



# **Improving the educational experience of HLST students in Higher Education**

Key findings from the NSS survey  
(2009 to 2010) for Universities offering  
**HLST (Hospitality, Leisure, Sports and  
Tourism)** related courses in England

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## **Acknowledgements**

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## Executive Summary

Many Western economies have now introduced national surveys of higher education to permit students to provide an account of their educational experience. Universities in the United States and Canada have, for over a decade, used the National Survey of Student Engagement to assess their students' level of engagement. Similarly, universities in Australia and New Zealand are increasingly making use of the Australasian Survey of Student Engagement (AUSSE) to determine efforts their students devote to educational activities and their students' perception of the quality of their educational experience. These national surveys led to the UK government higher educational body commissioning a survey instrument. The National Student Survey (NSS) was pilot tested in 2004 and has been running annually since 2005. The survey and number of Institute participating has widened to include higher education and further education institutes based in the United Kingdom. Currently, there are 152 higher education institutes (HEIs) and 113 further education institutes (FEIs), across the UK, who take part in the NSS.

Many universities are now looking to the National Student Survey as a mechanism to improve their service delivery and accountability. Students and other stakeholders (parents, organisations, governmental bodies, partners, etc) are now expecting greater transparency of the educational standards at higher educational institutes and this is compounded by the announcement that fees are set to triple, in many institutes, in 2012. However, questions need to be asked as to whether the NSS is being used appropriately to identify student experiences and areas for improvement. There is a danger that the NSS is leading to the quantification of quality. Whereby, the instrument of measurement will become the primary focus to gain better results which may actually negate addressing the key issues of a learning experience in higher education.

Anecdotal evidence would suggest that information from the NSS survey is being used simplistically. Many institutions have focused on the descriptive analysis which has revealed that assessment and feedback are annually rated poorly by students. This has led to a disproportionate level of emphasis and resources focused on peripheral issues and the valued factors, of a higher educational experience, being side-lined by superficial examinations of the NSS data. This report overcomes many of the deficiencies of previous perceptions and descriptive analysis of the NSS data by providing robust and thorough analyses of the complete NSS dataset. The findings challenge many of the current views of what leads to a valued educational experience for students.

To ensure that the analyses generated robust and rigorous findings a framework was adopted to provide a consistent format in selecting universities and courses. This involved accepting the HEA criteria and selecting only universities with 23 or more responses, which resulted in 25 universities from the HLST (Hospitality, Leisure, Sports and Tourism) discipline located in England, being selected for analyses. To facilitate comparisons between universities the current classification of universities was adopted namely: Russell Group, Pre-1992 and Post-92 universities. There was 1 Russell Group, 1 Pre-1992 and 23 Post-92 universities identified as meeting the criteria for selection for analyses. The analyses has been broken down to specific student demographic characteristics to help senior managers and course leaders appreciate the subtle differences in the educational experience of students based on Gender, Ethnicity (UK and International), Age, Mode of study, A-level grades, Socio Economic Classification and Responses by Survey week of completion. To add a further insight into the importance of the NSS variables advanced statistical analyses was applied to identify which NSS variables have the greatest influence on student satisfaction.

Over ninety recommendations have been proposed to help senior managers and course leaders to practically improve the educational experience of students in higher education.

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A number of recommendations are put forward to address the current areas of dissatisfaction for the students in higher education and these will be discussed in detail in the main report.

## Summary of Key Recommendations

The findings from the NSS can be utilised by universities to enhance their competitive position and deliver a valued educational experience for students in higher education. The key recommendations involve universities investing in the management of their course; investing in improving the teaching at the institute; ensuring that students are developing appropriate skills for employment; developing a series of metrics and tools to assess student and staff views; publishing the key findings to help improve institute performance; developing strategies to address the needs of UK ethnic minorities, students living at home during their study, international students; communicating with students, through various media, to gauge their views and participation in the NSS.

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## **Introduction to the NSS**

The increasing awareness of current and prospective students, of the published findings, of the NSS has led to many universities reassessing their strategies to engage students. This has taken on greater importance recently as the UK government has announced that key findings from the NSS will be made available to future students in Key Information Sets.

Consequently, as universities strive to compete nationally and internationally the importance of the NSS has taken on greater precedence. This report provides an overview of the key findings from analyses of the full NSS dataset of responses between 2009 and 2010 for universities offering Hospitality, Leisure, Sport and Tourism (HLST) related degrees, located in England. The findings challenge many current misconceptions of what influences student satisfaction in higher education.

