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National Student Survey: interim assessment of the 2005 questionnaire

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CONTENTS

1.0	INTRODUCTION	2
2.0	EXECUTIVE SUMMARY	3
3.0	RESPONSE RATE ANALYSIS	4
3.1	Related to Demographic Variables	5
3.1.1	Age	5
3.1.2	Gender	5
3.1.3	Ethnicity	5
3.1.4	Socio-economic Status	5
3.1.5	Disability	5
3.2	Related to Academic Variables	8
3.2.1	Subject of Study	8
3.2.2	Mode of Study	8
3.2.3	Highest Entrance Qualifications	8
3.2.4	Other Academic Variables	8
3.3	Related to Institution	11
3.3.1	Related to Quality of Contact with Institutions	11
4.0	THE ANALYTICAL SUBSAMPLE	12
4.1	Related to Demographic and Academic Variables	13
4.2	Related to Institution	13
4.2.1	Related to Quality of Contact with Institutions	13
5.0	ITEM ANALYSIS	14
5.1	“Not Applicable” Analysis	14
5.1.1	The Open University	14
5.2	Testing for “Yea-saying”	17
5.3	Correlation between Items	18
5.4	Principal Component Analysis	20
6.0	SCALE ANALYSIS	23
6.1	Consistency within Each Scale	23
6.2	Reliability of the Scale	23
6.3	Validity of the Scales	23
6.3.1	Principal Component Analysis	24
6.4	Distribution of Responses	24
7.0	OVERALL SATISFACTION RATING	26
7.1	Rank Order Correlation Coefficients	26
8.0	OPEN-ENDED RESPONSES	27
9.0	CONCLUSIONS	28
	APPENDIX A	29

1.0 INTRODUCTION

The objective of this analysis is to provide an interim assessment of the questionnaire used for the National Student Survey (NSS) in 2004/05.

The analysis covers the following items:

Response Rate Analysis

- An assessment of the representativeness of respondents in the sample and response rates.

Deriving the Analytical Subsample

- To enable further analyses to be undertaken, an analytical subsample was defined.

Item Analysis

- An assessment of the internal consistency of each item (question) within the questionnaire.

Scale Analysis

- An assessment of the internal consistency of each scale (section) within the questionnaire, and the contribution of individual items to the scales.

Satisfaction Ratings

- An assessment of the statistical relationships between individual items, the scales, and the 'overall satisfaction' item.

Note. Within this report, all numbers denoting absolute frequencies of students have been rounded to the nearest multiple of 5 to prevent the identification of individual students. However, all numbers denoting proportions of students have been calculated from the unrounded absolute frequencies, and are therefore exact to the level of precision indicated.

2.0 EXECUTIVE SUMMARY

- The National Student Survey (NSS) was aimed at a population of 287,425 final year students at 141 institutions of higher education in England, Wales and Northern Ireland.
- Responses to the 2005 survey were received from 171,630 students, representing 60.2% of the students who were included.
- The response rate varied between 20.3% and 84.2% across different institutions.
- 131 out of the 141 participating institutions achieved a response rate higher than 50%.
- Of the 171,630 respondents, 142,020 (50.6%) provided responses between “definitely agree” and “definitely disagree” for all 21 items (questions) in the questionnaire. We refer to these students as the “analytical subsample”. The data from these students was used to undertake further statistical tests.
- Five of the 21 items elicited “not applicable” responses from 2% or more of the respondents. The number of “not applicable” responses varied by subject of study and institution.
- Grouping the 21 items into six scales (sections) and creating an average score for each scale has been shown to be a robust way of simplifying the collection, analysis and summarising of the data.
- Each of the six scales contains items that belong together whilst contributing useful independent information towards the overall picture of student perceptions of their course/institution.
- Technically speaking, the scales show a satisfactory level of internal consistency and reflect relatively homogeneous attitudinal dimensions that represent distinct aspects of a single underlying dimension of academic quality.
- More than 80% of the respondents agreed with the statement, “Overall, I am satisfied with the quality of this course”. Their responses to each of the items correlated with their responses to this statement, and their scores on each of the six scales also correlated with their responses to this statement.

3.0 RESPONSE RATE ANALYSIS

- The NSS was aimed at a population of 287,425 students at 141 institutions of higher education in England, Wales and Northern Ireland. The fieldwork commenced in January and February 2005.
- The fieldwork closed on 18 April 2005 at which point 171,630 students had responded.
- 4,460 students (1.6%) had excluded themselves from the survey, but are included in the base for the purposes of calculating response rates. 2,200 students (0.8%) had been excluded from the survey based on pre-agreed criteria.
- The 171,630 responding students constituted 60.2% of the 285,225 students who were still included.

Of the total 171,630 respondents:

- 78,025 (45.5%) submitted their responses by telephone
- 53,425 (31.1%) submitted their responses online
- 40,140 (23.4%) submitted their responses by post
- 35 (0.02%) submitted their responses using interactive voice recognition.

Included in this total were 11,225 respondents attending an institution in Wales. Of these, 300 (2.7%) chose to respond to the Welsh language version of the NSS, split across the following methodologies:

- 130 (43.8%) submitted their responses by telephone
- 110 (36.1%) submitted their responses online
- 60 (20.1%) submitted their responses by post.

3.1 Response Rate Related to Demographic Variables

To assess the representativeness of respondents in the sample, initial analysis was undertaken to compare the response rates achieved for various subgroups of students with regard to age, gender, ethnicity, socio-economic status and disability. A breakdown is provided in Table 1 and Figure 1. **(The response rate and base for each variable are shown in brackets).**

3.1.1 Age

- The highest response rate: students aged over 50 years (63.3%, 8,305).
- The lowest response rate: students aged 26-30 years (50.6%, 19,030).

3.1.2 Gender

- The highest response rate: female students (64.4%, 151,460).
- The lowest response rate: male students (55.4%, 133,765).

3.1.3 Ethnicity

- The highest response rate: White students (62.6%, 213,050).
- The lowest response rate: Black students (52.8%, 11,760).

3.1.4 Socio-economic status

- The highest response rate: students from families where the breadwinner was employed in lower supervisory and technical occupations (66.3%, 5,750),
- The lowest response rate: students from families where the breadwinner was employed in higher managerial and professional occupations (62.9%, 164,610).

However, it should be noted that this indicator was only available for 42.3% of the students in the survey; that the variation in response rate across socio-economic groups was relatively slight; and that all the groups produced higher response rates than students whose status was unknown (57.5%, 52,860).

3.1.5 Disability

Students with a known disability produced a slightly higher response rate (62.3%, 19,520) than those with no known disability (60.0%, 264,305).

