

How online training events are supporting the development of quantitative data skills in SHAPE students.

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Outline

- Quick introduction to UK Data Service
- Qualitative research study to explore how UK Data Service online training events support SHAPE students to develop data skills
 - Aim
 - Background
 - Methods
 - Results
 - Preliminary conclusions



UK Data Service

- Funded by the UK Government: Economic and Social Research Council
- Largest repository of social science research data in UK (over 7,300 datasets)
- Flagship service. Pioneers of data curation. Secure long term research access to data. Data policies used by national data archives and international research organisations
- Types of data: survey microdata, census data, international macrodata, qualitative/mixed methods
- Wide range of topics such as ageing, crime, economics, education, health, housing, politics, and poverty.....

Vision and strategic objectives

Our vision

To continue to be a critical part of the UK's research infrastructure where the exceptional economic and social research data we make available are central to the achievement of excellence in research, teaching and in the realisation of public benefit.

Our mission

To support high quality social and economic research, teaching and learning through assuring long term access to quality economic, social research and population data, supporting and promoting their use, value and impact.



Trusted infrastructure

To be recognised as a trusted national digital repository for data owners and users. To innovate and lead in data infrastructure provision through the development of common standards and agreed strategies for data deposit, preparation processing, documentation and preservation.



Training and user support

To provide training and support services for depositing, finding, accessing, using and managing data.



Data access

To provide a federated point of access for users with clear transparent application or registration procedures to quality assured economic and social research data, regardless of data access status. To increase and enhance our collection of datasets available for research and impact.



Data impact

To support research funders in their data related activities and influence relevant data policy development. To lead in the discussions on research integrity and open research, ensuring that data can be used in an ethical and legal way. To extend use of our data to the widest possible academic, policy and practitioner communities for generating greater impact.

- Also provide training events and online resources

UK Data Service training topics

Research Data Management	Finding and Accessing Data from the UK Data Service	Using data (introductory skills)
<ul style="list-style-type: none">• Data management planning: sharing, archiving and preserving data• Anonymisation and licence/access frameworks• Documentation and metadata standards• Ethical and legal considerations	<ul style="list-style-type: none">• Data discovery• How to access data• Safe Researcher Training for the most confidential data	<p>Introductions to data we hold:</p> <ul style="list-style-type: none">• Datasets e.g Census, LFS• Data types e.g Surveys• Substantive themes e.g Crime• Evaluating data for research• Preparing data/data handling• Basic data analysis skills• Basic software/tools• Teaching with data• User conferences <p>+ Computational Social Science + Reproducible research</p>

At the heart:

- Secondary data analysis
- Introductory level
- Training for the data that we hold
(*Survey, Census, Longitudinal, Cohort, International Aggregate*)

What we don't do:

- Advanced methods training
- Advanced statistical analysis training
- Advanced coding training

UK Data Service Training programme

- Training and events — UK Data Service
 - 100+ [training events](#) per year
 - 6000+ attendee per year
- Learning Hub and YT channel
 - [Learning Hub](#) 15000+ unique visitors per month
 - [YouTube channel](#) 7000+ views per month
- All free of charge!

Learning Hub

Enhance your data skills and teaching

[New to using data](#)

Best practice and training for researchers new to accessing and using data in our collection. Includes advice and tools to correctly cite data; student-specific information on our Dissertation Award for undergraduates; and more.

[Data skills modules](#)

There is a wealth of data available for reuse in research and reports. These free, interactive tutorials are designed for anyone who wants to start using secondary data. They show you how to get started with finding good quality data, understanding it and starting your analyses.

[Students](#)

Students can access most of the UK Data Service's collection of social, economic and population data. Find resources to help you find and use our data during your studies including the UK Data Service dissertation resources.

[Survey data](#)

Survey data, including data from long-running surveys, series and longitudinal studies, are a major part of social science research. Learn how to use survey and longitudinal data through training resources including videos, on-demand webinars and written guides.

[International data](#)

Our international macrodata contain socio-economic time series data aggregated to a country or regional level for a range of countries over a substantial time period.

[Qualitative data](#)

Qualitative research gives a voice to the lived experience, offering researchers a deeper insight into a topic or individuals' experiences. Qualitative data can be combined with quantitative to enhance understanding around a policy or topic in a way that quantitative data by itself often cannot.

