Review of information about learning and teaching, and the student experience

Results and analysis of the 2016 pilot of the National Student Survey

This report belongs to a series published as part of the review of information. It outlines the findings of a research study to inform the development of the 2017 National Student Survey. The pilot survey featured new, revised and existing questions. This report examines the robustness and validity of the revised questionnaire, and whether the new question scales work as expected. The actual responses of the students have not been analysed.

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Review of information about learning and teaching, and the student experience

Results and analysis of for the 2016 pilot of the National Student Survey

To	Heads of HEFCE-funded higher education institutions
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	Heads of higher education institutions in Northern Ireland
	Heads of higher education institutions in Scotland
	Heads of higher education institutions in Wales
	Heads of further education colleges in Wales
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	Employer bodies
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	Other bodies with an interest in information about higher education
	Careers advisers
	Schools, sixth form colleges and their representative bodies
	Other bodies and individuals involved in supplying advice and guidance to prospective higher education students
Of interest to those responsible for	Student information; Quality assurance; Admissions; Liaison with schools and colleges; Widening participation and marketing
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Executive summary

Purpose

1.   This report describes the findings of a research study to inform the development of the 2017 National Student Survey (NSS). The research involved running a pilot questionnaire, which was offered to students on an opt-in basis after they had completed the 2016 NSS. The pilot combined existing NSS questions with new and revised questions developed following a consultation held as part of the review of the provision of information. The aim was to examine whether the revised questionnaire was valid and reliable across a range of students, provision and institution types, and whether the survey worked as a whole.

2.   The research tests the robustness of the questions and whether the new question scales work. The actual responses of the students have not been analysed.

3.   Since the online version of the NSS may be taken on multiple types of device, the pilot survey also tested alternative interfaces and response scales in an attempt to find the most suitable layout for each. Research on the different interface and response scale options is included in analysis of the cognitive testing of the 2016 pilot NSS carried out by IFF Research Ltd. The investigation of the new interfaces and response scales is therefore not covered in this report.

4.   This report belongs to a series published as part of the review of information about learning and teaching, and the student experience.

Key points

The questions are all broadly relevant to most people

5.   Questions 14 ('Good advice was available when I needed to make study choices'), 20 ('I have been able to access subject specific resources […] when I needed to') and 26 ('Students' academic interests on my course are effectively represented by the Students' Union […]') have the highest proportion of 'not applicable' responses. Questions 25 ('It is clear how students' feedback on the course has been acted on') and 26 are answered the least positively overall.

The new question scales are working as expected

6.   When split into eight groups, based on students' responses, the eight question scales are identified as the most appropriate groupings for the questions.

7.   Question 26 does not display particularly high correlation with any other question, although it is most closely related to Question 25.

8.   This analysis excludes 'not applicable' responses, and thus over half of the distance learners who responded. When their responses are included, the scales no longer work as expected, meaning that the scales may not work in the same way for distance learners.

Removing the students' union question improves the internal validity of the survey

9.   All scales are found to have acceptable levels of internal consistency. However, reliability analysis suggests that the final question scale, 'Student voice', would work better if Question 26 was removed.

10.   The analysis implies that removing any other question from the survey would only weaken the question scale in which it sits.

The 'Learning community' and 'Student voice' question scales are answered much less positively by distance learners than all other students

11.   Distance learners are between 11 and 33 percentage points less satisfied than other students for Questions 21 to 26. Outside these two scales, distance learners' level of agreement does not differ greatly from that of other students, except for 'Assessment and feedback', where (in line with the main survey results) distance learners have a considerably greater level of agreement.

12.   In their free text responses, many distance learners mentioned that parts of the survey were not relevant to them. Over a quarter of distance learners students responded 'not applicable' to Question 26.

