

Enriching Social Science with Quantitative and Survey Data Using Flipping

Wendy Olsen and teams at the
University of Manchester

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www.ccsr.ac.uk

www.socialsciences.manchester.ac.uk/essted

Points to Be Covered

- 1. Our curriculum innovation: EMBEDDING QM
 - Comments and feedback
- 2. My own teaching innovation (FLIPPING)
 - Flipping by LECTORIALS
 - Comments and grades
- 3. Managing curriculum innovation
 - Specifying learning outcomes
- 4. Teaching mixed quant/qual methods

1. Our curriculum innovation

□ PIPS Component:

- Patterns in Politics & Society
- Expanding the Enrichment of Social Science Classrooms with Quantitative Data & Quantitative Methods
- A Researcher Development Initiative of ESRC

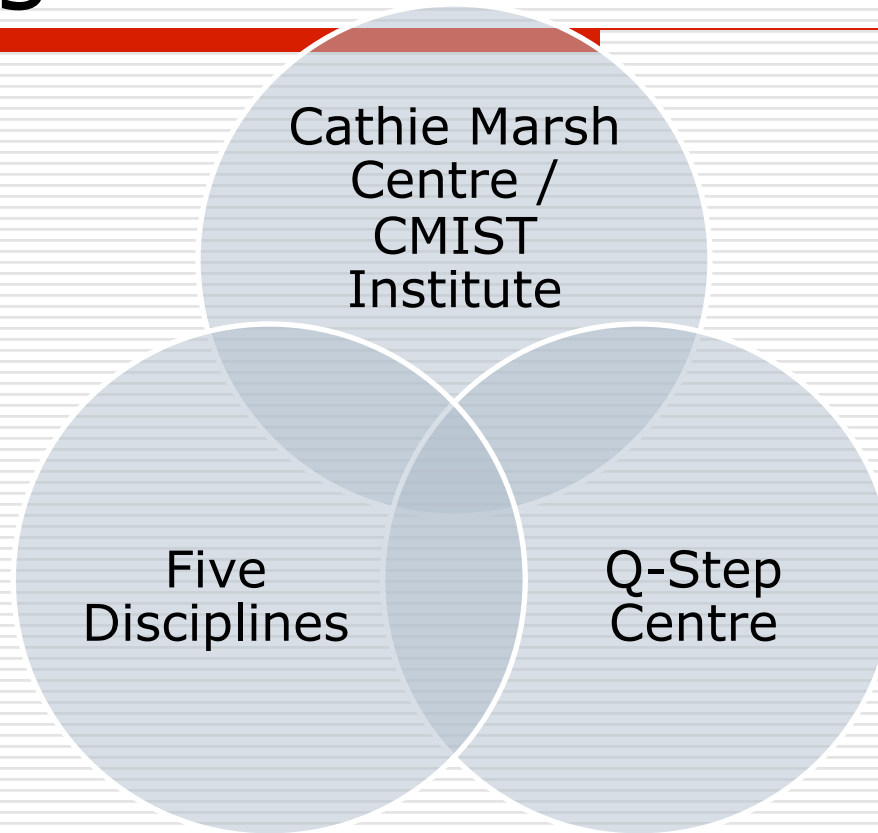
□ CURRICULUM INNOVATION COMPONENT:

- Ten course units
- Embedding and enrichment, not substitution
- Teamwork
- Now + QSTEP degrees “with quantitative methods”
- Internships and reflective assessment

People (Sociology, Politics, Social Statistics)

- Mark Brown (Principal Investigator / senior teaching fellow)
- Jacqui Carter MIMAS and ESDS
- Jo Wathan ESDS and Census
- Steph Thomson (Research Associate)
- Ian Plewis AQMEN and RSS
- Tarani Chandola, Kingsley Purdam, Brian Heaphy, Andrew Russell
- Jen Buckley, Stefanie Doebler

Working Units



Ten Course Units

NEW COURSES/METHODS

Data and the Media (University College: Ian Plewis et al)

The Survey Method in Social Research (Mark Brown)

Engaging Social Research (BA in Social Sciences)

PARTNER COURSES: EMBEDDING QUANTS MODULES

SOCY10471 Sociology of Personal Life (Sue Heath)

SOCY20241 Sociology of Spiritual Life (Tej Purewal)

SOCY30461 Power and Protest (Gemma Edwards)

SOCY20962 Racism & Ethnicity in the UK (James Rhodes)

POLI20801 The Politics of Policy Making (Francesca Gains)

(POLI10200) Introduction to Comparative Politics (Nick Turnbull)

Methods of Embedding/Using

Building bridges between methods

This builds on scaffolding ideas

Students practice, practice... ..tacit learning

Active learning

Building up a number sense

Procepts = Process + Concept = Result (See Briefing Paper 1
on Scaffolding

At ESSTED website)

