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1. DEVELOPING YOUR RESEARCH INTERESTS INTO QUANTITATIVE PROJECTS

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1.

Developing Your Research Interests into Quantitative Projects

1.1. The nature of quantitative research

Broadly, the term 'quantitative' refers to:

- the data under investigation
- the techniques used to collect this data
- the methods by which they are analysed

As a form of data, 'quantitative' is usually taken to mean material that is numerable in form; the things people feel, say or do can be transposed into values that can, more or less, be measured with numbers.

An individual's attitude toward the criminal justice system, for example, can be placed on a numeric scale and compared against the general population; the amount of money someone has earned in an hour can be calculated and compared to the people that they work alongside; the number, and characteristics, of people who live in a certain area of the country can be counted to see how that demographic make-up differs to other areas of the country; and, the total of times a particular set of words appear in a series government white papers can be measured to assess the particular policy directions of a Government. Given the reliance on forms of data that are numeric in nature, the techniques used within the canon of quantitative research have traditionally been those that are suitable to counts and scales.

This typically includes:

- 'closed' interviews with people in the form of surveys or questionnaires;
- the 'structured observation' of what people do;
- the analysis of secondary material that is already quantitative in nature – crime statistics for example
- or other material that can, in some way shape or form, be counted.

*Quantitative social research is a term that describes the investigative practice of 'finding out' about the social world.

Quantitative methods of analysis tend to come in two forms: descriptive and inferential. Descriptive techniques are those that seek to describe or summarise data with relation to particular target groups. Inferential statistics, such as those used to assess associations and correlations, are those techniques that attempt to infer an answer about a population from a sample of it. This type of analysis is typically associated with 'statistical significance'.

Whatever method of data collection or analysis that is actually utilised by the researcher, quantitative research tends to be interested in the explicit measurement of social phenomena - attitudes, values, demographic characteristics, and other categories of behaviour - and how such phenomena may be patterned, or not.

This means that it tends to operate with an objective epistemology: there is a world 'out-there' and it can be measured with a degree of accuracy. The better theories that incorporate quantitative data, therefore, are those that are a best fit with that world. In these terms, quantitative research usually operates under a 'correspondence theory of truth'.

There is a relatively solid foundation to the acquisition of knowledge – essentially what is right and wrong - and the building of law-like generalisations is the general goal of the research. This is why some people characterise quantitative research as being positivistic – the so-called 'science of society' - as it is often considered to treat the social world in the manner that a scientist might investigate the physical world.

However, quantitative researchers are not naïve empiricists. They recognise that the social world is not fixed and that society is in a context state of flux: social phenomena can, and do, change. This is why measuring the dimensions of these changes is crucial to quantitative social science and why the theories that we generate to explain the inter-relations of social phenomena need to be tested against observation and measurement on a regular basis.

Like many other forms of social research, quantitative projects do not typically jump out of the blue and the process of research does not begin with data collection or analysis. Instead, quantitative research requires substantial planning and thought before we even step into the field to ask people questions or record their behaviour. We need to know what we are going to do, what data we will collect, how it will be collected, and how we will analyse it, before we do anything else.

Quantitative projects are essentially ‘top-down’ in that they begin with a well-informed general line of reasoning and a well-formed plan of investigation. This is then carried out to determine what the answer might be. A premise is made, and then tested empirically in order to investigate the problem that has been identified.

It is for this reason that quantitative research is often characterised as being deductive in nature. A theory is formulated, tested against observations made in the world, and a conclusion is made.

However, whilst this is true of some forms of quantitative research, particularly where projects employ inferential statistics (see chapter 4), it is not true of them all. Much quantitative research that simply seeks to describe aspects of society does not necessarily begin with a theory that needs testing. All quantitative research, however, begins with a well formed plan.

Indeed, what is absolutely central to any quantitative research project is a solid research rationale: a clear justification for carrying out the project and a clear statement of intent with regards to what the project will attempt to do.

It is for this reason that this workbook will begin right at the start of the quantitative research process by demonstrating how you can identify your research interests, how you can use them to develop researchable quantitative projects, and how you

can present this process.

By the end of this workbook, you should be able to:

- Identify your research interests
- Develop research rationales and aims from these interests
- Use these aims to formulate quantitative research questions and hypotheses

1.2. Identifying your research interests

Social research is a unique field. It is perhaps the only discipline that has the potential to be interested in anything and everything that involves human activity. Since all human activity is necessarily social, social researchers can be interested in anything that humans do.

As a result, social researchers are only limited by their own imagination and they can generate their research projects using a range of influences. These include: personal interests and professional knowledge, as well as reading the literature and secondary datasets to discover gaps in the knowledge base. In this section we’ll concentrate on how you can use these influences to generate your project.

1.2.1. Generating projects from personal interests

Many projects emerge through a personal interest that the researcher has. For instance, they might have noticed something in their everyday lives that has puzzled them and wish to find out more. Similarly, they may have particular hobbies and interests that they want to explore in more depth.

Take a look at this research rationale that some of our students used as a line of reasoning to rationalise their quantitative project:

Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and the newly created Crime Prevention Injunctions.

It is often assumed by the media that the common targets of anti-social behaviour are the elderly and homeowners, especially those living in urban environments. Older people are, therefore, assumed to be living in fear of attack from teenagers on the street, with young people’s fear of anti-social behaviour often marginalised as they are classified as offenders.

If these perceptions hold true, we would expect to find that older people are more worried about youth on the street, and that they are more likely to be targets of anti-social behaviour than younger people.

Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider ‘teenagers hanging around’ to be a problem.