Action required

13.   No action is required.

Introduction

14.   In 2016, HEFCE commissioned a pilot of the National Student Survey (NSS) on behalf of the UK funding bodies, containing some revised and new questions. The pilot combined existing NSS questions with new and revised questions, developed as part of the 'Consultation on changes to the National Student Survey, Unistats and information provided by institutions' (HEFCE 2015/24)[1]. This pilot follows on from the findings of the UK review of the provision of information about higher education, and will help to inform the structure of the 2017 NSS.

15.   Following the findings from the analysis of the 2015 pilot survey, and a programme of cognitive testing of potential questions in autumn 2015, a revised set of NSS questions was developed and formed the basis of those used in the 2016 pilot survey[2].

16.   The main purpose of the pilot was to test the robustness of the newly developed questions and question groupings ('scales') across a wider range of students than was possible during cognitive testing. This pilot survey was analysed to determine whether any questions were problematic, and if so, whether these issues were could be linked to particular groups of students. The overall structure of the survey was also assessed as part of this analysis, to determine whether the new question scales work as expected.

Methodology

17.   The pilot took place alongside the 2016 main NSS, and was carried out by IFF Research Ltd. Students were offered the opportunity to participate in the pilot survey and in cognitive interviews related to the survey once they had completed the 2016 NSS (including any optional bank questions).

18.   Students who opted in to take part in the survey were contacted by email at least two weeks after completing the main survey, and were initially invited to answer questions online. Anyone who did not respond to the first few email prompts to complete the survey online was invited to complete the survey by phone.

19.   The survey was provided in both English and Welsh to ensure that the translations of the questions worked for Welsh speaking students. Throughout the survey, responses were monitored to ensure a representative mix of students by subject group and student demographic.

20.   Students completing the survey online were presented with one of five interfaces, depending on the device through which they accessed the survey. The ordering or content of the response options were also changed for some students who received the original survey interface. Some students were presented with a reverse scale, while others were given slightly reworded response options.

21.   The pilot survey consisted of 27 questions split into eight groups, referred to as 'scales', each covering a different aspect of a student's experience of their course. There

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[1] Available at www.hefce.ac.uk/pubs/Year/2015/201524/. For information about the consultation, see www.hefce.ac.uk/lt/roiconsult/.
[2] See 'UK review of information about higher education: Results and analysis for the 2015 pilot of the National Student Survey' (HEFCE 2015/25, available at www.hefce.ac.uk/pubs/year/2015/201525/) and '2016 cognitive testing of the new National Student Survey' (available at www.hefce.ac.uk/pubs/rereports/Year/2016/nsscognitive/).

was also a free text question regarding the design of the survey. A full list of questions is included in Annex A.

22.   The 27 Pilot NSS questions were presented as eight groups of questions:

- 'The teaching on my course' (Questions 1 to 4)
- 'Wider learning opportunities' (Questions 5 to 7)
- 'Assessment and feedback' (Questions 8 to 11)
- 'Academic support' (Questions 12 to 14)
- 'Organisation and management' (Questions 15 to 17)
- 'Learning resources' (Questions 18 to 20)
- 'Learning community' (Questions 21 to 22)
- 'Student voice' (Questions 23 to 26)

These were followed by the standalone 'overall satisfaction' question (Question 27).

Results of the analysis

Overview

23.   Over 26,700 students completed the 2016 pilot NSS, accounting for around 9 per cent of those who completed the main survey. A further 475 students started the survey but did not finish.

24.   Of those who completed, 20,700 did so online and just over 6,000 by phone. Students from higher education institutions, further education colleges and alternative providers, from across a range of subjects and demographics, completed the survey, presenting a representative sample of the students completing the main NSS.

25.   Students from all Joint Academic Coding System level 1 subject groupings were surveyed in the pilot, to ensure a representative sample. The subject groupings of students in the pilot survey were similar in proportion to those in the main survey, meaning that the two surveys are comparable.

