

# 4

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## Developing indicators for concepts

To conduct a survey we must translate any concepts into a form in which they are measurable. This chapter examines three main steps in this process:

- 1 clarifying the concepts;
- 2 developing indicators;
- 3 evaluating the indicators.

Before examining these steps it is helpful to consider an example that illustrates the process and difficulties of developing indicators. Suppose we are interested in the concept *social capital*. This term is being used increasingly in sociological research and the social development literature to characterise something about an important element of societies. The existence or absence of social capital is seen to be critical for understanding social wellbeing, the success or failure of intervention and development programs, crime rates, health profiles of societies, the ability to deal with poverty and so forth. But what is meant by this vague term? When someone argues that increasing crime rates are caused by a lack of social capital what do they mean? How can we tell? We must be able to measure crime rates accurately and define and measure social capital. How do we recognise a society in which the store of social capital is low and one in which it is high?

The first step is to work out what we mean by the concept.

### CLARIFYING THE CONCEPTS

Concepts are simply tools which fulfil a useful shorthand function: they are abstract summaries of a whole set of behaviours, attitudes and characteristics which we see as having something in common. Concepts do not have an independent existence 'out there': they do not have any fixed meaning. Concepts are terms which people create for the purpose of communication and efficiency. When developing indicators for concepts the task is not to find indicators which match some concept which has a set definition. It is up to us to first define what we mean by the concept and then develop indicators for the concept *as it has been defined*. By their very nature definitions are neither true nor false; they are only more useful or less useful.

There is a problem here. If concepts have no set meaning then anyone can define a concept any way they wish. The results would be that the concept would become useless; unless people mean the same thing by a word, communication is impossible. In sociology lack of agreement about how words are defined leads to confusion and pointless debates. For example, debates about the extent to which a country is developed, democratic or has low levels of social capital depend substantially on definitions of development, democracy and social capital respectively.

The view that concepts do not have real or set meanings can lead to conceptual anarchy, a problem with no entirely satisfactory solution. The most practical action is to make it very clear how we have defined a concept and to keep this definition clearly in mind when drawing conclusions and comparing the findings with those of other researchers. Although we can define a word any way we wish, there seems to be little value in developing entirely idiosyncratic definitions. Since concepts are used to communicate, it makes most sense to use the word in its most commonly understood sense. If the definition of the concept is idiosyncratic this should be made very clear. Where a concept takes on a number of widely held but different meanings, we will need either to decide on (and justify) one, or to design the research so that we have indicators of each of the different meanings.

### **How to clarify concepts**

Since concepts have no set meanings yet it is crucial that the concepts used in research be defined, how do we go about clarifying them? In practice people use

different approaches. I will describe three steps which help in the process.

### ***Obtain a range of definitions of the concept***

Before adopting one definition of a concept look for the ways in which others have used the concept. People do not always provide formal definitions so we may need to work out what they mean by the way they have used the term. Their definition may be implicit rather than explicit.

We can get a good idea of the range of definitions by searching textbooks, dictionaries, encyclopaedias and journal articles. The internet assists greatly in this exercise. The internet has online dictionaries, encyclopaedias, articles, web pages and the like that can yield useful information quickly. Online searches of journal databases can speed up the process of identifying the range of ways in which a concept has been defined. Many of the strategies were outlined in the previous chapter. Web Pointer 4.1 illustrates this in relation to social capital and in so doing points to some useful general places to look.

## **WEB POINTER 4.1 *Discovering definitions of social capital***

### **Dictionaries**

I first went to a website that I knew included dictionaries and reference guides from a range of disciplines such as sociology, economics, psychology, law, literature etc. This is a free site:

<http://w1.xrefer.com/search.jsp>

Using the search facility at this site I found only one definition of social capital. This definition was:

The total stock of a society's productive assets, including those that allow the manufacture of the marketable outputs that create private-sector profits, *and* those that create non-marketed outputs, such as defence and education.

(*The Penguin Dictionary of Economics*, © Graham Bannock, R.E. Baxter and Evan Davis 1998)

I then looked at more dictionaries. The internet contains many useful specialist dictionaries. I went to the site:

[www.yourdictionary.com/specialty.html](http://www.yourdictionary.com/specialty.html)

and searched relevant specialist dictionaries. I searched the *Dictionary of Critical Sociology* and obtained the following definition of social capital:

*Social capital*: Generally social capital is the product of people working together to achieve something unattainable to them or individuals. The self, the various forms of material culture as well as society itself

**WEB POINTER 4.1** *continued*

cannot be produced by people working as private individuals. Social capital includes material items but is much more than merely the physical base of culture.

(*Dictionary of Critical Sociology*, [www.public.iastate.edu/~rmazur/dictionary/s.html](http://www.public.iastate.edu/~rmazur/dictionary/s.html))

**Search engine***Single search engine*

The dictionary site contained a link to a search engine that would search other dictionaries and sites:

<http://au.yahoo.com/reference/dictionaries/>

A search at this web address turned up a number of useful websites that provided further ideas for definitions of social capital. These sites included:

- 1 Social Capital Development Corporation at:

[www.social-capital.org/](http://www.social-capital.org/)

This provided a view of social capital too lengthy to reproduce here.