Having just emerged from a teenage landscape themselves, the students’ experiences growing up, and their explicit awareness of how they positioned themselves within a discourse that had labelled all teenagers as problematic, influenced the direction of their project.

Similarly, the following student project explored an issue that was all too evident to students who were living the experience:

It is estimated that about a sixth of the total UK population currently smoke cigarettes. With around 100,000 deaths caused every year from smoking related causes, the estimated cost to the NHS is approximately £2.7 billion a year for treating diseases caused by smoking (ASH, 2012).

Although it is well documented that smoking rates are markedly higher among lower socio-economic groups (see Barbeau et al, 2004, for instance), there is less research specifically on the impact of the level of education on smoking habits.

In the context of the changing landscape of Higher Education particularly, where people are attending University in higher numbers than ever, this paucity of research is surprising (although see Bratti and Miranda, 2010). Using data from the Health Survey for England (2011: Teaching Dataset), this study will examine the impact of the level of education on smoking behaviour.

As people who were in the process of making the transition through the education system, they had clearly noticed some potential differences in uptake and cessation rates of cigarette smoking and sought to investigate the issue with greater robustness.

The involvement of personal interests in the decision-making process about what, exactly, to research is also true of more established researchers.

i In the Department of Sociological Studies at the University of Sheffield, for example, Vicki Robinson - an occasional climber herself - used her interests to guide the development of her project 'A Different Kind of Hard: Everyday masculinities, identity and rock climbing.'

Equally, as a working class teenager growing up in Northern Ireland, Richard Jenkins went on to research and write the book 'Lads, citizens, and ordinary kids: Working class youth life-styles in Belfast'. Even political interests can be used as a starting point for research. Kevin Farnsworth was something of a political activist as a student, experiences which shaped the research that went into his book 'Corporate Power and Social Policy in a Global Economy: British Welfare under the influence'.

T Write down some of things you are interested in your everyday lives – try to be as imaginative as possible.

1.2.2. Generating projects from professional interests

Other projects, however, are developed through professional associations and experiences where the researcher might have had experience of working in a particular area.

i Again in the Department of Sociological Studies at the University of Sheffield, Susie Molyneux-Hodgson has a doctorate in physics, experiences which have shaped her research interests around the 'sociology of science' and 'public understanding of science', and Marilyn Gregory's previous occupation as a probation officer shaped her research on juvenile offenders. Similarly, David Phillips' previous job as a mental health nurse has formed the basis for much of his research work, culminating in his book 'Quality of Life'. Even things like retail, and sport and leisure can be used as a base to develop research projects.

T List your professional interests. Think about both your previous occupational experiences and what you might like to do as a career – for instance, if you are thinking of going into teaching, try to think about what particular areas of teaching you are interested in.

Elsewhere, some researchers are commissioned to conduct research by other people and institutions. Of course, at this stage of your career you are unlikely to be asked to carry out research on behalf of someone else. But, if you have to develop a project and are struggling for ideas and interests, you can do something similar.

T Go to your own departmental home page and have a look at the staff profile pages. Look at their interests and their publications; can you find anything that you might find interesting to work on?

Many researchers have ideas for things that they do not have time to develop and it might be worth contacting them to help you to develop your ideas.

1.2.3. Using the literature

You should now have a pretty long list of things that could count as research interests – the problem now is to develop them into bona-fide research interests that can be used to form research aims and questions for a quantitative project. Here's one way of doing it. Suppose that my favourite modules during my degree programme have been 'race and ethnicity', 'the sociology of the market', and 'ageing in society'. We can say these broadly reflect our research interests. How could I combine them build a quantitative research project with achievable aims? One way is to look for common threads that might allow us to connect these areas.

T Using the knowledge you have of these subject areas, quickly list some keywords that you can associate with these subjects.

For ethnicity, you may have listed things like the disadvantage and inequality many ethnic groups are associated with such as health, work, and education. You might have even listed different types of ethnic groups. For the market, you may have listed things like welfare, inequality, tax, benefits, capitalism, and money; and for ageing you may have listed specific age groups like, children, pensioners or concepts such as the life-course, and even things like disadvantage and inequality.

Q Can you see any common threads in the list you have compiled?

It is now possible to see some emerging themes. Generally speaking, we appear to be interested in the economic and welfare inequality of ethnic groups across the life course. Therefore, our research interest could be: the economic and welfare inequality of ethnic groups across the life course. This is a well formed research interest that it is in itself nearly a research aim.

More on that in the next section, but notice how this process necessarily involved some working knowledge of the subjects we were interested in?

Developing a working knowledge of the area you are interested in is a crucial part of the process of 'getting to know the field'. It is one thing to have an idea, it is another to develop a research interest and any idea always requires further investigation and some familiarity with the literature. Indeed, developing some 'theoretical sensitivity' to the theories, issues, and debates in the literature is crucial to the process of developing research interests.

Q Can you do the same with the lists of your own interests that you have compiled?

Another way to generate interesting research topics is to simply adapt a study that you are already aware of. You might want to employ a different methodological technique, introduce a different variable, use a more up-to-date dataset, conduct research in a different location, or even with a different age group or sample. All of these are viable methods to generate original research.

i A recent example of this in the literature relates to the ESRC funded project which was undertaken between May 2005 and April 2007 by Julia Johnson, Sheena Rolph and Randall Smith.

This involved replicating Peter Townsend's (1962) classic study 'The Last Refuge'. He depicted residential homes as being large, impersonal institutions which isolated older people from the outside world which robbed them of individual privacy and control, routinized activities, and bred poor staff attitudes. By employing the same techniques as Townsend in different time, Johnson et al were able to replicate his research to investigate how practices had differed. Unfortunately, they found that much remained the same almost half a century later.