26.   Analysis of the responses to each question suggests that the survey was broadly applicable and well understood. Table 1 shows the breakdown of 'Not applicable' and 'Neither agree nor disagree' responses per question. 'Neither agree nor disagree' responses have been investigated here to establish whether students were using it as a substitute for a 'Don't know' response.

Table 1: Proportions of students responding 'Not applicable' or 'Neither agree nor disagree' in the pilot survey

Question	Not applicable (%)	Neither agree nor disagree (%)
Q1	0.4	7.5
Q2	0.4	10.6
Q3	0.1	8.1
Q4	0.2	11.2
Q5	0.1	9.9
Q6	0.2	9.8
Q7	0.4	11.4
Q8	0.1	14.4
Q9	0.2	16.4
Q10	0.1	14.9
Q11	0.1	15.8
Q12	0.4	8.5
Q13	0.3	12.7
Q14	3.1	15.5
Q15	0.0	14.8
Q16	0.3	11.8
Q17	2.5	12.6
Q18	1.5	9.9
Q19	1.4	8.8
Q20	3.5	9.9
Q21	0.6	16.2
Q22	1.5	11.0
Q23	0.4	9.5
Q24	0.8	15.7
Q25	1.5	23.3
Q26	7.6	29.3
Q27	0.0	7.8

27.   Questions 25 and 26 have the lowest proportions of agreement: 55 percent and 48 per cent, respectively. 'Agreement', in this case, refers to a response of 'Definitely agree' or 'Mostly agree'. 8 per cent of respondents marked Question 26 'Not applicable' (N/A) while a further 30 per cent selected 'Neither agree nor disagree'.

28.   All questions are broadly relevant to most students, with Questions 14, 20 and 26 being the least relevant overall: 3 per cent, 4 per cent and 8 per cent of students select 'N/A' for these questions respectively.

29.   The questions seem to be well understood and relevant across the broad subject groupings. Those on combined honours courses select N/A more often than any other subject group across the majority of questions – although this is probably because students on distance learning courses account for 96 per cent of this subject grouping.

Question correlation

Principal component analysis

30.   Principal component analysis (PCA) is used to emphasise variation and identify patterns in data. It finds relationships between variables and usually allows the data to be split into fewer related groups, referred to as 'factors'. This allows the underlying structure of the data to be more easily identified.

31.   The purpose of performing PCA on the pilot survey data was to establish whether, as in the main NSS, the questions can be grouped together into their scales. They are assigned to their groups (factors) based on how similarly they are answered. If PCA finds that the questions cluster together in the form of the question scales, this implies, as expected, that the questions in each scale focus on a similar theme.

32.   When PCA is applied to the NSS pilot data, the eight scales can be identified and the questions grouped together as anticipated. This is shown in Figure 1 where a darker shade of blue represents a stronger positive relationship and a darker shade of red represents a stronger negative relationship.

Figure 1: Principal component analysis (using eight factors)

33. From the PCA there appears to be some overlap between scales for Q4 and Q23, both of which have similar levels of correlation for two different sets of scales; however, both fit best within the group for the scale they are from. This suggests that the question scales are largely working as we would expect them to.

34. When the questions are split into nine factors, Q26 separates into its own group. When split into seven factors, the first two scales join together.

35. Note that this analysis excludes anyone selecting N/A for any answer, as this is not considered to be on the same scale as the 'Agree'/'Disagree' responses and therefore cannot be compared in the same way. When these responses are included, the relationships within the 'Student voice' scale become less clear, and do not correlate as well with Q26. Q23 and Q24 also become more closely associated with the 'Learning community' questions than their own scale.

Correlation heat map

36.   Correlation analysis (displayed using a heat map) shows the level of association between two questions. It shows how similarly two questions have been answered, where a darker shade indicates a stronger relationship. Correlation analysis of the interim pilot NSS data finds high levels of correlation within each of the groupings Q1 to Q7, Q8 to Q11, Q12 to Q14, Q15 to 17, Q18 to 20 and Q21 to 25, as shown in Figure 2.