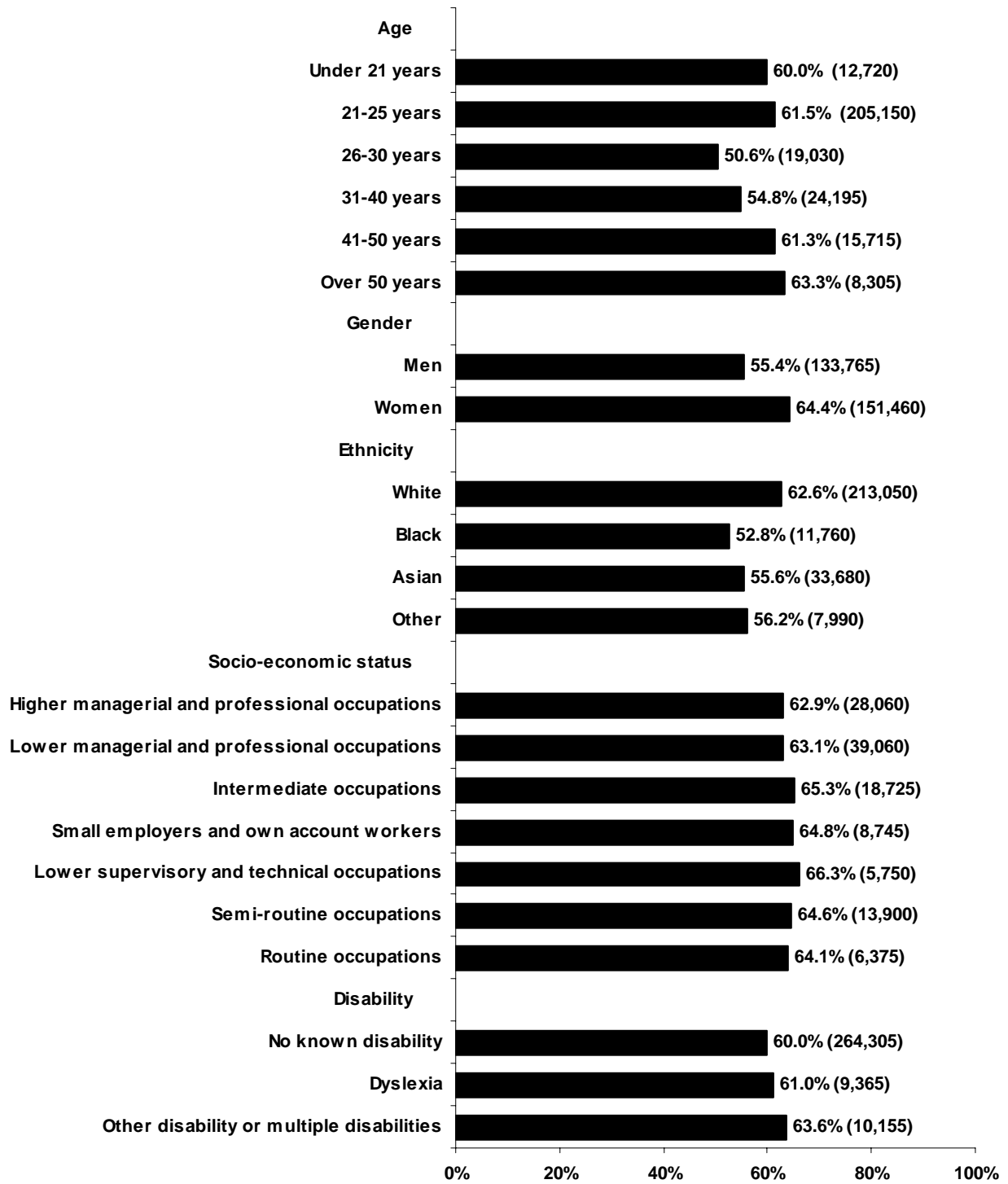
Table 1. Response Rate Related to Demographic Variables

	Students surveyed	Students responding	Response rate (%)
Age			
Under 21 years	12,720	7,630	60.0
21-25 years	205,150	126,165	61.5
26-30 years	19,030	9,640	50.6
31-40 years	24,195	13,260	54.8
41-50 years	15,715	9,640	61.3
Over 50 years	8,305	5,255	63.3
Gender			
Men	133,765	74,155	55.4
Women	151,460	97,475	64.4
Ethnicity			
White	213,050	133,300	62.6
Black	11,760	6,205	52.8
Asian	33,680	18,730	55.6
Other	7,990	4,485	56.2
Socio-economic status ¹			
Higher managerial and professional occupations	28,060	17,645	62.9
Lower managerial and professional occupations	39,060	24,635	63.1
Intermediate occupations	18,725	12,230	65.3
Small employers and own account workers	8,745	5,665	64.8
Lower supervisory and technical occupations	5,750	3,815	66.3
Semi-routine occupations	13,900	8,980	64.6
Routine occupations	6,375	4,085	64.1
Disability			
No known disability	264,305	158,675	60.0
Dyslexia	9,365	5,710	61.0
Other disability or multiple disabilities	10,155	6,460	63.6

Note. Within Table 1, the number of students surveyed for some variables totals slightly less than 285,225. This is due to missing demographic data within the dataset.

¹ Socio-economic status data was only available for 42.3% of students.

Figure 1. Response Rate Related to Demographic Variables



(Base shown in brackets)

3.2 Response Rate Related to Academic Variables

The response rates for various subgroups of students were analysed with regard to subject of study, mode of study, highest entrance qualifications, single versus joint degrees, level of qualification aimed for and collaboration or franchising. A breakdown is provided in Table 2 and Figure 2. **(The response rate and base for each variable are shown in brackets.)**

3.2.1 Subject of Study

- The highest response rate: Biological Sciences (66.6%, 24,980).
- The lowest response rate: Architecture, Building and Planning (54.1%, 6,460).

3.2.2 Mode of Study

- The highest response rate: sandwich students (66.6%, 22,365).
- The lowest response rate: part-time students (54.0%, 43,710).

3.2.3 Highest Entrance Qualifications

- The highest response rate: students admitted on the basis of qualifications at GCE Advanced Level or the equivalent (62.5%, 213,140).
- The lowest response rate: students admitted on the basis of qualifications lower than GCE Advanced Level (52.9%, 25,705).

3.2.4 Other Academic Variables

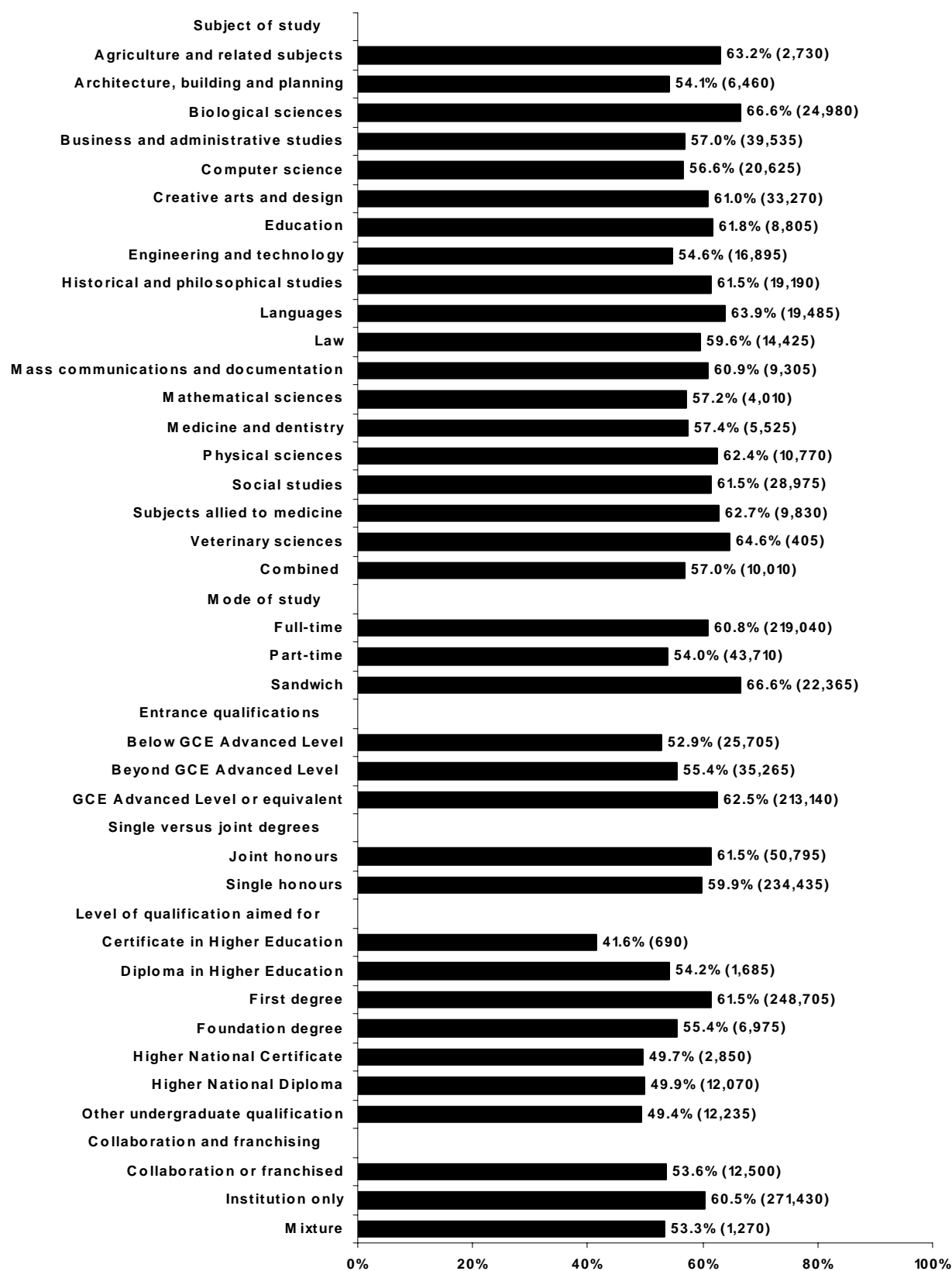
- With regard to single versus joint degrees, those taking joint degrees produced a slightly higher response rate (61.5%, 50,795) than those taking single subjects (59.9%, 234,435).
- With regard to level of qualification aimed for, the highest response rate was obtained from students aiming for first degrees (61.5%, 248,705); and the lowest response rate was obtained from students aiming for a Certificate in Higher Education (41.6%, 690).
- Finally, with regard to the “collaboration or franchising” variable, the highest response rate was obtained where all provision was at the registering institution (60.5%, 271,430); and the lowest response rate was obtained where the student was taught both at the registering institution and elsewhere (53.3%, 1,270).

