

3 Data analysis

Analysing your own data

1. Description
2. Analysis

Extra slides

- Writing up your analysis
- Writing about research (the literature you've read)

Analysing your data

- Description: describe findings
- Analysis: show your own original thought

Description of findings

- Description is essential
- No point in analysing something you've not described to the reader
- You have to be selective, but don't cherry pick data to fit a preconceived argument
- "Data are like people – if you torture them enough, they'll tell you anything"
- Intelligent, honest summary of relevant (not necessarily all) findings

Description of findings

Study of Roma family literacy practices

Mother	Mother's attitude to child's education: how important does she feel it is for child's future?	How often mother or father helps child with homework
AA	Very important	About once a month
JC	Important	Hardly ever
DP	Important	1-2 times a week
SH	Very important	1-2 times a week
RC	Very important	About once a month
LE	Very important	A couple times a year

Key descriptive points

- Take a few minutes to think about how you would describe this set of findings.

Description of findings

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Key descriptive points

- **Attitude to education:** All mothers expressed a positive attitude about their child's education, with four parents saying education was very important for their child's future and the other two parents saying it was important.
- **How often helps with homework:** There was a range of levels of practical involvement in their child's education. Two of the mothers said they or their husband helped their child with homework 1-2 times a week. Two mothers said this happened only about once a month. The final two mothers reported that they or their husbands provided such help rarely: a few times a year or less.

Analysis

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- Description is essential, but not enough
- Look for **relationships between findings**
- E.g. does attitude to education seem to be related to frequency of homework help?

Analysis

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- E.g. does attitude to education seem to be related to frequency of homework help?
- No – and that is interesting. Why is there no relationship?
- Reading back through the interviews, it turns out that parents with low confidence are the least likely to help.
- So my analysis is that all parents feel that education is important or very important for their child's future, but there is no apparent relationship between this belief and the amount of educational support the parents give to the child. Instead, parental confidence appears to be the key factor influencing educational support.
- My paper might then argue or conclude that Roma education policy should focus on confidence, not attitudes.

Analysis: typologies

Dividing cases into groups based on shared characteristics

My study of 78-year-olds' perspectives on ageing: 4 types

Characteristics	Group
Good health and a mostly positive experience of ageing (8 cases)	"Happy and healthy"
Poor health but mostly positive experience of ageing (11 cases)	"Hindered but happy"
Poor health, mostly negative experience of ageing (7 cases)	"Hard time"
Good health but mostly negative experience of ageing (2 cases)	"Healthy but harrumphing"

Writing your paper: some guidelines

- 1) How to write about research literature – see slides at end of ppt
- 2) See “Writing_a_paper_-_some_guidelines”

Additional extras:

- Slides: Researchers’ behind-the-scenes interpretation (of quantitative data)
- “Playing with numbers” article

Writing about research literature

An acceptable literature review

In the theory of Human Capital (Becker 1993), the benefits to the individual of education are primarily economic: more education leads to greater skills and experience, which then raises a person's labour market value and should eventually increase their earnings. However, he goes on to suggest that the benefits of increased education go beyond the purely economic, arguing that education improves:

- health
- birth control knowledge
- the propensity to vote
- the appreciation of art, literature and music.

Evaluator's commentary

- The writer has accurately described the benefits of education, as formulated by Human Capital Theory. This description does not get anything wrong, and covers key points, e.g. there are important economic benefits of education, but those are not the only benefits.
- However, the author cites only one theorist: Becker. This happens to be the most important theorist, but a huge number of other researchers have contributed to the development of Human Capital Theory, both by building on Becker's conclusions and by challenging them.
- A more interesting and useful literature review would go beyond just describing human capital theory from the view of one (albeit very important) person. It would approach the concept from several different angles and perspectives.

A good literature review

Sample text

Drawing on data from the National Assessment for Adult Literacy, Reder (2007) shows that whereas over 60% of American high school graduates will go on to university, fewer than 30% of pupils who complete the GED (an exam-based alternative to high school) will do so. His concern is echoed by a 2009 report by the Schuyler Center for Analysis, which notes that, in New York state, only 20% of GED completers go on to university, compared to 65% of high school graduates. A further criticism is highlighted by Smith (2003): because GED learners are not required to attend classes, they have less opportunity to develop the study and socialization skills that university life requires. Smith argues that this is one of the reasons why the GED completers who do go to university are more likely to drop out.