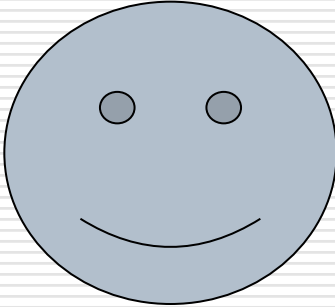
Example, Crosstabs, Year 1

satisfaction with life overall - ** Lives alone or not - Crosstabulation

		Lives alone or not			
		Persons in both	Lives alone	Total	
satisfaction with life overall	missing	Count	691	221	912
		% within Lives alone or not			
completely dissatisfied	Count	2,003	3,703	2,300	
	% within Lives alone or not	714	241	955	
moderately dissatisfied	Count	2,100	4,000	2,400	
	% within Lives alone or not	1322	298	1619	
somewhat dissatisfied	Count	3,900	4,900	4,000	
	% within Lives alone or not	2252	481	2733	
neutral	Count	6,600	8,100	8,800	
	% within Lives alone or not	3134	601	3735	
somewhat satisfied	Count	9,200	10,000	9,300	
	% within Lives alone or not	984	1001	684	
moderately satisfied	Count	17,200	18,600	17,100	
	% within Lives alone or not	1532	2281	1749	
completely satisfied	Count	45,100	37,900	44,100	
	% within Lives alone or not	4673	888	5561	
Total	Count	113,800	147,700	113,900	
	% within Lives alone or not	33960	6028	39988	
		Count	100,000	100,000	100,000

Too messy!
It got collapsed and simplified!

Excellent Labelling
(URL! Dates!
Data source!



Coverage: United Kingdom. Weighted as a nationally representative sample.
Source: Understanding Society data, 2010.
For more information, see Persistent Identifier: <http://dx.doi.org/10.5255/UKDA-SN-6614-3>
or URL <http://www.esds.ac.uk/findingData/snDescription.asp?sn=6614>

The citation for these data is:
University of Essex, Institute for Social and Economic Research and National Centre for Social Research, Understanding Society: Wave 1, 2009-2010, Data Archive [distributor], February 2012. SN: 6614, <http://dx.doi.org/10.5255/UKDA-SN-6614-3>

Example – Use Excel. Make Tutorial Exercise. Simplify!

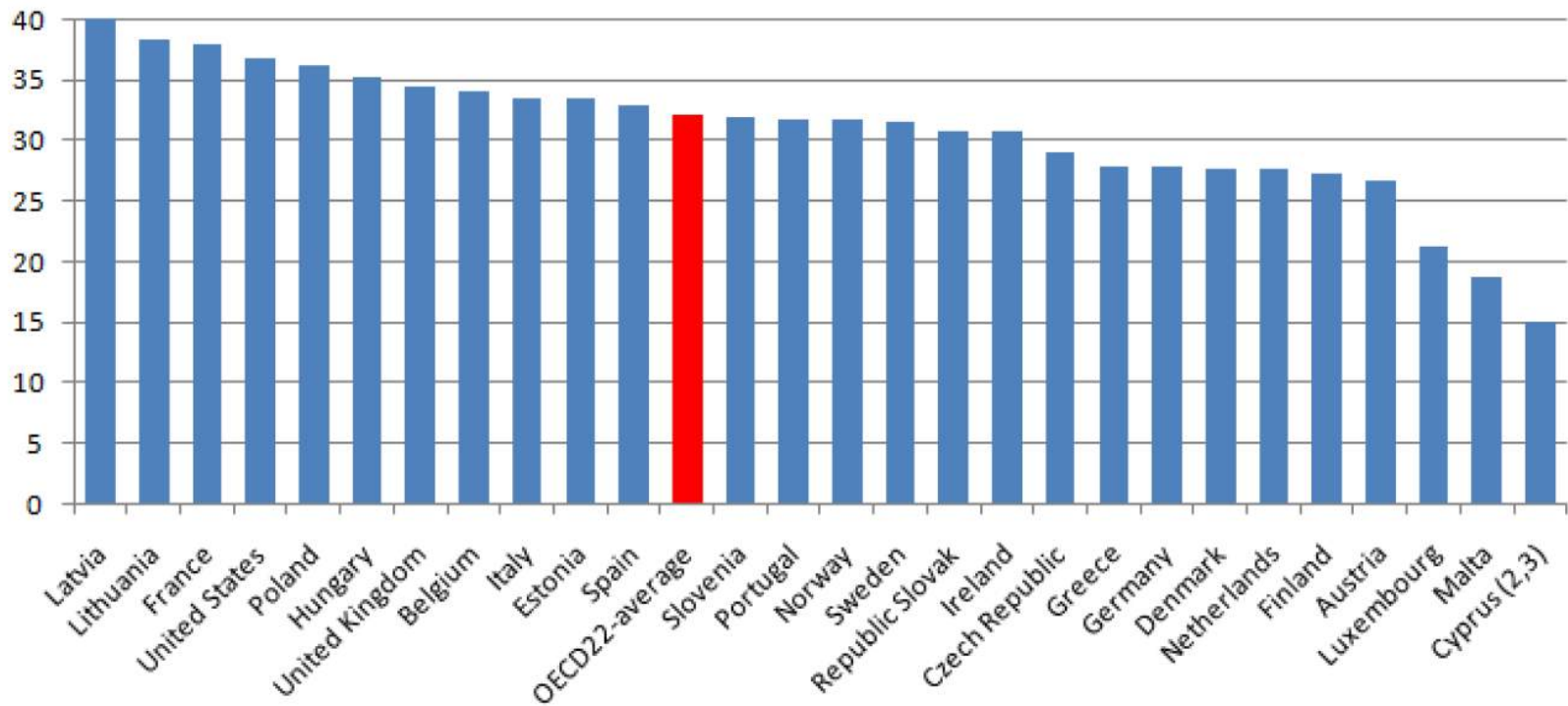
The screenshot shows a Windows desktop with various application icons. An Excel spreadsheet is open, displaying a crosstabulation of life satisfaction data. The data is as follows:

		Age - 3 groups				
			16-29	30-59	60+	Total
satisfaction with life overall	Count	8	49	166	223	
	% within groups	1.50%	2.20%	5.00%	3.70%	
completely dissatisfied	Count	18	123	102	243	
	% within groups	3.40%	5.60%	3.10%	4.00%	
mostly dissatisfied	Count	27	153	115	295	
	% within groups	5.10%	7.00%	3.50%	4.90%	
somewhat dissatisfied	Count	41	285	161	487	

Data from Understanding Society on Solo Living and Life Satisfaction 2010

Example of a Bar Chart, Year 2

Chart LMF1.6.F: Proportion of women among staff with managerial responsibilities, 2007¹



1) March 2009 for the United States. 2) and 3) see notes (4) and (5) for Chart LMF1.6.A
Source: ELFS, 2007; and Current Population Survey, March 2009, for the United States.

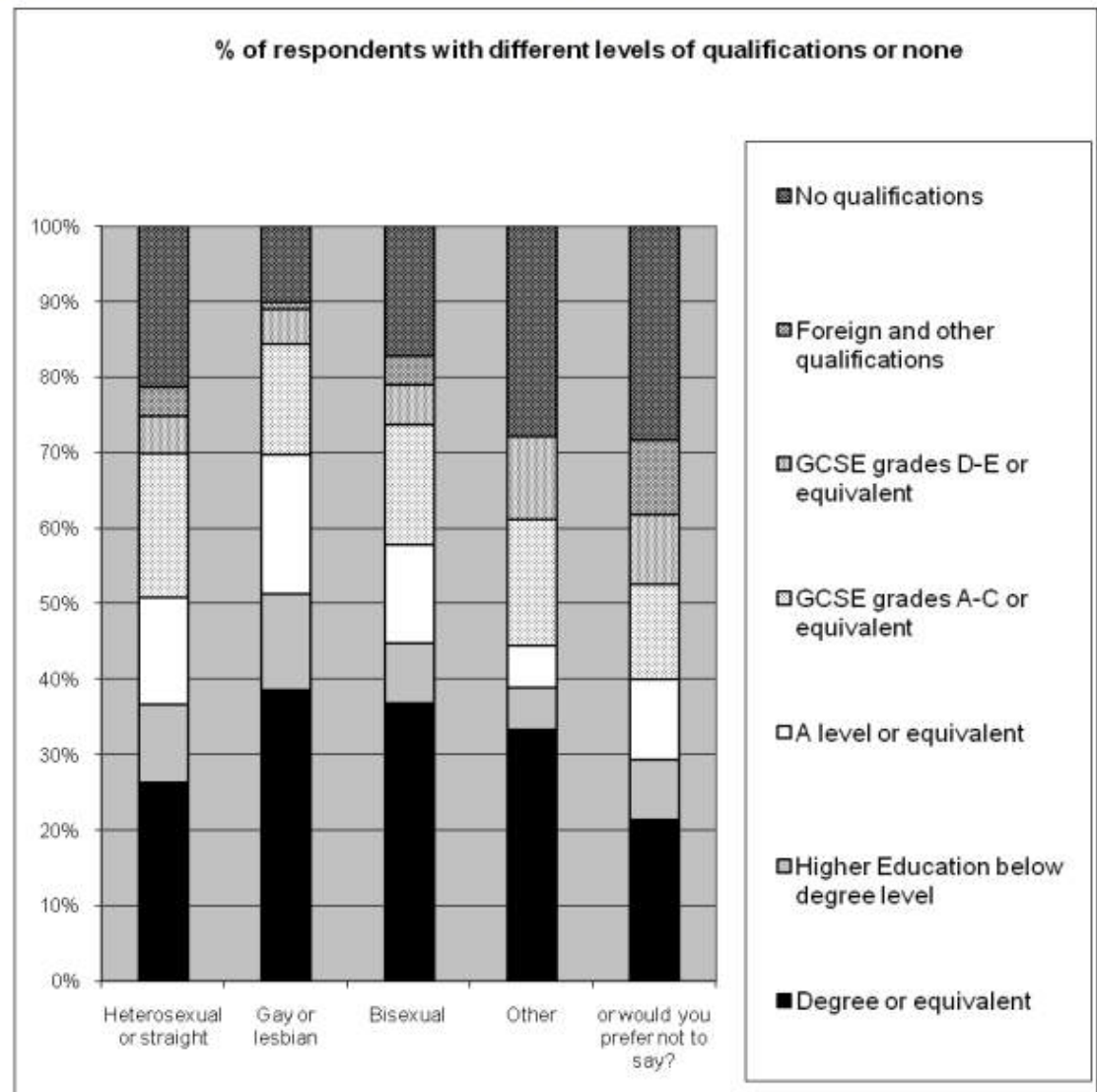