Table 2. Response Rate Related to Academic Variables

	Students surveyed	Students responding	Response rate (%)
Subject of study			
Agriculture and related subjects	2,730	1,725	63.2
Architecture, building and planning	6,460	3,490	54.1
Biological sciences	24,980	16,630	66.6
Business and administrative studies	39,535	22,520	57.0
Computer science	20,625	11,670	56.6
Creative arts and design	33,270	20,300	61.0
Education	8,805	5,440	61.8
Engineering and technology	16,895	9,215	54.6
Historical and philosophical studies	19,190	11,800	61.5
Languages	19,485	12,445	63.9
Law	14,425	8,595	59.6
Mass communications and documentation	9,305	5,670	60.9
Mathematical sciences	4,010	2,290	57.2
Medicine and dentistry	5,525	3,170	57.4
Physical sciences	10,770	6,725	62.4
Social studies	28,975	17,810	61.5
Subjects allied to medicine	9,830	6,160	62.7
Veterinary sciences	405	260	64.6
Combined	10,010	5,705	57.0
Mode of study			
Full-time	219,040	133,095	60.8
Part-time	43,710	23,590	54.0
Sandwich	22,365	14,900	66.6
Entrance qualifications			
Below GCE Advanced Level	25,705	13,610	52.9
Beyond GCE Advanced Level	35,265	19,535	55.4
GCE Advanced Level or equivalent	213,140	133,145	62.5
Single versus joint degrees			
Joint honours	50,795	31,225	61.5
Single honours	234,435	140,400	59.9
Level of qualification aimed for			
Certificate in Higher Education	690	285	41.6
Diploma in Higher Education	1,685	915	54.2
First degree	248,705	153,070	61.5
Foundation degree	6,975	3,865	55.4
Higher National Certificate	2,850	1,415	49.7
Higher National Diploma	12,070	6,025	49.9
Other undergraduate qualification	12,235	6,045	49.4
Collaboration and franchising			
Collaboration or franchised	12,500	6,695	53.6
Institution only	271,430	164,245	60.5
Mixture	1,270	675	53.3

Note. Within Table 2, the number of students surveyed for some variables totals slightly less than 285,225. This is due to missing academic data within the dataset.

Figure 2. Response Rate Related to Academic Variables



(Base shown in brackets)

3.3 Response Rate Related to Institution

- The highest response rate: 84.2%.
- The lowest response rate: 20.3%.
- 131 institutions (from a total of 141) achieved a response rate greater than 50%.

Given the pronounced variation in response rate across different institutions, ranging from 20.3% to 84.2%, some of the observed effects might be artefacts due to variations in the composition of the student population across different populations.

The effects of the following were all statistically significant ($p < 0.001$) when variations between institutions were taken into account: age, gender, ethnicity, socio-economic status, disability, entrance qualifications, subject of study, mode of study, single versus joint degrees, level of qualification aimed for and collaboration or franchising..

Nevertheless, with the exception of socio-economic status and disability, all of these variables showed statistically significant interactions with the effect of institution. In other words, the magnitude of these effects upon response rates varied across different institutions.

3.3.1 Related to Quality of Contact with Institutions

Ipsos UK classified the institutions in terms of the quality of contact² with them whilst administering the NSS.

Table 3 shows that the highest response rate was obtained at institutions where the quality of contact was high (61.9%, 115); and that the lowest response rate was obtained at institutions where the quality of contact was low (26.7%, 3).

However, Table 3 also shows that there was considerable variability within each of the three categories.

Table 3. Response Rate related to Quality of Contact with Institutions

	Number of institutions	Average response rate (%)	Lowest response rate (%)	Highest response rate (%)
High quality of contact: minor issues or none at all	115	61.9	45.4	84.2
Medium quality of contact: some issues	23	58.4	48.7	75.0
Low quality of contact: significant issues	3	26.7	20.3	39.7
Overall	141	60.2	20.3	84.2

² The rating relates to the ability of the institution to supply contact details and the known support or lack of support of the institution for the NSS. It does not refer to the help provided and approach of the individual contacts.

4.0 THE ANALYTICAL SUBSAMPLE

To enable further analyses to be undertaken, an analytical subsample was defined, summarised in Figure 3.

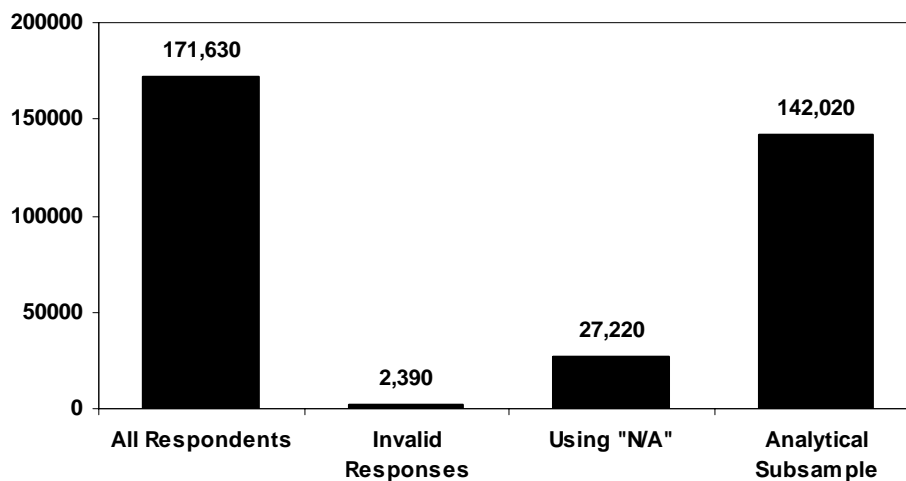
Of the total 171,630 respondents:

- 2,390 (1.4%) had not given valid responses to all 21 critical items; 1,895 (1.1%) had left one or more of these 21 items blank, and 545 (0.3%) had given two or more responses for at least one item (55 respondents had done both).
- This leaves 169,240 students who had provided valid responses to all 21 items.
- However, a further 27,715 (16.1%) of the respondents (of which 27,220 had provided valid responses) had checked the “not applicable” category for one or more items.