- 2 Civic Participation, Social Capital and Leadership at:

[www.lajollainstitute.org/LeaderNet/civicpart.html](http://www.lajollainstitute.org/LeaderNet/civicpart.html)

- 3 [http://muse.jhu.edu/demo/journal\\_of\\_democracy/v006/putnam.html](http://muse.jhu.edu/demo/journal_of_democracy/v006/putnam.html)

Includes the famous article, *Bowling Alone: America's Declining Social Capital*, by Robert Putnam, a key figure in work on social capital. The site also includes an interview with Putnam.

- 4 The World Bank site Social Capital and Development at:

[www.worldbank.org/poverty/scapital/index.htm](http://www.worldbank.org/poverty/scapital/index.htm)

This site had a vast amount of useful material and links to other relevant sites.

*Metasearch engine*

Using the metasearch engine Copernic 2001 (available for free download from [www.copernic.com/](http://www.copernic.com/)), I asked for a search of Australian internet sites containing the term 'social capital'. This identified a large number of sites including:

[www.aifs.org.au/institute/pubs/WP21.pdf](http://www.aifs.org.au/institute/pubs/WP21.pdf)

[www.aifs.org.au/institute/pubs/RP24.pdf](http://www.aifs.org.au/institute/pubs/RP24.pdf)

[www.act.gov.au/actinfo/futurecommunities/](http://www.act.gov.au/actinfo/futurecommunities/)

All three sites provided excellent papers on defining and measuring social capital and links to other sites and references. The papers by Winter and Stone on these sites argue that social capital:

... consists of networks of social relations which are characterised by norms of trust and reciprocity.

Combined, it is these elements which are argued to sustain civil society and which enable people to act for mutual benefit. ([www.aifs.org.au/institute/pubs/RP24.pdf](http://www.aifs.org.au/institute/pubs/RP24.pdf))

and

Social capital exists in the reciprocal relationships between people who know and trust each other, and who have shared interests and beliefs. These relationships operate for the benefit of all involved. They are generated when people come together in families, at work, in neighbourhoods, sporting, social, religious, local organisations and formal as well as informal meeting places.

([www.act.gov.au/actinfo/futurecommunities/](http://www.act.gov.au/actinfo/futurecommunities/))

**WEB POINTER 4.1** *continued***Library catalogue search**

By conducting a keyword search for 'social capital' in an online library catalogue, a number of books were identified: Misztral (1996), Putnam (1993) and Fukuyama (1995). These provided further ideas about ways of defining and conceptualising social capital.

**Encyclopaedia**

I then looked up the *Encyclopaedia Britannica* online at [www.britannica.com/](http://www.britannica.com/). While I found nothing on this site, I was directed to use other search engines such as goto.com and Ask Jeeves. These found a whole set of useful websites. The following definition was provided at [www.nhsetrent.gov.uk/newnhs/LanguageAndCulture/SocialCapital/summary.htm](http://www.nhsetrent.gov.uk/newnhs/LanguageAndCulture/SocialCapital/summary.htm):

Social capital refers to elements such as social trust and networks that people can draw upon to solve common problems. Networks of 'The Public', such as neighbourhood associations, sports clubs and co-operatives, are an essential part of social capital. These assist in:

- fostering norms of generalised reciprocity by creating expectations that favours will be returned;
- facilitating co-ordination and communication both within and outside the community;
- creating a two-way relationship based around the concept of shared/reciprocated favours.

Another site, found in a similar way, included an article that reviewed different types of definitions and measures of social capital:

<http://informel.c3ed.uvsq.fr/soccap1.htm#4>

**Journal databases**

Finally, I searched the Sociological Abstracts online database. This resulted in a list of 507 articles and dissertations that somehow related to this concept. A more careful search would help narrow down this set of articles. Access to Sociological Abstracts is limited to subscribers. Most academic libraries subscribe and provide free access to those with library access.

Visit [www.social-research.org](http://www.social-research.org) to use these links and to check for updates and additions.

Once a number of definitions have been identified we might identify the common elements of these definitions and develop a definition based on these. This approach could produce a definition that incorporates the generally understood meaning of the concept. Many of the definitions of social capital include common elements such as trust, community networks, shared values, a degree of communal responsibility and reciprocity. A definition might be based on these common elements.

An alternative approach to developing a definition is to distinguish between different types of ways in which the concept has been used. For example, the definition obtained from the *Dictionary of Economics* (Web Pointer 4.1) is quite different from

the more sociological definitions such as the definition above that refers to social networks, community and the like. Some definitions treat social capital and human capital as the same thing (i.e. the skills, knowledge and cultural know-how that some groups or individuals have that enable them to get ahead or prevent them from doing so). Some definitions include good physical infrastructure (public places to meet, safe places) as a key element of social capital. Others will regard social capital as an attribute of groups rather than of individuals. Where different types of definitions exist you will need to opt for one approach and justify your choice.

Many concepts used in social science research are difficult to conceptualise. Even the more 'factual'

demographic concepts such as education, workforce participation and retirement can be difficult to conceptualise and measure. This is not the place to canvass the difficulties with conceptualising these demographic concepts. However, Web Pointer 4.2 directs you to some excellent and sophisticated online articles that review and try to resolve these difficulties.

### *Decide on a definition*

Having listed types of definitions or delineated the most common elements of definitions, we need to decide on which definition to use. We might opt for an existing one, create a new one, choose a classic definition or use a more contemporary one. Regardless of which we do, we need to justify the decision.