Example of a Complex Figure

(See Briefing Paper 2
on Social Data for
Dissertations

At ESSTED website)

Sexual Identity (Citizenship Survey 2007)

Figure 9 Percentage of respondents with different levels of qualifications by sexual identity category



Acknowledgement : Figure reproduced from Peter Aspinall (2009) 'Estimating the size and composition of the lesbian, gay, and bisexual population in Britain' Equality and Human Rights Commission Research report 37

http://www.equalityhumanrights.com/uploaded_files/research/research_37_estimatinglgbpop.pdf

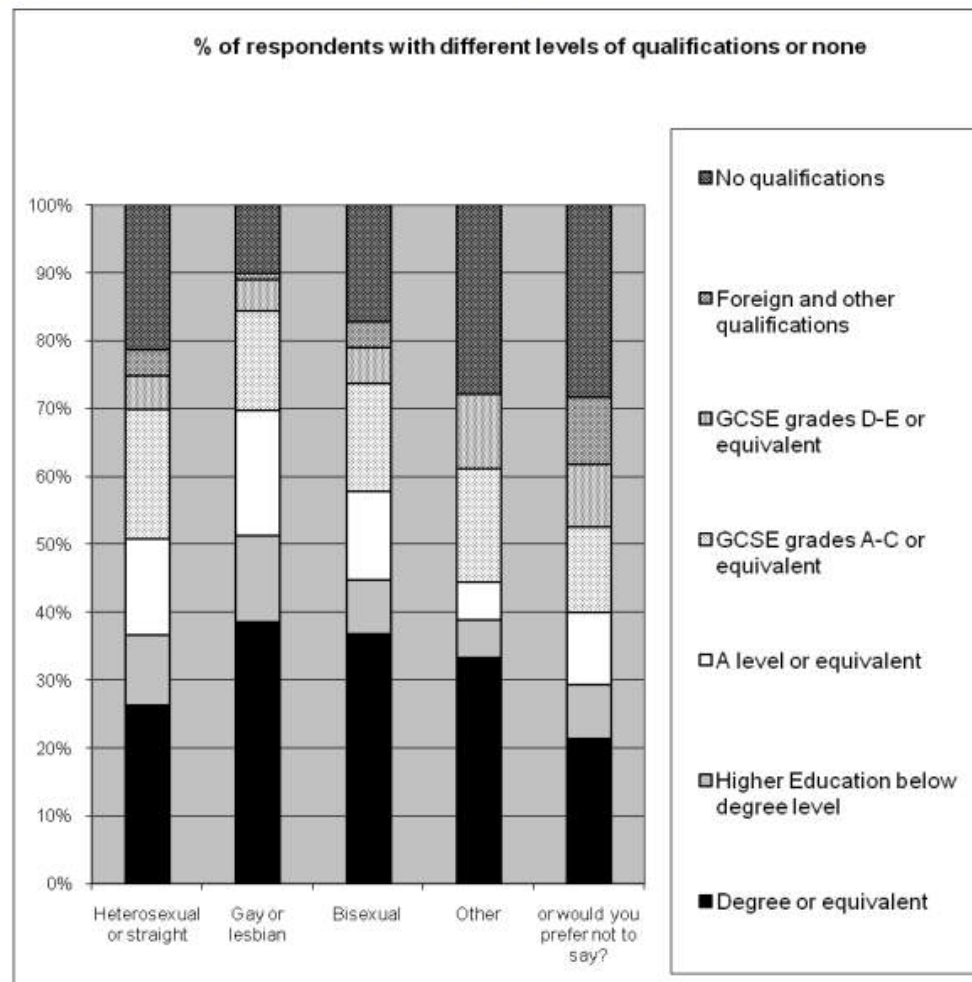
Sexual Identity - NOTICE THE REFERENCES

To make open-access
online resources, one
needs careful tracking
of the URL and the
Harvard reference of
the source

