Does British Sociology Count?
Sociology Students’ Attitudes toward Quantitative Methods

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ABSTRACT
The research reported here is from the first national survey of British undergraduate attitudes to the methodological character of the discipline and specifically to quantitative methods. The study found that most sociology students saw their subject as closer to the humanities than the sciences. However, whilst as anticipated many students expressed anxiety about quantitative methods and ‘number’, a slight majority nevertheless expressed no such anxiety. The methodological issue for sociology is perhaps less to do with a numeric deficit and more to do with a lack of student interest in the use of quantitative methods. It may be concluded that the views held by present undergraduates do not augur well for a methodologically pluralist discipline in the future, or more generally for key numeric and analytic skills sociology graduates can bring to other professions and occupations.

KEY WORDS
methodological pluralism / numeracy / quantitative methods / science / sociology curriculum
Introduction – Why Sociology Should Count

This article reports on the first national survey of attitudes toward quantitative research methods held by students studying sociology in English and Welsh universities. The research was prompted by two rather different contemporary problems. One is a general policy concern for a numerate, technically qualified labour force and the needs of the national economy. The other is the issue of methodological competence within sociology. To what extent should students use, or be aware of, the range of traditional sociological methods and, indeed, how important is this in their ability to understand and use emerging methods (see Savage and Burrows, 2007)? We believe an awareness and use of a range of core sociological methods is a central condition for a methodologically pluralist sociology.

Our own position is not restricted to a concern with employers’ need for graduate recruitment, any more than we argue in favour of a preferencing of quantitative methods. We begin from a position of methodological pluralism – the view that a mature sociology should be based on a methodology that combines explanatory, predictive and humanistic methods (Bell and Newby, 1977; Payne et al., 2004). The technical skills practised in sociological research lie at the heart of the research relationship.

Anxiety about (apparently) weak numerical skills among social scientists can be seen as a subset of a wider UK governmental concern about the current supply of ‘home grown’ scientifically qualified personnel and a shortage of students wanting to study mathematics, engineering and the physical sciences (DfES, 2004, 2005; HM Treasury, 2002). Such anxieties are nothing new. In the UK and other Western countries there has long been a concern with the numeric abilities and inclinations of students. Today’s interest in undergraduates’ skills variously echoes the justification for systematic government funding of higher education during reconstruction after the First World War and the ‘white-hot heat of technology’ polemics of the 1960s. However, we need to distinguish between such wider moral panics and the specific situation in contemporary sociology.

There are (at least) three professional sociologies being practised in the UK today and our findings have different implications for each. The first of these sociologies is that practised through research and scholarship in academia. Here an emphasis on qualitative approaches has been noted (Gorard, 2001; Payne et al., 2004), as indeed it has in cognate disciplines including education (Gorard et al., 2003; Murtonen, 1999; Nash, 2002), health psychology (Chamberlain, 2000), family studies (Davis and Standifer-Stech, 2006) and geography (Poon, 2003). Rojek and Turner (2000: 640) have described ‘the privileging of theory and textual approaches in social and cultural analysis’ as a trend toward ‘decorative sociology’. Yet despite this qualitative emphasis, the consensus in recent years has been that an eclectic methodological pluralism prevails. This, however, is not a de facto position and in one study only 8.6 per cent of output reporting on empirical work in the major British sociology journals was found
to employ quantification (Payne et al., 2004). At least in output, professional academic sociology privileges qualitative approaches in its research.

A second kind of sociology is practised in the public sector, in independent research centres (such as the National Centre for Social Research, NatCen), health authorities, local authorities, etc. This research is often not called ‘sociology’, despite having its recognizable characteristics (Williams, 2000). It is certainly much more, if not entirely, quantitative in focus, often intersecting with policy research, public opinion research and epidemiology. Those practising this sociology are not always sociology graduates and their training has either been in other disciplines, or acquired after graduation or professionally (Williams, 2000: 159).

The third sociology intersects with each of the first two and may be described as ‘taught sociology’, encompassing GCSE, A Level and Higher Education curricula. On the one hand, curricula reflect currently established sociologists’ own topics of interest and research styles, together with what they believe to be the core features of their discipline. In the universities, the latter are enshrined in the HEFCE Benchmarks. Curricula give us one perspective on the nature of recent and contemporary sociology. On the other hand, curricula determine the view of what sociology is for graduating students, both the minority who become postgraduates and later seek work as professional sociologists, and those who do not go on to be sociologists, yet whose skills bases, careers and perceptions of our discipline are shaped by their exposure to it as undergraduates. The focus of our research is this ‘third sociology’, as taught in universities.