In practice, the process of conceptual clarification continues as data are analysed. Clarification is not a once-and-for-all process which precedes research. It is an ongoing process: there is an interaction between analysing data and clarifying concepts. As a result of analysing data we are often in a better position to say what we mean by a concept than before we began. Nevertheless, this process must begin before data collection.

To assign a definition to a concept is to give it a *nominal definition*: it is a working definition which is used in the research. It provides a focus for research and guidance about the type of information to collect. For example, we might define religious beliefs as those with a supernatural element. This helps focus on the range of beliefs to examine but does not specify which beliefs to examine. This is the task of an *operational definition* which will be dealt with shortly.

### *Delineate the dimensions of the concept*

Many concepts have a number of different aspects or dimensions. When clarifying concepts it is often helpful to distinguish between those dimensions. This may result in using only one of the dimensions in the study or it may lead to a more systematic development of indicators for each dimension. Distinguishing between dimensions can lead to more sophisticated theorising and more useful analysis. Box 4.1 illustrates possible dimensions of the concept of social capital.

How do you identify the dimensions of a concept? There is no magical way of doing this. Reading the literature and looking at how other people have used the concept and looking for distinctions they have made can be helpful. For some concepts it is useful to think in terms of social, economic, psychological, political, physical and material dimensions. This can be a useful way of thinking about concepts such as wellbeing and deprivation. Another method is *concept mapping*. This is an approach by which brainstorming with other people helps explore the different ways in which a concept might be unpacked (see Web Pointer 4.3).

We might want to develop measures of all the dimensions of the concept or focus on just one or two. Whichever approach we adopt, delineating the separate dimensions helps in choosing indicators systematically.

## **DEVELOPING INDICATORS**

The process of moving from abstract concepts to the point where we can develop questionnaire items to

### **WEB POINTER 4.2** *Conceptualising common socio-demographic concepts*

You will find discussions of the issues involved in conceptualising

Religion	Ethnicity
Education	Income
Age	Gender
Health	Quality of life
Socio-economic status	Occupation

at: <http://qb.soc.surrey.ac.uk/resources/authors/authors.htm>

Visit [www.social-research.org](http://www.social-research.org) to use these links and to check for updates and additions.

**BOX 4.1 Dimensions of social capital**

Winter (2000) and Stone (2001) use the following definition:

[Social capital] consists of networks of social relations which are characterised by norms of trust and reciprocity. Combined, it is these elements which are argued to sustain civil society and which enable people to act for mutual benefit.

Stone calls for measures of social capital that capture all of its dimensions (and sub-dimensions). The two core dimensions are:

- 1 *Structure* of social relationships—networks
- 2 *Quality* of social relationships—norms

These two dimensions have various sub-dimensions:

- 1 *Networks*
  - a Type

- b Size and capacity
- c Spatial location
- d Structure (openness, density and homogeneity)
- e Relation

- 2 *Norms*

- a Trust
- b Reciprocity

Within these various dimensions and sub-dimensions Stone identifies further sub-dimensions (Figure 4.1 identifies *some* of these sub-dimensions). She then reviews ways in which several of these sub-dimensions have been measured and points to the problems of various measures.

**WEB POINTER 4.3 Concept mapping**

An introduction to concept mapping:

<http://trochim.human.cornell.edu/kb/conmap.htm>

A fuller and more in-depth description of the technique:

<http://trochim.human.cornell.edu/research/epp1/epp1.htm>

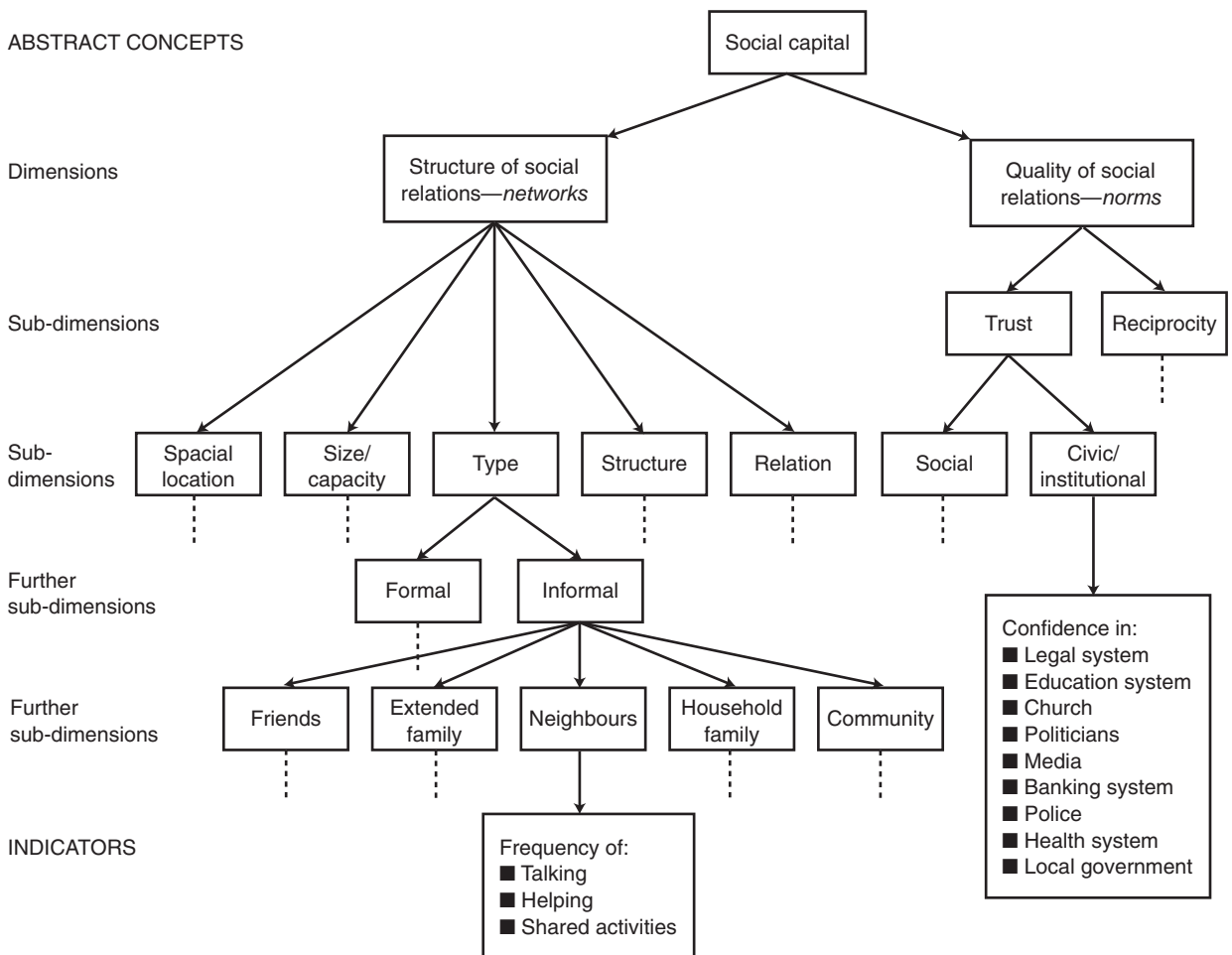
The technique applied to mental illness employment program:

<http://trochim.human.cornell.edu/research/ccp/tcands.htm>

tap the concept is called *descending the ladder of abstraction*. It involves moving from the broad to the specific, from the abstract to the concrete. In clarifying concepts we begin to descend this ladder. A further step is taken when dimensions are specified. Sometimes these dimensions themselves can be further subdivided into some more specific sub-dimensions. The social capital example illustrates this. Initially two dimensions were identified: the *structure* of social relations (networks) and the *quality* of social relations (norms) that promote connection. Within each of these, further sub-dimensions were identified. By identifying sub-dimensions we

become a little clearer regarding the particular indicators we might use (see Figure 4.1).

When delineating dimensions and sub-dimensions it is helpful to define the terms as you go. If one aspect of 'norms' is 'trust', what do we mean by trust? Trust in what? Before concepts can be measured we must descend from the lofty and often vague heights of some concepts and deal with these more mundane issues. The process of descending the ladder of abstraction is summarised in Figure 4.1. Web Pointer 4.4 shows the process of descending this ladder through two concepts. Use this Pointer to practise this skill.



**Figure 4.1 Descending the ladder of abstraction: social capital**

**WEB POINTER 4.4 Poverty and social exclusion**

In September 2000 the Joseph Rowntree Foundation released a report on Social Exclusion and Poverty in Britain. To read this report go to the website:

[www.jrf.org.uk/knowledge/findings/socialpolicy/930.asp](http://www.jrf.org.uk/knowledge/findings/socialpolicy/930.asp)

Two key concepts are used in this report: *poverty* and *social exclusion*. How has each of these concepts been defined? What dimensions of the concepts have been identified (if more than one)? What indicators have been used for each of the concepts (or dimensions of concepts)?

When we get to the point where we can develop indicators there are three broad problems with which to deal:

- 1 how many indicators to use;
- 2 how to develop the indicators;
- 3 how to form items into a questionnaire (this will be dealt with in Chapter 7).

**How many indicators to use**

There is no simple answer to this problem but the following guidelines are useful.

- 1 When there is no agreed way of measuring a concept it may be helpful to develop indicators for a range of definitions and see what difference this makes to the results and interpretations.
- 2 If the concept is multidimensional, consider whether you are really interested in all dimensions. Are they all relevant to the theory?
- 3 Ensure that the key concepts are thoroughly measured. The behaviour and attitudes that we are trying to explain and the theorised causes must be carefully measured using several indicators.
- 4 Typically attitudes and opinions are complex and are best measured with a number of questions to capture the scope of the concept (see Chapter 11).
- 5 Pilot testing indicators is a way of eliminating unnecessary questions. Initially we might have 50 questions to measure authoritarianism but find that we need only 10 of these items; the additional 40 items might not add anything to our index (see Chapter 11).
- 6 The number of items is affected by practical considerations such as overall length of the questionnaire and method of administration (see Chapter 8).

**How to develop indicators**

Where possible it is best to use well-established indicators. Rather than 'reinventing the wheel' why not take advantage of the expert work of other researchers? Many concepts are regularly measured in surveys and measures are readily available. In the UK there has been a deliberate strategy to develop a standard way of asking a question about a broad range of key demographic concepts. The benefit is that it is easy to track change over time and to compare results from different studies when questions have been asked in the same way over time and in different surveys. This strategy in the UK has been called harmonisation and has resulted in a uniformity of definition of concepts, questions and coding classification in a wide range of large-scale national surveys (see Web Pointer 4.5).