The authorship of the
slide can get lost

We use Creative
Commons licenses

Figure 9 Percentage of respondents with different levels of qualifications by sexual identity category



Acknowledgement : Figure reproduced from Peter Aspinall (2009) 'Estimating the size and composition of the lesbian, gay, and bisexual population in Britain' Equality and Human Rights Commission Research report 37
http://www.equalityhumanrights.com/uploaded_files/research/research_37_estimatinglgbpop.pdf

Feedback

1. Student usage of various methods such as histograms, bar charts, mean/median and t-test were assessed, and **many students will willing** to use these methods, and had some experience--They perhaps recall their GCSEs
2. **Staff** in Sociology/Politics were surveyed with the same questionnaire, and **fewer** of them had experience with using these simple methods.
3. Most staff wanted to use the methods.

Student Confidence is Erratic

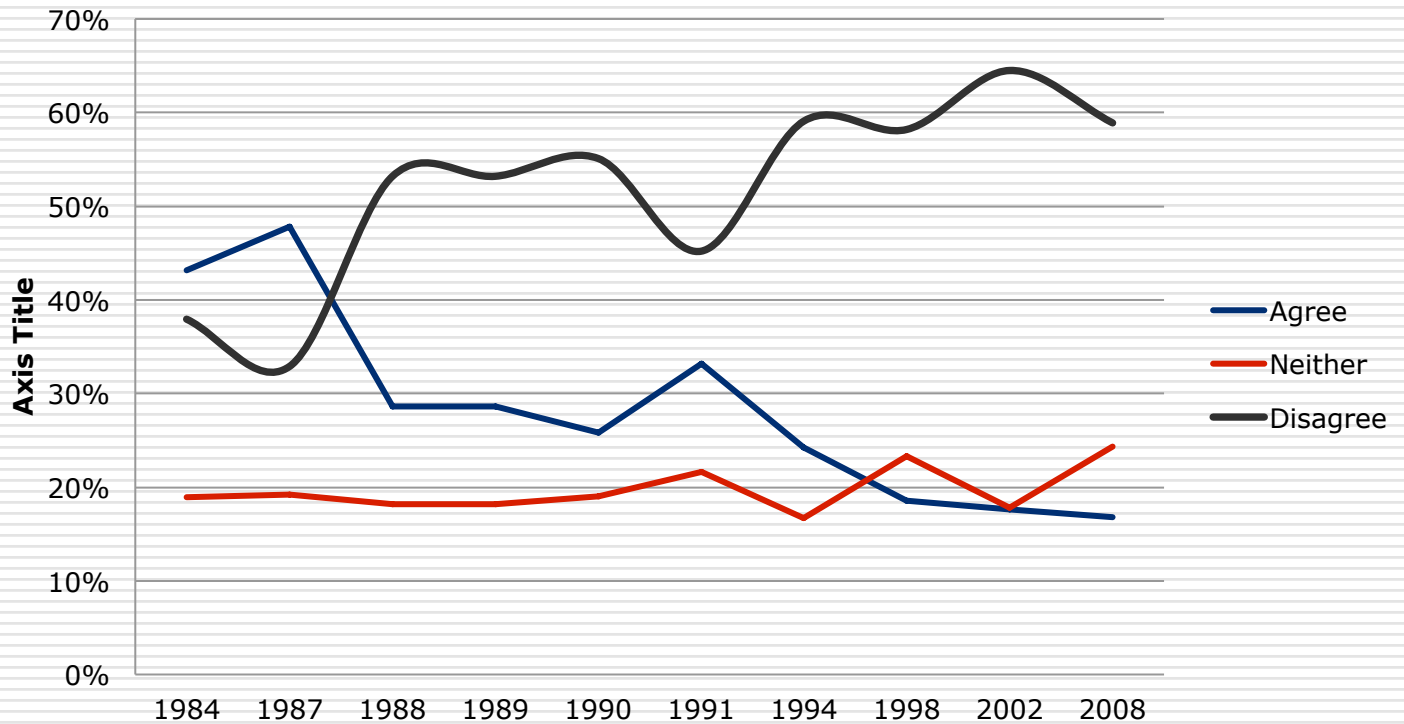
Example 3: Line Chart

Year 1-
Without
Confidence
Intervals

Year 2-
With
Margin of
Error

Year 3 -
ask
students to
do the
C.I.s

A man's job is to earn money; a woman's job is to look after the home and family?