Given that only a minority of sociology undergraduates become professional practitioners, inside or outside academia, the issue of numeracy might initially seem of relatively little importance to today’s more qualitatively oriented practising sociologists who constitute much of the readership of this journal. Nevertheless, the shortage of graduates with both quantitative and qualitative skills emerging from sociology degrees impacts not just on the limitations to their own career prospects, but also on the ability of sociological skills to enrich other professions. When the range of sociological skills is narrow, then those brought to bear in other areas will also be narrow.

What we teach our sociology students, and indeed what they are prepared to learn, impacts on graduate skills generally, but more specifically on what kind of sociology is practised inside and outside of academia and in the curriculum at all levels. We already know from previous research that the exercise of quantitative skills is under-represented in the output of academic sociology (Payne et al., 2004; Williams et al., 2004b). What students study makes a difference to the future shape of the discipline, not just in what or how it researches, but what it teaches the next generation in the ‘third sociology’ in universities, colleges and schools.

This applies whether the proportion of undergraduates going on to become professional sociologists (in either our ‘second sociology’ or ‘third sociology’ spheres) is large or not. Even if, on anecdotal evidence, there seem currently to be positive signs of more professional sociologists in the UK who have been
trained in other countries, British graduates will still predominate. The solution to a lack of numeracy does not lie in recruiting a special cadre of people from abroad, because this would further undermine the place of quantitative methods in the British tradition, as well as introducing new complications into the dynamics of the research relationship.

In a narrower context, research has already shown that without quantitative literacy, social science graduates struggle to complete their postgraduate and doctoral studies (Onwuegbuzie and Wilson, 2003). Students who are unable to cope with quantitative methods are ‘unlikely to use research in their careers or view themselves as scientist practitioners’, leaving their discipline impoverished in terms of its research base (Davis and Sandifer-Stech, 2006: 57). It is not just a matter of acquiring skills to use quantitative methods (or indeed the range of methods more generally), but to have at least a minimum set of skills, based on direct hands-on experience, that will allow them to understand and engage with quantitative (and other) findings. Even if one solution lies in team projects and ‘mixed method’ research, fully effective participation depends on practitioners having a properly informed grasp of all of the methods being deployed.

Nor can sociology remain aloof from the government’s concern about numerate graduates. Across the social sciences, government disquiet about qualified personnel has been manifest in ESRC policies aimed at meeting qualified workforce deficits, especially in the fields of economics, demography and social policy (ESRC, 2000). Until very recently, except at the level of conversation and anecdote, these issues have not concerned sociology very much. Indeed, the wider debate about quantification within the discipline has, up to now, been largely isolated from these national concerns, apart in this country from often negative initial responses to ESRC consultations by those who wished to maintain intellectual independence and their own less quantitative styles of sociology. Can this continue?

While the present authors do have regard for governmental policies, our greater concern is with the discipline itself. Sociology is an empirical discipline. The methodological skills of professional sociologists shape the kind of discipline it is and will become. These skills sit at the heart of the research relationship in sociology.

Students’ Attitudes and Experience

The research reported here builds on a prior exploratory ‘inventory’ study of quantitative methods taught in British universities and the attitudes of teaching staff towards the issue of quantitative methods (Williams et al., 2004a). Sociological and social research journals (particularly Sociology) have over the years carried a number of articles about the undergraduate curriculum and the teaching of research methods (e.g. see references in Bechhofer, 1996; Bulmer and Burgess, 1981; Payne et al., 2004). However, the present study, whilst modest in scope and size, is the first to directly question a national sample of
sociology students in England and Wales about quantitative methods and the issue of number. In other words, it goes beyond teaching staff’s perceptions, local coverage or anecdote. There have, however, been studies of student attitude to number in other (related) disciplines, and in other countries.

One of the few projects to have investigated sociology student attitudes to number was conducted in Finland by Murtonen and Lehtinen (2003), who explored views about the learning of quantitative methods in a sample of 19 education and 15 sociology students. A key finding was that their students found quantitative methods harder than qualitative ones and cited issues such as superficial teaching and unfamiliarity with the concepts. Some students were uninterested in methodology and things mathematical; saw themselves as ‘non-mathematical persons’; believed that mathematical and linguistic skills are mutually exclusive; and said that quantitative approaches were not relevant to human sciences. There was also some evidence of anxiety towards quantitative methods, which is supported by the findings of other studies of social science students (Bolen, 2006; Murtonen, 1999; Rice et al., 2001; Townsend and Wilton, 2003).