1.2.4. Exploring Secondary Datasets

Finally, you might wish to gain inspiration from some secondary datasets that are available to you as a researcher. Secondary data is generally taken to mean data that the researcher has not compiled themselves. It is data that is has been collected by people and organisations as they go about their daily lives - as in the case of crime statistics, for example - or it is data that is collected specifically by an external agency for the use of researchers and or policy-makers in whatever way they see fit.

A huge amount of money is put into planning, collecting, testing, and analysing this type of secondary data, so it's often much more robust in terms of coverage and range than can be achieved by the lone researcher. In many cases, the samples are so big, and so well developed in terms of coverage, that they can be taken to be a representative measure of the population.

The census is one example that does actually cover the whole population of the UK, but there are a number of others such as the General Household Survey, the British Social Attitudes Survey, the British Household Panel Survey, and the Crime Survey of England and Wales (formerly the British Crime Survey). All of these datasets are easily available and free to use. Many are also available in the form of 'teaching datasets'.

A teaching dataset is basically a smaller version of the original dataset that has been simplified in order to make it easier to use. There are three main differences. Firstly, variables are specifically selected for teaching datasets because they are relatively uncomplicated to use. Whilst this does mean that there are fewer characteristics and questions to choose from, it also means that you can pretty much use them 'off the shelf' without having to worry about some of the technical problems associated with the data. Secondly, the codebooks are also much smaller. Codebooks are essentially the manual to the dataset. This makes them much easier to navigate so you can find information relating to your chosen variables with much greater ease. Finally, problems of weighting are simplified. This takes a little more explaining.

As suggested above, the vast majority of datasets are samples of a larger population. Whilst they are often designed to be representative of that population, they do not always achieve this lofty ideal and

some parts of the population are over-represented with other parts under-represented. Young black-British men, for example, are often under-represented in survey data. The solution to this problem is to 'weight' the data.

Basically, weighting compensates for the (estimated) non-response of particular groups in the population. In turn, this enables us to make total population estimates based on the sample with greater confidence. In order to 'weigh' the data, the population is split into sub-groups (sex, ethnicity, age etc) where the number of people in each sub-group is actually known. Comparisons are then made to see how representative the particular sample is of those population estimates. Where there are discrepancies, weights are calculated in order to 'correct' the data. This makes the sample more likely to be representative of the population that it is attempting to estimate.

As you may be guessing, actually doing all the maths for this is a very complicated and long-winded process. Fortunately, the kind people at the UK Data Service (and elsewhere) will often work all this information out for those of us who aren't blessed with the mathematical skill to actually do it for ourselves. In many cases, all that is required is to turn the weighting variable 'on' within the dataset. There are usually instructions how to do this in the codebook that accompanies the dataset.

All that said, unweighted data is not unusable data; in fact, it is still really good data and we can do interesting things with it – but we shouldn't use it with ignorance. Indeed, we have to treat the sample with caution if we want to use it to speak for the whole of the population (which we will often almost do by default if we go about quoting percentages). Crucially, you need to demonstrate that you are aware of the potential problem, whether you have addressed it, and acknowledge the fact somewhere in your analysis.

These 'teaching datasets' are available to explore with little expense. Indeed, many are available upon registration to the UK Data Service website¹, with some being available with no restrictions via the UK Data Service's Nesstar portal². This is an easy to use catalogue of data that requires very little expertise to operate. If you can navigate a web-page, you

1 <http://ukdataservice.ac.uk/>

2 <http://nesstar.ukdataservice.ac.uk/webview/>

should be able to operate Nesstar after just a few minutes practice. We'll introduce you to this service in a short while.

Another great thing about these datasets is that, with a little bit of technical know-how, it is possible to select specific groups for analysis. Not only can you compare and contrast between particular groups on a variety of target measures, you can also explore the attitudes and behaviours of increasingly select groups of people. Given the large sample sizes involved in many of these surveys, you can, for example, choose to look at just men or women, or particular ethnic groups, or socio-economic groups. You can even combine these selections to focus on young, working class white women.

Indeed, many datasets will record a variety of demographic information. These are essentially the board characterises of the respondents that can be examined collectively. However, when these characteristics are combined with more substantive measures that relate to particular topics, it's very easy to begin to build unique and original research projects. Here are just a few of the more popular surveys provided by the UK Data Service:

The British Social Attitudes Survey

The British Social Attitudes Survey (BSAS) began in 1983 and collects a variety of information that relates to attitudes of the nation. Interviewing over 3,000 different people on an annual basis, and incorporating a multi-stage stratified sample, it is often considered to be a barometer of the country's attitudes toward a range of issues. As well as recording all the usual demographic characteristics of respondents, it uses a form of random probability sampling and examines a range of attitudes relating to: Political affiliation, public expenditure, the countryside, transport and the environment, immigration, crime, health care, work, charitable donations, civil liberties, as well as many, many more. Unfortunately, there are no teaching datasets available so some knowledge of data manipulation is beneficial when examining the data in its raw form. However, versions are available through the UK Data Services 'Nesstar' portal which does make the data much more accessible for the beginner.

The Crime Survey of England and Wales (formerly the British Crime Survey)

The Crime Survey of England and Wales (formerly the British Crime Survey – aka BCS) is an annual survey that is conducted nationwide throughout Britain. A study of 'victimisation', the CSEW was

originally designed to complement Official Crime Statistics, which typically under-estimate the level of crime experienced by people throughout the country due to issues of non-reporting etc.