2. My own teaching innovation (flipping)

Active Learning: Passive Learning is Passé

+ Problem of large class of 220
Part of solution is to reduce size → 190 → 130 people

Flipping for you

Old Method

- Lecture
- SPSS Practicals
- One Tutorial
- Exam 90%
- 2 Assignments 10%

New Method

- Blackboard VLE
- Lecture seating groups of 4
- Activities in Lectorials**
- Pod casts MP3, MP4
- Used the Visualiser
- Exam 80%
- Learning Journal 10%**
- 2 Assts 10%

Pedagogy Principles

- ***Flip*** the lecture
 - TELL THEM IT IS A LECTORIAL
 - MANAGE THE STUDENTS' EXPECTATIONS
 - Use CAMTASIA or YOUTUBE VIDEOS?
 - Use podcasts or MP3 or narratives on PPTs?
- Make learning outcomes more explicit for each task
- Even have learning outcomes for each **activity**
- Build-up of activities
- Reiterate key points of theory, and of empirics/interpretation

Also add an element of reflective journal writing.

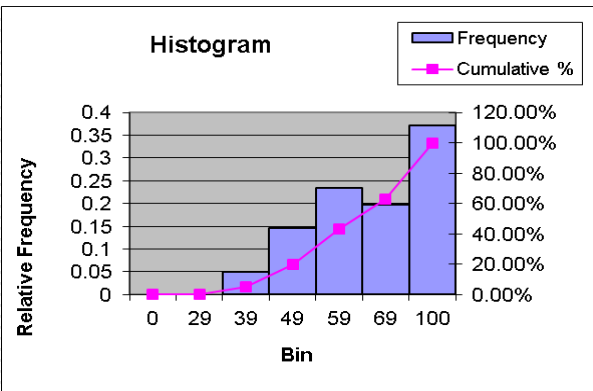
Overview of a Flipped Lecture

- Students prepare 2 hours
 - 5 min Aims (and Recap)
 - 20 minutes Activity
 - 10 min Discussion and Interpretation*
 - 5 min Data Interpretation
 - 5 min Summing-Up*
 - 5 min Q&A
-

Results over two years

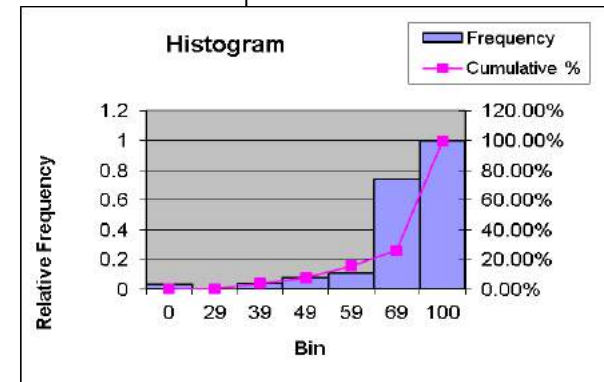
□ Old average mark 62

New average mark 72



Overall grade distributions:

2010/2011 Course work 69%
Exam average grade 60%.
Overall average grade 62%.



2011/2012 , Coursework 57%
Exam average grade 75%
Overall average grade 70% overall.
60% of students reached 70% overall.
Just 5 fails out of 190 students.

Results - feedback

- ❑ **Old approach:** students not very satisfied,
- ❑ Low attendance

- ❑ **New approach:** students not very satisfied,
- ❑ Low attendance, but the students like having lectures captured on video