Figure 2: Heat map of the correlation between responses
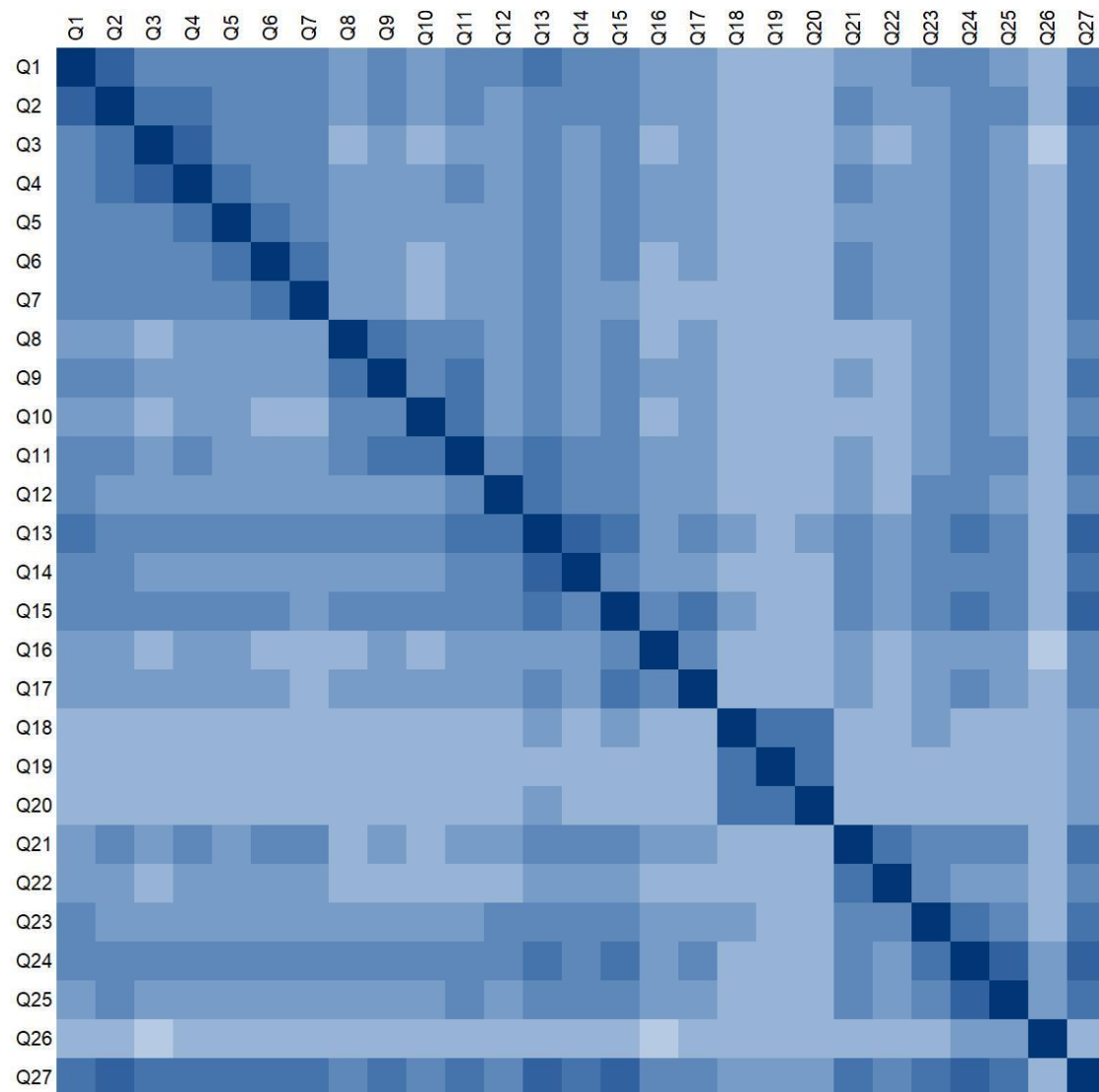
37.   Although the correlation is not as clear as seen in the heat maps for the main NSS survey, this is likely due to smaller numbers of students responding. Similar patterns can be seen in the 2015 pilot survey analysis, with the students' union question (Q26 in the current case) having no particularly high correlation with any of the question scales. (Note that a different colour scheme from last year is used for this analysis, although the results do not differ greatly.)

