Sociology Shortcuts

M9. Quantitative and Qualitative Data

Quantitative data involves expressing data *statistically* or *numerically, such as* counting the number of crimes each year. Such data is usually expressed in one of three ways:

▪ Numbers (sometimes called *raw numbers*). For example, the total number of people who live in poverty.
▪ Percentages: the number *per 100* in a population. For example, 30% of British voters regularly vote Conservative.
▪ Rates: the number *per 1000* in a population. For example, if the birth rate in Britain was 1 (*it's not*...) for every 1000 people one baby is born each year.

Research data is often expressed as a *rate* or *percentage* because it allows accurate comparisons *between* and *within* groups and societies. For example, comparing unemployment between Britain and America as a *raw* number wouldn't tell us very much, since the population of America is roughly 5 times larger. Expressing unemployment as a *percentage* or *rate* on the other hand allows us to compare "like with like".

Strengths

The ability to express relationships *numerically* can be useful if the researcher doesn't need to explore the *reasons* for behaviour. If you simply want to know how many murders there are per year quantitative data satisfies this purpose.

Quantitative data lends itself to statistical comparisons. This is useful for things like hypothesis testing *or cross-cultural* comparisons (such as crime rates in different countries).

Matveev (2002) notes the ability to control the conditions under which data is collected (such as using standardised questionnaires) makes quantitative data more reliable. Where the same questions are asked of different groups - or the same group at different times - we can be sure that any differences in their answers are not down to being asked different questions.

The ability to replicate quantitative research also means it is likely to be highly reliable and where the researcher has no direct, necessary and personal involvement with the generation of data it makes it less-likely for *personal biases* to intrude into the research process.

Kealey and Protheroe (1996), for example, suggest the ability to "*eliminate or minimize subjective judgments*" is a major contributory factor to increased data reliability.

> Kruger (2003)
> Longitudinal studies, where the same group may be researched at different times to track changes in their behaviour, can exploit this comparative feature of quantitative data.
>
> Quantitative methods and data "*allow us to summarize vast sources of information and make comparisons across categories and over time*".

Limitations

Although the ability to quantify the social world can be a significant advantage for social researchers one of the major criticisms of quantification relates to the validity of the data collected. This can be exampled in a number of ways:

1. In order to quantify behaviour people are frequently placed in artificial, unrealistic, situations where realism is sacrificed for control. In their everyday lives, for example, people rarely encounter situations where they're asked to respond to a list of questions asked by a stranger. A validity issue here is whether a researcher can capture people's "real beliefs" when they place them in an artificial situation.

2. Quantitative methods only capture a relatively narrow range of data about people's behaviour - what Day (1998) calls the:

- Who?
- What?
- When?
- Where?

3. Following from the above, quantitative data tells us very little about "The Why?" - The reasons for people's behaviour. This is partly a problem of lack of depth: the more complex the behaviour, the more difficult it is to quantify.

This leads to a further criticism that quantitative methods focus on relatively superficial aspects while failing to address the complexities involved in even very simple forms of behaviour. As Kruger (2003) argues, it's "difficult to get the real meaning of an issue by looking at numbers".

For McCullough (1988) a significant methodological limitation is the fact "Issues are only measured if they are known prior to the beginning of the survey"

In other words, in order to quantify behaviour the researcher must decide, in advance of their research, what is and what is not significant in relation to the behaviour being studied.

For this reason there's little or no opportunity to develop the research outside of the original parameters decided by the researcher.

Although, as a *general principle*, quantitative data is usually considered both "*highly reliable*"

> Harvey (2002)
> "Many apparently quantitative data depend critically on the way in which they were collected, who collected them, where they were collected, when they were collected and from whom they were collected".

and "*more reliable*" than qualitative data, this is not necessarily the case: reliability is *not* an *automatic* quality of any one particular research method.

In 2014, for example, the status of Official UK Police-Recorded Crime Statistics was downgraded to "unreliable" by the UK Statistics Authority based on "accumulating evidence that the underlying data on crimes recorded by the police may be unreliable".
Sorokin (1956), partly tongue-in-cheek, coined the term "Quantophrenia" to refer to a "*psychological compulsion to grasp for the numeric*" - a "condition" that leads to the use of *quantification for its own sake*, regardless of whether or not it tells us anything useful or interesting about the behaviour being quantified.

As Eberstadt (2006) puts it, the "victims" of this condition "*obsess over numbers as descriptors, no matter how dubious their basis or questionable their provenance*".

Qualitative data tries to capture the *quality* of people's behaviour and such data says something about how people *experience* the social world. It can be used to understand the meanings they give to behaviour.