- ❑ Strong revision period
- ❑ Stronger peer support for learning

Online Support for Flipping And Using More QD, QM

www.socialsciences.manchester.ac.uk/essted

Youtube Carries Our Videos



A Series of Workshops

***Embedding
Quantitative Data
in Sociology***

***Politics Classroom
with Flipping and
Student Opinion
Poll of Students***



Examples

From classrooms in
the discipline of
Sociology

NESSTAR

Demo and how
to use More
Data

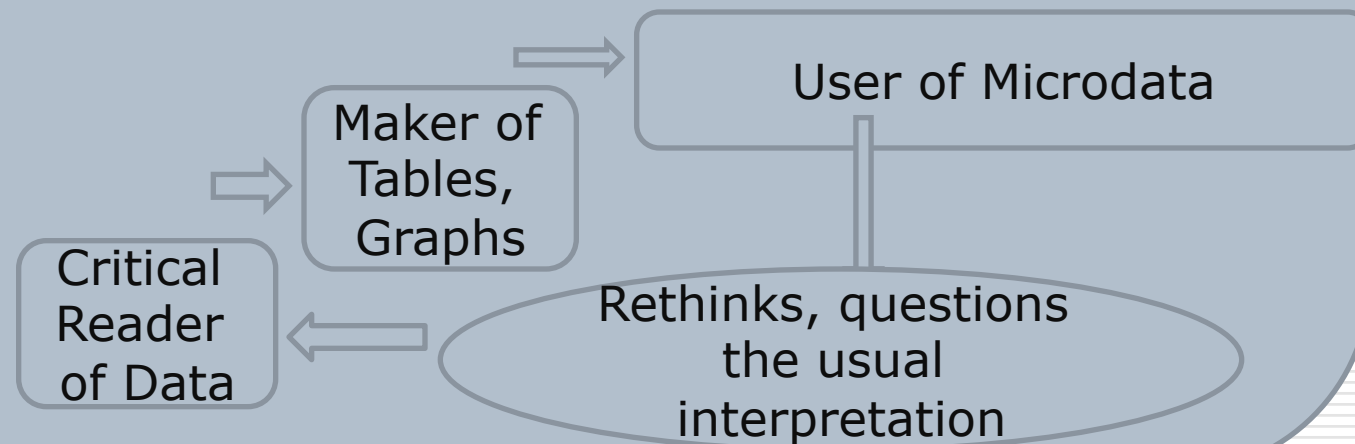
3. Managing Curriculum Change

- The staff need support
 - QM in RDI was not meant to be for specialist methods teachers – it was meant to be for embedding QD in sociology, politics and elsewhere.
- The students need support
 - The idea of using quantitative data causes fear in some students
- Q-Step taking it further
 - Don't confuse the message

A Variety of Adventurous Activities

	Advanced critical thinking			Bridge to Network Analysis	Activities for Inference	
Foundational critical thinking						Building arguments
	Active learning			Crossword for crosstabs	Ladder to regression	
Building blocks (I)				Causality Discussion		What are claims?
			Worked examples			
Flip-teaching				Sociological data		Dealing with Glossaries
			Getting data...		Gotcher Data!?	
In-class data capture				Political data		When are quizzes useful?
		Teachers' specialist aids			Dealing with exams	
		Learning outcomes				

□ Student Moves Around on Scaffolding



A Staff Impression of a QD Task

- We'd want to ... embed some quants in this course. We decided that we'd make the last [tutorial] hour much more workshoppy and they all set up into small groups. [We produced tables and line graphs of trends in political participation and] also about attitudes, so
 - do you trust the government,
 - do you think people that leave have like legitimacy

...[on the cover we put the references]

- In the workshop with the worksheet they basically had to try and work out for themselves what they thought the trends were. Actually when you look at the latest data, it does complicate this quite simplistic argument around whether young people are apathetic, because when you actually look at it, most people are apathetic [laughs]

Two Types of Student in Politics?

There was a group of students [in my politics course] that were really confident with the tables. They really enjoyed doing it, and then there was a group of students that freaked out basically, on seeing the tables

--found it kind of difficult it even to engage with the data.

I think a lot of that was due to a lack of confidence and seeing so many tables [10-page handout].

--Some of them didn't even know how to do the basics-- how to read the tables on a basic level

--They asked me "What's that figure? What does that mean?"

Some people had to spend quite a lot of time maybe just concentrating on one table, one number.

Variety of Learning Outcomes

Lecturer
Firmness About
Trajectory

- a. The lower stream
- b. The higher stream

LIST OF
LEARNING
OUTCOMES
(L.O.s)



Student
Flexibility:

Change to
dual
honours;

Choose
options

Avoid having
'no options'

Year 1

Both groups: mean, median, mode, levels of measurement (eg. Ordinal), micro-data, online sources

The sociology stream

- Critically assess conceptualisation
- Interpret Tables
- Crosstabs and Chi Squared Test
- Matching Theories to Measured Concepts
- Reading advanced empirical papers
- Isolate measurable concepts

.... And with QM/RM

- Probability and Odds
- Confidence Interval
- The Central Limit Theorem
- Refuting a Theory
- Developing a Theoretical Alternative Interpretation of Data
- Treatment Effects

Year 2

Both groups: hypothesis testing compared with induction; combining methods; data-lite in dissertations; citation of online sources; creating own Figures

The sociology stream

- ❑ Critically assess theoretical schools' evidence base
- ❑ Manipulate and interpret carefully selected microdata
- ❑ Study students' own microdata from the class or Year group
- ❑ T-Tests and margin of error

