HOW TO GUIDE #4 #DryLabsRealScience

# TOPIC: Questionnaire Based Projects

TAGS: Research, Non lab projects, Science Communication, Questionnaire

## BRIEF DESCRIPTION

Questionnaire based projects allow students to collect data on any topic of their interest (ethics committee permitting!) and develop social science research skills. We have found these projects particularly good for (i) students who are interested in a topic we can't support in the lab (ii) students who know that they don't want to go into a lab based career and (iii) students who are unable to do lab/field based projects due to health/caring responsibilities etc. We sell these as 'Science Communication Projects', but can be adapted to Bioscience Education etc.

The design that we have found works best for us is as follows:

- Student identifies a topic of interest (e.g. antibiotic resistance, diversity in science etc).
- Student writes a short questionnaire (~10 questions) about the topic to distribute to the public.
- Supervisor obtains ethical approval for the project [see below for suggestions re ethics]
- Student distributes survey via their own social media networks.
- All students doing questionnaire projects attend data analysis bootcamp in early Semester 2.

## PRACTICAL CONSIDERATIONS

1. **Ethics.** As these projects are collecting data from human participants, they will need to be overseen by an institutional ethics committee. To minimise the number of ethics applications, I obtained 'umbrella' permission for this type of project, and then submit an amendment each year with the new student questionnaires.
2. **GDPR.** As projects are collecting data from human participants, they fall under GDPR. To avoid having to do a full GDPR assessment, we insist that students do not collect any personal identifying data (names, email addresses, IP addresses etc), and only collect demographic data (gender identity, ethnicity etc) if it is directly required to answer the hypothesis. Again, I have 'umbrella' GDPR permission, and submit amendments each year with new questionnaires.
3. **Survey platform.** I would recommend using www.onlinesurveys.ac.uk as this is the best UK based, GDPR compliant platform – GoogleForms is hosted in the US so is not necessarily compliant with EU data protection laws. I request accounts for project students each year, and make each student share their survey with me to check that the questions are compliant with the ethics approval.
4. **Data analysis.** Students are unlikely to have analysed e.g. likert style data before. I provide students with example spreadsheets and R scripts for analysis, as well as an an example results section to demonstrate how to report this type of data. The R package 'likert' makes producing nice graphs easy.

## RECOMMENDATIONS FOR QUESTION TYPES

**The art of questionnaire based research is writing good questions in the first place.** I tend to provide quite a lot of supervisory input at the questionnaire design phase, but then students require less help later on. For an undergraduate project I would recommend using **closed** questions (i.e. those to which there is a limited number of answers) – open questions take a lot more analysis. Types of question that work well:

- Likert style (e.g. 'To what extent do you agree with ….', where 1 = strongly disagree, 5 = strongly agree)
- Three words (e.g. 'Give three words to describe …..') – these questions give students some qualititative data, but in a format that is much more manageable than free text questions.
- Category questions – students provide a series of drop-down options for the question (can include an 'other' or 'not relevant' option)

## AUTHOR

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