38.   If N/A responses are included in the heat map, all responses become less correlated with one another, especially Q26, which then does not correlate with any other question. Excluding the N/A answers does, however, exclude around half of the distance learners surveyed, which must be accounted for when considering this analysis.

Reliability analysis

Cronbach's alpha

39.   Cronbach's alpha is a statistic commonly used to measure internal consistency and determine whether or not a question scale is reliable. It is often applied in scenarios where a survey contains several Likert-scale response questions (for instance from 'Definitely agree' to 'Definitely disagree') which form groups or scales of questions. It is frequently used alongside principal component analysis, as it often supports the findings of PCA.

40.   The analysis produces a value for each scale, with a high number indicating a high level of internal consistency, and suggesting that the questions in the scale relate to the same general theme. A Cronbach's alpha value of 1 is considered to reflect perfect correlation between the questions in a scale. Table 2 gives the Cronbach's alpha for each of the question scales in the pilot survey.

Table 2: Reliability statistics – Cronbach's alpha value for each NSS pilot question scale

Question scale	Cronbach's alpha	Number of questions
The teaching on my course	0.84	4
Wider learning opportunities	0.79	3
Assessment and feedback	0.82	4
Academic support	0.81	3
Organisation and management	0.77	3
Learning resources	0.79	3
Learning community	0.73	2
Student voice	0.78	4

41.   All question scales from the NSS pilot have a Cronbach's alpha of 0.73 or above (a value greater than 0.7 is considered acceptable in most social science research situations). 'The teaching on my course' contains the strongest correlation, while 'Learning community' has the lowest. However, the value of alpha depends heavily on the number of questions within the scale. This could explain why 'Learning community', with only two questions, has a lower level of internal consistency than the other scales which all feature three or four questions. Compared with the scales which feature four questions, 'Student voice' has a slightly lower value of alpha, which suggests that this scale may not be working as well as other, similar scales. However, its reliability score is still considered sufficiently high.

42.   Another useful feature is that Cronbach's alpha can determine how much each question contributes to the total correlation of its scale, and whether removing a question would strengthen or weaken the scale. Table 3 shows the different values of Cronbach's alpha for the 'Student voice' scale, were each individual question to be removed from the scale.

Table 3: Cronbach's alpha when a question is removed from the 'Student voice' scale

| Question	Cronbach's alpha if item removed	Change from original alpha
Q23	0.74	-0.04
Q24	0.67	-0.11
Q25	0.67	-0.11
Q26	0.82	+0.04

43.   As shown above, removing Q26 (the students' union question) from the 'Student voice' scale would lead to a small improvement in Cronbach's alpha, and therefore the reliability of the scale. The removal of any other question would weaken the scale.

44.   For every other scale in the pilot survey, the value of Cronbach's alpha decreases when any question is removed. Therefore, this analysis finds that Q26 is the only question whose removal would increase the reliability of any of the scales within the survey.

Impact on distance learners

45.   There is substantial variation in levels of agreement for some of the question scales between distance learners and other students. Figure 3 displays these differences (overall distance learners' agreement minus overall other students' agreement).