A CSAP3 project sponsored by the British Sociological Association (BSA) in 2002 (and the forerunner to the research described here) was concerned with sociologists’ views on the teaching of quantitative methods (Williams et al., 2004a, 2004b). It had three components: a review of quantitative methods teaching in British universities; a survey of delegates to the BSA Annual Conference in 2003; and two, one-day consultation meetings (also in 2003) with sociologists who taught quantitative methods. The review of 69 sociology teaching units found that for three-quarters of sociology courses (major or single honours) quantitative methods comprised more than 5 per cent of course content and for a quarter of these courses quantitative content was between 11 and 15 per cent (Williams, 2004a: 12). Only one unit claimed to teach no quantitative methods in sociology, and in 70 per cent of units quantitative methods comprised at least half of the methods taught.

Quantitative methods are, then, being taught but their presence belied a concern amongst those teaching them about many issues. These can be summarized as the view that students selected sociology to avoid number and viewed quantitative methods negatively, but nevertheless had basic mathematical abilities. The identified barriers to teaching quantitative methods include level of language, ambitious curricula, the nature of data used, expectations of staff, quality of teaching and a shortage of qualified, motivated teachers. These were the views of sociologists who taught quantitative methods and arose from the consultation days, but they were mostly echoed by sociologists more generally in the response to the BSA conference survey. However, whilst these respondents viewed quantitative methods positively, only a half believed that their use in empirical research should be increased.

Whilst it is almost certainly the case that students will be exposed to some use of methods within the teaching of substantive sociology topics, the evidence from the sociology teaching unit survey and consultation days is that this is far
from extensive. Indeed, frustration was expressed, during the consultations, that the teaching of methods was seen as a separate activity unrelated to teaching in substantive topic areas (Williams, 2004a: 28).

The Study

This article examines two important determinants of discipline character: the kind of students attracted to study the discipline at university, and their reactions to being taught research methods. Their inclinations and abilities in respect of number and more broadly their views about what kind of subject it is (‘art’ or ‘science’) will both shape its future course, but also may explain a great deal about its present character. Their experiences of methods throws light on what sociologists think is appropriate for budding sociologists to learn. There is also an interaction between what is taught to students and what students learn. In this article we use data from a national sample to seek answers to the following questions about student attitudes toward the issue of ‘number’ in their sociology degree and quantitative methods more generally:

- How do students view sociology and do they see it as closer to the humanities or science subjects?
- Do students have a positive or negative view of quantitative methods?
- Is there any evidence of a relationship between student attitude to quantitative methods and student performance?
- What are student attitudes toward teaching and learning of quantitative methods?
- Do students find some quantitative methods particularly difficult?
- Can students tell us which methods they have studied that go beyond a very simple level?

The views from the consultation days, described above, informed a series of initial focus groups with stage 2 and 3 undergraduates at three universities in the present study, who were asked to reflect on their experiences of quantitative methods so far in their course. Their responses provided the basis for the design of a self-completion survey questionnaire and a useful source of contextual qualitative data. Additional qualitative data came from a series of open-ended questions in the questionnaire.

The survey was conducted between January and April 2006 and consisted of an on-line self-completion questionnaire administered (by e-mail with embedded URL link) in a random sample of 34 sociology units in English and Welsh universities to students in their second or third year of a three-year undergraduate degree. The sampling units were in both old and new universities, though on most variables of interest in this study there were no significant differences between students from each. Likewise, there were no significant
differences between the 125 males (16.9%) and 613 females (83.1%), in both attitude toward and ability in qualitative methods.

The questionnaire asked students about their A level (or equivalent) choices and why they chose to study sociology at degree level. It also asked them about their views of the status of sociology and whether they saw it as closer to the arts/humanities or science and maths. The main part of the questionnaire was given over to exploration of student attitudes toward studying quantitative methods. Of the 738 students responding, only six per cent studied no quantitative methods in their degree. Of those students who were in stage 3 of their degree, 90 per cent said they had studied surveys and questionnaires and nearly 56 per cent said they had studied statistics, though nearly 70 per cent said they had studied quantitative analysis using SPSS or Minitab.

How Do Students View Sociology and Do They See it as Closer to the Humanities or Science Subjects?

Our findings indicate ambivalence amongst students about the status of sociology and its value to them as a degree. Half of the respondents were unsure about whether employers thought sociology to be a good degree and a further 22.4 per cent believed they did not. However, a majority still thought a sociology degree would get them a good job (56.9%), although over one-third were also unsure about this. Nearly two-thirds thought sociology had less status than the physical sciences.

These findings suggest that the image of sociology may be a confusing one in the student mind. We cannot be sure that these views arise from the inclination of the discipline or teaching and learning within it, but nevertheless there is evidence of an ambiguity of messages here.

