Introduction

This document contains a quick reminder of the aims and approach of the repliCATS project, followed by a guide to answering the Round 1 claims. There is also a list of FAQs and tips.
The repliCATS project

The University of Melbourne repliCATS team elicits expert judgements about the replicability of research claims in the Social and Behavioural Sciences through an online platform using the IDEA protocol. Judgements are aggregated into measures of reliability and the reasoning used is analysed. IDEA (“Investigate”, “Discuss”, “Estimate” and “Aggregate”) has been found to improve judgements under uncertainty. More information about the repliCATS project is contained in the Plain Language Statement and on the repliCATS website.

The IDEA protocol

This protocol, developed at the University of Melbourne, has been found to improve judgements under uncertainty. IDEA stands for “Investigate”, “Discuss”, “Estimate” and “Aggregate”, the four steps in the process of this elicitation.

As used in the repliCATS project, the IDEA protocol will involve participants:

1. Independently investigating the claim, providing their personal judgement on the replicability of the claim, and commenting on their thinking.

2. Seeing the judgements of the rest of their team, the aggregated judgement and all of the comments that have been made and having a facilitated discussion with the group. This phase can resolve uncertainties, and investigate evidence and thinking.

3. Providing a revised estimate and describing how their thinking has changed.

The repliCATS team will use an aggregate of the group judgements as the final assessment of the replicability of the research claim.

More information on the IDEA protocol can be found here.
Guidelines for Round 1

Entering your Round 1 estimates

a) **Login** to the repliCATS platform. If you have difficulty with this please contact replicats-contact@unimelb.edu.au. The platform is tested for Google Chrome on laptops. It may not work in incognito mode, on other browsers, or on mobile devices.

b) **Select a claim.** Upon login you see the list of claims that have been assigned to you. Select a claim by clicking on it. You’ll be taken to the claim assessment page with information about the claim and four questions (outlined below).

c) **Investigate the claim.** We don’t expect you to take more than about 5-15 minutes investigating the claim. Some information about the claim has been extracted, including the abstract and basic statistics. You also have a link to the original paper. The claims have been selected using a stratified random design.

   We encourage you to use whatever information you would like to inform your judgements. You can speak to others and search for additional sources of evidence. However, if you know someone is assessing the same claim as you, please do not discuss your judgements yet - you’ll be able to do this in the Discussion phase.

d) **Step 3: Answer the four questions.** Details of the four questions are provided below. We don’t expect you to spend longer than 5-15 minutes per claim answering the questions. You will have time to revise your estimates in Round 2.

   We encourage you to use the comments boxes provided to write notes to help you remember crucial aspects that informed your responses or matters that you’d like to clarify in the discussion. We are also interested in understanding how you thought about the claim and what characteristics were important for your judgement. Note that all comments will be attributed to an avatar. Only if you choose to reveal yourself in the discussion phase will others be able to identify your responses.

e) **Save and submit your estimates.** ‘Saving’ your estimates will enable you to return to the estimates and update them prior to submission. Pressing ‘submit’ finalises your estimates for Round 1 - but you’ll have an opportunity to revise these in Round 2 following discussion with your team. Check to see that the claim is listed as ‘Round 2’ on the home page. If not, you will need to click back into the claim and re-submit.

f) **Select another claim.** Select the repliCATS logo to navigate back to the set of claims. Repeat until all claims have been answered.

That’s Round 1 completed. Well done- you’re doing great! During the workshop we’ll complete the Discussion and Estimation phases of the IDEA protocol in Round 2.

You can have a look at the basic steps in completing Round 1 on the platform in a video that can be found here.
Answering the questions

For each claim there are four questions which we ask you to answer. Some questions may appear to be asking for similar information, but they do have different purposes. In this section we outline why we are asking each question, and the reason for the formats chosen.

**Question 1**

*How well do you understand this claim?*

**Purpose:** To understand if there is anything about the claim that is affecting your ability to interpret it.

**Clarification:** We’ve done our best to make sure the claims are interpretable but we know they vary in clarity and comprehensibility. We’ve extracted what statistical data we can from the article to help inform your judgement. However, the process is automated and is not perfect. It’s possible that the claim is:

- Too vague,
- Poorly written,
- Relies on an unfamiliar procedure,
- Contains too much jargon,
- Difference between the claim in the abstract and the claim which is tested.
- About a concept that you have difficulty conceptualising.

These factors can all contribute to your ability to be able to interpret the claim and may in turn lead to different interpretations by the group. There is a comments box below this question, where you can provide a summary of your interpretation of the question- this will be really useful for reminding you of what your interpretation was in the discussion phase.

**Answering the question**

We’re asking this on a Likert scale. At the left end you can mark that you have no idea what the claim means, while the right end means it’s perfectly clear to you.

Before answering try your best to interpret what you believe the claim might be asking. Some claims may be outside of your immediate knowledge or have some words you are unfamiliar with. This might cause you to immediately put a ‘1’. However, with a little bit of effort you can usually deduce what is being asked either from the abstract or looking at the full-text publication. If after trying your best to understand the claim (i.e. 5 minutes of work), you still cannot work out what the claim is saying then you should definitely indicate this to us.