[Computational social science](#)

[Census](#)

[Software and tools](#)

Background to the research

- Number of reports (internationally) identified a data skills gap and the need for more data skills training [Assessing the state of digital skills in the US economy \(2021\)](#); [Building digital workforce capacity and skills for data-intensive science \(2020\)](#); [Quantifying the UK data skills gap \(2021\)](#); [Data science skills in the UK workforce \(2023\)](#); [Data-driven research skills – UKRI \(urlisolation.com\)](#)
 - Data skills gap in workforce, more training needed
 - Training in university settings (traditional academic courses) isn't enough to meet future workforce needs
 - Importance of lifelong learning – across academic and non-academic life course
 - No clear def of data skills or data literacy
- UK reports highlight need for more data skills training amongst social science postgraduate students [Review of the PhD in the Social Sciences, 2021](#); & [Scoping the Skills Needs in the Social Sciences to Support Data-Driven Research, 2022](#))
- Aim of research: to explore how UK Data Service online training events are supporting the development of quantitative data skills in SHAPE students.
 - We analyse qualitative data generated through in-depth semi-structured interviews.



Methods – sample

- Purposive sampling used to identify those with the following characteristics:
 - Attendees at UKDS online training events May 2021-March 2022
 - Given consent to be contacted
 - Introductory level events only
 - Excluded a few events with a more advanced methods focus
 - Self-identified SHAPE students – excluded STEM students
 - Included undergraduate, postgraduate taught students and postgraduate research students
- Final sample frame of 67 SHAPE students
- Personalised email, £30 gift voucher incentive, informed consent
- Ethical review by UoM Ethics



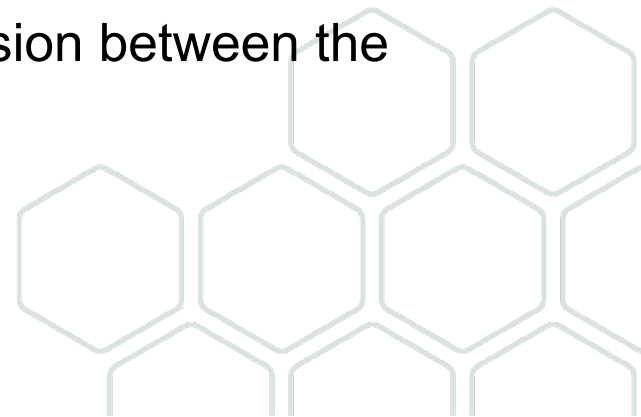
Methods – data collection

- Semi-structured online interviews (July-August 2022)
 - Ten students (1 Undergraduate, 4 Masters, 5 PhD)
 - Range of SHAPE disciplines
 - Collectively attended ten UKDS online training events
 - Some attended more than one event
- Interview topics:
 - Details of current and past studies
 - Why attended event?
 - Learnt any new data skills from the event, and if so what?
 - Using those new skills in their current study/research?
 - Has training event had influenced their future plans?
- Interviews took place using Microsoft Teams (recorded). Transcribed using MT auto transcription.
 - Checked for accuracy, anonymised, recordings securely destroyed



Methods - analysis

- Reflective thematic analysis using Braun & Clarke's 6 phase approach (2021)
 - Phase 1: become familiar with data
 - Phase 2: generate initial codes (19 codes)
 - Phase 3: search for themes (8 themes)
 - Phase 4: review themes (6 themes)
 - Phase 5: define themes (6 themes)
 - Phase 6: write up (5 themes)
- Inductive and deductive coding using NVIVO, focussed on semantic features of the data
- Theme construction was iterative and consultative, with regular discussion between the two researchers.
- Resulted in five final themes



Theme 1: Gaining confidence to get started with quantitative data



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- Majority of students used words like "nervous" "overwhelming" "scary" "intimidating" to describe quantitative data
- Aligns with literature on maths/statistical anxiety (Onwuegbuzie & Wilson, 2003)

*"If I just get a dataset I kind of get a bit **overwhelmed and think I don't really know what to do with this**. I don't have a quant background and I really value attending those events because they give you an oversight of, because I guess I'm a **bit more nervous about my quant skills** so I, kind of, I really like being able to go to the events because **they kind of break it down and explain it to you and it makes it less scary in a way**"*
(Masters student, #5)

Theme 2: Planning and designing research and assessing data sources



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- Repeated references to learning around the "scoping", "planning", "designing", "preparing" and "possibility" for research, rather than *conducting* the research
- References to understanding of data provenance, availability, access and potential

*"I found it really helpful to go to those UK Data Service courses to kind of understand the availability of some of the datasets and the scope of them and what could be done with them and that **helped me to kind of shape my research proposal and dissertation. So it's given me the grounding that I hope to kind of then develop further those kind of quants skills and kind of know what's out there and what I can do**"*
(PhD student, #4)

Theme 3: Applied, practical data skills



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- Strong emphasis on learning applied, practical data skills.