## **National Student Survey (NSS)**

The national student survey (NSS) came into existence because HEFCE decided to abandon the extensive subject review mechanism and focus its efforts on developing a survey instrument that would provide prospective students information to make an informed judgement on where to study. To fulfil this objective a percentile summary of the findings of the NSS survey is made public and is available on the unistats website ([www.unistats.com](http://www.unistats.com)) to the public. Although, a more detailed account of the student experience in higher education will soon be available to students through key Information Sets that have been announced in the recent white paper (Higher Education: Students at the heart of the system, June, 2011)

The NSS survey was designed by academics and colleagues from the Open University and after a successful second pilot test in 2004, in which the questionnaire proved to be robust it was decided by HEFCE that the survey was ready for a full national survey in January, 2005 (Richardson et al., 2007). The survey is targeted at final year undergraduate students and seeks their feedback, on the perception of the quality, of their courses. There are 22 questions on the NSS the responses to the NSS variables range from definitely agree to definitely disagree. Whereby, a 1 relates to definitely disagree and a 5 to definitely agree. There is also a sixth category which denotes not applicable.

The results from the NSS are used by government and funding bodies to produce league tables of university performance. The position of a university in any league table will ultimately impact on its image (Douglas et al., 2006, p.251). The NSS results exert a total influence of 25% (10% teaching, 10% for assessment and feedback, and 5% for overall satisfaction) on the total league scores produced by the Guardian and Times newspaper. Therefore, it is vital that universities achieve a high NSS score to not only maintain but enhance the reputation of their institute.

The NSS comprises 22 core questions which are grouped into seven categories (see Table 1a) namely: teaching, assessment and feedback, academic support, organisation and management, learning resources, personal development and overall satisfaction.

Table 1a: Categorisation of NSS questions

<b>NSS themes</b>	<b>Questions</b>
Teaching	Q1 - Q4
Assessment and feedback	Q5 – Q9
Academic support	Q 10 - Q 12
Organisation and management	Q 13 - Q 15
Learning resources	Q 16 - Q 18
Personal development	Q 19 - Q 21
Overall satisfaction	Q 22

The final category has only one variable which measures overall satisfaction. There are two further additional open-ended questions which seek positive and negative views. The data collection is carried out by a private organisation (IPSOS MORI), during January and April, who send out Emails, letters and make reminder phone calls to ensure a high response rate. Institutes can select one of five starting weeks, starting from 9<sup>th</sup> January to 6<sup>th</sup> February in 2012, for their survey. This allows institutes to select a date that is convenient for their students in terms of avoiding exam schedules and semester breaks. The response rates in the last few years have been above 60% which now permits valid comparisons between institutes (SurrIDGE, 2009). Once all the data has been collected it is linked back to the students HESA records to make in-depth analysis possible based on student demographics. Analysis of the NSS data has repeatedly provided evidence of the robustness of the instrument (SurrIDGE, 2007; Marsh and Cheng, 2008; Fielding et al., 2010) and the variables used to assess the student experience. Institutes have the opportunity to choose up to a maximum of six optional questions and they may also include two extra questions specific to their institute. These questions are administered after the NSS questions have been completed and the findings from the optional questions are only available to the institute.

Institutes must provide student contact details (Emails, landline and mobile numbers) to Ipsos/Mori (Survey agency) by November so that the survey agency can contact students to increase the response rate. However, institutes can inform Ipsos/Mori to exclude students because of the following reasons:

1. Students are deceased;
2. Students have serious health issues and the NSS may cause the student distress;
3. Students have requested that their details are not passed onto a survey agency and do not wish to be contacted.

The National student survey has become an important element in quality assurance (QA) and in institutional quality enhancement (QE) activities related to the student learning experience. This is becoming paramount due to rising tuition fees, more competitive educational environment and information on university services being readily available to prospective students when they are making informed decisions about which course and university to select.

### **Student satisfaction**

The introduction of variable fees in 2006 has led to increased competition in the education sector. This will be compounded by the recent announcement, by universities, of the doubling and in some cases tripling of university tuition fees which will focus greater attention on student satisfaction. The introduction of higher tuition fees is leading to a business like service mentality of the industry in which universities are focusing their efforts to meet or exceed the student needs (DeShields et al., 2005).

Tuition fees will force universities to act as service providers that are focused on meeting student needs (Williams and Cappuccini-Ansfield, 2007). As the government, industry, sponsors, parents seek evidence that the investment for higher education will be value for money. Furthermore, Watson (2003) and Nariimhan (2001) suggest that fee paying students may expect “value for money” and behave more like consumers. Students have long been considered as customers of a university (Crawford, 1991) even before they were liable for payment of tuition fees. This current mind set, from students as being thought of as

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customers, should not lead to a compromise in academic standards to appease students as in the long terms both will suffer from credibility.