**Comments box.**

We have provided a comment box below the question so you can try to rephrase what you think the claim is asking. This will be really useful in the discussion phase to prompt your memory about your initial interpretation of the question. The box can also be used to simply list any terms and concepts that you don’t understand or your simple interpretations of these terms. The box has a word limit, but you can add to your thoughts in Question 4. The information provided in the comments box of Question 1 will be displayed to the group in Round 2 (attributed to your avatar).
**Question 2:**

*What’s your initial reaction: is the underlying effect or relationship plausible?*

**Purpose:** To capture your beliefs about whether the underlying effect or relationship corresponds to something real.

**Clarification:** Sometimes we hear a claim and we have a strong feeling that the claim being made does not seem very plausible either within the context of the experimental design, or more broadly (i.e. relating to a relationship that would generalise across contexts, or experimental designs).

These prior beliefs can be useful. We’ve included this question here to allow you to state your prior belief about if you think there is a real effect in this study, regardless of what you think about this particular experimental/study design.

Don’t spend too much time on this question. In the next question, we want you to examine the claim and the validity of your prior beliefs more critically, as to how they relate to direct replication.

**Answering the question**

This is a binary question. Please select ‘Yes’ (if you believe the claim might relate to some underlying effect or relationship to something real) or ‘No’ (if you don’t believe this).

The word ‘plausible’ means different things to different people. For some people almost everything is ‘plausible’, while other people have a stricter interpretation. Don’t be too focused on the precise meaning of ‘plausible’ – you could also consider words like ‘possible’ or ‘realistic’ here. We just ask you to maintain a consistent standard between different claims and try to let us know if some claims are clearly more plausible (or implausible) than others.

If you didn’t understand the claim being asked, it might be challenging to say whether you believe it’s plausible. Please do your best to select an option but note this in the comments box in Question 4. Hopefully the claim will become clearer in the discussion phase.

**Comments Box:** There is no comments box provided. However, if you have any strong beliefs or feelings about this claim, particularly why it may not be a real effect we’d like to hear them. These are likely to provide really important concepts that should be considered before trusting this claim more broadly. Please use the comments box in Question 4 to list some brief thoughts.
**Question 3**

What is the probability that direct replications of this study would find a statistically significant effect in the same direction as the original claim (0-100%)?

0 means that you think that a direct replication would never succeed, even by chance. 100 means that you think that a direct replication would never fail, even by chance.

**Purpose**

The question is asking about direct replication.

**Clarification**

- **A direct replication** is a new experiment that follows the methods of the original study with a high degree of similarity, varying only aspects where there is a high degree of confidence that they are not relevant to the research claim. The aim of a direct replication is to improve confidence in the reliability and validity of an experimental finding by starting to account for things such as sampling error, measurement artefacts, and questionable research practices.

- **A successful direct replication** is one that finds a statistically significant effect (defined with an alpha of 0.05) that is in the same direction as the original study, using the same statistical technique as the original study. Assume that the direct replication has a sample size that is at least as large as the original study and has a goal of at least 95% power to detect the original study effect size.

**Answering the question**

In this question, we want you to try and think of reasons why the claim may or may not replicate. We understand that your thoughts about prior plausibility of the general claim is likely to influence your judgement regarding this question. However, we’d like you to try and think more critically of other reasons why this particular study may (or may not) replicate.

Sometimes the bold text from the abstract does not match the claim in the inferential test results. In this case, your answers should relate to the inferential test results, as the next stage of SCORE will focus on testing the replicability of the test results only.

**Understanding the three-step format**

The question asks you to provide three estimates of replicability: a lower bound, upper bound and best estimate. Here’s how we want you to think of those questions:

- First, consider all the possible reasons why a claim is unlikely to successfully replicate. Use these to provide your estimate of the lowest probability of replication.

- Second, consider the possible reasons why a claim is likely to successfully replicate. Use these to provide an estimate of the highest probability of replication.

- Third, consider the balance of evidence. Provide your best estimate of the probability that a study will successfully replicate.

There is evidence that asking you to consider your lower and upper bounds before making your best estimate improves the accuracy of your best estimate.

The difference between your upper and lower estimates is intended to reflect your uncertainty about whether that claim’s findings would replicate. There’s no ‘correct’ answer here, but we expect that your intervals for those claims you feel most uncertain about will be the widest.
Things to consider

There are many things you might consider when making your judgement. The IDEA protocol operates well when a diversity of approaches is combined. The following section lists some things you may wish to consider.

- **The statistical data, analyses and results for the claim**, including sample size, effect size and p value, if reported. These details are likely to be important for whether a claim replicates - see [this document](#) for more information.

There are many other important things you can investigate and consider.

- **The experimental design**. Will it be reliable in replication? Are there any signs of Questionable Research Practices e.g. unusual designs where more straightforward tests might have been run but failed? Note that this question is interested in the replicability of the claim even if the validity of the design is low.

