Evaluating Online Citizen Science

A recipe for evaluating an online Citizen Science project

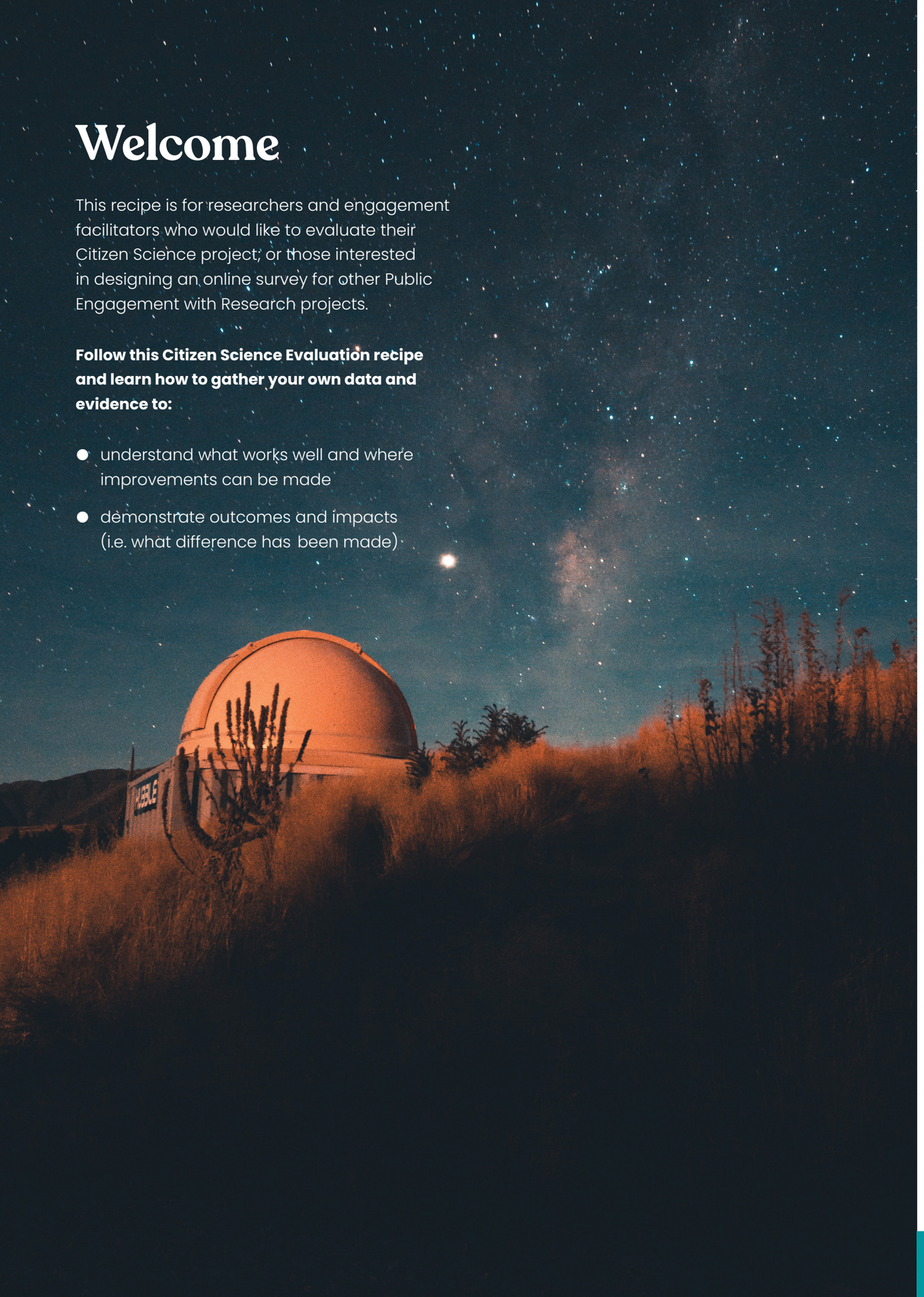
UNIVERSITY OF OXFORD

Welcome

This recipe is for researchers and engagement facilitators who would like to evaluate their Citizen Science project, or those interested in designing an online survey for other Public Engagement with Research projects.

Follow this Citizen Science Evaluation recipe and learn how to gather your own data and evidence to:

- understand what works well and where improvements can be made
- demonstrate outcomes and impacts (i.e. what difference has been made)



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A RECIPE FOR AN EFFECTIVE EVALUATION

INGREDIENTS

- 1 x Citizen Science project
- 3–5 project objectives
- 3–5 evaluation questions
- a portion of Citizen Science volunteers

RECIPE METHOD

- 1 x online survey
- a dollop of data gathering
- a spoonful of data synthesis
- a splash of data visualisation

This recipe will take you through six key steps for planning and conducting an evaluation of an online Citizen Science activity utilising an online survey:

Step 1: Define your project objectives
Step 2: Articulate your evaluation questions
Step 3: Design and write your survey
Step 4: Build in ethical and data protection requirements
Step 5: Synthesise and visualise the data
Step 6: Write the report and share it

It includes guidance and top tips and demonstrates a real evaluation of *Planet Hunters TESS*, a *Zooniverse* online Citizen Science project, which you can adapt to evaluate your own project.

Surveys are not the only answer...

The *Planet Hunters TESS* evaluation, on which this evaluation recipe is based, used an **online survey** to gather data and evidence for the following key reasons:

- **The specific purpose of the evaluation – we wanted to find out the motivations and experiences of the citizen scientists and the outcomes and impacts of their participation.**
- **The *Planet Hunters TESS* team already had insights into the motivations and experiences of the citizen scientists; and a survey would enable the team to explore how widespread these were and generate more robust evidence and data to demonstrate research impact.**
- **The target respondents are a worldwide community of online citizen scientists, hence an online survey was an appropriate method to reach them.**

However, there are **many other different evaluation methods and tools** that may be more appropriate to use, for your particular evaluation, such as:

- **Feedback postcards and questionnaires**
- **Interviews and focus groups**
- **Observations**
- **Creative methods e.g. drawing or photography**

Selecting the appropriate evaluation method and tools depends on the nature of your engagement activity and its objectives; the purpose of your evaluation; your respondents and how you can reach them; and the resources available for the evaluation.

About the evaluation case study featured: **Planet Hunters TESS**

Planet Hunters TESS is an online Citizen Science project on *The Zooniverse*. It was created by researchers in the Department of Physics at the University of Oxford, to enable citizens to search for exoplanets – planets outside of our solar system.

With the help of citizen scientists, researchers have been able to find out more about the diversity of planets and how extrasolar systems evolve over time. Research has shown that the collective effort of citizen scientists and their ability to recognise anomalies worthy of further exploration, has proven to be more effective than computer algorithms[1].

To date, over 19,000 citizen scientist volunteers from over 98 different countries worldwide have contributed to *Planet Hunters TESS*[2].

An evaluation of *Planet Hunters TESS* was undertaken to explore the outcomes and impacts of the project on citizen scientist volunteers and ways in which it could be improved.

Planet Hunters TESS has thousands of volunteers; but you don't need this many to run an effective evaluation!