We have already noted that the majority of academic output in the discipline inclines toward ‘qualitative’ approaches, but also the findings of the earlier study of quantitative methods teaching (Williams et al., 2004a) indicate evidence of an anti-quantitative bias in general sociology teaching. Against this, it is the case that most students are taught some quantitative methods and these are often presented within a teaching and learning rhetoric of ‘transferable skills’ and ‘employability’ (Fallows and Steven, 2000). How do students view the apparent contradictions of the discipline presented as qualitative or ‘humanistic’ in the literature and teaching, against the requirement that they study quantitative methods?

These contradictions were explored in the focus groups and in the survey. Anxiety about number (which we discuss later) was accompanied by a permissive view of the disciplinary status of sociology and sociological method, exemplified by the following quotes from focus group participants:

[it depends] whether you want to define it as science and whether you want it to fit into a category of science … it’s whatever you want it to be.

... there are sociology courses you can do that I didn’t think were part of sociology, they take a very different consideration of sociology ...
There’s two different kinds of academia. There’s like the numeric one which is more like the chemistry and physics and maths and stuff …. And then there’s the ‘words’ one, which is English and history and stuff.

The interviewer then asked where sociology fits into this:

It depends which angle you take in sociology doesn’t it …

Yet despite this apparent awareness that sociology could be scientific under some circumstances (a tolerant ‘permissive’ view of where the discipline can legitimately stand), there was also no doubt in the sample overall that students were strongly of the view that sociology was closer to the arts/humanities than science (an ‘empirical’ descriptive view of normal circumstances). An aggregation of a 10-point semantic differential scale, on which students indicated whether they thought sociology closer to the arts/humanities or science, indicated that 71 per cent scored toward the arts humanities end of the scale and 14.5 per cent the science end of the scale, with the remainder choosing the middle category. It is not surprising, given the humanistic tendency of academic publishing and curriculum content in British sociology, that students take such views. Undergraduates are, at the least, subjected to mixed messages when they get to university, yet do they develop these views after arriving at university, or is there any evidence that students bring these perceptions with them?

The prior choice of A level subjects provides some indication of whether students took a ‘science’ or ‘humanities’ pathway (or combination) in their post-16 education before coming to university. Unsurprisingly, among those who had taken A levels 70 per cent had taken sociology and further 35 per cent had taken psychology. Over twice as many students took arts/humanities A levels as science/technology. Of the former, 63 per cent took English A level. The most popular combinations included sociology with one or more arts/humanities subject. Nevertheless, a minority had taken science subjects with 15 per cent taking biology and 12 per cent taking mathematics. It might be anticipated that those students who took science subjects at A level would be those holding the minority view that sociology was closer to the sciences. This was not borne out and there was no significant difference of views of the nature of sociology between those who took science subjects at A level and those who did not.

Do Students Have a Positive or Negative View of Quantitative Methods?

Despite the evidence that the majority of students see sociology as closer to the arts/humanities, this should not be seen as an indicator of attitude toward, or ability in, quantitative methods. Students may well see sociology as a ‘scientific’ discipline, but lack ability or aptitude in quantitative methods. Conversely, they may be good at and like quantitative methods, but for philosophical reasons see sociology as not being scientific. Indeed, some of our qualitative findings and a number of outliers in the survey data indicate the existence of such a minority. Nevertheless, a relationship between an ‘anti’ science view and ‘anti’ numeric view or aptitude toward quantitative methods would seem a likely one. In other
Table 1  Student views of quantitative methods and achievement in research methods*

<table>
<thead>
<tr>
<th>% fails or 3rds</th>
<th>% 1st or 2.1</th>
</tr>
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<tbody>
<tr>
<td>(0-49%) in research methods</td>
<td>in research methods</td>
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<tr>
<td>%</td>
<td>N</td>
</tr>
</tbody>
</table>

**Had a bad experience of maths at school**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
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<tbody>
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<td>42.9</td>
<td>50.1</td>
<td>6.6</td>
</tr>
<tr>
<td>279</td>
<td>328</td>
<td>43</td>
</tr>
<tr>
<td>16.1</td>
<td>9.8</td>
<td>14.0</td>
</tr>
<tr>
<td>45.6</td>
<td>58.5</td>
<td>48.9</td>
</tr>
</tbody>
</table>

**On the whole not good at maths**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.9</td>
<td>44.1</td>
<td>13.9</td>
</tr>
<tr>
<td>274</td>
<td>288</td>
<td>91</td>
</tr>
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<td>15.7</td>
<td>8.3</td>
<td>17.6</td>
</tr>
<tr>
<td>46.3</td>
<td>60.8</td>
<td>44.0</td>
</tr>
</tbody>
</table>