Thus, 142,020 students (49.8% of the included students or 82.7% of all respondents) provided data that could be most easily used for further assessment of the questionnaire, in that they provided single responses between “definitely agree” and “definitely disagree” for all the 21 items.

We refer to these 142,020 respondents as the “analytical subsample”.

Figure 3. Deriving the Analytical Subsample



4.1 Analytical Subsample Related to Demographic and Academic Variables

- The analytical subsample was related to demographic and academic variables.
- Tables 4 and 5 in Appendix A provide a full breakdown of the analytical subsample related to demographic and academic variables.

4.2 Analytical Subsample Related to Institution

- The institution that was most likely to be in the subsample was Trinity College of Music, with 97.4% included out of 80 responses.
- The institution that was least likely to be in the subsample was the Open University, with 42.8% included out of 13,705 responses.

An explanation of the main causes of the low proportion for the Open University is given in section 5.1.1, with a brief discussion of the implications.

The effects of age, gender, ethnicity, disability, entrance qualifications, subject of study, mode of study, level of qualification aimed for and collaboration or franchising were all statistically significant ($p < 0.001$) when variations among institutions were taken into account. However, the effects of socio-economic status and single versus joint degrees were not.

With the exception of ethnicity, socio-economic status, disability, and collaboration or franchising, all of these variables showed statistically significant interactions with the effect of institution. In other words, the magnitude of their effects varied across different institutions.

Given the pronounced variation in the proportion of the subsample across different institutions, some of the observed effects might be artefacts due to variations in the composition of the student population across different populations.

4.2.1 Related to Quality of Contact with Institutions

- The proportion of respondents within the subsample was relatively similar at institutions, whether the quality of contact was high (82.4%, 118,435), medium (84.6%, 21,410) or low (84.7%, 2,180).

5.0 ITEM ANALYSIS

As an overview of each item (question) response, Figure 4 shows the percentage frequency distribution of responses from the 169,240 who provided valid responses to each of the 21 items. In every case, the modal response was “mostly agree”, entailing a broadly positive evaluation.

(Table 5 in Appendix A provides the data for the percentage frequency distribution of responses to each item.)

An assessment of the internal consistency of each item within the questionnaire was conducted. This covered the following areas:

- “Not applicable” analysis
- Testing for “yea-saying”
- Correlation between items
- Principal component analysis.

Note. Each of these were conducted using the analytical subsample as the base, with the exception of “not applicable” analysis, which by necessity included the “not applicable” responses.

5.1 “Not Applicable” Analysis

Figure 4 shows the percentage of “not applicable” responses for each item.

For 16 items, the proportion of “not applicable” responses was less than 1%. However, five items elicited “not applicable” responses from 2% or more of the 169,040 respondents:

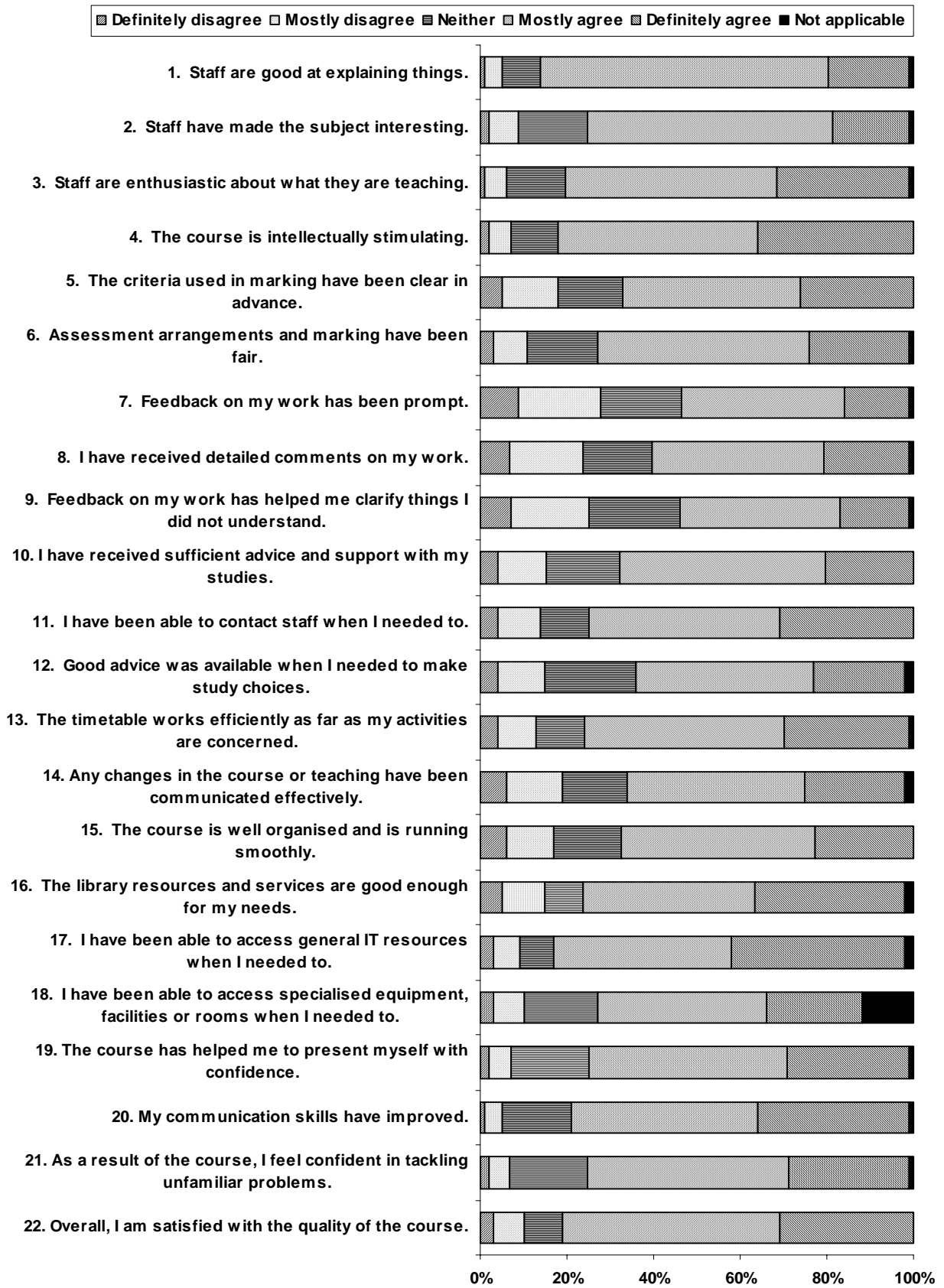
12. Good advice was available when I needed to make study choices (2.0%)
14. Any changes in the course or teaching have been communicated effectively (2.1%)
16. The library resources and services are good enough for my needs (2.0%)
17. I have been able to access general IT resources when I needed to (2.3%)
18. I have been able to access specialised equipment, facilities or rooms when I needed to (11.7%).

5.1.1 The Open University

- 49.2% of the 13,405 Open University respondents stated “not applicable” to Item 18 (this compares to an average of 8.5% across all other institutions). However, it should be noted that the majority of these students also gave “not applicable” responses to some other item.
- As a result of this, only half the Open University students who responded were included in the analytical subsample, although these still represent 4.1% of the analytical subsample, which is down from a proportion of 7.9% of all respondents.

- Clearly for many of the Open University students some aspects of the questionnaire were not felt to be relevant. However, there is nothing to suggest that this affected their responses to the items that they felt *were* relevant, and consequently we conclude that the results for this institution are valid and useful.
- Reducing the Open University share of all respondents from 7.9% in total to 4.1% of the analytical subsample is not felt to be sufficient to adversely affect the overall results of this analysis.