Generally speaking, the survey utilises a cross sectional design with a multi-staged stratified random sample to record a variety of demographic information, as well as asking respondents a range of questions regarding 'victimisation'. Not only does this include all the usual characteristics of a person - gender, age, socio-economic class, ethnic group etc - it also includes their attitudes and opinions toward safety and various aspects of policing and the criminal justice system, as well as their own experience of crime. The number of respondents to the survey is typically over 10,000 and, given the level of the coverage and sampling methods employed, it can be considered to be fairly representative of the country when used in its broadest form. Beginning in 1982, the survey is updated on a yearly basis and there are number of useable teaching datasets. The most recent of these was released in 2011-2012.

The Labour Market Survey

A quarterly survey that began in 1973, the Labour Market Survey (LMS) provides the official measures of employment for the UK. Amongst many others, it provides a range of data on economic activity/inactivity, training, education, hours of work, and income. Utilising a simple random sample with a cross-sectional design, the number of respondents to the survey is often over 90,000. As a result, it is considered to be representative of the population. Data is available through the 'nesstar' portal and there are teaching datasets; the most recent of these relates to the period October-December 2012.

The Health Survey for England

The Health Survey for England is conducted on behalf of the Information Centre for Health and Social Care and the Department of Health that has been conducted on an annual basis since 1991. Utilising a multi-stage stratified random sample, the survey combines demographic information with a survey-based questionnaire. It also offers information relating to illness and physical measurements, as well as data derived from blood samples. Blood pressure, height, weight, general health, as well as smoking and drinking behaviour are measured on an annual basis with as many as 10,000. A teaching dataset is available for 2011 and many of the datasets are available through the 'Nesstar' portal. Survey data relating to both Wales and Scotland are also available.

Understanding Society

Incorporating elements of the now defunct 'British Household Panel Survey', the Understanding Society dataset is also known as the 'United Kingdom Household Longitudinal Study' (UKHLS) and it began collecting data in 2009. The survey is designed to attempt to understand social and economic change in Britain at household and individual levels. It provides data on a diverse range of topics that emphasise family and social ties, work, financial resources, and health. Whilst much of the material is designed to be longitudinal in nature, it can also be used cross-sectionally.

The survey collects information from a representative sample of 40,000 UK households. Given the design of the study, the survey is more complicated than most and there are no teaching datasets available, and, to date, the data is similarly not currently available through the 'Nesstar' portal.

Throughout this series of workbooks, we'll be drawing on examples that have been generated using these datasets. However, you are also not limited to the UK Data Service. The rapid expansion of Information Technology has been followed quickly by a range of quantitative data that is readily accessible to researchers. In addition to the many surveys the UK Data Service provides access to, other providers have similarly made easy to obtain interesting data. If you are interested in education, for example, not only can you get useful information from UKDS, the Higher Education Statistics Agency (HESA)³ also provides material relating to a range of issues associated with Higher Education. Eurostat⁴ provide a myriad of data that enables cross-European analysis, and the OECD⁵ provide similar data at a global level. The International Social Survey Programme is also global in nature.

However, whilst much of this material is free, some effort does need to be exercised in order to become familiar with the particular dataset in question. Many have their own nuances, and not all of them are friendly to the absolute novice – especially if you are attempting to employ inferential techniques.

3 <http://www.hesa.ac.uk/content/view/1897/239/>

4 <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

5 <http://www.oecd.org/statistics/>

Whilst the data available through Nesstar and the Teaching Datasets of the UK Data Service are particularly friendly, you cannot always take this for granted and a thorough read of the accompanying documentation is always advisable before you begin exploring the data you have accessed.

1.3. Developing a research rationale

Now that you have identified your research interests, you need to be able to use them to develop a quantitative project. To do this, we need to develop a research rationale that leads to an achievable research aim.

The purpose of a research rationale is four-fold:

- to provide some context regarding why your chosen topic is an interesting area to study;
- to give some indication of what has already been said in the academic literature;
- to offer an indication of the knowledge gap;
- to give a clear statement of intent regarding what you will do in your project.

Broadly, a research rationale justifies the reason for your project and what it will actually achieve. It provides a framework for the research and specifies what the research is attempting to do and why.

In a research rationale, you are basically attempting to answer the following questions:

- Why is the project an interesting thing to do?
- What has been said in the area before?
- What has not been said in the area before and why is it important that this issue is addressed?
- What will this project do?

If we look again at our first student example concerning young people and antisocial behaviour, we can see how these areas come together:



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and the newly created Crime Prevention Injunctions (CPI). It is often assumed by the media that the common targets of anti-social

behaviour are the elderly and homeowners, especially those living in urban environments. Older people are, therefore, assumed to be living in fear of attack from teenagers on the street, with young people's fear of anti-social behaviour often marginalised as they are classified as offenders.

If these perceptions hold true, we would expect to find that older people are more worried about youth on the street, and that they are more likely to be targets of anti-social behaviour than younger people.

Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider 'teenagers hanging around' to be a problem.



This rationale appears to satisfy all of our requirements. It can, however, be strengthened with a few adjustments.

You can see that the first sentence clearly anchors the project to a broad area of public interest:



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and its more recent replacement, the Crime Prevention Injunction (CPI).



The rationale for the project, therefore, is immediately placed within a public context that clearly demonstrates a connection to the wider world that is easy for many members of society to recognise.

The second sentence goes on to reinforce this link:



It is often assumed in popular media reports that the common targets of anti-social behaviour by young people are the elderly and homeowners, especially those living in urban environments.