- **Your prior plausibility** for the claim. Background probabilities are often a major factor. Is this area of research more or less well-understood?

- **Contextual information** about the original study or publication such as where and when the claim was published, and who undertook the original study. Do you have any private or personal knowledge e.g. experience with undertaking similar research, or existing knowledge about the quality of work from a particular source?

Some additional things to consider:

- Providing a lower estimate of 0 means you believe a study would never successfully replicate, not even by chance (i.e. you are certain it will not replicate). Providing an upper estimate of 100 means you believe a study would never fail to replicate, not even by chance (i.e. you are certain it will replicate).

- Providing an estimate of 50 means that you believe the weight of evidence is such that it is as likely as not that a study will successfully replicate. If you have low prior knowledge and/or large uncertainty, please use the width of your bounds to reflect this, and still provide your best estimate of the probability of replication.

- Answers above 50 indicate that you believe it’s more likely that the study would replicate than it would not replicate. Answers below 50 indicate that you believe it’s more likely that the study would not replicate than it would replicate. Intervals (the range between your lowest and highest estimate) which extend above and below 50 indicate that you believe there are reasons both for and against the study replicating.

Comments box: We ask you to provide a justification for your responses that can help your own thinking, and your team’s discussion. Don’t feel that you have to express these thoughts in polished prose. Dot points and partial notes are fine, as long as you can be understood. Any such notes will improve the discussion phase, and the later analysis.
**Question 4**

"Considering the major factors that influenced your thinking in making these judgements, please describe any important aspects that you have not already covered above".

**Purpose**

To obtain additional thoughts and comments.

**Clarification**

This question allows you to express any additional comments and information you have about the claim that you don't think fit well under previous comments sections. You can also describe how you went about reaching a judgement. We are interested in both your judgements and the way you went about making them. Your answer here gives an opportunity to inform our team and the group discussion about the basis of your judgements. As with the previous comments box, partially formed thoughts or dot points are fine. You might even have contradictory opinions about the study - it’s fine to express those as well.

**Ready to start?**

The repliCATS platform is at [https://score.eresearch.unimelb.edu.au](https://score.eresearch.unimelb.edu.au)

You’ll need to enter your username and password. These have been sent to you in an email. If you cannot find them, or have other difficulties accessing the platform, please contact repliCATS-contact@unimelb.edu.au
Help and FAQs

We understand the task assigned to you is not easy, here are some tips to help you through.

I feel unqualified to answer these claims

There will be claims which you feel you are unqualified to answer. This is natural, the task is difficult (the purpose of this experiment is to understand whether it is even possible to systematically predict replicability). We ask you to please attempt all claims assigned. We have found that both experts and non-experts contribute to good judgements. Often it is the people who consider themselves ‘outsiders’ who notice details about the claim which more experienced members of the group overlook. Remember:

- You can adjust your upper and lower bounds to express your uncertainty.
- You can draw on thoughts and opinions of colleagues (as long as they are not answering the same claims), or even additional resources.
- You can also justify your responses and any evidence or questions you have about the claim in the comments box.
- In Round 2 you’ll be able to draw on the knowledge of your peers and update your response in light of the discussion.
- If you feel you really don’t understand the claim, then please note this in Question 1, and provide your best interpretation of the claim’s meaning. We can discuss these interpretations in the discussion phase.

I’d like to access some training materials and practice questions

We have also developed some training which might help you to better assess the claims. This includes a downloadable training document that covers statistical concepts and some background information on questionable research practices and replication rates in previous studies. This training document can be downloaded here. We will also send you an interactive quiz and example claims to practice on. Including both the document and quiz, the training takes about one hour to complete.

I don’t feel comfortable cross-examining the evidence and reasoning of others

The group discussions will be largely facilitated during the workshop. However, we have compiled a list of questions that might help you to better examine the reasoning of others in your group, we will circulate these in the instructions for discussion and Round 2 estimates.
I don’t understand what is meant by ‘replication’ and other terms

A list of terms can be found in our glossary. If there is a term missing, please notify us.

I am involved in a replication study for a claim that I have been assigned

If you are involved in the replication of one or more of the claims assigned, then please notify us (replicats-contact@unimelb.edu.au). We’ll assign you a new set of claims. Please do not reveal which claim you are involved in replicating.

Code of conduct

The RepliCATS project abides by a strict code of conduct. If you feel this has been breached, please contact us, or let the facilitator in your group know.

Who can I contact if I have any concerns about the project?

This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. We encourage you to please raise any concerns with us (replicATS-contact@unimelb.edu.au), your email will be handled with the utmost confidentiality.

If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: +61 3 8344 2073 or Email: humanethics-complaints@unimelb.edu.au. All complaints will be treated confidentially. In any correspondence please provide the name of the research team (provided above) and ethics ID number of the research project 1853445.

I am having technical difficulties or I want more information

Please contact replicATS-contact@unimelb.edu.au

I no longer wish to take part in the study

You are free to withdraw at anytime. We may not be able to remove data submitted to us, however, your data will be confidentially stored. Please contact replicATS-contact@unimelb.edu.au