Commentary

- Instead of drawing on only one source to discuss problems related to the GED, the writer draws on three complementary sources.
- Note that the first two sources are complementary in the sense that they address the same issue: different university attendance rates for GED completers as opposed to high school graduates. They simply address it from slightly different angles.
- The third source adds a new issue/concept to the discussion. Instead of just complementing the first source, as Source 2 does, it builds on the argument by adding a new conceptual issue.
- Note that the direction of argument is consistent throughout this passage; there are no counterarguments.

A very good literature review: example 1

When teachers come together to share practices in formal or informal ways, they form a ‘community of practice’ (Lave and Wenger, 1991; Wenger, 1998; Wenger et al, 2002; Lisewski, 2006; Lucas and Unwin, 2009). The concept of community of practice was first advocated by Lave and Wenger (1991), whose theory of situated learning focused on the development of professional identity, with practitioners moving from novice status (newcomer) to expert (old-timer). However, Lave and Wenger’s highly influential theory has not gone uncriticised. For example, Hodkinson & Hodkinson (2004) argued that Lave and Wenger’s conceptualisation was overly idealised and did not reflect conditions in most workplaces. For example, when experienced professionals move to a new workplace, it is misleading to consider them novices; Lave and Wenger’s original formulation did not address this tension. This critique was echoed by Fuller et al (2005), who argued that Lave and Wenger also failed to take sufficient account of the impact of lifelong learning on workers’ expertise and development. However, Wenger (1998: 103) at least in part anticipated this critique by noting that communities of practice “cannot be considered in isolation from the rest of the world, or understood independently from other practices.”

Commentary

- Here the writer draws on conflicting sources to approach a concept (communities of practice) from a variety of angles.
- She starts with the basic theory, and then introduces two critiques.
- However, she does not use these critiques to argue that Lave and Wenger are “wrong” and the other scholars are “right”. This passage is constructed to show the development of the theory over time, and as it takes account of additional concepts and issues.
- Note also that even though Fuller et al are cited “positively” twice, this passage concludes with the writer implicitly noting that Fuller et al aren’t necessarily 100% correct in their critiques of Lave and Wenger. The writer observes that one of their critiques has already been addressed by Wenger.

A very good literature review: example 2

Sample text

Billet (2004: 313) argues that it is misleading to categorise workplace learning as inherently “informal”. Many workplace activities have “inherent pedagogical properties”, and much workplace learning is intentional, even when it appears incidental and informal. Like Billet, Fuller and Unwin (2004) argue that the workplace creates numerous opportunities for, or barriers to, learning. Fuller and Unwin’s “expansive-restrictive continuum” framework identifies a range of pedagogical, organisational and cultural features that contribute to the shaping of workplace learning environments. Fuller and Unwin agree with Billet that workplace learning is a product of individual as well as organisational factors:

“Individuals can, of course, exercise choice over the extent to which they engage in learning, and their response is shaped, at least to some extent, by their personal backgrounds, prior educational experiences, and aspirations. “ (Fuller and Unwin, 2004: 127)

Commentary

- In this passage, the writer does a nice job of using quotes to illustrate scholars’ arguments. This is about the maximum amount of quotation you would want to use in such a short space – anything else might seem overwhelming or as if you were quoting for quoting’s sake.
- The writer links two related concepts important to discussions of workplace learning: 1) the structurally integrated and purposive nature of what is often seen as informal or incidental learning; and 2) the individual-level factors that influence the workplace learning environment. This short passage therefore manages to contain a wealth of conceptual material.
- There is directionality to the structure. The writer does not simply describe Concept A, then describe Concept B, then Concept C, and so on. She is linking them together in a logical way. This gives the writing a sense of narrative and development. You can feel that she is going forward, with ideas building on each other in a cumulative manner.

Writing about research literature: Summary of key points

- The worst thing to do is **get it wrong** – for example, to completely misinterpret someone’s argument. Make sure you understand what the author is saying.
- The second worst thing is to **cherry pick**:
 - Only including arguments you agree with
 - Having a lower standard of evidence for arguments you agree with
- A literature review should describe or summarise key findings or arguments in the literature.
- However, a good literature review goes beyond mere description.