Figure 3: Difference in percentage agreement between distance learners and other students
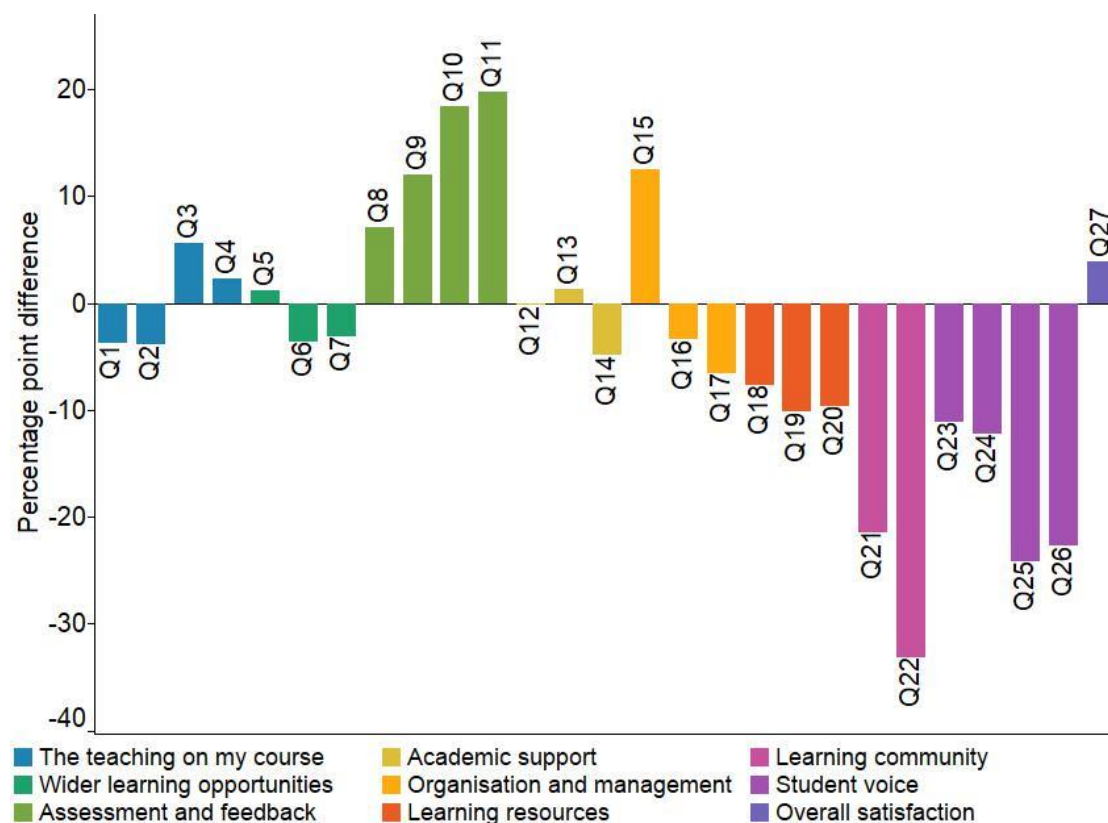
46.   Distance learners agree by between seven and 20 percentage points more than other students on 'Assessment and feedback', and 13 percentage points more for Question 15 ('The course is well organised and running smoothly'). This is similar to the differences seen between distance learners and other students in the main survey.

47.   One key distinction in these differences in agreement between the main survey and the pilot is for Q20 (Q18 in the main survey). The original statement, 'I have been able to access specialised equipment, facilities, or rooms when I needed to', received much lower levels of agreement from distance learners than other students (42 percentage points lower). By contrast, with the revised statement in the pilot survey, 'I have been able to access subject specific resources (e.g. equipment, facilities, software, collections) when I needed to', percentage agreement for distance learners is just under 10 percentage points less than for other students. This suggests that the rewording of this question has made it more usefully applicable to distance learners. Aside from this question, the existing scales follow a similar pattern to the main survey in terms of differences between distance learners and other students.

48.   The new 'Learning community' and 'Student voice' scales are answered much less positively (or marked N/A more frequently) by distance learners than by all other students, as shown in Table 4. Among distance learners, 27 per cent selected N/A for question 26.