Where well-established measures exist they should be used. They may require some modification depending on the nature of the sample (age, education, literacy etc). Some older measures may require updating or adapting for different countries. As well as the harmonised concepts noted above there are many sets of measures available for a range of attitude and related matters (Box 4. 2).

Where proven measures are unavailable you will need to develop your own indicators. Two strategies are helpful in this process. For some research topics, especially those where we are surveying a special

**WEB POINTER 4.5 Question Harmonisation Project**

To discover more about harmonising questions and classification categories for a standard range of demographic questions in household surveys go to:

[http://qb.soc.surrey.ac.uk/qb1/resources/harmonisation/booklet96/harmon96\\_cover.htm](http://qb.soc.surrey.ac.uk/qb1/resources/harmonisation/booklet96/harmon96_cover.htm)

This site also provides the harmonised questions and classifications for the following concepts:

- |   |  |
|---|--|
| ■ household composition and relationships between household members | ■ socio-economic status                  |
| ■ age and gender of household members                               | ■ level of workforce participation       |
| ■ ethnicity   | ■ industry in which members are employed |
| ■ marital status of members   | ■ details regarding non-work status      |
| ■ income  | ■ social security status                 |
| ■ economic status of members  | ■ length of residence                    |
| ■ occupation  | ■ job details                            |
|   | ■ general health                         |



**BOX 4.2 Sets of indicators of concepts**

A number of collections exist that provide well-established sets of indicators for a wide range of concepts. Some of these are listed below. See also Web Pointer 11.1 for some website resources for sets of questions to measure concepts. To obtain a fuller, regularly updated list of such handbooks and lists of articles that provide indicators for single concepts visit my website at:

[www.social-research.org](http://www.social-research.org)

Refer to the Bibliography for complete publication details of the following list.

- Bearden, Netemeyer and Mobley (1993) *Handbook of Marketing Scales: Multi-item Measures for Marketing and Consumer Behavior Research*
- Beere (1990) *Gender Roles: A Handbook of Tests and Measures*
- Biderman and Drury (1976) *Working Groups on Indicators of the Quality of Employment*
- Bowling (1997) *Measuring Health: A Review of Quality of Life Measurement Scales*
- Bonjean, Hill and McLemore (1967) *Sociological Measurement: An Inventory of Scales and Indices*
- Brodsky, O'Neal and Smitherton (1983) *Handbook of Scales for Research in Crime*
- Bruner and Hensel (1993) *Marketing Scales Handbook*
- Chun, Cobb and French (1975) *Measures for Psychological Assessment: A guide to 3,000 Original Sources and their Applications*
- Comrey, Backer and Glaser (1973) *A Sourcebook for Mental Health Measures*
- Coulter (1989) *Measuring Inequality: A Methodological Handbook*
- Fabozzi and Greenfield (1984) *The Handbook of Economic and Financial Measures*
- Ferneau (1973) *Drug Abuse Research Instrument Inventory*
- Fischer and Corcoran (1994) *Measures for Clinical Practice: A Sourcebook. Volume 1—Couples, Families and Children*
- Fischer and Corcoran (1994) *Measures for Clinical Practice: A Sourcebook. Volume 2—Adults*
- Johnson (1976) *Tests and Measurements in Child Development: Handbook II*
- Kane and Kane (1981) *Assessing the Elderly: A Practical Guide to Measurement*
- Knapp (1972) *An Omnibus of Measures Related to School-Based Attitudes*
- Mangen and Peterson (1984) *Research Instruments in Social Gerontology*
- McDowell and Newell (1996) *Measuring Health: A Guide to Rating Scales and Questionnaires*
- Meuller (1986) *Measuring Social Attitudes: A Handbook for Researchers and Practitioners*
- Miller (1991) *Handbook of Research Design and Social Measurement*
- Plake and Impara (eds) (2001) *The Fourteenth Mental Measurements Yearbook*
- Robinson, Athanasiou and Head (1969) *Measures of Occupational Attitudes and Occupational Characteristics*
- Robinson, Rusk and Head (1968) *Measures of Political Attitudes*
- Robinson and Shaver (1976) *Measures of Psychological Attitudes*
- Shaw and Wright (1967) *Scales for the Measurement of Attitudes*
- Strauss (1969) *Family Measurement Techniques*
- Touliatos, Perlmutter and Strauss (1990) *Handbook of Family Measurement Techniques*

group (e.g. migrants, Aborigines, young people, childless couples), it is very helpful to use a less structured approach to data collection first (e.g. observation, unstructured interview). This can help us understand matters through the eyes of these people,

learn of their concerns and ways of thinking. This can be extremely helpful in developing relevant and appropriately worded questions for that group.

A second strategy is to use 'informants' from the group to be surveyed. Such people can provide useful

clues about meaningful questions. For example, if surveying a trade union it would be helpful to talk to key people in the union to get their ideas and comments on questions.

In the end we have to decide which indicators to use and how to word them. In doing so we need to be as informed as possible about the study population, be clear about what we want to measure, look at other people's efforts and evaluate our own indicators.