The aim of the evaluation was to provide:

- **Valuable evidence and data for the *Planet Hunters TESS* team.**
- **A real example of an evaluation case study to share and encourage others leading Citizen Science projects at the University of Oxford and through *The Zooniverse* to conduct their own evaluations.**

'The evaluation was a very useful exercise for us! It has helped us to evidence the impact of *Planet Hunters TESS* and better understand who our volunteers are, what motivates them to take part in our project, and what their desires and expectations are. It has been illuminating for us, and we will use the information gathered to make sure that when we make changes to *Planet Hunters TESS* they are tailored to suit the needs of our volunteer crowd, as well as our research team.'

DR GRANT MILLER,
PROJECT MANAGER ON THE ZOONIVERSE

FIND MORE INFORMATION ABOUT...

Planet Hunters TESS: **www.planethunters.org**
The Zooniverse: **www.zooniverse.org**

1 Lintott, C., Schwamb, M., Barclay, T., *et al.* 2013. Planet Hunters: New Kepler Planet Candidates from Analysis of Quarter 2. *The Astronomical Journal*, 145 (151).

2 Volunteer numbers at time of publication (May 2020). For updated *Planet Hunters TESS* statistics, see: **www.zooniverse.org/projects/nora-dot-eisner/planet-hunters-tess**

Step 1 | Review or define the project objectives

Firstly, review the objectives of your Citizen Science project.

If your objectives have not yet been articulated, do this now (even if your project is already underway and you are doing this retrospectively). We advise setting between 3–5 objectives which should be **SMART**:

S **pecific:** well-defined, clear and focused on what you are aiming to achieve.

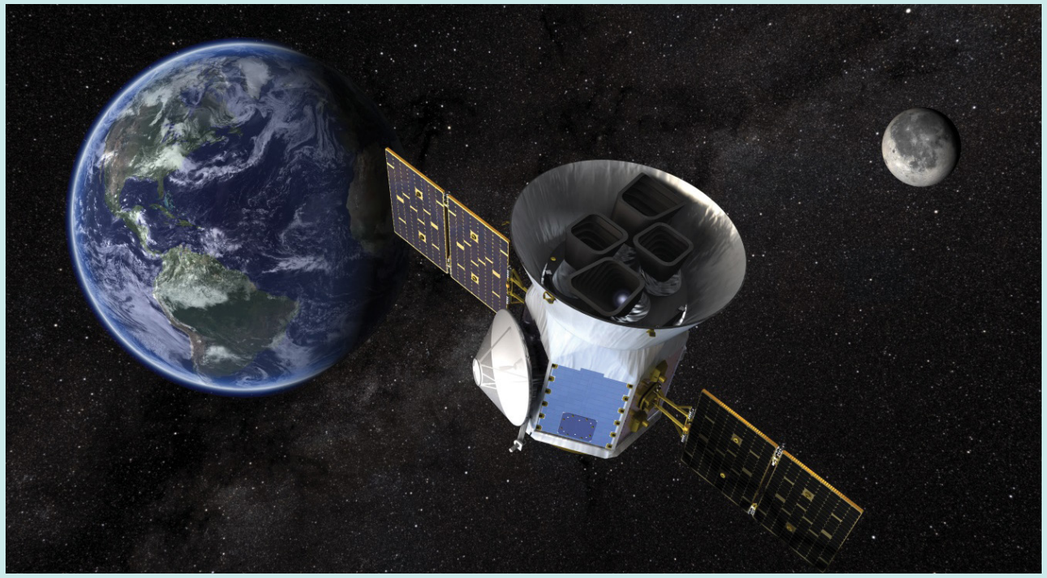
M **easurable:** how will you measure your progress towards these objectives? How will you know once the objective is achieved?

A **chievable:** the target is realistic and can be achieved with the available resources, skills and people.

R **elevant:** the objectives are consistent with each other and directly relevant to what you are aiming to achieve.

T **ime-defined:** within a particular time period that is realistic and achievable.

01 Planet Hunters TESS: objectives



TESS launch (Photo credit: Nasa's Goddard Space Flight Center)

The overarching aim of *Planet Hunters TESS* is to make important discoveries of new exoplanet candidates by engaging with citizen scientist volunteers, and in the process, improve volunteers' understanding of science and planetary systems in our Galaxy.

TOP TIP

It is helpful to think about and build in evaluation as you are developing your Citizen Science project plans. However, if you have already started a project, or even if it has been running for many years (Planet Hunters was launched in 2010), evaluation is still very valuable in gathering important insights and to evidence the impact of an ongoing project.

THE THREE KEY PROJECT OBJECTIVES:

1. To upload new data from NASA's Transiting Exoplanet Survey Satellite (TESS) to *Planet Hunters TESS*, to enable thousands of volunteers from around the world to classify light curves of data captured by TESS.
2. To develop volunteers' skills in examining light curves drawn from the data to classify transits from extrasolar planets.
3. To inspire volunteers to learn more about astronomy beyond the project.

Step 2 | Draft your evaluation questions

Explore the overall **purpose** of your evaluation. This might be:

- To provide feedback on how to enhance an activity (**formative evaluation**), whereby you gather evidence on the successes and challenges and then make changes in response to the findings.
- To gather evidence of the outcomes and impacts of your Citizen Science project (**summative evaluation**).

Many evaluations are a combination of both formative and summative.

Then write out 3–5 clear and focused **evaluation questions**:

- These are not the questions that you ask in the evaluation i.e. the questions that might appear in a survey; these are high-level questions that you would like to be answered by your evaluation.
- These questions capture: what you REALLY need to find out from this evaluation – for yourself, the project team and any other parties such as funders (or potential future funders) and/or project partners.
- Your objectives will help shape your evaluation questions – as they remind you what the project aims to achieve.

02 Planet Hunters TESS: evaluation questions

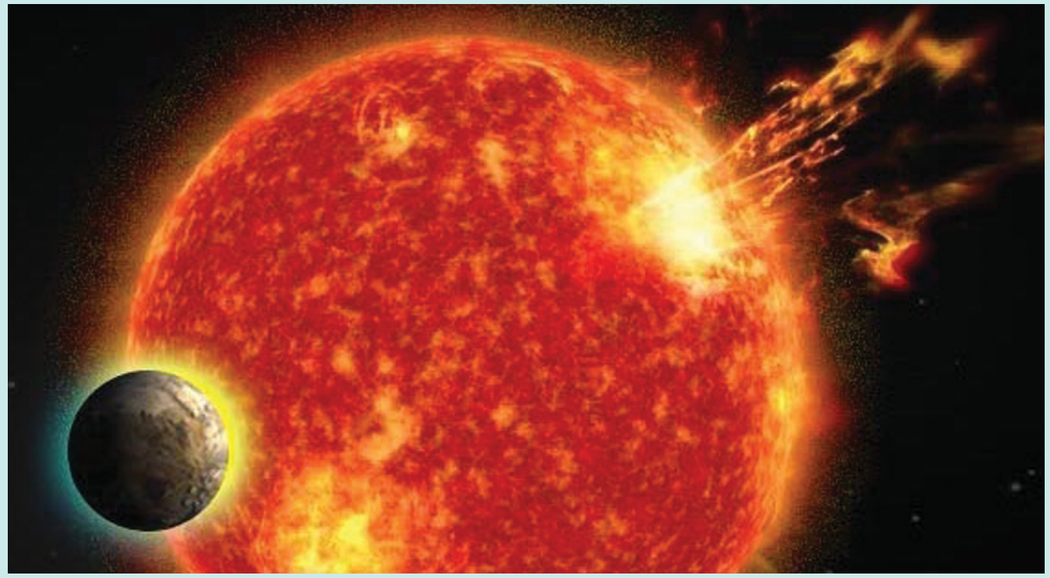


Photo credits: Nora Eisner (star adapted from NASA image; an artist's impression of a transiting exoplanet system)