Figure 4: Percentages of Responses to Each Item



(Base: 169,240)

Further item analysis was carried out on the analytical subsample of 142,020 students.

5.2 Testing for “Yea-Saying”

The test considered the extent to which respondents gave the same answer to all items without thinking about the meaning.

The total number of students giving the same answer for all 21 items was 1,505, 1.1% of the analytical subsample. The proportion is quite low, and it is clearly reasonable for some students to genuinely rate their institution at the same point on the scale for each of the 21 items. In fact, given the high correlation between many of the items, we would expect some responses of this type.

For each respondent we determined the maximum number of answers which are the same. For example if a student has answered “definitely agree” for eight items, “mostly agree” for six items, “neither” for four and “mostly disagree” for three, then that student would appear as an eight in the distribution shown in Figure 5.

We can see from Figure 5 that the number of students with 21 identical answers is slightly higher than the number with 20. We would expect the number to be lower if all respondents were giving 21 independent opinions.

- This suggests that any “yea-saying” that had occurred is most likely to be found amongst the students who answered “definitely agree”, shown in Figure 6. Note that this is the first answer to be found reading left to right across the page on the questionnaire. However “mostly agree” is the most popular answer across the whole survey, and so we might expect to find the highest number of cases of same-answering for that level in any “natural” distribution.
- Our initial conclusion then is that the “yea-saying” is not substantial, but 940 respondents (or 0.5% of all respondents) may have been answering “definitely agree” to all items on the questionnaire.

Section 6.4 similarly considers the extent to which respondents gave the same answer to all items without thinking about the meaning.

Figure 5. “Same Answer” Frequency

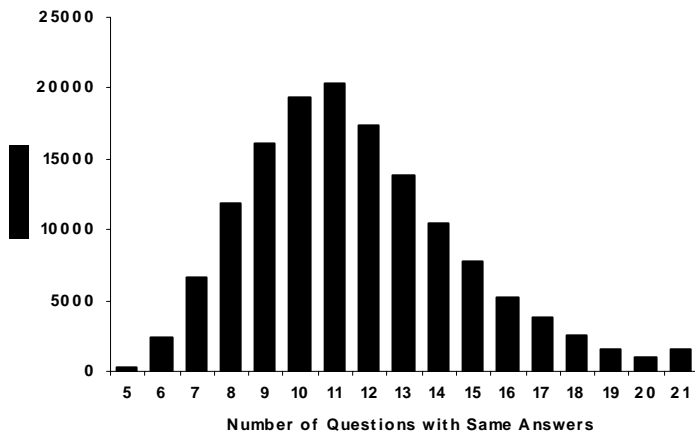
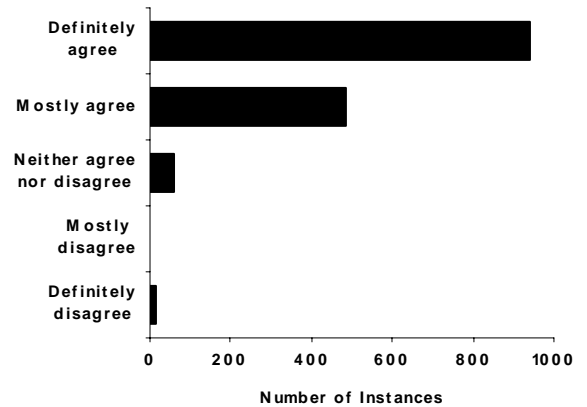


Figure 6. Source of 21 Same Answers



5.3 Correlation between Items

This assesses whether the scores for individual items in the questionnaire are correlated.

Figure 7 shows that the scores for individual items tend to be correlated. That is, on average, a student who answers “definitely agree” to one item is more likely to answer “definitely agree” to the other; and similarly a student may answer “definitely disagree” to both. Broadly speaking a student who is happy with one aspect of the institution is more likely than average to be happy with other aspects.

Some pairs of items correlate more strongly with each other than others. Figure 7 shows that correlation tends to be higher between items in the same scale (section).

Inspection of the eigenvalues suggested that there was a single principal component in each case. Table 7 shows the loadings of the individual items on these principal components. These were between 0.66 and 0.89 in magnitude, showing that each item carries approximately equal weight.

Figure 7. Correlation between Items

Question		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Teaching on my course	Q1. Staff are good at explaining things		■	■	■						■					■						
	Q2. Staff have made the subject interesting	■		■	■						■										■	
	Q3. Staff are enthusiastic about what they are teaching	■	■		■																	
	Q4. The course is intellectually stimulating	■	■	■																		
Assessment and Feedback	Q5. The criteria used in marking have been clear in advance					■	■															
	Q6. Assessment arrangements and marking have been fair					■																
	Q7. Feedback on my work has been prompt							■	■	■												
	Q8. I have received detailed comments on my work							■	■	■												
Academic Support	Q9. Feedback on my work has helped me clarify things I did not understand									■												
	Q10. I have received sufficient advice and support with my studies	■									■	■	■									
	Q11. I have been able to contact staff when I needed to	■									■	■	■									
Organisation and Management	Q12. Good advice was available when I needed to make study choices	■									■	■	■									
	Q13. The timetable works efficiently as far as my activities are concerned	■									■	■	■									
	Q14. Any changes in the course or teaching have been communicated effectively	■									■	■	■									
Learning Resource	Q15. The course is well organised and is running smoothly	■									■	■	■									
	Q16. The library resources and services are good enough for my needs																■	■	■			
	Q17. I have been able to access general IT resources when I needed to																■	■	■			
Personal Development	Q18. I have been able to access equipment, facilities or rooms when I needed to																■	■	■			
	Q19. The course has helped me to present myself with confidence		■																		■	■
	Q20. My communication skills have improved																				■	■
	Q21. As a result of the course, I feel confident in tackling unfamiliar problems																				■	■

KEY	
Correlation above 0.5	■
Correlation between 0.4 and 0.5	■
Correlation below 0.4	□

5.4 Principal Component Analysis

To test the psychometric properties of the questionnaire as a whole a principal component analysis on all 21 items was carried out.

- Principal component analysis is a technique which enables us to identify the underlying factors or “principal components” which are driving the answers to more than one item. It also enables us to reduce the number of variables we need to work with for analysis.
- This identified five principal components with eigenvalues greater than 1; the value of the sixth eigenvalue was 0.94, and that of the seventh was 0.86. (An eigenvalue of 1 implies that the component contributes as much to the overall variation as an average item from the original 21 items. It is usual to include components down to those with an eigenvalue of around 1 or slightly below. In this case it would be reasonable to use five, six or seven components. In other words the data suggests that we could have reasonably laid out our items in five, six or seven scales.)
- Given the structure of the NSS, it was decided to extract six principal components and to submit these to oblique rotation. (The resulting pattern matrix is shown in Table 8.) The six components can clearly be associated with the scales measuring “Assessment and feedback,” “Learning resources”, “Personal development”, “Organisation and management”, “The teaching on my course” and “Academic support”, respectively.
- These results confirm the construct validity of the NSS. The intercorrelations between the six components vary between 0.21 and 0.49, suggesting that they represent distinct aspects of a single underlying dimension of academic quality.