## EVALUATING INDICATORS

Having developed indicators we have to make sure that they measure the concept we think they are measuring (validity) and ensure that we can rely on the answers people provide. A question is of little use if people answer it one way one day and another the next (this is a question of reliability). Where the indicators lack validity or reliability we have *measurement error*.

It is desirable to assess the reliability and validity of indicators before conducting the study. This involves pilot testing that is done by administering the questions to a similar but smaller sample to that to be used in the actual study (see Chapter 7 on pilot testing). Sometimes people avoid pilot testing by including a large number of indicators in the study and only using those which prove to be valid and reliable. This seems to be the wrong way of doing things since we will end up by defining the concept in terms of the indicators that 'worked'. If this is done then the indicators may not represent the concepts or the theory we set out to test and as such the research can end up having little relevance to the original research question. Do not take the risk. Pilot test first.

### Reliability

A reliable measurement is one where we obtain the same result on repeated occasions. If people answer a question the same way on repeated occasions then it is reliable. I will consider three aspects of reliability.

#### Sources of unreliability

A question may be unreliable due to bad wording: a person may understand the question differently on different occasions. Different interviewers can elicit different answers from the respondent: the gender,

ethnic background and dress of the interviewer can influence responses. Another source of error can occur during coding: different coders might code the same response (e.g. occupation) differently. Asking questions on issues about which people have no opinion or have insufficient information can lead to very rough-and-ready answers.

Even well-developed questions will be subject to unreliability problems. For example, studies of the same respondents over time show that they give different answers to questions on different occasions, even though there should have been no change. One study (Schreiber, 1976) shows that for questions about gender, the state where the respondent was born and where they grew up, between 1 per cent and 14 per cent replied differently on the two occasions on which they answered the question (two years apart). Questions asking about the size of the place where they grew up, the respondent's education level and their father's occupation had even higher levels of unreliability, ranging from 22 per cent to 34 per cent error.

#### Testing reliability

There are a number of well-established methods of testing the reliability of indicators. The best methods, however, only apply to measuring the reliability of scales where we have a set of questions to measure the one concept rather than single-item indicators (see pages 180–6).

Where we have a single question to measure a concept or characteristic it is particularly important to make sure it is reliable. Basically the *test-retest method* is the only way to check the reliability of single questions: ask the same people the same questions at intervals of two to four weeks and calculate the correlation between the answers on both occasions. If the correlation is high (a rule of thumb is 0.8 or above) then we assume that the question is reliable. Unfortunately the test-retest method is a poor one. It is often difficult to give the same test to the same sample twice. A way to alleviate this problem is to trial the question on a smaller but similar practice sample to that to be used in the study—here it may be possible to test-retest. Another problem is memory: people may remember their answers from the first occasion and answer the same way the second time to be consistent. This can artificially inflate the apparent reliability of the questionnaires. Furthermore, when people answer a question

differently at the retest stage it is not always clear what this means. It may mean that the measure is unreliable or unstable but the inconsistency of responses could reflect the fact that people's attitudes have changed or that the attitude really is unstable.

#### *Increasing reliability*

The best way to create reliable indicators is to use multiple-item indicators: they are more reliable and we have easier methods of assessing their reliability (see Likert scales in Chapter 11). But for many issues it is appropriate only to ask a single question. There is little point in asking how old someone is, or asking about their gender in six different ways. The best course is to use well-tested questions from reputable questionnaires (see Web Pointers 4.1 and 4.6 and Box 4.2).

Other methods of improving reliability involve careful question wording, interviewer training and working out methods of coding. It is wise to avoid questions about which people are unlikely to have an opinion or knowledge, or to provide 'do not know' or 'cannot decide' responses.

#### **Validity**

A valid measure is one which measures what it is intended to measure. In fact, it is not the measure that is valid or invalid but the use to which the measure is put. We might use educational level to measure social status. The issue is not whether we have measured education properly but whether this is a suitable measure of social status. The validity of a measure then depends on how we have defined the concept it is designed to measure. There are three basic ways in which to assess validity. Ultimately none of them is entirely satisfactory but they are the best we have.

#### *Criterion validity*

Using this approach we compare how people answered our new measure of a concept, with existing, well-accepted measures of the concept. If their answers on both the new and the established measure are highly correlated this is taken to mean that the new measure is valid.

There are two problems with this approach. First, we must assume the validity of the established

### **WEB POINTER 4.6** *Questions and questionnaires on the web*

A number of internet sites provide copies of questionnaires from major surveys. These questionnaires can be invaluable in helping develop questions. Many of these sites enable you to search a set of questionnaires for all questions used to tap a particular concept.

*The Question Bank:* This is a free UK site with full questionnaires from a wide range of major national surveys.

<http://qb.soc.surrey.ac.uk>

*The Roper Centre:* This US site provides access to 350 000 questions asked on national public opinion surveys since 1935. It is a free site but you will have to register first.

[http://roperweb.ropercenter.uconn.edu/iPOLL/login/ipoll\\_login.html](http://roperweb.ropercenter.uconn.edu/iPOLL/login/ipoll_login.html)

*General Social Survey:* A free US site with the full question wording, searchable by topic, for questions asked in this major national survey since 1972. Use the subject index option to locate questions.

[www.icpsr.umich.edu/GSS99/subject/s-index.htm](http://www.icpsr.umich.edu/GSS99/subject/s-index.htm)

*The ZEUS database at the University of Mannheim:* This is an excellent, free site from which to obtain the wording of a large number of questions for social surveys.