By relating the topic to the media, the rationale once again highlights its topicality. However, if you are to make an assumption like this, it is often better to provide a reference to support the point.

Browsing through some of the literature on the topic, we quickly find an article in the Observer newspaper in May, 2005, that highlighted comments by Professor Rod Morgan, then Chairman of the Youth Justice Board, who suggested that the discourse on 'job culture' was threatening to demonise a generation of young people. So, we can make reference to this article within the proposed rationale to evidence this point and strengthen the argument.



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and its more recent replacement, the Crime Prevention Injunction (CPI). It is often assumed in popular media reports that the common targets of anti-social behaviour by young people are the elderly and homeowners, especially those living in urban environments. As a result of this pervasive stereotype, in 2005 the then Chairman of the Youth Justice Board, Rod Morgan, commented that the discourse on 'job culture' was threatening to demonise a generation of young people (the Observer, 22-05-2005).



By including this extra sentence, the context for the project is now in place, and it is set with a degree of evidence.

What is also noticeable by its absence in the current example, is the lack of academic literature. Given the importance of establishing a knowledge gap, we do, at the very least, need to make some allusion to what has been said already. So, we need to find, and read, some literature. Fortunately, there is a great deal of literature on the subject so finding it is not particularly difficult. Selecting what to include, and what to exclude, however, is much more of a task. As this rationale is fairly short, we need to be quite ruthless with what we select to include.

However, it should be noted that the 'literature section' is often the biggest, and most important, part of a research rationale and selection cannot always be so exclusive. But for the time being it is possible to identify three main areas of interest that need signposting: youth and crime; ASBOs and young people; and the fear of crime – with specific reference to young and old people. As a result, and at the very least, we probably need to include references on each area.

Having looked at the literature, it's possible to locate important reference points in all areas:

- Muncie's (2009) over-arching text on 'Youth and crime';
- Squires (2008) text 'ASBO nation: The criminalisation of nuisance';
- Hale's (1996) influential review on the fear of crime entitled 'Fear of crime: A review of the literature'.

We'll amend the proposal to include these key texts:



Whilst there has been much academic interest in youth and crime (see Muncie, 2009), the impact of ASBOs in particular (see Squires, 2008), and the fear of crime generally (see Hale, 1996), the issue of young people's fear of anti-social behaviour in the UK is often marginalised as they are classified as offenders, with older people assumed to be living in fear of attack from teenagers on the street.



Notice how we've used the literature here to begin to create a knowledge gap – which in turn helps us inform our project and to justify it? Now all that is left to do is to specify the aim of the research – this has already been done:



Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider 'teenagers hanging around' to be a problem.



There are three elements at work in this final section:

- A description of the general problem
- A specific articulation of the focus
- An indication of how the study will achieve the aim

As a result of a few changes, a good rationale has been turned into one that has a firm evidential base and it looks much better as a result:



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and its more recent replacement, the Crime Prevention Injunction (CPI).

It is often assumed in such reports that the common targets of anti-social behaviour by young people are the elderly and homeowners, especially those living in urban environments. As a result of this pervasive stereotype, in 2005 the then Chairman of the Youth Justice Board, Rod Morgan, commented that the discourse on 'job culture' was threatening to demonise a generation of young people (the Observer, 22-05-2005).

Indeed, whilst there has been much academic interest in youth and crime (see Muncie, 2009), the impact of ASBOs in particular (see Squires, 2008), and the fear of crime generally (see Hale, 1996), the issue of young people's fear of anti-social behaviour in the UK is often marginalised as they are classified as offenders, with older people assumed to be living in fear of attack from teenagers on the street. If these perceptions hold true, we would expect to find that older people are more worried about youth on the street, and that they are more likely to be witness to anti-social behaviour than younger people.

Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider 'teenagers hanging around' to be a problem.



Research rationales can be longer or shorter. Indeed, this example is quite short and many are much, much longer.

Many literature reviews, for example, are basically research rationales writ large. Regardless of length however, most will share the characteristics of the example above. They will demonstrate why a project is interesting. They will attempt to introduce relevant literature to contextualise the project and develop a knowledge gap. Finally, they will provide an overview of what the current project will actually attempt to do.

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1.4. Research aims and research questions

The rousing finale of your research rationale is your research aim. That is, what you will do in your project. It is essentially a broad statement concerning the purpose of your research.

Good research questions - sometimes called objectives - on the other hand, specifically define the parameters of your aim and provide a purposeful direction for your research.

If the research aim begins with 'This research will...', the research questions follow with something along the lines of 'More specifically, the project will...'. Often, one particular study may have a range of research questions that fit under a broader research aim. Indeed, many of the papers that appear in journals are not necessarily limited to one research aim and one accompanying question.

In order to identify your research aim and research questions, you need to think about the concepts that you are interested in and provide a rationale for why you think that they are worth investigating.

If we return to the previous example, we can see that we have a broad idea of what the project is going to - address the research aim - but there is still a little detail lacking regarding what, exactly, the study will do. In short, we need some specific research questions to define the parameters of the project.

If we look again at the final sentence of the rationale, we can see the research questions developing:



Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider 'teenagers hanging around' to be a problem.



Obviously, in order to generate their project, this group had not simply picked their topic out of thin air. Instead, they familiarised themselves with the type of survey questions asked within the British

Crime Survey. They then connected some of those survey questions with their own experiences of everyday life. This enabled them to develop the theoretical sensitivity necessary to write a research rationale, and related research questions.

The survey questions they found interesting were as follows:

- How much of a problem are teenagers hanging around?
- Have you seen any anti-social behaviour in the last 12 months?