**One of the reasons I chose this degree is because I don’t like maths**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
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<tbody>
<tr>
<td>19.2</td>
<td>75.0</td>
<td>5.6</td>
</tr>
<tr>
<td>126</td>
<td>491</td>
<td>37</td>
</tr>
<tr>
<td>23.0</td>
<td>9.2</td>
<td>24.3</td>
</tr>
<tr>
<td>38.8</td>
<td>56.2</td>
<td>45.9</td>
</tr>
</tbody>
</table>

**I didn’t expect to have to do so much number work**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.0</td>
<td>46.6</td>
<td>9.3</td>
</tr>
<tr>
<td>288</td>
<td>305</td>
<td>61</td>
</tr>
<tr>
<td>17.0</td>
<td>8.9</td>
<td>11.5</td>
</tr>
<tr>
<td>45.5</td>
<td>60.7</td>
<td>42.7</td>
</tr>
</tbody>
</table>

**I don’t think sociology students should have to study stats**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.4</td>
<td>65.7</td>
<td>12.0</td>
</tr>
<tr>
<td>155</td>
<td>455</td>
<td>83</td>
</tr>
<tr>
<td>24.4</td>
<td>8.8</td>
<td>18.0</td>
</tr>
<tr>
<td>34.8</td>
<td>58.2</td>
<td>43.4</td>
</tr>
</tbody>
</table>

**Learning statistics makes me feel anxious**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
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<tbody>
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<td>52.4</td>
<td>38.8</td>
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<tr>
<td>342</td>
<td>253</td>
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<td>17.8</td>
<td>7.2</td>
<td>7.0</td>
</tr>
<tr>
<td>46.5</td>
<td>60.4</td>
<td>52.6</td>
</tr>
</tbody>
</table>

**I enjoyed learning about surveys**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.5</td>
<td>41.0</td>
<td>16.5</td>
</tr>
<tr>
<td>277</td>
<td>267</td>
<td>107</td>
</tr>
<tr>
<td>7.6</td>
<td>18.7</td>
<td>11.2</td>
</tr>
<tr>
<td>58.5</td>
<td>43.1</td>
<td>58.9</td>
</tr>
</tbody>
</table>

**I’d rather write an essay than analyse data**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.0</td>
<td>19.1</td>
<td>16.8</td>
</tr>
<tr>
<td>418</td>
<td>125</td>
<td>110</td>
</tr>
<tr>
<td>15.7</td>
<td>11.2</td>
<td>2.7</td>
</tr>
<tr>
<td>47.6</td>
<td>60.0</td>
<td>60.9</td>
</tr>
</tbody>
</table>

**Using stats detaches you from your research topic**

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.7</td>
<td>59.5</td>
<td>18.8</td>
</tr>
<tr>
<td>142</td>
<td>389</td>
<td>123</td>
</tr>
<tr>
<td>21.2</td>
<td>8.5</td>
<td>16.8</td>
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<tr>
<td>40.1</td>
<td>58.9</td>
<td>54.5</td>
</tr>
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</table>

(Continued)
Table 1 (Continued)

<table>
<thead>
<tr>
<th>Student views</th>
<th>% fails or 3rds (0-49%) in research methods assessments taken</th>
<th>% 1st or 2.1 in research methods assessments taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>44.1</td>
<td>8.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>41.9</td>
<td>15.7</td>
</tr>
<tr>
<td>Not sure</td>
<td>13.9</td>
<td>17.6</td>
</tr>
</tbody>
</table>

Notes: \( P < 0.05 \)

The statements were presented as a 5 point Lickert scale, but have been aggregated into a 3 point scale in order to achieve the same significance level in each question.

words, we might generally expect the ‘pro-science’/science A level minority to like and do well in quantitative methods with the majority ‘anti-science’ arts/humanities A level students disliking and doing badly in quantitative methods.

The results are somewhat more complex. The overall impression is that whilst most students are not wholly comfortable with quantitative methods, they do see a need for them in sociology. Students were presented with a series of attitude statements about number in a Lickert scale and asked to indicate their agreement or disagreement with these. These are presented in the first numeric column of Table 1\(^7\) (discussion of the academic performance data follows below).

The expressed attitudes summarized in the column headed ‘Students’ views’ indicate a lack of confidence in number, yet only a minority of respondents could be said to have expressed ‘anti-numeric’ views and certainly a smaller proportion than took the view in the earlier question that sociology was not a science subject.

Forty-three per cent of students said they had had a bad experience of maths at school. Without comparative data for those studying other subjects we cannot know whether this is high or low, although of course if other subjects did experience such a high level of negativity toward maths it may indicate a wider problem with mathematics at school. A similar number (41.9\%) regarded themselves as not good at maths and just over half (52.4\%) expressed anxiety about learning statistics. This needs to be understood in the context that most students studying sociology in English and Welsh universities must have passed a GCSE (or its non-English/Welsh equivalent) in mathematics.