[http://zeus.mzes.uni-mannheim.de/ab\\_data.html](http://zeus.mzes.uni-mannheim.de/ab_data.html)

measure. A low correlation between the new and existing measure is interpreted as meaning that the new measure is invalid. But it could be the old one that is invalid. Often we will be developing a new measure because we are unhappy with the existing measure. So to validate the new test by using the old one seems self-defeating. Second, for many concepts in the social sciences there are no well-established measures against which to check our new measure.

A related approach is to give our measure to *criterion groups*. Thus a new measure of political conservatism might be given to members of conservative and radical political groups. If the members of the conservative group come out as conservative on the measure and the radical group members come out as radical, this provides good evidence for the measure's validity. Unfortunately, for many concepts criterion groups are not available.

#### *Content validity*

This approach to evaluating validity emphasises the extent to which the indicators measure the different aspects of the concept. A test of arithmetic skills that deals only with subtraction and does not measure ability at multiplication, addition or division lacks content validity. The test may be a fine test of abilities at subtraction and would be a valid measure of this but would not be a valid test of arithmetical skills. The validity of a test depends on the use to which it is put and not on the test *per se*. Whether we agree that a measure has content validity depends ultimately on how we define the concept it is designed to test. Given the disagreement about the 'content' of many social science concepts it is difficult to develop measures which have agreed on validity.

#### *Construct validity*

This approach evaluates a measure by how well the measure conforms with theoretical expectations. Suppose we have developed a new measure of alienation and we wish to evaluate it. First we might say, on the basis of theory, that social class will be related to alienation: the lower the class the higher the alienation. We administer the alienation questions as well as measuring the social class of our respondents. If our results show that the lower the class the higher the alienation we might say the new measure has construct validity. This approach may be all right if the theory we use is well established but it is open to

two dangers. First, if when using the new measure the theoretical proposition is *not* supported, how do we know whether it is our new measure that is invalid—the theory may be wrong or the measure of the other concept (class) may be invalid. Second, we must avoid developing a test so that it supports the theory. If we use a theory to validate our measure and then use the (valid!) measure to test the theory we have established nothing.

In the end there is no ideal way of determining the validity of a measure. The method chosen will depend on the situation. If a good criterion exists use it; if the definition of the concept is well defined or well accepted use this approach; if there are well-established theories which use the concept which we wish to validate, use this approach. If all else fails we have to say this is how the concept is defined and these measures, on the face of it, seem to cover the concept, and to give the measure to other people (referred to as a panel of judges) to see what they think. This approach will indicate the *face validity* of the concept.

#### **The problem of meaning**

One of the problems in developing valid indicators is interpreting the meaning of people's responses. The same behaviour may mean different things or indicate different things for different people. Whilst it is difficult to eliminate this problem with any research technique, there are steps that can be taken to help alleviate it. For an excellent discussion of this issue see Marsh (1982).

One approach is to use a variety of methods of data collection. In particular, observation and in-depth interviewing can give the researcher insight into the meaning of behaviour and attitudes expressed in questionnaires. This can help make more intelligent interpretations of the patterns discovered in the analysis of questionnaire data.

The *pattern* of people's responses can also help us understand the meaning of particular responses. For example, we will interpret the meaning of regular church attendance differently for the person who also prays regularly and expresses agreement with religious doctrines than for the regular attender who does neither of these things. In other words we can use other information to help put the response to a particular question in context.

We can also be more direct and ask people why

they behave in a particular way or why they express a particular attitude. While people are not always aware of the reasons, answers to these ‘why’ questions can provide valuable insights (see Marsh, 1982: 104–11).

None of these approaches resolves the problem of accurately finding the meaning particular behaviours and attitudes have for particular people. It is important to be aware of the problem and to take what steps are available to minimise it. An awareness of the problem should encourage survey researchers to be more thorough in the way data are analysed and be more sensitive in the way results are interpreted. It also should cause survey researchers to supplement their questionnaire studies with more in-depth data collection techniques.

### **DEVELOPING INDICATORS: A CHECKLIST**

To assist with the task of developing indicators use the following checklist.

- 1 Identify the concepts for which indicators are required.
  - a List the concepts required to measure the:
    - i independent variable(s)
    - ii dependent variable(s)
    - iii intervening variable(s)
    - iv grouping variables
    - v socio-demographic concepts.
- 2 Develop nominal definitions.
  - a Search the literature and develop a list of ways each concept is defined.
  - b Select a particular type of definition or develop a new one.
- 3 Unpack the concepts.
  - a For each concept:
    - i identify relevant dimensions
    - ii identify relevant sub-dimensions.
- 4 Develop indicators.
  - a Work out the number of indicators required for each concept:
    - i single
    - ii multiple.
  - b Determine whether there are existing and proven indicators.
  - c Evaluate the existing indicators:
    - i appropriate for the method of data collection to be used?
    - ii need updating?
    - iii appropriate for the particular country in which they are to be used?
    - iv appropriate for the particular sample (given age, gender, education etc)?
  - d What evidence is there for the:
    - i reliability of the existing indicators?
    - ii validity of these indicators?
  - e Develop new indicators (if required).
    - i use informants, unstructured exploratory interviews, brainstorming sessions
    - ii develop indicators appropriate to method of data collection
    - iii develop indicators appropriate to proposed sample.
  - f Develop initial measures.
- 5 Pilot test questions (new and existing).
  - a Use sample comparable to final sample.
  - b Evaluate question for:
    - i reliability
    - ii validity
    - iii quality of questions (see Chapter 7).
- b Decide which dimensions to focus on:
  - i all dimensions?
  - ii selected dimensions/sub-dimensions only?
- c Justify the selection of particular dimensions.