In addition to these more experiential survey questions, the British Crime Survey also asks for all the usual demographic characteristics of the respondent. Therefore it is relatively easy to cross-tabulate information like gender, ethnicity, socio-economic group, age etc, with more substantive questions to see if there are similarities or differences across the sample. As this particular project was interested in exploring differences between age groups with respect to perception of teenagers and anti-social behaviour, it was a relatively easy decision to utilise these two survey questions to come up with an interesting project - including some specific research questions that they would be able to authoritatively answer by the time they had finished their project.

Their entire rationale, and associated research questions looked like this:



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the emergence of Anti-Social Behaviour Orders (ASBO) and its more recent replacement, the Crime Prevention Injunction (CPI).

It is often assumed in such reports that the common targets of anti-social behaviour by young people are the elderly and homeowners, especially those living in urban environments.

As a result of this pervasive stereotype, in 2005 the then Chairman of the Youth Justice Board, Rod Morgan, commented that the discourse on 'job culture' was threatening to demonise a generation of young people (the Observer, 22-05-2005). Indeed, whilst there has been much

academic interest in youth and crime (see Muncie, 2009), the impact of ASBOs in particular (see Squires, 2008), and the fear of crime generally (see Hale, 1996), the issue of young people's fear of anti-social behaviour in the UK is often marginalised as they are classified as offenders, with older people assumed to be living in fear of attack from teenagers on the street.

If these perceptions hold true, we would expect to find that older people are more worried about youth on the street, and that they are more likely to be witness to anti-social behaviour than younger people.

Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider 'teenagers hanging around' to be a problem.



Therefore, this project will:

- Examine current perceptions of risk attached to 'teenagers hanging around' in the UK
- Examine current levels of anti-social behaviour
- Assess age-group differences in the worry about anti-social behaviour
- Explore the different levels of exposure to anti-social behaviour 'according to age'

Notice that the first two questions here will provide some descriptive material about general levels of perceptions of risk and anti-social behaviour. The third and fourth, however, are of the compare and contrast variety where two variable are working in combination with each other. It is also worth noting that these research questions are not really questions at all. Whilst some research questions are punctuated by a question mark, not all are. In this respect, research questions are often better thought of as firm statements of intent about what the project will do specifically. Indeed, all good research questions share an ability to be answered authoritatively in the conclusion of the project. This requires a firm alignment between the research questions, the data being collected, and the techniques being employed for analysis. Both the data and the techniques of analysis need to be appropriate to the questions being asked of it. This is why good quantitative social research benefits from considerable planning before the act of analysis.

 What about the data in the following table – can you identify the research aim and associated research questions?

Table 1.1. Smoking status by level of education

		Cigarette smoking status (%) - weighted			
		Never smoked cigarettes	Used to smoke cigarettes occasionally	Used to smoke cigarettes regularly	Current cigarette smoker
Highest educational institute attended	University or equivalent	57.3	6.4	23.8	12.6
	Sixth form or equivalent	52.5	5.2	19.8	22.5
	Secondary school or equivalent	41.3	4.2	28.2	26.3
Total		48.8	5.2	25.3	20.8

Yes, that's right, it is the table from the level of education/smoking rationale described earlier.

The rationale, research aim, and research questions looked like this:



It is estimated that about a sixth of the total UK population currently smoke cigarettes. With around 100,000 deaths caused every year from smoking related causes, the estimated cost to the NHS is approximately £2.7 billion a year for treating diseases caused by smoking (ASH, 2012).

Although it is well documented that smoking rates are markedly higher among lower socio-economic groups (see Barbeau et al, 2004, for instance), there is less research specifically on the impact of the level of education on smoking habits. In the context of the changing landscape of Higher Education particularly, where people are attending University in higher numbers than ever, this paucity of research is surprising (although see Bratti and Miranda, 2010).

Using data from the Health Survey for England (2011: Teaching Dataset), this study will examine the impact of the level of education on smoking behaviour.

More specifically, the project will:

- Explore current levels of smoking/non-smoking in England
- Examine whether there is an association between level of education and smoking status



 Can you see how the two sentences of the rationale establish the field of vision?

That is, the estimated level of smoking in the UK, the potential cost of smoking on the individual, and the impact of smoking on society. This is quite an explosive start and is very well constructed with respect to demonstrating that the focus of the paper

is of public interest. The following two sentences review the key points in this literature, with the latter establishing a gap in the research field. The final sentence indicates what the research aim will actually be – to investigate the impact of level of education on smoking behaviour. These questions are then explicated in the research questions – which should be answerable from the data contained in Table 1.1.

Whilst the research is not, perhaps, the most original topic in the world, the five sentences provide a sound rationale for the research and the research questions are clearly identified.

However, it is also worth highlighting that research rationales, and any accompanying research questions, are not necessarily written in stone right at the start of the project. Indeed, although research textbooks and research papers will present this process as being quite straight-forward, it often isn't and narrowing, clarifying, and even redefining your aims and questions is essential as you move through the early stages of the project.

Forming research questions is a process rather than a 'eureka' type event and constructing the 'right' research questions should be seen as an iterative procedure that is informed by a cycle of reading and 'doing' at all stages. That is, it is a process that requires gradual and repeated development over a period of time with a lot of thinking, reading, and piloting. Only when you are happy that your project is actually achievable should you begin to write up the research rationale and research questions. Whilst 'working' rationales inform the development of the project, and it is always useful to develop some working background of associated literature, the actual practice of writing a final research rationale and associated research questions can actually be done after the event.