Though there is evidence of a lack of confidence there is less evidence of an anti-numeric bias. Under a quarter (22.4\%) thought sociology students should not have to study statistics and nearly the same number agreed with the statement that ‘using statistics detaches you from your research project’. Around equal numbers trusted or distrusted statistics, though evidence of distrust may indicate a healthy scepticism rather than outright rejection. Lastly, a contention
that sociology is a refuge from number does not really hold, if we take the finding that only a fifth (19.2%) chose their degree to avoid number (although the limitations of question wording and length must make us cautious here).

These results may indicate a reluctant acceptance of the need to study quantitative methods, but it does not indicate widespread enthusiasm. Forty-one per cent of students did not enjoy learning about surveys and only slightly more (42.5%) said they did. A firmer indication of a majority preference for more discursive work was that 64 per cent agreed that they would rather write an essay than analyse data.

In the focus groups we explored these somewhat contradictory responses in some depth and asked students why they preferred non-quantitative work but nevertheless accepted the need for quantitative methods. In some focus groups there was evidence of a science versus arts/humanities split, with students who favoured the former expressing the view that they ‘knew the rules, knew what to do’ and that it was a ‘relief’ to do quantitative methods because it was definitely ‘right or wrong’. But they were a minority and for most, getting through statistics and quantitative methods was a necessary but unappealing process made more difficult by a perceived lack of enthusiasm by those teaching quantitative methods. Indeed, this comment was made voluntarily by some students in open-ended questions in the survey.

There is evidence of a complex anti-quantitative mind set among some students that combines fear of number with a misunderstanding and lack of enthusiasm for quantitative work. This perhaps gives rise to and is reinforced by the choice of theorizing and ‘style’ of sociology. Many of the focus group participants told us that they enjoyed ‘studying Foucault’, or ethnomethodology. Some told us about their intentions for final year dissertations: almost all intended using qualitative approaches, such as interactionism or discourse analysis. Phrases to describe sociology included ‘it’s a talking heads subject’, it is ‘people-centred’, it is ‘about depth’. Quantitative methods were seen as an antithesis to these characteristics. The overall rejectionist view is well summarized in the following quote:

Quantitative research is boring … numbers and stuff … that’s the nitty gritty isn’t it? Do you really want to sit on the street and count how many people are wearing blue jumpers or whatever (laughing)? I’d rather go up and ask them why they’re wearing a blue jumper rather than just tick a box that they are, do you know what I mean?” It’s just dull, it doesn’t tell you any more than the fact … I’ve just done an essay on sexual offences and I’ve used statistics, it’s interesting but it still doesn’t tell you why people were being raped and why people weren’t reporting, but they are dull and you can give yourself so much more of a perspective if you (use qualitative methods).

Is There a Relationship between Student Attitude to Quantitative Methods and Student Performance in Research Methods?

Table 1 also explores whether there was any relationship between attitude toward quantitative methods and achievement in the methods modules the students had so far taken. The third column in the table aggregates Fails and Thirds in these modules, while the final column aggregates Upper Seconds and Firsts.
With the exception of the final attitude statement about ‘trusting statistics’ there is a clear association between a positive attitude toward quantitative methods and achievement in methods modules. Students who viewed number and quantitative methods more positively were more likely to obtain Upper Seconds or Firsts and less likely to fail or obtain a Third Class mark. The opposite was true for those who expressed a negative attitude, or fear of number. The differences are often quite pronounced and on some measures, those with a negative attitude are over twice as likely to get a Third, or fail, than those who expressed positive views.

The finding was reversed in the final statement concerning trustworthiness in statistics. Those who expressed a lack of trust were more likely to get marks in the higher classifications and less likely to get a Third or fail. This would seem to add weight to the view expressed above that a (sophisticated) scepticism about statistics does not necessarily equate with a negative view of their use.

Our present data-set does not permit us to decide whether a negative attitude produces poor marks, or poor marks produce a negative attitude (or indeed whether there is a complex interaction between the two). It seems plausible that both processes are at work. There were some indications in the qualitative data that the latter may be the stronger effect and this would certainly seem to be an avenue worthy of exploration in future studies.

What Are Student Attitudes toward Teaching and Learning of Quantitative Methods?

We have already shown that many students have a negative attitude toward quantitative methods in general and this is associated to some extent with poorer performance. Both the survey and the focus groups explored student views on what more specifically they found difficult or easy in research methods and what kind of things would improve the quality of their learning. A majority of students (52%) found quantitative methods in general more difficult than qualitative methods, 12.1 per cent took the opposite view and 35.9 per cent found each to be of equal difficulty. Those who found quantitative methods more difficult were nearly three times as likely to fail research methods modules and conversely those who found quantitative methods easier were over twice as likely to achieve First Class marks.