Boyle (1977), for example, studied the behaviour of a juvenile gang from the viewpoint of its members while Goffman (1961) tried to understand the experiences of patients in an American mental institution.

Both were trying to capture and express how people feel about and react to different situations.

Strengths

Where a research objective is to *understand* the *meaning* of people's behaviour, they must be allowed the scope to talk freely. Qualitative data encourages this because a researcher doesn't impose their interpretation on a situation (by asking direct, quantifiable, questions for example).

Qualitative data provides greater depth and detail about behaviour since, as Day (1998) suggests, they are concerned with discovering "the Why?" - the *reasons* for such behaviour; because qualitative methods draw-out the complex reasons for social behaviour it follows they are likely to involve digging more deeply into people's beliefs and behaviours.

Qualitative methods avoid the problem of the researcher pre-judging what is and what is not significant data prior to starting their research. Where the research objective is to describe or draw out people's opinions and reasons the *respondent*, rather than the *researcher*, is effectively the driving-force: they lead and the researcher follows. Respondents may talk about things *they* see as significant and take the research into directions and places the researcher had not originally considered.

Many qualitative methods demand the researcher establish a close *relationship* with respondents (which doesn't mean they have to like them, only understand them). The development of a research rapport has a couple of *advantages*:

1. Everyone involved in the research is free to suggest new ideas and directions - the role of the respondent isn't limited to answering questions.

2. Where the atmosphere is more-relaxed and less clinical the researcher is more likely to get respondents to open-up about their thoughts and feelings - something that may improve research validity.

In this respect although qualitative methods don't have a monopoly on validity (any poorly-designed research can lack validity regardless of the methods used) but when dealing with the complexities of human behaviour it is much *more likely* research methods that dig into this complexity will produce highly-valid data: they will measure what they claim to measure.

Qualitative methods allow researchers greater freedom to study people in their "everyday" or "normal" settings and this gives a greater chance of collecting rich data about what people "really believe" or how they "really behave". As Matveev (2002) suggests, qualitative methods produce data that allow the researcher to gain a "*more realistic feel of the world that cannot be experienced in the numerical data and statistical analysis used in quantitative research*".

Limitations

Where qualitative research generally focuses on the intensive study of relatively small groups, opportunities to generalise research data may be limited.

For similar reasons it's difficult to compare qualitative research across *time* and *space* because researchers are unlikely to be comparing "like with like".

Qualitative data also tends to be structured in ways that make the research difficult to replicate - a consequence, Cassell and Symon (1994) argue, of the fact that where research evolves to take account of the input of different respondents the original research objectives may change.

In general this means qualitative research generally produce data with lower levels of reliability. While all data, quantitative as well as qualitative, requires interpretation by the researcher, qualitative methods - from *participant observation* to *unstructured interviews* - tend to produce vast amounts of data across a wide range of issues. This raises two potential reliability issues:

1. Which data to keep and which to discard?

2. Different researchers looking at the same data may arrive at different conclusions based on the data they choose to use

Levy (2006), however, argues *reliability* evidenced through the ability to *replicate* research is *not* a useful test for qualitative research methods. She suggests the concept of trustworthiness might be a more useful measure of the internal reliability of qualitative methods: *"In qualitative research, as there are no numerical measures. It is up to the researcher to provide evidence of reliability by carefully documenting the data collection and analysis process, hence "trustworthiness" is used to assess how reliable the results are. Can we trust that the results are a 'true' reflection of our subject?"*.

Qualitative methods require different skills from the researcher to those required of a quantitative researcher and this means qualitative data may be harder to collect. In something like observational research, for example, the researcher needs to be able to convincingly and consistently "play a role" within the group they are studying - a very different set of skills to those needed to deliver a questionnaire or structured interview.

Quantitative and Qualitative

Although we've considered quantitative and qualitative data as separate entities, there are occasions when a researcher may want to combine quantitative and qualitative types of data, such as collecting quantitative data about educational achievement or the number of people who visit their doctor each year alongside qualitative data that seeks to explore the satisfaction levels of pupils or patients.

This technique is called methodological triangulation and is one that can also be used to improve both research validity - by creating a more-accurate measurement of something - and reliability by using the strengths of one type of data (the ability to quantify behaviour, for example) to offset the weaknesses of the other.

Alternatively, quantitative data is sometimes collected *before* starting qualitative research. A researcher looking at reasons for school truancy, for example, may firstly carry-out a quantitative analysis to discover whether or not pupils are actually absent from the classroom. A quantitative enabling study can be used to establish whether or not there is anything for the researcher to qualitatively investigate…