1.4.1. Developing research questions

You should now be able to recognise the difference between research aims and research questions, but how do we get from our research interests to a research rationale including research aims and questions? In truth, there is no one way to do this. Some will follow very easily from your research interests, some will take more work. Generally speaking, there are two possible ways of developing our aims and questions from our research interests.

As we've previously hinted at, one involves developing 'theoretical sensitivity' – that is, becoming more and more familiar with theories, debates, and issues within the literature and the accompanying methods. Often, it's a good idea to have a look at what other researchers are doing and the data they are using. Gaps in the literature are not often huge leaps in the knowledge field: individual research projects rarely change the landscape of current thought. However, they do add to the knowledge base in small but crucial ways. Sometimes projects may have the same methods but explore slightly different samples; other projects might just update a study using more recent data; some even just confirm earlier research. Hence, exploring research papers on particular topics is a useful way of generating ideas for your project.

1.4.2. What data might already be available?

Exploring nesstar

Another good idea is to explore the range of secondary data-sets that are available to you as a researcher.

Look at the following website. It lists some of the variables that are available to you:
nesstar.esds.ac.uk/webview

For the time being – we'll explore a teaching dataset⁶.

> Click on the + next to the 'Teaching Dataset' on the left hand side of the page. This should reveal a range of datasets.

> Click 'General Household Survey'

Look at the right of the screen. Here you should see an abstract of the survey that gives you some vital background material about the dataset.

Read this.

> Now click on the + next to the 'General Household Survey'

You should now see the available datasets

> Now click on the icon next to 'General Household Survey 2000-2001: Social Capital Teaching Dataset'

⁶ You may have to have logged in via your educational establishment to do this.

> Click on the + next to 'Variable Description'
> Click on the + next to 'Social Participation'
> Now click on the question 'number turn to in person crisis'

Look at the right of the screen. Here you get a breakdown of the question including the literal question and a breakdown of the answers that were given in the survey.

Now comes the interesting part – go back to the left-hand side of the screen.

> Click on the + icon next to 'Household Information'



What other variables might it be interesting to analyse in relation to the 'number turn to in person crisis' variable?

Providing we could write a rationale, research aim, and research question(s) for studying the variables, we could use a whole host of demographic variables depending on our interest. Ethnic group, class, and gender, are just some of the possibilities.



Can you write a brief research rationale, a research aim, and research questions for the variables we have mentioned?

Here's a brief sketch of one possibility:



Whilst much academic discussion has recognised the complexity of the relationship between individual and the society that they live in (see Bradley, 1995; Wilkinson and Pickett, 2008 for some further discussion), the breakdown of traditional communities associated with the decline in industry, the repeated neo-liberal economic policy of the 1980/90s, ongoing changes in traditional family units, and the challenges of multiculturalism, are often perceived to be a sign of a fragmenting and disenfranchising society.

However, in the years that followed New Labour's election victory in 1997, Tony Blair repeatedly highlighted the solidarity of the British nation. In his speech to the Labour party conference of 2000, for example, he proclaimed

that 'bonds of connection...make us not citizens of one nation but members of one human race'. But to what extent did particular groups feel these bonds in this apparently individualised and connected Britain?

Using data drawn from the General Household Survey: Teaching Dataset (2001), this study will explore the level of isolation in Britain at the turn of the century. By looking at the amount of people respondents said they could turn to in a crisis, it will explore the relationship between a range of demographic variables and perceived levels of isolation.

More specifically, it will:

- Explore levels of isolation in the UK at the turn of the century
- Examine the association between gender and isolation
- Examine the association between ethnicity and isolation
- Examine the relationship between social class and isolation



If we wanted to, we could even look at specific sub-groups within these categories. For instance, it is possible to look at the association between ethnicity and community membership for women only; or to look at the association between gender and community for those in the service classes. If we were really lucky, we might even be able to find some longitudinal data that would allow us to explore these associations over time to explore any changes. In fact, some datasets, such as The English Longitudinal Study of Ageing (ELSA) and The British Household Panel Survey (BHPS), are specifically designed to enable researchers to study variables over time.

In any case, as a working rationale, with research aims and questions, the above is fine for the time being, but depending upon what we find as we begin to work through the research process, we might want to add bits to it, or even take bits away that don't turn out to be as fruitful as we thought they might be. As we shall see later, answering one question often leads to the asking of a whole lot more.

Indeed, for those who are a bit more adventurous, you can actually explore the variables that are con-

tained in a whole range of different studies – there are literally thousands. It's worth noting that you wouldn't be able to 'cross-pollinate' variables from one survey to another, and you are always limited by your knowledge of statistical techniques, but most surveys collect a whole range of demographic variables that you can use to investigate your interests.

1.5. Research hypotheses

Now you have a research interest, a research aim, and some potential research questions, you might need to start thinking about a research hypothesis. Hypotheses are designed to express relationships between variables and, crucially, whether there is a significant relationship/association/difference between those variables. Indeed, research hypotheses are essential if you are exploring two or more variables in conjunction with each other.

If your research questions are more descriptive than generating a hypothesis may not be appropriate. However, most quantitative research is deductive in nature – that is, particular theories are being tested rather than generated – so forming a hypothesis is particularly important. This is especially the case when you are directly trying to determine whether anything significant is occurring between your chosen variables. For instance, if you are interested in investigating one of our previous research questions – whether there is an association between gender and perceived level of isolation – we need to find some way of actually saying whether there is an association or whether there is not. This is where hypotheses come in.

A hypothesis is a specific and predictive statement about the possible range of answers that could result from our research question. They primarily aim to answer our research question by providing a range of options that could result from the research questions.