The survey asked students whether they had studied a range of statistical techniques and how difficult they found each. The results from this question are shown in Table 2. The level of difficulty has been ranked. The first thing to notice (in the right-hand column) is that on the whole, the more ‘difficult’ techniques are studied by fewer students. These more ‘difficult’ techniques would, in some universities, only feature in more advanced and (often) optional modules, so many students do not even attempt work in these areas. From the foregoing data it seems possible that this opt-out arises from a negative view of and/or poor performance in quantitative methods.
Nevertheless, that these data indicate quite different perceptions of difficulty shows that students do not find all quantitative methods difficult, despite the negative views expressed about ‘quantitative methods’.

The difficulty ranking in Table 2 indicates a hierarchy of difficulty of topics, which might be expressed as follows:

**Group A**: intuitively understandable topics requiring little arithmetic skill and largely visual (charts, means, frequencies, histograms).

**Group B**: topics that require greater conceptualization or logic and perhaps more confidence with number (correlation, hypothesis testing, standard deviation).

**Group C**: topics that form a more conventional core of basic statistics; techniques requiring more grasp of number and the internal logic of statistical reasoning (Chi-sq, Pearson’s r, Cramer’s V, z test, Spearman’s rho, regression).

For readers competent with number, these results may be surprising. For example, it is interesting that Chi-sq is perceived as a ‘difficult’ technique (the ‘difficulty’ of simple statistics was also mentioned in the focus groups). While some of its elaborations may complicate its usage, what Chi-sq does and the way that it does it are not that complex, particularly when in these days of SPSS-PC there are none of the practical difficulties of working out the maths in the test by hand. A similar argument applies to the other techniques in group C, although regression possibly adds another conceptual step.
Although hypothesis testing falls in the middle grouping and is taken by a relatively high number of students, this is the only topic in the first two groupings that might lead students to contemplate data as interlinked. The fact that ‘correlation’ falls in group B, while Pearson’s r and Spearman’s rho are in group C, suggests that for most students the idea of correlation (presumably linked to scattergrams) may be introduced but then not rigorously developed as measurements. (We recognize that correlation could even be classified as a group A topic on the basis of the percentage describing it as easy: this would tend to support our suspicion that ‘correlation’ may not be being taught in a numeric way.) Measures of association are reported as studied by fewer students, other than the idea of correlation. The systematic exploration of cross-tabulations with two or more variables, and the standardized techniques for investigating how variables interact do not appear to form part of quantitative training. It is little wonder, then, if students going on to study for PhDs are predisposed to opt for topics lending themselves to non-quantitative methods, and later become professional sociologists whose orientation is to the qualitative end of the spectrum.

This would go a long way towards explaining why many professional sociologists, let alone their students, say they prefer qualitative methods. If their exposure in a learning environment has been to a kind of ‘quantitative methods’ which does not move much beyond single variables, or at best the simple visualizations and descriptions of two variables taken together, then it is entirely understandable that some students describe quantification as shallow, boring or un-sociological. When the student quoted above said he did not wish to ‘count how many people are wearing blue jumpers or whatever … I’d rather go up and ask them why they’re wearing a blue jumper rather than just tick a box that they are’, what quantitative sociologist would disagree?

It also follows that we need to exercise caution in interpreting what it means when a syllabus states that a technique is being taught. The same words can carry considerable variation in amount, depth and type of coverage. Equally, when undergraduate respondents are self-completing a survey questionnaire, the variation in the meaning of the answers on this topic must be considerable (we leave open the question of whether non-respondents are so antagonistic to quantitative methods that they actively chose not to respond at all (which would lend further support for our argument).

**Conclusion**

The study reported here was a modest one and had some limitations. We cannot know, for example, to what extent attitudes toward the status of sociology as a ‘science’ or ‘arts’ subject change through the undergraduate career as a result of exposure to methods or styles of sociology. We do not know whether choice of intended career makes a difference to student attitudes toward learning quantitative methods. These and other questions (including response rate effects) are important topics for future work. Nevertheless, in this modest study
we have made a start: its significance lies in it being, as far the authors know, the first national study in England and Wales to explore social science students’ own attitudes toward number. It therefore provides solid evidence to replace previous anecdotal experience. The up-to-date picture it paints shows clearly that there is much to do, particularly in exploring barriers to learning about quantitative methods, but also in finding out more about who chooses to read sociology at university and why.