*"I couldn't really find out the information elsewhere I couldn't find it in paper form. But actually somebody doing it at a workshop, **it's that picture painting a thousand words isn't it?.....you actually learned a lot from it, more so than just reading, you know, something on how to do it.**"*

(PhD student, #6)

- Repeated references to not being able to get these skills from academic courses

*"the practicality of the information has been really helpful, it's applied, it's current, it's what is out there and that have been amazing because **in your, sort of, social science studies I found in my course it was very theoretical.** You understand the theory, but you think oh my goodness, I don't actually know how to go and apply this and I don't have any experience.....**it's something I couldn't get from my studies**"*

(Masters student, #5)

Theme 4: Inspiring further learning, career opportunities and cascading knowledge



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- Sparked interest in research careers

*“It helped sort of drive me and maybe think yes, this is definitely the way I'm wanting to go. **This is what I want to do as a career.** When you're doing the research and dissertations, it feels very small whereas actually it's such a huge area and it's so very needed that it makes you go **yes I want to do that....I want to help get this source of information, to help people**”*

(Undergraduate, #1)

- Resulted in cascading knowledge to others

“I went to the <<workshop>> and I then went back with my course director and also some fellow students, gave some very brief overview as to what the workshop covered”

(Masters student, #9)



Theme 4: continued

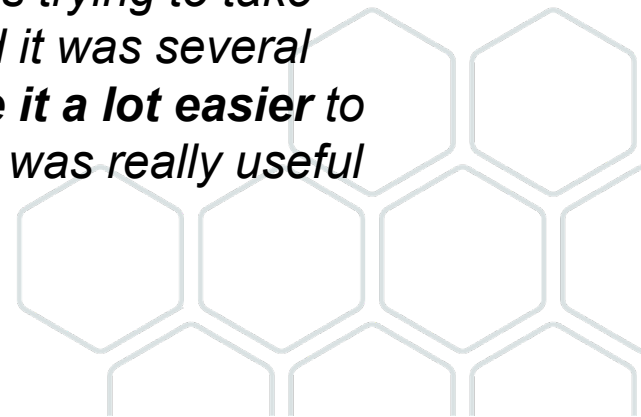
- Further learning: accessibility of online events and asynchronous materials

*"For me as someone who is working and studying at the same time, I found the delivery method of having these **webinars really helpful**....i think people who are juggling commitments, that's a really great platform and having the **YouTUBE channel as well** ...is great because **I go back to that a lot** and you forget sometimes or you've got a meeting. And I think having the repository of webinars on the YouTube channel is really great. I go through that a bit....."*

(Masters student, #5)

*"And the fact that it was recorded was useful because that meant that during it I was trying to take notes and trying to do it at the same time, and it got to maybe 10-15 minutes in and it was several steps behind. So just paid attention, but **watching the videos back it was it made it a lot easier** to sit there and go well, Ok, pause it. Let's do this. Follow it again. Let's try this. And it was really useful in that way"*

(PhD student #7)



Theme 5: Providing access to a research community, networking and peer-support



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- Benefits to current and future research

*“Definitely a good opportunity to sort of **network and to make these connections** and then be able to follow up via emails.....so that's one thing I gained from it, being able to **actually know people that I can talk to** about these sort of skills learned”*

(Masters student, #9)

*“I think it's just given me a lot of inspiration for the possibilities of work to do and also **potentially people that I could partner with in future**. And you know, knowing who, who's kind of doing work*

(PhD student, #2)



Summary and conclusions

- There is high demand for data skills but there is a supply issue
- Recognition that training in data skills needs to go beyond traditional academic courses
- This research has illustrated that for SHAPE students, the UKDS events:
 - have a place in filling the demand for data skills
 - provide 'hard' data skills but also 'softer' skills
- The research has also illustrated the importance of asynchronous data skills training
- Limitation: small qualitative study, not claiming to be representative of all online training for all attendee types
- Research has informed development of UKDS training content:
 - keep doing what we're doing well
 - create communities of practice
 - more asynchronous materials
 - create a data skills framework – UKDS curricula with data skills pathways



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