The purpose of the evaluation was both summative and formative and the three key questions for the *Planet Hunters* evaluation are:

1. **What are the outcomes and impacts of *Planet Hunters TESS* on citizen scientist volunteers?**
2. **What are the benefits and challenges of *Planet Hunters TESS*?**
3. **How can *Planet Hunters TESS* become more inclusive of its growing, diverse community?**

TOP TIP

Do not aim to evaluate every aspect of a project, but focus your evaluation on what is the most important to find out. It is much more useful to evaluate one particular aspect really well than to try and evaluate too many aspects, which will likely result in your evaluation resources being spread too thinly and poorer-quality data and evidence.

Step 3 | Design your survey

Before designing your survey – ask yourself: Is this the right tool to gather the data you are looking for? For example, interviews or focus groups would be a more appropriate method if you require rich, qualitative information and to explore participants' experiences or perceptions in more depth; is this method appropriate to reach your target respondents? If so – how will you reach them?

3.1 Select your online survey platform

There are a range of survey tools available online, however, the University of Oxford has a licence to provide the use of JISC Online Surveys for staff and students, which is an easy-to-use online survey tool and is GDPR-compliant.

3.2 Design your survey

Write a short introduction to the survey including its purpose; the estimated completion time; how the data will be used; the deadline for responses; and a privacy notice (see page 12).

Write your questions, which can be 'open' or 'closed' – including a balance of both works well:

Closed questions:

- Respondents have pre-defined answer options to choose from.
- Provide you with quantifiable data and responses that are easy to collate and synthesise.

TOP TIP

It is critical to word your questions well. Ensure each question is clear and unambiguous and uses language that is accessible to the target respondents. Avoid asking biased questions at all costs and if using multiple choice questions, keep a balanced set of answer options (both 'positive' and 'negative') to choose from; and include a 'don't know / unsure'; 'not applicable' or 'other' option where appropriate.

Open-ended questions:

- Responses are in the respondents' own words.
- Can provide richer, qualitative data and answers that you would not have predicted.
- Are more time-consuming and challenging to synthesise.

Question order:

- Start with easy questions, then move onto more subjective questions such as respondents' opinions or experiences and finish with any demographic questions.
- At the end of the survey, include the option to consent (or not) to use their data and conclude with a thank you and contact details, should a respondent have a question.

3.3 Dissemination

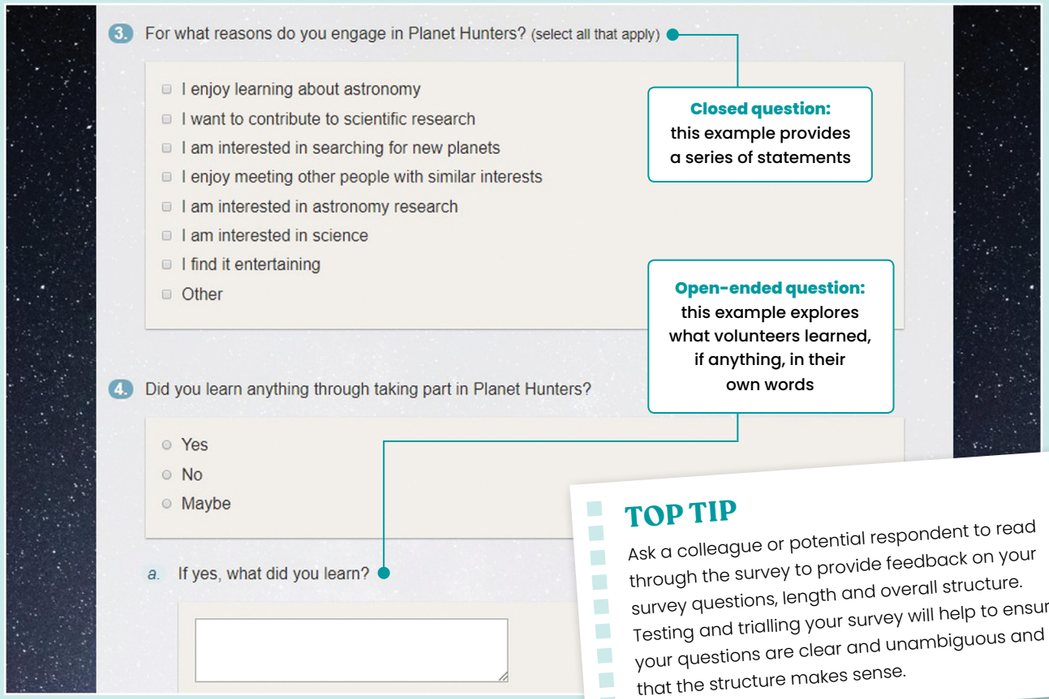
Make a plan for how you will reach your target respondents and then put it into action. For example, share the link to the survey via websites; blog posts; online newsletters and mailing lists; social media or invite potential respondents by direct email, if you have these details and consent to use them.

LINKS & RESOURCES

JISC Online Surveys:
www.jisc.ac.uk/online-surveys

University of Oxford's subscription to JISC Online Surveys:
https://help.it.ox.ac.uk/helpcentre/surveytools/bos

03 Planet Hunters TESS: survey



The survey included both open and closed questions to explore the motivations, views and experiences of the *Planet Hunters TESS* citizen scientists; the outcomes of their participation; and to gather some demographic data. An example extract is provided above (see Appendix 1 for the full survey).

The survey was disseminated to volunteers via the *Planet Hunters TESS* email list; shared through a blog post on the *Planet Hunters TESS* website; and a link to the survey was also added to the *Planet Hunters TESS* project page. The survey was live for two weeks.

EXAMPLES OF POOR SURVEY QUESTIONS:

How much do you enjoy taking part in Planet Hunters TESS?

This is a leading question, as it uses biased language that implies the participants are enjoying it.

Tell us about your motivations, experiences and outcomes and impacts of your participation in Planet Hunters?

This question is trying to address too many issues, which makes it challenging for respondents to answer; and the use of 'outcomes' and 'impacts' is ambiguous, non-specific and not necessarily the language that the respondents would use.

Step 4 | Data protection and ethical considerations

The next step is to follow appropriate ethical procedures and abide by data protection standards. Below are some key actions:

Data protection and informed consent
In the survey introduction, highlight: the purpose of the survey; how respondents' data will be used (including whether responses will be attributed or anonymised) and stored (and for how long). Or include a link to a privacy notice with this information, including how respondents can withdraw from the survey. Towards the end of the survey, include a way (such as opt-in tick-boxes) that enables respondents to specifically consent to their data being used (or not).

Data
Only ask the questions and request the information that is needed for your evaluation and ABSOLUTLEY NO MORE. It is all too tempting to think – "oh, that would be interesting, let's ask that!" – but keep your questions tightly focused on what you need find out. This is especially important for personal data. For example, if it is important to find out the ages of the citizen scientists – provide age ranges for responses (e.g. 20 – 30 years etc) - do not request Date of Birth.