How concerned should we be? Within undergraduate sociology there are grounds for both pessimism and optimism. Two-thirds of our respondents preferred to write essays than to do numerical data analysis, over half were anxious about statistics and in the focus groups we found an overwhelming inclination toward qualitative work and (what might be termed) humanistic sociology. Nevertheless, there is also evidence here that a sizeable minority of students enjoy quantitative methods and do well in research methods modules, and that most students seem to adopt an almost Janus approach to the discipline, accepting, perhaps even reluctantly, the need to learn about quantitative methods.

Two further new findings emerged. First, that a positive attitude and confidence is associated with better performance in research methods. This is not altogether surprising, though as with the survey in general this is the first time that this has been measured and evidenced nationally in England and Wales. We cannot know from this finding whether the performance/attitude association indicates causation, or even a vicious/virtuous circle between results and attitudes, but is clearly important for pedagogy and student progression. Second, there is a ‘hierarchy of difficulty’ – not all quantitative methods are of equal difficulty in the student mind. Here we have speculated a little on what this might mean, but it is without doubt a topic that needs further research because of its importance for what, and in what order, new ideas are presented to students.

At graduate level things may well be different. Some students transfer in to study sociology to PhD level both from other disciplinary backgrounds and from other countries, although we do not currently have accurate data on these. In both cases there may be more enthusiasm toward, and skills in using, quantitative methods. Certainly, completion rates in taught elements of postgraduate training (ESRC, 2007) indicate that students are coping with an ESRC-shaped curriculum that emphasizes quantitative training. In recent years there has also been an emphasis on ‘capacity building’ in graduate training that encourages students (and indeed early career researchers) to reach out beyond the range of methods they would normally expect to use to at least learn new approaches. These initiatives have been centred on the ESRC Research Methods Programme and its successor the National Centre for Research Methods. But although at graduate level and within post-university professional training the situation may be less parlous, there is no room for complacency. Savage and Burrows (2007) have questioned whether our once innovatory battery of sociological methods is so any more. In particular, can and should sociologists take advantage of the huge amount of descriptive numerical
transactional data routinely used by the private sector? Whether or not this specific direction is one which sociology may take, it remains that sociology will be challenged to raise its game methodologically in the future. This does not necessarily mean that sociology undergraduates must undertake more and more methods training and it certainly does not mean sociology should become a narrowly scientific or quantitative discipline, unable to contribute to understanding social life at the micro level. What it implies is that undergraduate sociologists are taught research methods that will act as a springboard to learning about new technologies and approaches to research that may well become part of the future sociological methodological toolbox. For example, simulation (Gilbert and Troitzsch, 2005), non-linear dynamics (Elliot and Kiel, 1997), Qualitative Comparative Analysis (QCA/ fQCA) (Ragin, 2000) and neural networks (Hanson and Nelson, 2006) are all a long way from the traditional survey method, yet they require a basis of numeric and analytic skills.

We have concentrated on quantitative methods not because they are more important per se, but because they are the component of research methods most obviously vulnerable in current – therefore future – British sociology. It is not our wish or aim to celebrate quantification or science for its own sake: rather we advocate a pluralistic, empirically engaged sociology about which students are enthusiastic and competent in a range of quantitative and qualitative methods. We believe this is necessary for the health of sociology itself, because unless we are able to produce graduates with a basic methodological competency, the discipline is likely to become increasingly constrained. The kinds of contribution that sociologists can make to society will become diminishingly small. More broadly, competency in numeric and analytic skills is a key part of the more general contribution that a sociological training can make to pursuance of careers and an informed and active citizenship.

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Notes

1 See http://www.qaa.ac.uk/academicinfrastructure/benchmark/honours/sociology.asp (consulted 26 October 2007).
2 The UK Economic and Social Research Council has commissioned a number of projects concerned with issues around the numeric deficit in social science; for example, the Demographic Review of UK Social Sciences and a recent initiative aimed at the development of undergraduate curricula in quantitative methods. See http://www.esrc.ac.uk

The survey achieved a response rate of 18.2 per cent. Analysis of non-response of sex and type of FEI did not indicate any large proportional imbalance.

86.3 per cent of respondents had taken A levels.

Of all those who took at least one A Level. Psychology and sociology were excluded from either category because of the historic disagreement about their science/art status. A separate comparative analysis was conducted on those taking sociology or psychology: 69.7 per cent and 67.1 percent respectively regarded sociology as closer to the arts and humanities than the natural sciences.

The findings are reported here in simple frequencies and cross-tabulations because we wish to make the core results accessible to as many readers as possible, regardless of variations in their levels of quantitative expertise.

Specific initiatives have included ‘Enhancing the UK Social Sciences Skills Base in Quantitative Methods and Developing Undergraduate Learning’.

References


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