycle. As such we've maintained our current wording purposefully to ensure we capture the breadth and depth of different experiences, but we've also added clarifications to our RQ in line with your original suggestions: "RQ1: To what extent are applied researchers aware of, interested in, and using, contemporary research reform practices and feedback mechanisms established through the open scholarship movement?"

pg 4, paragraph 3: "Applied research" here needs to be grounded in concrete examples across 3+ domains with vignettes. Although you defined it earlier, we need to know the details of the term to make sense of this. I interpret this to mean action research (which changes as it is being done). Please clarify this part with specific methods and examples.

Thanks for this suggestion – because we introduce applied research earlier in the introduction, we've added/clarified a few more examples up there to complement the existing ones and provide context to the discussion such that by the time this section of text is read it should hopefully be clear the scope of the work being referred to. We're very happy to take suggestions for further ways to make this any clearer!

RQ2: This is a question that I am mulling over myself in my institution (informally). I am curious to read your findings later. I expect that these feedback processes will be informal and operate for lab meetings, colloquia, conferences, and listservs. I see great potential for systematically investigating this topic and using the results to support the diffusion of author feedback mechanisms. I hope that you make a distinction between formal and informal feedback mechanisms in your papers.

The fact you suggest this would be useful is brilliant as the lead author of this work recently was awarded some Leverhulme Trust funding to systematically map feedback opportunities across the research cycle! What you describe here is exactly what the project intends to achieve so this is very reassuring and positive – thank-you!!

Can you write a brief section on why RR1 is so much shorter than RR2? According to the PCI website, additional information is recommended that you included in RR2: "Authors of a programmatic Stage 1 RR should ensure that all the usual criteria for a RR are met, including detailed specification (where applicable) of theory, hypotheses, procedures, and analysis plans (see review criteria in Section 2.1)." The Method and analysis plan is most critical for RR1.

Sorry for any confusion caused – just to be clear, the methodology is shared between the two RRs (hence the programmatic registered report) and as such they are both pretty similar in size. We will duplicate the methodology in the publication of the two separate papers. I hope this is what you were referring to and makes it all clearer!

-----

Understanding the Role of Climate Change in Applied Research: A Qualitative Registered Report

Are "Occupational Psychologists" synonymous with "Industrial and Organizational Psychologists?" The latter term is more familiar to me (US resident). If so, it might be good to mention that. If not, please define the term.

I have clarified that they are just different terms for the same thing. Thanks for reminding us that this is a very UK-centric term!

RQs 1 and 2 are interesting, though should be introduced a bit earlier if possible.

We're thrilled to hear that! We've tried to move them up but it disrupted the flow of discussion so we've left it where it is – we hope this is OK!

Good justification for analysis plan: content analysis

Thanks so much!

pg. 15: I recommend avoiding violin plots for readability and using density plots instead.

To blend the benefits of giving both a general message and a more nuanced view of the data, we've suggested raincloud plots.

Regarding sampling, the variety of settings (virtual) seems sensible. You could also supplement with visits to conferences and making special requests if needed. I don't have a sense of the difficulty of recruiting applied researchers, but the venues you listed seem very open, and I foresee enthusiasm to participate. Sampling success could be a nice topic to include in a Registered Report by brainstorming reasons for success and failure. What do studies with similar samples struggle with? Financial incentives?

Thanks for these reflections – we believe there is quite the appetite for this type of work, and should we need to expand the recruitment plan we'll definitely come back to these ideas. In the meantime, we'll endeavour to provide a nuanced picture of sampling and recruitment at stage 2 to encourage more consideration of these ideas!

Appendix A: Looks good, though at some point a distinction can be made between formal (pre-registrations and Registered Reports) vs. informal feedback mechanisms (social media, colleagues nearby).

We will absolutely consider this during analysis and write-up as I agree it's super important to differentiate – thanks for this confirmation!

Appendix B: Looks good and seems helpful to include.

Thanks so much!

Appendix C:

1 to 10 pt rating scales are too granular according to modern psychometrics research. 1 to 5 would be sufficient, and participants would find a simplified scale easier to process.

You may also want to visualize that scale here and add labels for each value in the scale for clarity.

All nine prompts in Appendix C are positively framed and may lead to biased results, so you should find a way to word them neutrally or negatively. This is often advised by survey



methodologists. Please note for readers whether this will be administered verbally or via computer. Given the "Open Text Box" line at the end, I assume this will be on a computer. So then you should just create nine additional negatively worded prompts like "I did not enjoy contributing to this project" to ensure that you don't skew responses to the positive end of the rating scale. Then you can perform some simple arithmetic to create sum scores per theme (e.g., enjoyed contributing, learned a lot, developed my research skills, etc.). Additional information can be found in textbooks like Survey Methodology 2nd Edition by Robert M. Groves, Floyd J. Fowler Jr., Mick P. Couper, etc.

Thanks for sharing these suggestions – we agree that our previous practice was a little suboptimal so we've created a more flexible approach where we use two anchors statements which are dichotomously opposite, but retaining the 10-pt scale to allow for a little more detail (e.g., rather than just positive, how positive exactly?).