Table 7. Corrected item-total correlations, values of coefficient alpha if each item is deleted, and loadings from principal component analyses carried out on the items in each scale

	Item-total correlations	Alpha if item deleted	Component loadings
1. Staff are good at explaining things.	0.58	0.74	0.77
2. Staff have made the subject interesting.	0.66	0.69	0.83
3. Staff are enthusiastic about what they are teaching.	0.58	0.73	0.78
4. The course is intellectually stimulating.	0.55	0.75	0.74
5. The criteria used in marking have been clear in advance.	0.49	0.79	0.66
6. Assessment arrangements and marking have been fair.	0.52	0.78	0.68
7. Feedback on my work has been prompt.	0.60	0.76	0.77
8. I have received detailed comments on my work.	0.66	0.74	0.81
9. Feedback on my work has helped me clarify things I did not understand.	0.65	0.74	0.81
10. I have received sufficient advice and support with my studies.	0.62	0.70	0.84
11. I have been able to contact staff when I needed to.	0.59	0.73	0.82
12. Good advice was available when I needed to make study choices.	0.64	0.68	0.85
13. The timetable works efficiently as far as my activities are concerned.	0.50	0.76	0.75
14. Any changes in the course or teaching have been communicated effectively.	0.62	0.62	0.85
15. The course is well organised and is running smoothly.	0.63	0.62	0.85
16. The library resources and services are good enough for my needs.	0.53	0.71	0.79
17. I have been able to access general IT resources when I needed to.	0.62	0.60	0.85
18. I have been able to access specialised equipment, facilities or rooms when I needed to.	0.56	0.67	0.81
19. The course has helped me to present myself with confidence.	0.75	0.80	0.89
20. My communication skills have improved.	0.75	0.81	0.89
21. As a result of the course, I feel confident in tackling unfamiliar problems.	0.73	0.82	0.88

Table 8. Results of Principal Component Analysis on all 21 Items

	Principal Components					
	1	2	3	4	5	6
1. Staff are good at explaining things.	0.06	0.01	-0.04	0.03	0.68	0.10
2. Staff have made the subject interesting.	0.01	-0.01	0.04	-0.05	0.84	-0.02
3. Staff are enthusiastic about what they are teaching.	0.03	0.01	-0.09	0.00	0.78	0.06
4. The course is intellectually stimulating.	-0.06	0.02	0.13	0.07	0.71	-0.08
5. The criteria used in marking have been clear in advance.	0.64	0.04	-0.01	0.13	-0.03	-0.06
6. Assessment arrangements and marking have been fair.	0.55	0.08	-0.04	0.13	0.11	-0.00
7. Feedback on my work has been prompt.	0.74	0.00	-0.03	0.07	-0.03	0.06
8. I have received detailed comments on my work.	0.85	-0.05	0.04	-0.12	0.02	0.02
9. Feedback on my work has helped me clarify things I did not understand.	0.77	-0.01	0.12	-0.12	0.04	0.06
10. I have received sufficient advice and support with my studies.	0.10	-0.01	0.07	-0.03	0.10	0.70
11. I have been able to contact staff when I needed to.	-0.06	0.03	-0.05	0.07	-0.02	0.86
12. Good advice was available when I needed to make study choices.	0.04	0.02	0.08	0.00	0.00	0.79
13. The timetable works efficiently as far as my activities are concerned.	-0.02	0.01	0.07	0.79	-0.01	-0.04
14. Any changes in the course or teaching have been communicated effectively.	0.05	0.00	0.00	0.79	-0.01	0.08
15. The course is well organised and is running smoothly.	0.08	0.00	0.00	0.66	0.16	0.11
16. The library resources and services are good enough for my needs.	0.03	0.81	0.00	-0.04	0.00	-0.04
17. I have been able to access general IT resources when I needed to.	-0.02	0.87	-0.02	-0.01	0.00	0.00
18. I have been able to access specialised equipment, facilities or rooms when I needed to.	-0.02	0.77	0.04	0.03	0.00	0.07
19. The course has helped me to present myself with confidence.	0.03	0.02	0.83	0.02	0.04	0.04
20. My communication skills have improved.	0.01	0.00	0.90	0.01	-0.03	0.00
21. As a result of the course, I feel confident in tackling unfamiliar problems.	0.01	0.01	0.83	0.03	0.04	0.03
Principal Component intercorrelations						
Principal Component 1	1.00	0.21	0.32	0.35	0.44	0.46
Principal Component 2	0.21	1.00	0.25	0.26	0.21	0.28
Principal Component 3	0.32	0.25	1.00	0.26	0.46	0.37
Principal Component 4	0.35	0.26	0.26	1.00	0.36	0.39
Principal Component 5	0.44	0.21	0.46	0.36	1.00	0.49
Principal Component 6	0.46	0.28	0.37	0.39	0.49	1.00

6.0 SCALE ANALYSIS

The scale analysis assesses the internal consistency of each scale (section) within the questionnaire, and the contribution of individual items to the scales.

To achieve this, the psychometric properties of the six scales in the questionnaire were examined in three different ways:

- consistency within each scale
- reliability of the scale
- validity of the scales.

The results were consistent in suggesting that all six scales have a satisfactory level of internal consistency and reflect relatively homogeneous attitudinal dimensions.

In section 6.4, analysis was conducted relating to the distribution of responses within the scales.

6.1 Consistency within Each Scale

- Broadly speaking, are all the items within a scale measuring the same thing?
- The correlation coefficient was calculated between the responses to each item and the total of the responses given to the remaining items in the relevant scale, shown in Table 7. That is, the correlation between the score for item 1 and the sum of the scores for items 2, 3 and 4. These correlation coefficients were between 0.49 and 0.75 in magnitude. A correlation of more than 0.50 is generally accepted as a measure of good internal consistency.

6.2 Reliability of the Scale

- Is any scale too dependent on one item?
- The value of coefficient alpha for the relevant scale was calculated if each item were removed (see Table 7). These coefficients were between 0.60 and 0.82, all exceeding the commonly used criterion of 0.60.

6.3 Validity of the Scales

- Do the scales truly reflect the underlying broad areas of students' perceptions?
- To answer this we carried out a further principal component analysis. The details of this are described in the next section, but the key conclusions are that six scales is a reasonable number for the 21 items to be grouped into, and that each item makes a positive and fairly equal contribution to the overall measurement of the underlying student perceptions.

6.3.1 Principal Component Analysis

A principal component analysis was carried out on the scale scores to check that using these scales is an effective way of combining data from the individual items.

That is, each scale is reasonably independent and makes a significant contribution to the overall pool of information obtained.

Inspection of the eigenvalues suggested that there was a single principal component which explained 51.2% of the variance in the scale scores. Table 9 shows the loadings of the individual scales on that single principal component, and additional descriptive statistics of the six scales.

The loadings were between 0.49 and 0.81; this shows that each of the scales contributed to the underlying dimension of academic quality, although the scale measuring “Learning resources” appeared to be less important than the other five.

Table 9. Descriptive Statistics of the Six Scales

	Mean	Standard deviation	Skewness	Kurtosis	Coefficient alpha	Loading
The teaching on my course	3.97	0.65	-1.00	1.78	0.78	0.78
Assessment and feedback	3.52	0.84	-0.46	-0.20	0.80	0.74
Academic support	3.73	0.87	-0.74	0.32	0.78	0.81
Organisation and management	3.71	0.91	-0.75	0.21	0.75	0.73
Learning resources	3.95	0.84	-0.93	0.78	0.74	0.49
Personal development	4.00	0.80	-0.90	1.00	0.87	0.70