Table 4: Differences in agreement between distance learners and other students

Question	Agreement (%)		
	Distance learners	Other students	Difference
Q21	50	71	-21
Q22	50	83	-33
Q23	73	84	-11
Q24	61	73	-12
Q25	33	57	-24
Q26	28	50	-23

49.   Q22 ('I have had the right opportunities to work with other students as part of my course') had the largest difference in percentage agreement between distance learners and other students: agreement was over 33 percentage points lower for distance learners.

50.   Question 17 also received a high proportion of N/A responses from distance learners: 16 per cent compared with 1 per cent from other students.

51.   Around 10 per cent of distance learners who answered the free text question mentioned that several questions were not relevant to them, or commented that the survey was aimed specifically at non-distance learners. Question 26 was mentioned most often as the least relevant question.

Conclusions

52.   On the whole, this analysis has provided some insight into how well the structure of the 2016 pilot NSS worked and identified some potential areas for change or further investigation.

53.   The existing and slightly modified question scales continue to work in the same way as they have for the main survey since 2005. The new question scales also work as expected, with questions in each scale answered similarly to one another and correlation analysis able to identify each of the question scales clearly based on students' responses.

54.   The 'Student voice' and 'Learning community' scales do not appear to work as effectively for distance learners as they do for other students. Much higher proportions of distance learners choose the less positive responses or select N/A for these questions. This issue with distance learners and the new question scales could benefit from further work.

55.   Q26, the students' union question, seems to cause the most problems within the survey. Among non-distance learners 6 per cent select N/A for this question, along with 27 per cent of distance learners. This suggests that students may be misunderstanding the question. Reliability analysis indicates that the removal of Q26 from the 'Student voice' would actually improve the internal validity of the scale. Re-wording or even removal should be considered for this question so that the flow and structure of the survey are not impeded.

Annex A: List of questions in the 2016 pilot National Student Survey

All questions shown in bold were also included in the same format in the 2016 National Student Survey.

	The teaching on my course
1.	**Staff are good at explaining things.**
2.	**Staff have made the subject interesting.**
3.	**The course is intellectually stimulating.**
4.	My course has challenged me to achieve my best work.
	Wider learning opportunities
5.	My course has provided me with opportunities to explore ideas or concepts in depth.
6.	My course has provided me with opportunities to bring information and ideas together from different topics.
7.	My course has provided me with opportunities to apply what I have learnt.
	Assessment and feedback
8.	**The criteria used in marking have been clear in advance.**
9.	Marking and assessment has been fair.
10.	Feedback on my work has been timely.
11.	I have received helpful comments on my work.
	Academic support
12.	**I have been able to contact staff when I needed to.**
13.	I have received sufficient advice and guidance in relation to my course.
14.	**Good advice was available when I needed to make study choices.**
	Organisation and management
15.	**The course is well organised and running smoothly.**
16.	The timetable works efficiently for me.
17.	**Any changes in the course or teaching have been communicated effectively.**
	Learning resources
18.	The IT resources and facilities provided have supported my learning well.
19.	The library resources (e.g. books, online services and learning spaces) have supported my learning well.
20.	I have been able to access subject specific resources (e.g. equipment, facilities, software, collections) when I needed to.
	Learning community
21.	I feel part of a community of staff and students.
22.	I have had the right opportunities to work with other students as part of my course.

	Student voice
23.	I have had the right opportunities to provide feedback on my course.
24.	Staff value students' views and opinions about the course.
25.	It is clear how students' feedback on the course has been acted on.
26.	Students' academic interests on my course are effectively represented by the Students' Union (Association or Guild).
	Standalone question
27.	**Overall, I am satisfied with the quality of the course.**
	Free text box
28.	Please tell us your thoughts on the design of this survey.

Note: Question 28 was included to gain insight into the design of the pilot survey and provide some additional information when regarding how well the new interfaces worked for students. It was not intended to be tested as part of the survey.