Honesty
Don't just look for success, look for failure as well and be as keen to find out the negatives as well as the positives. For example, avoid asking leading or biased questions and ensure your questions provide the opportunity for respondents to share their open and honest views and experiences.

Ongoing
Think about data protection and ethical considerations throughout your evaluation. Ensure you maintain respect, confidentiality and are worthy of people's trust when carrying out data collection and also when synthesising and sharing the results.

DO I NEED TO SEEK UNIVERSITY ETHICAL APPROVAL FOR AN EVALUATION?

In short, it depends on **why** you are collecting data – and **how it will be used**. For example, if you are collecting data for evaluation purposes (i.e. to reflect and explore the outcomes and impacts of a project), then you will not necessarily need to seek ethical clearance. However, if you plan to utilise the data for research purposes and intend to share participants' data (such as direct quotes) in an academic publication, then ethical approval will most likely be required – as this would be distinguished as 'research' activity. Further advice about ethical approval at the University of Oxford can be found here: **https://researchsupport.admin.ox.ac.uk/governance/ethics.**

LINKS & RESOURCES

Information about JISC Online Surveys and compliance with GDPR:
https://www.onlinesurveys.ac.uk/gdpr/

University guidance on data protection and handling personal data:
www1.admin.ox.ac.uk/councilsec/compliance/gdpr/guidance/

04 Data protection and ethical considerations for Planet Hunters TESS

This is the introduction to the *Planet Hunters TESS* survey:

In the introduction, use simple, clear language to briefly explain the topic and purpose of the survey

Page 1: The Planet Hunters team needs your feedback!

We are evaluating the Planet Hunters platform to understand its impact; gain a better understanding of who takes part and why volunteers engage; and explore the possible benefits and barriers to volunteers. We want to hear your feedback so we can learn how to improve Planet Hunters TESS and other projects on Zooniverse.

Please complete this short survey and let us know your thoughts.

This survey should take around 5-10 minutes to complete.

This summarises how people's data will be used and for what purpose

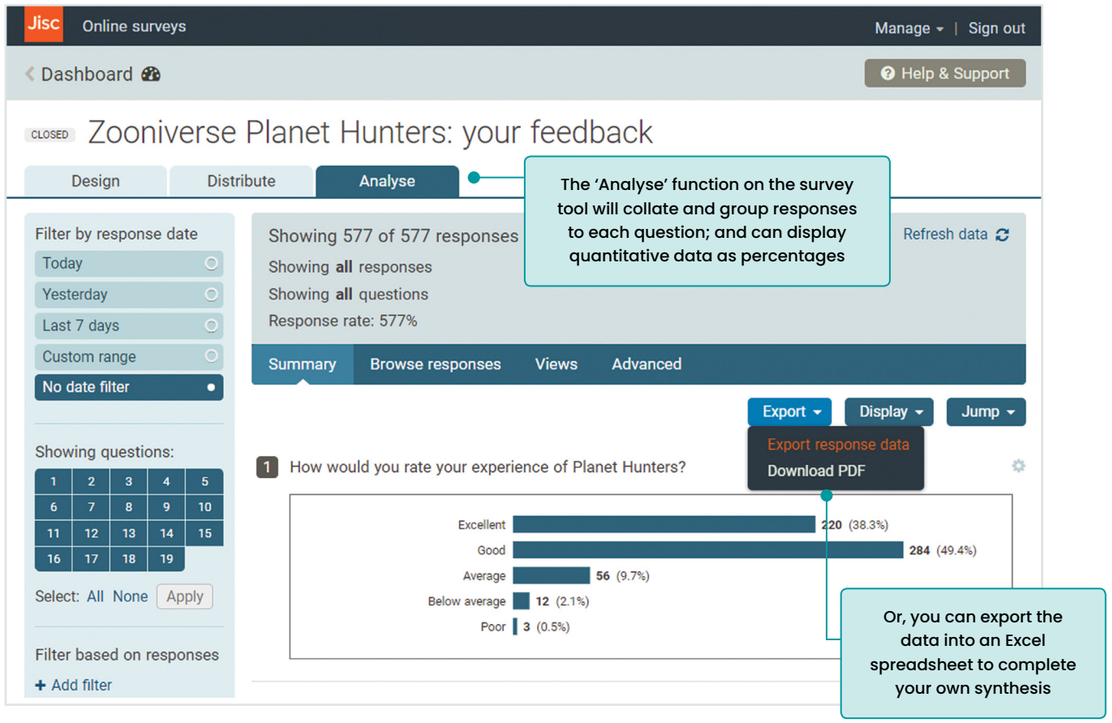
How will my data be used?
We will use your data for the purposes of understanding who is engaging with Zooniverse Planet Hunters, and exploring your experiences of the project. This feedback will inform the overall learning and evaluation of Planet Hunters. The results will be published in a case study that will be publicly available on our Planet Hunters blog page and the University of Oxford webpages. Please note, your responses will be anonymised and no names will be published. If you have a concern about any aspect of the evaluation, please email contact@zooniverse.org. For Zooniverse's User Agreement and Privacy Policy, please visit www.zooniverse.org/privacy. For further details about how your data will be used in this survey, see Privacy Notice.

Include a link to the privacy notice summarising how the data is processed and stored

We only asked specific questions that were relevant for the evaluation. For example, demographic questions were included for the purpose of gaining an understanding of who was taking part in the project and the survey – including age ranges (not Date of Birth), gender and level of education. It was made explicit to respondents why this information was being asked, and that completing these questions was voluntary.

For the *Planet Hunters TESS* evaluation, honesty and ethics also meant being open to exploring what was working well and just as importantly – not so well, and committing to making changes to improve the project in the future, based on the feedback.

Step 5a | Synthesise the quantitative data



Once the survey has closed, the next step is to extract and synthesise the data from the survey. This involves an iterative process of collation, categorisation, interpretation and reflection, to help you make sense of the results.

This step focuses on synthesising quantitative data:

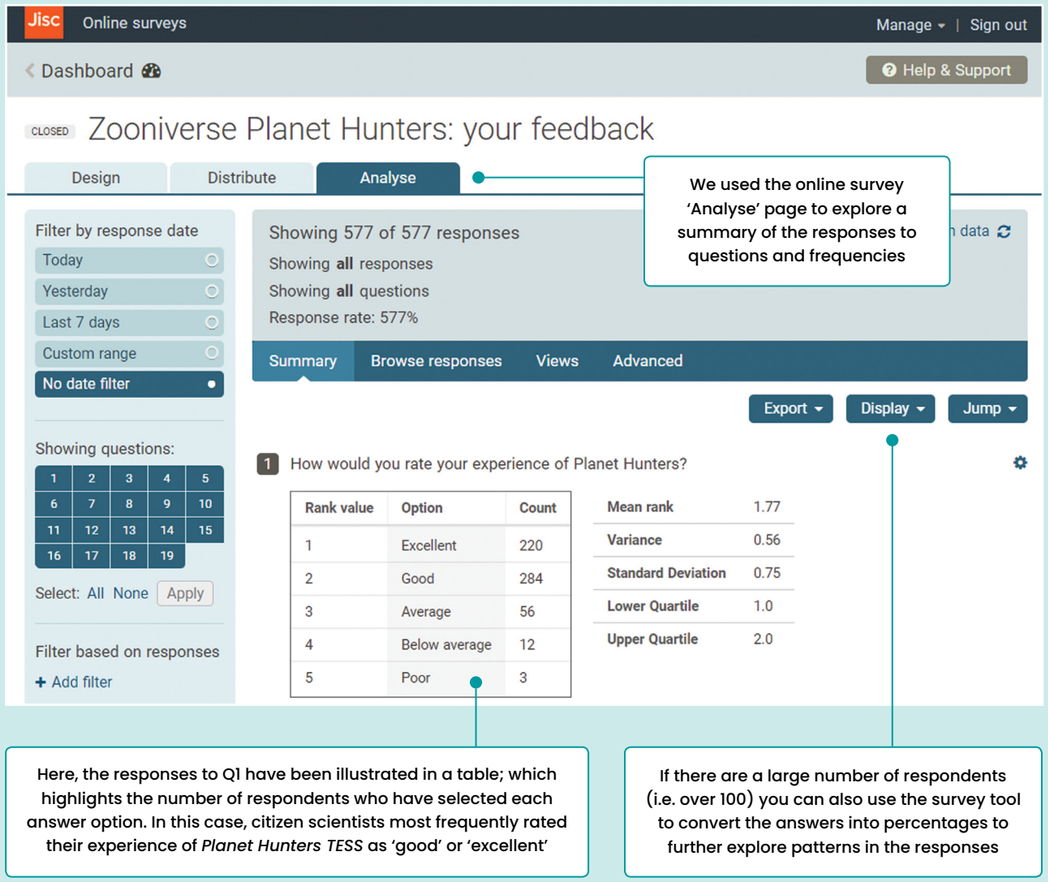
The online survey tool will collate, sum and group your quantitative data for each question and can convert your data into percentages and frequencies.

Using the survey tool, you can also filter your results to focus on a particular subgroup and filter out others. For example, you could limit your focus to a particular age group, then examine how this subgroup answered specific questions.

TOP TIP

When synthesising the data, look for insights, evidence, patterns or relationships that help you answer your evaluation questions.

05a Synthesising the quantitative data: Planet Hunters TESS



The example above shows how the data was synthesised with regard to the respondents' experience of *Planet Hunters TESS*.

Step 5b | Synthesise the qualitative data

This next step focuses on synthesising qualitative data – for example whereby respondents have used their own words to answer an open survey question.

1. Export the qualitative data into an Excel spreadsheet, then copy the open responses into a column in a new tab on your spreadsheet.
2. Start by reading through all the responses and then repeat twice more.
3. Next, think of the common themes or categories that the responses could be grouped into – and name these categories or themes.
4. Type your chosen theme names or categories as headers into the adjacent columns.
5. Read through the open responses once again – this time assigning each response to one of the categories. This process is known as 'coding' – where a 'code' (theme or category) is attached to each response.
6. By sorting the responses in this way, you will be able to make much more sense of qualitative data.
7. If you have a large number of responses, you can also count the number of responses under each theme, in order to get a sense of which themes and ideas are most frequently emerging.

Here is an example of an extract of the open responses from the *Planet Hunters TESS* survey:

Other things in life... My job, responsibilities at home, etc.	Yes
work work and more work	No
I just forget about it. Email reminders or an app with notifications would be helpful.	No
working fulltime and two children	Yes
Reading	No
	No
I'm unsure whether I am doing it correctly and don't want to make your job harder but I love doing it	No
Difficult to determine what is a transit	No
Jobs and limited free time	No
Workload in office.	Yes
I am a graduate student and have a lot of my own work to do, so I get on the Zooniverse when I need a break or distraction.	No

Open-ended responses highlighted, ready to copy to a new tab in Excel

If you have a large number of responses or plan to do a number of online surveys – it may be worth thinking about utilising software, such as NVivo or SPSS, that can organise and synthesise qualitative data for you. Both of these software packages are available for University of Oxford staff and students to download for free here: **https://help.it.ox.ac.uk/shop/downloads.**

TOP TIP

If needed, you can also have a 'miscellaneous' (or 'other') theme for those 'one-off' responses that do not fit into any of the categories. There should be less than 10% of the open responses in this category; if there is more, then you need to assign more categories for some of these responses to go into.

05b Synthesising the qualitative data: Planet Hunters TESS

The example below is an extract of some of the open responses from the Planet Hunters TESS survey question exploring the barriers to volunteers' participation and illustrates the named categories or themes and how they were coded.

1. An extract of the open-ended responses can be seen in this first column

	Theme:	Barriers to participation				
Responses	Sub theme:	Personal circumstances	Forgetting	Classification anxieties	Limited understanding	Commitment to other Zooniverse projects
5.a. If yes, please explain what prevents you spending time on Planet Hunters?						
work, life!!		1				
Mostly other work		1				
Work commitments, other hobbies.		1				
Other things in life... My job, responsibilities at home, etc.		1				
work work and more work		1				
I just forget about it. Email reminders or an app with notifications would be helpful.			1			
working fulltime and two children		1				
Reading		1				
I'm unsure whether I am doing it correctly and don't want to make your job harder but I love doing it					1	
o determine what is a transit						1
limited free time		1				
d in office.		1				
aduate student and have a lot of work to do, so I get on the se when I need a break or n.		1				
ork		1				
		1				
on other projects.						1
PhD and teach at an institution of , which sucks away time like						
else can		1				
commitment.		1				
daily life; doing scientific research n		1				
		15	1	1	1	1
						=SUM(G2:G23)

2. The names of the chosen categories/ themes (or 'codes') are entered into the top of the columns

3. Each response is assigned to a particular category by entering a '1' in the relevant column

4. The sum function enables you to total up the columns

5. Sorting the responses in this way shows which themes were most frequently emerging. For example, 'personal circumstances' was the most frequent reason given for volunteers not spending more time on Planet Hunters TESS

As we had a large number of responses, we also created a Frequency Table to show the number and percentage-share of responses for each category or theme.

Theme	Number of references	Percentage of total number of respondents who referenced this theme
Tedious, fatigue and repetition	27	5%
Personal circumstances	298	52%
Platform, interface and accessibility	39	7%
Commitment to other Zooniverse projects	20	3%
Classification anxieties	24	4%
Lack of individual feedback and recognition	22	4%
Limited understanding	35	6%

For each theme, we divided the total number of references by the total number of survey respondents (in this case, 577) to find the percentage of respondents who referred to each theme.

This provided a sense of the weighting and prevalence of the theme.

Due to the large number of responses (577), we used the software NVivo to synthesise the qualitative data into themes. More information on getting started with using NVivo can be found online – see for example, this YouTube demonstration: **bit.ly/NVivo-getting-started**.