In many quantitatively based social research papers the hypotheses are not explicitly stated – but they are always implied and you can usually extract two types of hypothesis from every research question: these are called the null hypothesis and the alternative hypothesis (sometimes this is called the research hypothesis or the experimental hypothesis).

The null hypothesis is a negative statement regarding the possible significance of your result – it is the ‘not significant’ answer.

It is often framed thus:

- There will be no significant [difference, relationship, association, or effect] between [variable one] and [variable two etc].

So if our research question was whether there was an association between gender and social isolation, the null hypothesis would be:

- There will be no significant difference between men and women with respect to their levels of social isolation

The alternative hypothesis, however, is a positive statement that does predict an association, relationship, or an effect, between two or more variables – it is the ‘significant’ answer. With regard to our previous example, our alternative hypothesis might be:

- There is a significant difference between men and women with respect to their perceived level of social isolation

In essence, the job of an inferential statistical test is to allow us to reject one of these hypotheses and accept the other. Statistical tests such as those associated with effects (‘t’-tests), associations (chi-square), and relationships (correlations), allow us to infer an answer from our data using hypotheses. This is the difference between descriptive and inferential statistics. Descriptive statistics allow us to describe data, whereas inferential statistics allow us to infer answers about our sample using hypotheses. We’ll deal more with these issues later.

Let’s return to our previous research question examples. We’ll start with our smoking example. Remember our rationale went thus:



It is estimated that about a sixth of the total UK population currently smoke cigarettes. With around 100,000 deaths caused every year from smoking related causes, the estimated cost to the NHS is approximately £2.7 billion a year for treating diseases caused by smoking (ASH, 2012). Although it is well documented that smoking rates are markedly higher among

lower socio-economic groups (see Barbeau et al, 2004, for instance), there is less research specifically on the impact of the level of education on smoking habits. In the context of the changing landscape of Higher Education particularly, where people are attending University in higher numbers than ever, this paucity of research is surprising (although see Bratti and Miranda, 2010). Using data from the Health Survey for England (2011: Teaching Dataset), this study will examine the impact of the level of education on smoking behaviour.



More specifically, the project will:

- Explore current levels of smoking/non-smoking
- Examine whether there is an association between level of education and smoking status

State the null and alternative hypothesis for the research questions where relevant.

The first question – explore current levels of smoking/non-smoking – is a descriptive question. It seeks to describe a general distribution of data. It does, not, therefore, need a hypothesis. The second question, however, does need a null and alternative hypothesis.

It should be something like this:

- There is no association between level of education and smoking status.
- There is a significant association between level of education and smoking status.

This is partly the reason why we don’t always explicitly state our research hypotheses; they do become a little bit repetitive if we have a lot of them. However, you should always be able to infer them from your research questions.

Let’s try again with our other example:



Teenage crime and anti-social behaviour has been a topic of debate within the media for a number of years, and has prompted the

emergence of Anti-Social Behaviour Orders (ASBO) and its more recent replacement, the Crime Prevention Injunction (CPI). It is often assumed in such reports that the common targets of anti-social behaviour by young people are the elderly and homeowners, especially those living in urban environments. As a result of this pervasive stereotype, in 2005 the then Chairman of the Youth Justice Board, Rod Morgan, commented that the discourse on ‘job culture’ was threatening to demonise a generation of young people (the Observer, 22-05-2005).

Indeed, whilst there has been much academic interest in youth and crime (see Muncie, 2009), the impact of ASBOs in particular (see Squires, 2008), and the fear of crime generally (see Hale, 1996), the issue of young people’s fear of anti-social behaviour in the UK is often marginalised as they are classified as offenders, with older people assumed to be living in fear of attack from teenagers on the street. If these perceptions hold true, we would expect to find that older people are more worried about youth on the street, and that they are more likely to be witness to anti-social behaviour than younger people. Using data from the British Crime Survey (2007-2008: Teaching Dataset), this study will explore such perceptions of anti-social behaviour by examining the extent to which different age-groups have witnessed anti-social behaviour, and to what extent different age groups consider ‘teenagers hanging around’ to be a problem.

Therefore, this project will:

- Examine current perceptions of risk attached to ‘teenagers hanging around’ in the UK
- Examine current levels of anti-social behaviour
- Assess age-group differences in the worry about anti-social behaviour
- Explore the different levels of exposure to anti-social behaviour according to age



State the null and alternative hypotheses for each research question.

Again, the first two research questions are descriptive in nature and do not require hypotheses. The third and fourth questions, however, do need hypotheses.

The null hypotheses should be something along the lines of:

- There will be no significant differences between age group and worry about anti-social behaviour.
- There will be no association between age and exposure to anti-social behaviour.

The alternative hypotheses should be something like:

- There will be significant differences between age group and worry about anti-social behaviour
- There will be a significant association between age group and exposure to anti-social behaviour

1.6. Rounding up...

The aim of this workbook is to introduce you to some of the important issues in the planning of quantitative research. You should now be able to identify your own research interests and how you can use them to develop researchable quantitative projects.

More specifically, you should now be able to:

- Use your own ideas, literature, and secondary datasets to identify potential projects of interest
- Turn these interests into a research rationale suitable for quantitative social research
- Demonstrate how your project relates to public interests and the academic literature that informs it
- Develop research aims from your rationale
- Formulate quantitative research questions and the hypotheses that emerge from these questions

However, the planning hasn’t finished here – now you need to be able to turn these research questions and hypotheses into data that you can actually analyse. The next book in this series will introduce you to some of the main issues you need to know about when building and using variables to investigate your questions.

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