The NSS is one feedback instrument that informs universities whether they are meeting their student needs. Therefore, the delivery of a high quality service by universities will require universities to invest in resources that, at the very least, meeting the requirements of students. Additionally, failure to invest in adequate resources in training, support, research, etc., for staff may lead to a lack of consistency in service perception which could ultimately have a major influence on the students' perception of the delivery of an acceptable level of service from the institute.

### **Teaching**

Professional educators such as Phil Race (2010) have long advocated that students want contact with people (tutors, experts, learning support staff) at the university. Evidence to support this claim is provided by the NSS in that student satisfaction often seems to be the highest at small institutions where students have a close rapport with tutors.

Empirical research by Douglas et al., (2006, p.263) supports previous findings (Hills et al., 2003) which found that the most important aspect of university service offering is associated with the core service namely, the lecture. Douglas et al. (2006, 264) advocates that the quality of the teaching and learning will ultimately cause satisfaction or dissatisfaction for the students. This is supported by Research by Thomas and Galambos (2004, p.263) which confirms that teaching appears to have the most effect on the student satisfaction as this is the principal product of higher education. The results of this research will also confirm those findings.

### **Criticism of NSS**

The NSS has not evaded criticism in terms of the survey instrument (Ramsden, 2004, Shepherd, 2006), interpretation of results (Prosser, 2005), the use of findings due to the instruments subjectivity (Marsh et al., 2002), focus on courses and not tutors (Marsh and Cheng, 2010). The NSS has been viewed as a resource that diminishes academic identity by focusing on student experience and viewing academics as mere providers and students as customers (Sabri, 2010). It has been argued that students are not trained assessors and good performance is seldom recognized (Leckey and Neill, 2001, p.26). Fielding et al., (2010) advocate that the information, from the NSS survey, should be used contextually and not over simplistically. The NSS is perceived as an exercise in generating league tables that diminish attempts to improve the quality improvements (MacDonald et al., 2003) and there is a clear danger that such information will be used simplistically (Williams and Cappuccini-Ansfield, 2007). There has been concern from librarians that NSS questions on learning resources do not focus on the electronic aspect of the library services nor do they focus on the level of support for learning provided by the library service (Stanley, 2009, p.146). Yorke (2009) has highlighted a number of criticisms of the NSS namely:

- The survey only contains positive statements which could lead to more positive responses than would be the case if negative statements were include;
  - Students who complete the survey over the phone tend to give more positive ratings than those who filled the survey in a paper copy;
  - Students have little incentive to be negative about the institution as this may threaten the reputation of the institution and consequently the students' degree;
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- It can be difficult to identify the differing prior experiences of the students and the variation this has on the responses.

Further criticism was highlighted at a HEA (2010) workshop on NSS, namely:

- The NSS could stifle pedagogical creativity and lead to a culture of avoiding risk;
- The NSS is a blunt instrument that provides only a final overview, as opposed to accounting for the individual experience of students during each year of their course;
- The NSS data could undermine the wealth of internal survey data that is collected by universities;
- The NSS provides aggregated results for courses. This fails to account for differences by gender, UK ethnicity and international group;
- The NSS results could be vulnerable to manipulation;
- The construction of league tables, based on NSS results, may be counter-productive in enhancing the student learning experience as it may demoralise staff or be used as a managerial tool to pursue corporate objectives.

Workshops delivered Dean (2011) revealed an additional number of criticisms of the NSS, namely:

- The NSS does not provide a breakdown of which modules, in a course, the students were the most dissatisfied with. This could be highly relevant if the module is delivered by another department or faculty;
  - The data from the NSS is being used by senior management to make simplistic comparisons between courses, in a faculty, and across faculties. The NSS was never designed to as an instrument to benchmark courses, especially when different pedagogical and assessment approaches are used across faculties, students may have the opportunity to undertake an industrial placement, different buildings and resources are being invested in to enhance the student experience;
  - The NSS does not consider the staff student ratios in each course and the university facilities (buildings and equipment) that are utilised by the each course. The housing of a particular faculty in a modern building can influence the impression and experience of students;
  - Resources are being invested in areas that scored lower than other variables without consideration to the deep reasons for students scoring specific variables lower than others. This becomes highly relevant when advanced analysis reveals the importance of certain variables to overall student satisfaction;
  - NSS results can be very misleading as a rise in course/universities performance may not necessarily reveal a major improvement especially when the results are benchmarked with the yearly increasing averages of NSS scores for specific variables. Thus a rise in 5 points by a department in the NSS may seem impressive but if the sector improved by 10 points then the performance can seem quite disappointing;
  - The five point rating scales for each variable is presented from strongly agree to strongly disagree. The choice as to whether to place the strongly agree or strongly disagree first, bias the responses as research by Fielding et al., (2003, p.794) has shown that Strongly Agree appearing on the left hand side of a scale will result in higher levels of agreement.
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The NSS data provides a rich repository of student experience for universities allowing them to benchmark their performance. Although, both Surridge (2009, p.6) and Marsh and Cheng (2008) suggest that there is a need for caution when making comparisons either between different subject groups within an institution or within a subject group across institutions. As there are a number of variables that could have affected the student experience such as reputation of Institute, socio-economic background of respondents, ethnicity, Institute resources, cohort size and composition, etc.