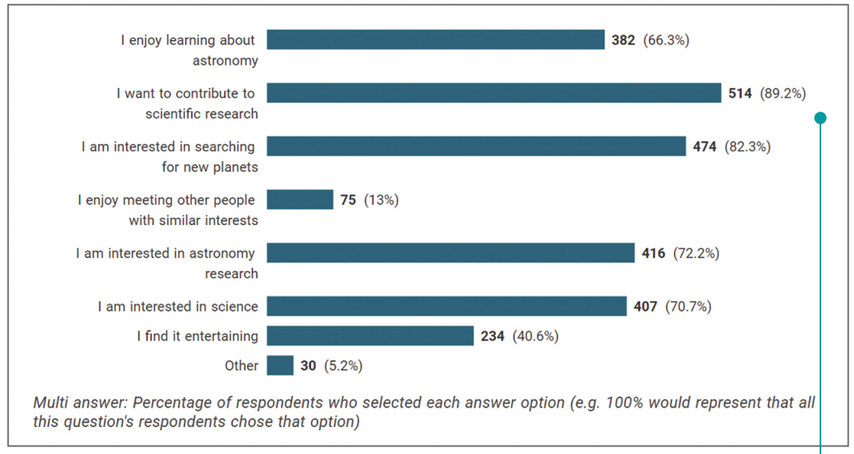
Step 5c | Visualise the data

- The next step is to visualise the synthesised data.
- This can include tables, graphs, bar chats, word clouds, pie charts and so on. Select the one that best shows the findings and demonstrates any patterns emerging from the data.
- Most online survey tools will also generate charts and tables to summarise the data.
- If the survey method is self-selected, then the results may not be representative of the whole population or community but will still provide many valuable insights and evidence. However, when you are highlighting the patterns and themes emerging from the data, make sure you state the response rate and note that these results are not necessarily wholly representative of your participants.

TOP TIP

Many evaluations focus too much time on collecting lots of data and not enough time on planning, synthesis and reporting. We would recommend spending a third of the time on planning and designing the evaluation and the tools; a third of the time collecting data; and a third on synthesis and reporting.

3 For what reasons do you engage in Planet Hunters? (select all that apply)



The survey tool generated the bar chart above from the responses to the closed question exploring the volunteers' reasons for engaging in *Planet Hunters TESS*.

In this case, wanting to contribute to scientific research was the most frequently referenced reason (89% of respondents) for spending time on *Planet Hunters TESS*.

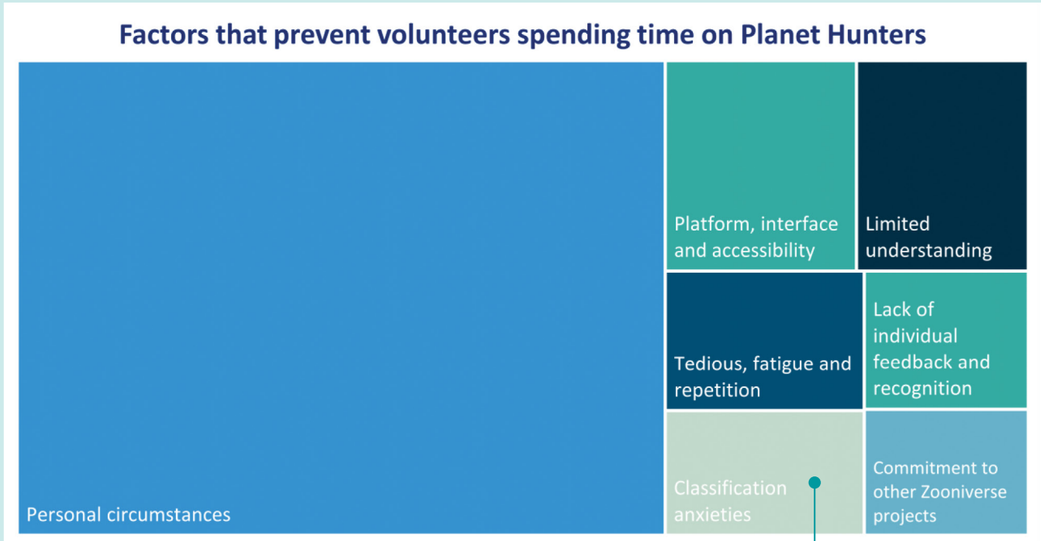
05c Visualise the data: Planet Hunters TESS

The *Planet Hunters TESS* data was visualised using tables, charts and graphs generated through the online survey tool and by utilising the data visualisation tools in Excel. The below shows how we created a 'Treemap' graph, via Excel, to demonstrate the factors that prevent volunteers spending more time on *Planet Hunters TESS*:

fx Percentage of total number of respondents who referenced this theme

	A	B	C	D
1	**Theme**	**Number of references**	**Percentage of total number of respondents who referenced this theme**	
2	Tedious, fatigue and repetition	27	5%	
3	Personal circumstances	298	52%	
4	Platform, interface and accessibility	39	7%	
5	Commitment to other Zooniverse projects	20	3%	
6	Classification anxieties	24	4%	
7	Lack of individual feedback and recognition	22	4%	
8	Limited understanding	35	6%	
9				

The data was selected and a Treemap created



The Treemap illustrates the most common responses for each of the themes through the size of the area on the map. For example, we can see that 'personal circumstances' was the most frequently referenced reason that prevented volunteers from spending time on *Planet Hunters TESS*.

Step 6 | Report and share the results

The final stage of an evaluation is to pull all of your findings together, write your report and share it with your team and other target readers and audiences.

Before drafting your report

- Consider – who is the report for? This could be one or many target groups such as: the project team; funders; participants or volunteers; engagement practitioners; partners or other internal or external audiences. Ensure your report is structured, written and presented in a way that is appropriate for your key readers and users of the report.
- Draft an outline plan for the structure of your report. Depending on the nature of an evaluation, a report may include the following key elements:
  - an executive summary or abstract to summarise the report
  - an introduction to the engagement project or programme you are evaluating
  - project objectives and key evaluation questions
  - describing the evaluation methodology used
  - presenting the findings
  - reflecting on the outcomes and impacts
  - sharing the success, challenges, lessons learned and recommendations

Drafting your report

- When describing and interpreting the findings, you might discuss why outcomes were achieved or not achieved; what worked and what did not; and reflect upon the project objectives and evaluation questions.
- Focus on the information that is the most important to share and use a variety of means to present the data. For example, this might involve percentages and metrics; quotations; charts and graphs; word clouds and infographics.

Sharing your report and its findings

- A range of methods can be used to share evaluation findings, in addition to sending it directly to key individuals and groups, you can also share the link to the written report via social media; blog post; newsletter; video; infographic; or presentation, depending on which is most appropriate for your target audiences.

TOP TIP

When it comes to reporting on the survey results, think about the story that the data tells; and ensure you present an honest interpretation of your findings – including both positive and negative outcomes and impacts and what could be improved.

06 Reporting and sharing the Planet Hunters TESS evaluation results

This is the *Planet Hunters TESS* evaluation report structure:

Planet Hunters | Evaluation Report 2019

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As a Citizen Science project, the volunteers are a central part of the project, and therefore it was important to share the evaluation report with them, which we did through a blog which summarised the key findings and lessons learned and was published on the *Planet Hunters TESS* website. We also shared the full report with the volunteers via the *Planet Hunters TESS* email newsletter.

LINKS & RESOURCES

The full evaluation report:
http://bit.ly/Planet-Hunters-evaluation

The blog:
https://blog.planethunters.org/2020/01/27/exploring-the-impact-of-planet-hunters-key-findings/

Planning your own evaluation

A recipe for effective evaluations
This case study illustrates the key steps involved in evaluating a Citizen Science project using an online survey.