## **KEY CONCEPTS**

Construct validity	Dimensions of a	Measurement error	Reliability
Content validity	concept	Nominal definition	Validity
Criterion validity	Face validity	Operational definition	
Descending the ladder	Harmonisation	Operationalisation	
of abstraction	Indicator	Pilot test	

## FURTHER READING

Often the problems of developing indicators for concepts are reduced to discussions of reliability and validity. For a thorough and clear discussion of issues involved in assessing reliability and validity see Carmines and Zeller's paper 'Reliability and Validity Assessment' (1979). They provide a more advanced and statistical treatment of these measurement issues in Zeller and Carmines, *Measurement in the Social Sciences* (1980). For a less statistical approach to issues of measurement, Bateson's *Data Construction in Social Surveys* (1984) provides an excellent and sophisticated discussion of data construction and develops a theory of this process.

Classic papers on the translation of concepts into indicators are in the edited collection by Lazarsfeld and Rosenberg, *The Language of Social Research* (1955) and Lazarsfeld, Pasenella and Rosenberg's *Continuities in the Language of Social Research* (1972). Some useful examples are provided by Hirschi and Selvin in *Delinquency Research: An Appraisal of Analytic Methods* (1967) Chapter 2. Berger provides a useful discussion on the nature of definitions of religion (1974) while Chapter 11 in Glock and

Stark's *Religion and Society in Tension* (1965) provides an example of unpacking this concept into its various dimensions. Babbie's discussion on the nature of concepts in *The Practice of Social Research* (1995) Chapter 5 is of interest. Burgess has produced a useful guide to issues in defining and measuring a range of social variables in *Key Variables in Social Investigation* (1986).

A critical evaluation of a number of concepts and their indicators is provided in journals such as *Social Indicators Research*. These include Diener and Suh (1997) 'Measuring Quality of Life'; Larsen, Diener and Emmons (1985) 'An Evaluation of Subjective Well-Being Measures'; Larson (1996) 'The World Health Organization's Definition of Health: Social Versus Spiritual Health'; Lester (1997) 'Operationalizing "Modernization" '; Pandey and Nathwani (1996) 'Measurement of Socio-Economic Inequality Using the Life-Quality Index'; Parmenter (1994) 'Quality of Life as a Concept and Measurable Entity'; Raphael, Renwick and Brown (1996) 'Quality of Life Indicators and Health: Current Status and Emerging Conceptions'.

## EXERCISES

- 1 Explain why indicators must be developed for concepts.
- 2 Why might different people develop quite different indicators for the same concept?
- 3 Why is developing a nominal definition both problematic and important?
- 4 a Using the *Question Bank* website ([http://qb.soc.surrey.ac.uk/nav/fr\\_home.htm](http://qb.soc.surrey.ac.uk/nav/fr_home.htm)) use the search facility within the question bank home page (click the search button) to locate a good question or questions for each of the following concepts:
  - attitudes towards homosexuality;
  - religiousness;
  - attitudes towards contraception and actual contraception practices.
- b Use the *The Roper Centre* site ([http://roperweb.ropercenter.uconn.edu/iPOLL/login/ipoll\\_login.html](http://roperweb.ropercenter.uconn.edu/iPOLL/login/ipoll_login.html)) to locate questions to ascertain attitudes towards:
  - trust in government;
  - tax cuts.
- c Using the *General Social Survey* site ([www.icpsr.umich.edu/GSS99/subject/s-index.htm](http://www.icpsr.umich.edu/GSS99/subject/s-index.htm)) locate a good question to measure each of the following:
  - attitude to capital punishment;
  - work satisfaction;
  - experience of sexual harassment in the workplace.
- 5 List three variables or concepts for which single item indicators would be adequate and three for which multiple indicators would be more appropriate. For the multiple-item concepts explain why you would use multiple items.
- 6 Develop a set of questions to measure conservatism. Explain the steps you have taken to move from the concept to your set of questions.
- 7 Use the web search strategies listed in Web Pointer 4.1 to develop a definition of *domestic violence*. As well as identifying a definition also identify dimensions or types of domestic violence. Then, see if you can find questions on the internet or elsewhere that you could ask to ascertain whether a person had been a victim of domestic violence.
- 8 In exercise 3 for Chapter 2 you developed a diagram and conceptual propositions for a theory. Using the same theory and propositions:
  - a clarify the concepts in your propositions;
  - b develop indicators for each concept;
  - c develop testable propositions.

- 9 The United Nations has been developing a measure of Human Development. It has established the *Human Development Index* as a means of reflecting the level of human development in each nation in the world. Go to the website [www.undp.org/hdro/anatools.htm](http://www.undp.org/hdro/anatools.htm) and read the document on that page. Then clarify what the concept 'human development' is. How does the UN use of the term human development differ from other ways in which development is conceived? What dimensions of this concept are identified? What indicators are used for those dimensions?