.... And with QM/RM

- ❑ Regression Model
- ❑ Dummy Variables
- ❑ Non-Parametric Tests
- ❑ Logit Model
- ❑ Correlation vs Association Measures
- ❑ Reading Statistical Papers in Journals
- ❑ Interdisciplinarity

Year 3

Both groups: data used in dissertation to illustrate, test, apply or develop theories; secondary vs primary data

The sociology stream

- ❑ Critically assess quality of literature used
- ❑ Lessons about sampling
- ❑ Manipulate and interpret graphs
- ❑ Scattergram, causality, correlation

.... And with QM/RM

- ❑ How a falsification approach affects the research design of a dissertation;
- ❑ Data analysis for reports;
- ❑ Micro-data subsets
- ❑ Multiple regression, collinearity, tests of goodness of fit

Enrich The LO List Even More

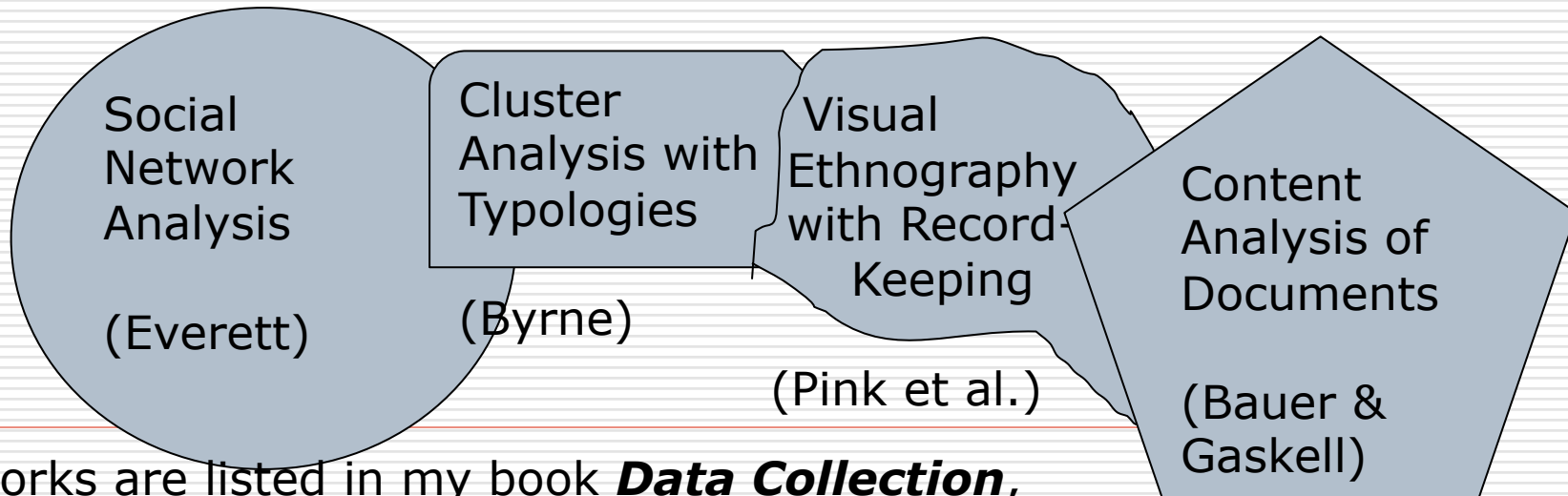
Lower stream not low Higher stream similar

- Epistemology from year 1 onward
- Theory is a strength; ability to pinpoint key elements of a theoretical standpoint, and to critique a theory
- By Year 3 able to construct an argument
- Knowing **about society**
- Some points about falsification are not meant to be positivist.
- Positivism has poor foundations. Realism or weak social constructivism better aligned.
- Do not confuse them

Do not suggest that there is a qual-quant schism, as it can cause epistemological confusion.

4. Teaching Mixed Quant/qual methods

MIXED METHODS RESEARCH INCLUDES QUANTITATIVE DATA



Cited works are listed in my book ***Data Collection***, 2012, Sage Publications

Mixed Methods Are Often QD/ QM Too

- Example of factor analysis following a small exploratory interview study
 - Sequenced mixed methods (Cresswell)
 - Integrated mixed methods (Bergmann)
- Example of **Qualitative Comparative Analysis** based on secondary data (Ragin)
 - First expose to a small case-study table
 - Second students can study causality (necessary/sufficient!) in larger dataset
 - Byrne and Ragin Handbook

Conclusions

- The lessons learnt include:
 - Don't innovate too much too quickly
 - Involve team members
 - Be explicit
 - Support active learning
 - There is a need for staff training and staff upgrading
 - Recognition is needed for this effort
 - Staff also liaise with quality assurance side
 - Keep streams meeting up
 - Thank you for listening