Teaching ideas: sharing ideas for bringing data into the undergraduate classroom

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Extensive collections of data that are useful for social science undergraduate teaching can be accessed via data services and archives such as the UK Data Service. However, finding a good dataset for teaching particular topics and for engaging students remains a challenge. To help with this challenge, the UK Data Service has produced a new resource – teaching ideas. These short (two-page) documents outline a topic and research question, give information about an appropriate data source and suggest a set of exercises for students. There is also a snapshot of findings from the exercises and suggestions for supplementary activities. The documents can be printed and given to students but they have been designed to serve as ideas rather than prescriptive lesson plans. The aim is for us to share ideas with teachers and also to provide a platform for teachers to share ideas.

Background to the teaching ideas

Funded by the Economic and Social Research Council (ESRC), the UK Data Service provides access to the UK’s largest collection of social, economic and population data. Our data collection includes major UK government-sponsored surveys, cross-national surveys, longitudinal studies, UK census data, international aggregate, business data, and qualitative data. Users can browse UK Data Service collections online and register with us to analyse and download them.

We aim to meet the data needs of researchers, students and teachers from all sectors. We have long established links with lecturers to support teaching and learning. We produce learning resources and teaching datasets, which teachers can access through our Teaching with data webpages along with information about accessing data for teaching. However, in the context of concern about the quantitative skills deficit (MacInnes 2009) and initiatives to improve undergraduate quantitative skills such as the Q-step partnership between Nuffield Foundation, ESRC and HEFCE, we could do more.

In 2014, a UK Data Service Stakeholder Consultation identified the need for resources appropriate for undergraduate teaching and learning and the need to clarify the data requirements of teachers. To get some further insight, we ran a dedicated consultation with teachers and students focusing on resources for undergraduate level. We have also hosted workshops with university teaching staff including Q-step lecturers to provide a platform for the exchange of ideas and experiences. A less formal but ongoing process is email consultation with a group of current lecturers. Insights from these consultations directly informed our work on the teaching ideas.

The teaching ideas

Our consultations point to a common scenario faced by university teachers and lecturers who would like to develop activities using our data. In brief, finding data, exploring data, and deciding how to frame exercises takes time and seems inefficient if other university teachers and lecturers are doing the same.
The teaching ideas are therefore designed to help teachers find good ways of using our data in teaching and also to potentially share their own ideas and experiences. To get teachers started, we have created four teaching ideas based on varying substantive topics and data collections:

- **Gender differences in sexual attitudes** using the National Survey of Sexual Attitudes and Lifestyles
- **Risk factors associated with increased levels of systolic blood pressure** using the Health Survey for England
- **The gender gap in life satisfaction** using the Opinions and Lifestyle Survey
- **Public confidence in the police** using the Crime Survey for England and Wales

Each teaching idea focuses on a substantive research topic or question such as ‘Do women have more conservative attitudes towards sex than men?’ Since many undergraduate social science students perceive methods teaching as hard and irrelevant to the rest of their course, using clear research topics and questions becomes especially important for engaging students and supporting conceptual learning (Adeney and Carey 2011; Buckley et al. 2015; Wathan, Brown, and Williamson 2011; Williams and Sutton 2011). In our consultation session, university lecturers and teachers discussed some of the challenges in finding the right research topic and data for teaching specific methods. One challenge that was frequently mentioned was finding suitable variables for teaching correlation and regression; we have therefore prioritised ideas for these techniques in this first set of ideas and will look to add more.

The teaching ideas have been designed to be more flexible than a standard worksheet with step-by-step instructions for students to follow. We initially experimented with producing worksheets for undergraduate teaching and learning and showed teachers prototypes in consultations. Though those consulted were positive about the additional resource, the consultation highlighted the diversity of teaching needs due to factors such as differences in student level, teaching time, software choices and computing facilities. We therefore chose to develop the teaching ideas with the aim of offering a concise overview of the idea rather than a long document with detailed instructions and screenshots. As a result, teachers may need to make their own resources to implement the idea in their classroom but this way the idea and resources can be adapted to the specific teaching situation.

Following requests for examples of how our teaching datasets could be used, The gender gap in life satisfaction uses one of the open access teaching datasets. Teaching datasets contain real data from our main collection but in a more accessible form. A full list is available in this useful spreadsheet with details such as sample size, number of variables, potential uses and substantive topics. Unlike most of our survey data, the open access teaching datasets can be accessed and shared without needing to register with the UK Data Service; their size (around 14-50 variables) also makes them especially easy to use.

The teaching ideas also contain commands for SPSS exercises; these are available from the UK Data Service’s Syntax Upload Facility. Launched earlier this year, the Syntax Upload Facility enables researchers to upload and share syntax for research or teaching. Though it’s still early days, a library of syntax for researchers to utilise (and cite) has obvious benefits not only for research but also for teaching. The facility can be used to share code/commands for data analysis exercises but could also be used to share the code behind the construction of teaching datasets.
Next steps
These are new resources and therefore a key next step is to publicise and gather feedback.

Obviously four ideas is not sufficient to meet all teaching needs and we aim to develop more. We would also like to develop teaching ideas relating to the news articles available via our Scoop.it page, which will help ensure resources are topical and connect to issues around how data is used and reported. Also, we initially prioritised quantitative data and skills but there is considerable potential for teaching ideas based on our qualitative data collections. We welcome suggestions regarding both topic and specific data collections.

We also want to promote this a means for sharing ideas. We know there are many great ideas out there, developed from years of teaching experience and, for quantitative methods, encouraged through initiatives such as Q-Step. Therefore, a broader aim is that we can harness the interest in sharing and years of teaching experience to develop a resource to help lesson preparation and get more data into teaching. The model is straightforward. A teacher tells us their ideas for using our data collections in teaching (via a short email or form). We then create resources based on their ideas. We acknowledge the contributor and make the ideas available on our website and publicise through different networks.

If you’d like to share your teaching ideas or have any comments, please get in touch.