We hope the examples in this booklet provide you with inspiration and ideas for getting started with your own evaluation.

While these key steps should stay the same, there are many different ingredients that can make an effective evaluation. For example, there are different evaluation tools to gather evidence and multiple ways to interpret and report on your findings. We encourage you to think about what tools and approaches would work best for your specific project and your evaluation questions.

TOP TIPS

- Where possible, embed your evaluation as part of your engagement project or activity.
- Consult with your collaborators and project partners when planning and carrying out an evaluation.
- Don't just report on the successes – highlight the unexpected findings and failures as well.
- Avoid trying to evaluate everything – focus on what is most important to explore and evidence.

Further Information

Public Engagement with Research at the University of Oxford

This case study is part of a wider building capacity programme at Oxford that aims to equip researchers and engagement professionals with the skills, knowledge and support to plan, deliver and evaluate Public Engagement with Research activities.

For further information see:
www.ox.ac.uk/research/public-engagement

For more support on evaluating Public Engagement with Research at the University of Oxford

- Plan your own evaluation using the Evaluation Planning Template [single sign-on required] **https://researchsupport.admin.ox.ac.uk/innovation/per**
- See the current Public Engagement with Research opportunities, including for evaluation: **www.ox.ac.uk/research/public-engagement/support-researchers**
- Contact the Public Engagement with Research team: **publicengagement@admin.ox.ac.uk**

Additional evaluation resources

There are many guides, toolkits and resources to help you evaluate engagement activities, including:

- *The Little Booklet of Evaluation Tools* highlights a series of easy-to-use and creative methods to evaluate activities that aim to inform and inspire the public from the University of Oxford's *European Researchers' Night – Curiosity Carnival*: **http://bit.ly/Little-book-evaluation-tools**
- Researchers at The Cornell Lab of Ornithology (USA) have developed a guide for evaluating learning outcomes from Citizen Science projects: **https://www.citizenscience.org/wp-content/uploads/2018/11/USERS-GUIDE_linked.pdf**
- The National Co-ordinating Centre for Public Engagement (NCCPE) has a range of helpful evaluation resources: **www.publicengagement.ac.uk/do-engagement/evaluating-public-engagement/evaluation-resources**
- For alternative approaches to analysing data collected through evaluation, see the UNICEF Overview: Data Collection and Analysis Methods in Impact Evaluation: **https://www.unicef-irc.org/publications/755-overview-data-collection-and-analysis-methods-in-impact-evaluation-methodological.html**
- Information and tutorials for NVivo: **https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home**
  University of Oxford links to download NVivo: **https://help.it.ox.ac.uk/sls/fulllist**

Acknowledgements

The evaluation cooks that brought you this recipe are Dr Annaleise Depper (Engagement & Evaluation Facilitator, Public Engagement with Research, Research Services) and Dr Lesley Paterson (Head, Public Engagement with Research, Research Services) at the University of Oxford.

The programme to build capacity in evaluating Public Engagement with Research is supported by the University's Public Engagement with Research Advisory Group, with representatives from across the Academic Divisions and the Gardens, Libraries & Museums.

The evaluation of *Planet Hunters TESS* was supported by Dr Grant Miller, Nora Eisner, Professor Chris Lintott and Professor Suzanne Aigrain, in the Department of Physics at the University of Oxford.

Thank you to the citizen scientist volunteers who took part in the evaluation of *Planet Hunters TESS* – your time and feedback in contributing to this evaluation is very much appreciated.

Zooniverse Planet Hunters: your feedback

The introduction started with a clear overview of why the survey was being conducted

Page 1: The Planet Hunters team needs your feedback!

We are evaluating the Planet Hunters platform to understand its impact; gain a better understanding of who takes part and why volunteers engage; and explore the possible benefits and barriers to volunteers. We want to hear your feedback so we can learn how to improve Planet Hunters TESS and other projects on Zooniverse.

Please complete this short survey and let us know your thoughts.

This survey should take around 5-10 minutes to complete.

Respondents were given an indication of how long the survey will take to complete

How will my data be used?

We will use your data for the purposes of understanding who is engaging with Zooniverse Planet Hunters, and exploring your experiences of the project. This feedback will inform the overall learning and evaluation of Planet Hunters. The results will be published in a case study that will be publicly available on our Planet Hunters blog page and the University of Oxford webpages. Please note, your responses will be anonymised and no names will be published. If you have a concern about any aspect of the evaluation, please email contact@zooniverse.org. For Zooniverse's User Agreement and Privacy Policy, please visit www.zooniverse.org/privacy. For for further details about how your data will be used in this survey, see Privacy Notice.

Link to the privacy notice (see pages 37–38)

Who is conducting this evaluation and why?

The introduction was divided into sub-headings which informed respondents how their data would be used; who was conducting the evaluation – and why

Annaleise Depper (Public Engagement with Research Evaluation Officer, University of Oxford). I work with researchers at Oxford who are engaging the public through their research and support researchers to explore and evidence the impact of their engagement activities.

I was particularly interested in collaborating with the Zooniverse Planet Hunters team, as they are working on an innovative citizen science project that is constantly expanding and making scientific research more accessible. At the University of Oxford, Zooniverse is one of our most long-standing public engagement with research projects that involves, engages and collaborates with members of the public in a very unique way.

I am interested in finding out what impact does the platform have on its volunteer community? What are the benefits and potential challenges? And how can Planet Hunters become even more inclusive of its growing, diverse community? This survey will help us explore your thoughts and experiences, and we look forward to sharing the results with the Planet Hunters community. If you would like to add any additional comments or thoughts, please feel free to email me at: annaleise.depper@admin.ox.ac.uk. Find out more about Oxford's Public Engagement with Research team here.

The evaluator's contact details were provided if respondents had any further comments or questions

Page 2: Your Planet Hunters experience

1. How would you rate your experience of Planet Hunters?

- ○ Excellent
- ○ Good
- ○ Average
- ○ Below average
- ○ Poor

Scaled questions: this closed question included responses for participants to choose from. The response options covered a balance of positive and negative answers to avoid bias

2. How often do you volunteer on Planet Hunters?

- ○ Daily
- ○ Several times a week
- ○ Once a week
- ○ 2-3 times a month
- ○ Once a month
- ○ Less than once a month
- ○ Only once
- ○ Not sure
- ○ Other

Multiple choice questions enabled pre-determined answer options for respondents to choose from

2.a. If you selected Other, please specify:

[ ]

Respondents were also given an opportunity to select 'other' and provide a response using their own words

3. For what reasons do you engage in Planet Hunters? (select all that apply)

- ☐ I enjoy learning about astronomy

Questions can also include statements

- ☐ I want to contribute to scientific research
- ☐ I am interested in searching for new planets
- ☐ I enjoy meeting other people with similar interests
- ☐ I am interested in astronomy research
- ☐ I am interested in science
- ☐ I find it entertaining
- ☐ Other

3.a. If you selected Other, please specify:

4. Did you learn anything through taking part in Planet Hunters?

- ○ Yes
- ○ No
- ○ Maybe

4.a. If yes, what did you learn?

This open-ended question explored respondents' views and experiences and enabled respondents to use their own words

4.b. If no or maybe, please tell us why.