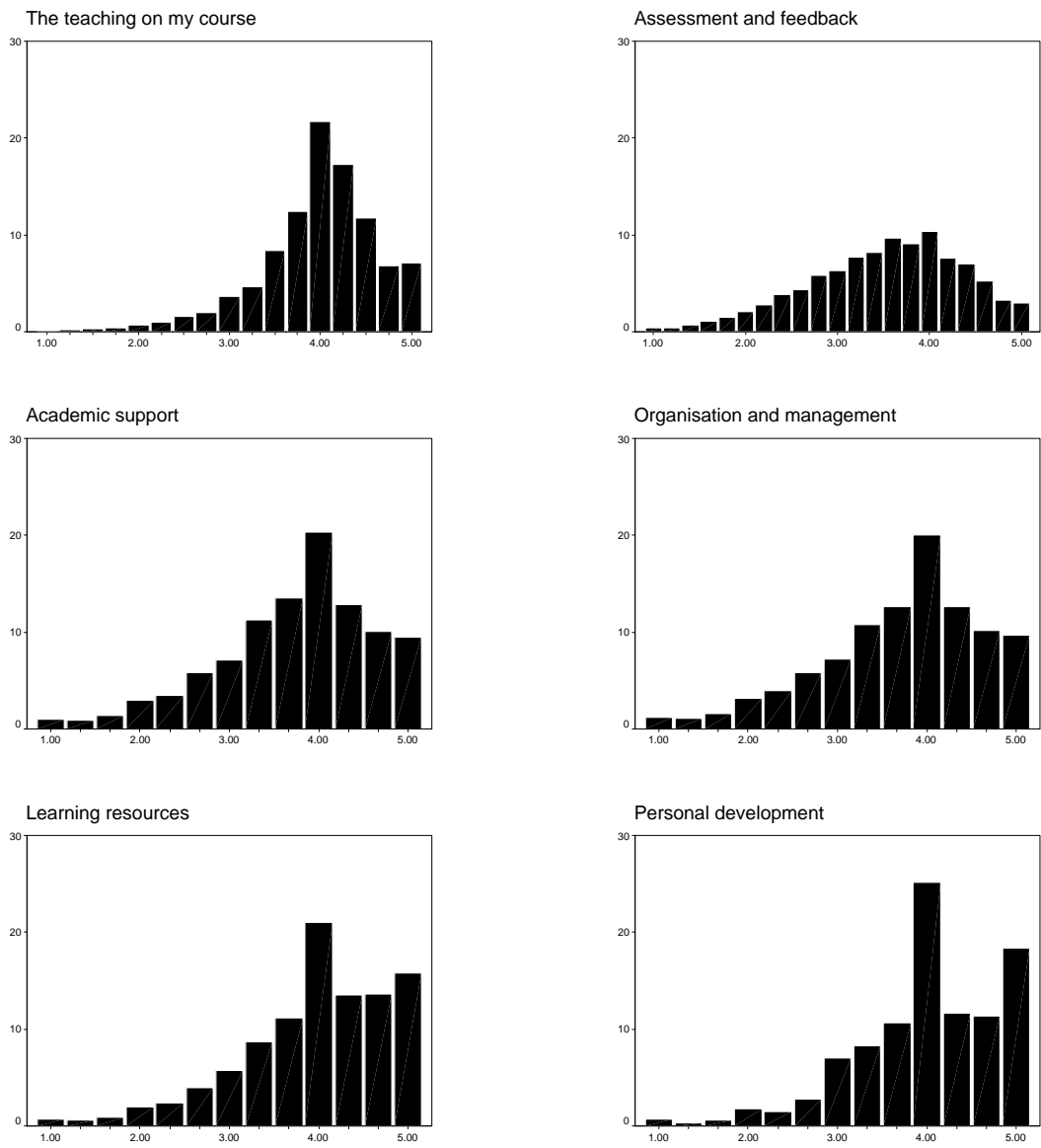
6.4 Distribution of Responses

The respondents were assigned scores on each of the six scales by averaging their responses to the constituent items in each scale.

The percentage frequency distributions of each scale are shown in Figure 8.

The mean scores were between 3.71 and 4.00, reflecting a broadly positive evaluation. All the distributions were negatively skewed (the “high point” of the distribution to the right, the “tail” to the left). It is apparent that some distributions peaked at the value of 4.00, reflecting the fact that “mostly agree” was the most popular response to all 21 items.

Figure 8. Percentage Frequency Distributions of Scale Scores



7.0 OVERALL SATISFACTION RATINGS

Of the 171,630 students who responded to the NSS:

- 171,195 (or 99.7%) provided a valid response to Item 22, “Overall, I am satisfied with the quality of this course” (410 students had left the item blank and 25 students had given two or more responses).
- 135 students had responded “not applicable”.

For the remaining 171,065 students, the modal response was “mostly agree”, and 81.3% responded “mostly agree” or “definitely agree”, indicating a high level of satisfaction.

7.1 Rank Order Correlation Coefficients

Of these students, 141,875 were within the analytical subsample. Spearman rank order correlation coefficients were calculated between their responses to the individual items and their responses to Item 22. These varied between 0.25 and 0.58.

The rank order correlation coefficients between their scale scores and their responses to Item 22 were as follows:

- The teaching on my course 0.64
- Academic support 0.58
- Organisation and management 0.56
- Personal development 0.54
- Assessment and feedback 0.52
- Learning resources 0.32

This is very similar to the pattern of component loadings shown in Table 9, confirming the underlying structure of the NSS and providing evidence of its criterion validity.

However, a proportion of the variation in Item 22 cannot be explained by a simple regression model using the responses to Items 1 to 21, whichever measures are used: the principal components, the scale scores or the individual items. There appear to be two key reasons for this:

1. The first reason is that we are trying to model the responses of an “average student”. Each student is different and which aspect of the institution’s facilities drives their overall satisfaction will vary from student to student. This can be explored with more sophisticated modelling techniques such as multi-level modelling.
2. There may be other aspects of the institution or of student life in general which are strong influencers on the overall satisfaction of students. For instance, it may be that the “average student” values the social life at the institution more highly than academic provision, and that satisfaction with their time as a student in general is a strong driver of the score given to Item 22. Perhaps some re-wording or further clarification may be useful, such as an introductory statement: “Thinking only of the course you have been taking...”

8.0 OPEN-ENDED RESPONSES

In addition to being asked to rate Item 22 “Overall, I am satisfied with the quality of this course”, respondents were asked the following open-ended item: “Looking back on the experience, are there any particularly positive or negative aspects you would like to highlight?”

Ten per cent of the 171,630 returned questionnaires were selected at Item 22. 68.8% gave positive or negative comments. Table 10 shows the 10 codes most commonly assigned to the responses.

Table 10. Verbatim Codes – Top 10 Positive & Negative

Positive	% of responses
Lecturers/tutors/teaching staff are good/high standard/quality teaching/experienced teachers	4.6%
Lecturers/tutors/teaching staff are helpful/friendly/understanding	4.2%
Learnt new skills/learnt a lot/good learning experience/broadened my mind	2.8%
Lecturers/tutors/teaching staff are enthusiastic/enthusiasm for their field/subject	2.5%
Lecturers/tutors/teaching staff are accessible/approachable/easy to get in contact with/available at any time	2.4%
Lecturers/tutors/teaching staff are supportive/give advice/informative	2.2%
Course/module/subject is interesting	1.9%
Lecturers/tutors/teaching staff/knowledgeable lecturers/know their subject/have practical experience in this field	1.8%
Good course/module/subject generally	1.6%
Meet new people/good community/made some good friends	1.6%
Negative	% of responses
Course/module/subject/classes are poorly/badly organised/structured/lack of cohesion/focus/aims not clear	3.0%
Lack of books in the library/too few books/journals/articles/online journals/not enough copies of core text	2.3%
Difficult to meet/get hold of/spend time/contact with tutors/lecturers/teachers	1.6%
Lack of support/guidance/pastoral care/staff/tutors	1.6%
Library resources are poor/online library facilities are poor/library is not very good/poor	1.5%
Lecturers/tutors/teaching staff are bad/poor standard/quality of teaching/not intellectually challenging/lack experience/do not know how to teach	1.3%
Variation in standards of tutoring/teaching abilities/some/few lecturers poor/boring	1.2%
Communication is poor/could be better/between/university/staff and students	1.2%
Feedback is poor/unhelpful/not enough/not constructive/inconsistent	1.2%
Lack of computers/IT/inter-intranet facilities/resources available	1.2%

9.0 CONCLUSIONS

- Over 60% of the students eligible to take part in the 2005 National Student Survey have responded. While there is some variation in response rate for different demographic groups, the majority of institutions (131 out of 141) have achieved a response rate over 50%.
- The quality of response from the students is very high. There are very few missing or multiple answers, and the level of "yea-saying" (giving the same answer to all items without thinking about the meaning) is very low.
- Each of the 21 items produced a good spread of responses, and none of the items appear to have been overly problematic to answer. Each item is useful in that it contributes independent information to the overall measurements, with no two items overlapping too greatly.
- The 21 items are grouped into six scales (sections) in a sensible way. That is, a student's responses to items within a scale tend to be strongly correlated, while the average scores for each scale are reasonably independent.