Writing about research literature: Summary of key points

- Writers often think that since they have cited a number of different authors in the literature review, they have been broad ranging enough. However, many writers have a tendency to cite only one or at most two authors per concept. This is a simplistic way of engaging with the literature, and does not demonstrate critical engagement.
- If you know that you have to describe four key concepts, and you simply describe those concepts in turn without linking them together, you have done an acceptable job, but no more.
- Ideally, a literature review should not just report what other scholars have written. It should demonstrate your independent thinking through the way you use different authors' commentary and analysis to approach a concept from (often subtly) different angles, or the way you use one or more pieces of research to comment on and refine the messages from one or more *other* pieces of research.

Researchers' behind-the-scenes interpretation

PISA (Programme for International Student Assessment), 2006

Criteria (28 reading questions):

- 7 Qs on getting information from text
- 14 on interpreting that information
- 7 about reflecting on the text

Results: Canada ranked 4th in reading; Denmark 19th

But what if we change the criteria a bit?

- If the distribution of questions had been changed to:
 - 14 Qs on getting information from text (versus 7)
 - 10 on interpreting that information (versus 14)
 - 4 about reflecting on the text (versus 7)

Then the results would have been:

- Denmark ranked 1st, Canada below average.

But *if test had more reflection Qs*, Canada would have ranked 1

- No strong rationale for this “hidden” decision
- This *subjective* decision played the central role in the production of purportedly *objective* data.

<http://www.theguardian.com/education/2013/dec/03/uk-students-education-oecd-pisa-report>

Extra activity: Critical reading

Read the following passage

Answer these two questions:

What is the author's key argument?

What are the key tensions or conflicts in this article?

Programme evaluation

Efficiency demands that resources be targeted at the most effective programmes. A key lever in this process is performance accountability, which assesses programme effectiveness based on outcomes achieved (or not) by participants in literacy programmes (Merrifield, 1998). There is a growing drive for accountability in all social and educational fields, including those focused on literacy (Descy and Tessaring, 2005).

There is a good deal of pushback against this accountability. Much of this resistance is justified: accountability regimes can produce a broad range of negative externalities, and frequently manifest a growing distrust of frontline professionals' experience and wisdom (LeGrand, 2003). High-stakes testing can and does reduce learner enjoyment of reading (Gallagher, 2009) and long-term attainment (Smith and Ellis, 2005). An emphasis on summative assessment encourages instructors to "game the system" (Webb, 2006) – for example, by teaching to the test – and can distract time and energy

from formative assessment and other teaching strategies shown to improve literacy development. Since reading skills are more easily measured than writing, programmes and policies may over-emphasise the former, to the detriment of the latter.

At the same time, literacy programmes exist in a heavily contested policy environment. The modern welfare state is characterised by a demanding public and competing claims for investment (Pierson, 1999; LeGrand, 2003). Within this context, there is a growing push for the use of quantitative research methods to evaluate education programmes. In response, many researchers and practitioners have called for a reduced emphasis on quantitative evaluation of programme effectiveness. There are worries that a return to a “neo-positivist research agenda” (Belzer and St Clair, 2005) is a methodological and theoretical step backwards for research and policy, with inevitably negative impacts on practice.

Such arguments have strong merits. It is clear that many quantitative evaluations are methodologically rich but theoretically poor, producing skewed results that paint only a partial picture of programme impacts. Many quantitative evaluations are precise without being accurate. That is, they generate relatively exact results about a particular outcome over a particular time period (i.e. have a high degree of precision), but produce inaccurate findings because they do not provide sufficient insight and understanding. As the political prognosticator Nate Silver (2012: 45) has written, “This is like claiming you are a good shot because your bullets always end up in the same place – even though they are nowhere near the target.” Such “evidence” – methodologically robust but theoretically misguided – mis-informs policymakers, practitioners and researchers, to the detriment of all.

Despite this, arguments against the primacy of quantitative evaluations are a counsel of despair. One of the greatest challenges facing the field of adult literacy is its lack of high quality quantitative studies. As observed by the 2006 European Council Communication "Adult Learning: It Is Never Too Late to Learn", the failure to demonstrate the economic

and social benefits of adult learning is a major weakness of the field, one which limits the capacity of adult education to compete for funding and contribute to the EU lifelong learning strategy.

Education cannot successfully plead that it is a special field which does not require quantitative evidence of programme impact. In the absence of quantitative evidence, adult literacy advocates will continue to struggle to win funding for programme and policy expansion. Instead of being threatened by the tyranny of effect size, teachers will be threatened by a lack of programmes to work in.