5. Is there anything that prevents you spending time on Planet Hunters?

- ○ Yes
- ○ No
- ○ Not sure

5.a. If yes, please explain what prevents you spending time on Planet Hunters?

6. Do you use Planet Hunters Talk? (Planet Hunters Talk is an online chat forum for discussion about Zooniverse Planet Hunters)

- ○ Yes
- ○ No
- ○ Not sure

This question included a link to the subject it referenced

6.a. If yes, why do you use Planet Hunters Talk? (select all that apply)

- ☐ To have a question answered
- ☐ To post something interesting you have found
- ☐ To talk to a researcher
- ☐ To talk to other volunteers
- ☐ Other

Clear language was used throughout

6.a.i. If you selected Other, please specify:

6.b. If no, why do you not use Planet Hunters Talk? (select all that apply)

- [ ] I did not know it existed
- [ ] It does not interest me
- [ ] I do not have the time
- [ ] It is not helpful to me
- [ ] Other

6.b.i. If you selected Other, please specify:

7. Do you promote or share Planet Hunters with others?

- ○ Yes
- ○ No
- ○ Maybe

Page 3: Planet Hunters, and beyond

The survey was divided into sections, with the questions grouped within key themes

8. Since engaging in Planet Hunters, have you volunteered in other projects on Zooniverse?

- ○ Yes
- ○ No
- ○ Not sure

8.a. If yes, please select any other Zooniverse projects you have volunteered in, since engaging in Planet Hunters.

- [ ] 1961 Census
- [ ] African American Civil War Soldiers
- [ ] Agent NEO
- [ ] Amazon Aerobotany
- [ ] AmazonCam Tambopata
- [ ] Amazo'N'Oil
- [ ] AnnoTate
- [ ] Anti-Slavery Manuscripts
- [ ] Arizona BatWatch
- [ ] Asteroid Zoo
- [ ] Astro-Ecology
- [ ] Astronomy Rewind
- [ ] Backyard Worlds: Planet 9
- [ ] Bash the Bug
- [ ] Bat Detective
- [ ] Battling Birds
- [ ] Beluga Bits
- [ ] Brain Match
- [ ] Calgary Captured
- [ ] Camera CATalogue

The list of Zooniverse projects continued onto subsequent pages

Page 4: Demographic information

Please complete the following demographic information to help us understand who is engaging with the Planet Hunters platform.

If you do not wish to provide this information please leave the answers blank.

Here, it was important to explain why we included these demographic questions; and to reiterate that completing these questions was voluntary

9. What country do you live in?

10. What is your highest level of education?

- No formal education
- Secondary/ high school equivalent
- Vocational training (i.e. job-specific training leading to a certificate or diploma)
- Bachelor's degree (e.g. BA, BS)
- Master's degree (e.g. MSc, MA, MRes)
- PhD or other advanced professional degree
- Prefer not to answer
- Other

10.a. If you selected Other, please specify:

11. What is your current employment status?

- Employed (full time)
- Employed (part time)
- Retired
- Student
- Unemployed, looking for work
- Unemployed, not looking for work
- Other

11.a. If you selected Other, please specify:

12. Please describe your occupation

13. Do you have a background in science?

- Yes
- No
- Maybe
- Not sure
- Other

13.a. If you selected Other, please specify:

14. What is your age?

- Under 18
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older
- Prefer not to answer

Only ask the questions that you absolutely need to, for the purpose of your evaluation. So, if understanding people's age and gender is not relevant to your evaluation – then no need to ask! If you do – then avoid asking for date of birth

15. What best describes your gender?

- Female
- Male
- Prefer not to say
- Prefer to self-describe

Always provide an option for people to decide not to disclose this information; and to self-describe using their own words where appropriate

15.a. Prefer to self-describe (please write below):

Page 5: Final thoughts

16. Since engaging in Planet Hunters, have there been any changes or events in your life as a result of volunteering on the platform?

17. Do you have any advice for us to make Planet Hunters more engaging?

18. Would you like to tell us anything further about your experience of Planet Hunters or Zooniverse?

The survey questions concluded with a final opportunity for respondents to share any comments or views that have not yet been captured in the survey

Page 6: Your consent

Thank you for completing this survey

It's important to thank respondents for their time and feedback

We will use your feedback for the purposes of understanding who in engaging with Zooniverse Planet Hunters, and exploring your experiences of the project. This feedback will inform the overall learning and evaluation of Planet Hunters. The results will be made available to the Planet Hunters community on our Blog.

If you have any questions about this survey, please email annaleise.depper@admin.ox.ac.uk or the Zooniverse team contact@zooniverse.org.

19. I consent to the use of my responses in this evaluation. ✱ *Required*

- ○ Yes
- ○ No

You must seek participants' consent for their responses to be used in the evaluation and provide the opportunity for respondents to opt out from their answers being used in the evaluation (which can be time-bound)

Privacy notice for Zooniverse Planet Hunters evaluation survey

The privacy notice provided further information about the purpose of the survey; how respondents' data would be used and stored; and who would have access to this.

Data protection

In the course of completing this survey, you have provided information about yourself ('personal data'). We (the University of Oxford) are the 'data controller' for this information, which means we decide how to use it and are responsible for looking after it in accordance with the General Data Protection Regulation and associated data protection legislation.

What is the purpose of this survey?

The purpose of this survey is to explore and evaluate volunteers' experiences of Zooniverse Planet Hunters TESS. We are interested in finding out why people engage in Planet Hunters, and what are the potential benefits and challenges of volunteering. We would also like to explore who is involved in Planet Hunters (including country of residence, age, gender, occupation and education background), in order to help us to better understand the diversity of volunteers.

This evaluation is conducted by Annaleise Depper (Evaluation Officer, Public Engagement with Research, University of Oxford), in collaboration with the Zooniverse Planet Hunters project team.

How we will use your data

We will use your data to gain a better understanding of the volunteers who engage in Planet Hunters, in order to learn how to improve Planet Hunters TESS and other projects on Zooniverse. The results will be published in a case study that will be publicly available on the Planet Hunters Project Blog page and the University of Oxford webpages. Please note, your responses will be anonymised; no names or specific geographical locations (only Country of residence) will be published. We will only use your data for the purposes for which we collected it.

By ticking the confirmation box at the end of the evaluation survey, you will give us your consent to use your data as described above. You can withdraw your consent at any time by contacting annaleise.depper@admin.ox.ac.uk or (+44) 1865 616582.

Who will have access to your data

Access to the entire survey data will be provided to University of Oxford staff within the Zooniverse Planet Hunters Team and the University's Public Engagement with Research team, as part of their work in carrying out the evaluation described above.

Security

Your data will be held securely in accordance with the University's policies and procedures. Further information is available on the University's Information Security website. https://www.infosec.ox.ac.uk/

And in accordance with Jisc Online Survey Privacy notice.

APPENDIX 2: PRIVACY NOTICE

Your rights

Information on your rights in relation to your personal data are explained here.

Contact

If you wish to raise any queries or concerns about the use of your data, please contact Annaleise Depper (Evaluation Officer, Public Engagement with Research): annaleise.depper@admin.ox.ac.uk.

If you have any questions about Zooniverse Planet Hunters, please contact: contact@zooniverse.org.

Caution: this recipe may contain traces of knowledge.

Store at room temperature and serve with a light side of pesto.

UNIVERSITY OF OXFORD