If the questionnaire is to be revised, then three areas have been identified for further investigation:

- The one scale to review is "Assessment and feedback", which could be split into two scales, because students appear to think of "Assessment" and "Feedback" as separate areas.
- The one item to review is Question 18. It has a weak structure, of the type "Did you find A, B or C?", which causes problems if a student agrees with A but not with B. It also received the highest proportion of "not applicable" replies, with nearly 11.7% (still 8.5%, after excluding Open University students) as compared to less than 1% for most other items. Primarily though this high "not applicable" rate is driven by lack of specialist resource needs for many disciplines, and the responses may be viewed as acceptable.
- The correlation between "overall satisfaction" and the 21 items is weaker than between pairs of items within the 21. Either there are other important issues affecting "the quality of the course" not captured in the 21 items, or many students are interpreting the item in a different way (e.g. as overall satisfaction with the institution, or with student life in general). Re-wording or further clarification may be useful, such as an introductory statement: "Thinking only of the course you have been taking..."

APPENDIX A

Table 4. Analytical Subsample Related to Demographic Variables

	Students responding	Students in Subsample	Per cent in Subsample
Age			
Under 21 years	7,630	6,705	87.8
21-25 years	126,165	110,435	87.5
26-30 years	9,640	7,675	79.6
31-40 years	13,260	8,930	67.4
41-50 years	9,640	5,745	59.6
Over 50 years	5,255	2,500	47.6
Gender			
Men	74,155	62,165	83.8
Women	97,475	79,855	81.9
Ethnicity			
White	133,300	109,035	81.8
Black	6,205	5,290	85.2
Asian	18,730	16,470	87.9
Other	4,485	3,900	86.9
Socio-economic status			
Higher managerial and professional occupations	17,645	15,225	86.3
Lower managerial and professional occupations	24,635	21,490	87.2
Intermediate occupations	12,230	10,650	87.1
Small employers and own account workers	5,665	5,020	88.6
Lower supervisory and technical occupations	3,815	3,375	88.6
Semi-routine occupations	8,980	7,860	87.6
Routine occupations	4,085	3,600	88.1
Disability			
No known disability	158,675	131,190	82.7
Dyslexia	5,710	4,990	87.3
Other disability or multiple disabilities	6,460	5,190	80.3

Table 5. Analytical Subsample Related to Academic Variables

	Students responding	Students in Subsample	Per cent in Subsample
Subject of study			
Agriculture and related subjects	1,725	1,530	88.6
Architecture, building and planning	3,490	3,035	86.9
Biological sciences	16,630	14,280	85.9
Business and administrative studies	22,520	19,340	85.9
Computer science	11,670	9,690	83.0
Creative arts and design	20,300	18,405	90.7
Education	5,440	4,400	80.9
Engineering and technology	9,215	8,110	88.0
Historical and philosophical studies	11,800	8,750	74.1
Languages	12,445	10,065	80.9
Law	8,595	6,960	81.0
Mass communications and documentation	5,670	5,175	91.3
Mathematical sciences	2,290	1,615	70.5
Medicine and dentistry	3,170	2,785	87.9
Physical sciences	6,725	5,985	89.0
Social studies	17,810	13,710	77.0
Subjects allied to medicine	6,160	5,125	83.2
Veterinary sciences	260	225	86.6
Combined	5,705	2,830	49.6
Mode of study			
Full-time	133,095	115,815	87.0
Part-time	23,590	12,910	54.7
Sandwich	14,900	13,260	89.0
Entrance qualifications			
Below GCE Advanced Level	13,610	10,080	74.1
Beyond GCE Advanced Level	19,535	13,830	70.8
GCE Advanced Level or equivalent	133,145	113,965	85.6
Single versus joint degrees			
Joint honours	31,225	26,980	86.4
Single honours	140,400	115,040	81.9
Level of qualification aimed for			
Certificate in Higher Education	285	185	63.8
Diploma in Higher Education	915	675	73.9
First degree	153,070	128,440	83.9
Foundation degree	3,865	3,145	81.4
Higher National Certificate	1,415	1,070	75.7
Higher National Diploma	6,025	5,310	88.2
Other undergraduate qualification	6,045	3,190	52.8
Collaboration and franchising			
Collaboration or franchised	6,695	5,565	83.1
Institution only	164,245	135,890	82.7
Mixture	675	555	82.1

Table 6. Percentage of responses to each item and mean score

	Definitely disagree			Definitely agree		N/A	Mean
	1	2	3	4	5		
1. Staff are good at explaining things.	0.9	4.4	8.6	66.6	18.6	0.9	4.00
2. Staff have made the subject interesting.	1.5	6.8	15.7	57.2	17.9	0.9	3.86
3. Staff are enthusiastic about what they are teaching.	1.3	5.0	13.7	48.6	30.5	0.8	4.05
4. The course is intellectually stimulating.	1.7	5.4	11.1	46.1	35.5	0.1	4.09
5. The criteria used in marking have been clear in advance.	4.6	13.3	14.8	41.2	25.9	0.3	3.71
6. Assessment arrangements and marking have been fair.	3.0	8.2	15.7	49.4	23.2	0.5	3.83
7. Feedback on my work has been prompt.	8.6	19.4	18.8	37.6	15.2	0.5	3.33
8. I have received detailed comments on my work.	6.9	16.6	16.3	39.7	20.0	0.5	3.51
9. Feedback on my work has helped me clarify things I did not understand.	6.9	17.6	21.3	37.4	16.0	0.9	3.41
10. I have received sufficient advice and support with my studies.	4.1	11.1	17.1	47.3	20.0	0.4	3.69
11. I have been able to contact staff when I needed to.	3.6	9.5	11.3	44.3	31.0	0.4	3.91
12. Good advice was available when I needed to make study choices.	3.9	11.4	20.8	41.3	20.6	2.0	3.70
13. The timetable works efficiently as far as my activities are concerned.	4.3	8.7	10.9	46.2	29.2	0.7	3.90
14. Any changes in the course or teaching have been communicated effectively.	6.2	12.9	14.9	41.2	22.8	2.1	3.88
15. The course is well organised and is running smoothly.	5.7	10.5	15.7	45.3	22.5	0.2	3.69
16. The library resources and services are good enough for my needs.	4.7	9.7	9.0	39.7	34.8	2.0	3.96
17. I have been able to access general IT resources when I needed to.	2.5	6.3	7.9	41.4	39.5	2.3	4.16
18. I have been able to access specialised equipment, facilities or rooms when I needed to.	2.6	6.9	17.4	39.3	22.1	11.7	4.07
19. The course has helped me to present myself with confidence.	2.0	5.4	17.6	46.3	27.8	0.9	3.95
20. My communication skills have improved.	1.4	4.4	15.5	42.8	35.1	0.8	4.08
21. As a result of the course, I feel confident in tackling unfamiliar problems.	1.6	5.0	18.0	46.5	28.0	0.8	3.97
22. Overall, I am satisfied with the quality of the course.	2.7	6.6	9.4	49.9	31.3	0.1	4.01