Surridge (2009, p.30) warns of the danger of misinterpreting the NSS results as it may be possible that the Institute is still performing not as well as expected relative to other institutions especially if those institutions are improving at a much faster rate. Despite these criticisms the National Student Survey (NSS) is considered a vital quality enhancement in UK higher education (Beltyukova and Fox, 2002; Williams and Cappuccini-Ansfield, 2007).

Research by Reid (2010, p.59) reveals that students can never receive enough feedback. Solutions offered by Reid (2010, p.61) involve universities worldwide considering the adoption of a common assessment feedback criteria and practice. Whether this could be applied in all disciplines with an equal measure of success is a highly contentious view.

The NSS questions on feedback fail to address the substantial amount of feedback in tutorials. Nicol (2008) proposes that the NSS offers a very narrow conception of feedback as the NSS overlooks other types of feedback provided by tutors. Such as assignment discussions in tutorials, answer questions in class, face-to-face feedback and elaboration in lectures. Nicol (2008) argues that even if greater quantities of written feedback were provided students would still want more and would still be less satisfied with this theme in relation to other NSS themes.

### **Assessment and feedback**

There is growing consensus on the major findings from the NSS data. The most widely discussed issue relates to assessment and feedback (Surridge, 2007, 2009) because descriptive analysis of the NSS results indicate that feedback, on assessments, is consistently scored lower than other questions on the NSS survey. The findings consistently highlight that feedback is not sufficiently clear, lacks detail and is not supplied in a timely manner. This has resulted in many institutes focusing their resources and efforts in improving the assessment and feedback experience for students in higher education. Proser (2005) has argued that students may not be complaining that they are not getting sufficient feedback or that they don't appreciate feedback but rather that they don't understand the feedback they are getting.

The former chief executive of the Higher Education Academy, Paul Ramsden stated, at the HEA annual conference in 2007, that he disagrees with the notion that "because students are slightly less positive about feedback on assessed work in the NSS than about the quality of teaching, we should rush to bully academics into providing more feedback more quickly." Unfortunately anecdotal evidence would suggest that universities have become obsessed with assessment and feedback at the expense of pursuing creative pedagogy that inspires students.

### **Subject Differences**

A key area of overlap between Surridge (2009) and Marsh and Cheng (2008) is that there are significant differences between institutions and subject areas. They conclude that there are large differences according to subject of study. The current findings of the NSS data identified by Fielding et al. (2010, p.362) indicate that there is a significant cultural

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difference amongst subject groups which needs to be understood. The NSS results of feedback, generally perceived with unfavourable results, are scored favourably with high overall satisfaction for performance and feedback in physical geography and mathematics. Although, mathematicians are more satisfied by feedback but seem unconcerned about promptness.

### **Ethnicity**

Key findings from the NSS analyses undertaken by SurrIDGE (2007, 2009) and Fielding et al. (2008) reveal that a number of UK ethnic groups (Indian, Pakistani, etc) score the NSS variables lower than other students. This research also shows that despite previous findings, showing lower satisfaction scores for specific UK ethnic groups, these scores are still significantly lower. This is of paramount importance for Post-92 universities who have the highest diversity of students on their campus.

### **Improving the NSS**

Many of the deficiencies in the current NSS can be addressed by including an additional set of questions and information from HEFCE, namely:

1. The final degree class classification of students;
2. The response rates of students completing the NSS for each course;
3. The cohort size of each course;
4. The number of contact hours;
5. The type of assessment predominant in the course;
6. The type of seminar engagement activities;
7. Amount of groupwork in the course;
8. Student engagement with blended learning tools;
9. Whether the students work part-time.

### **Methodology**

All research methodologies are subject to limitations. The main strength of the NSS survey is its ability to quantitatively capture the views of a very large sample of final year students. On average, over 250,000 responses are collected each year and the current response rate is 65% in the UK. This high response rate permits reliable comparisons between institutions. The main limitations of this survey instrument are that it only provides one insight into the student experience and cannot inform institutions as to why students may respond in a certain manner.

Initially the full dataset was reviewed to ensure that consistent information had been collected and collated on students each year and that the data was sequentially structured in the same manner each year. The data had not been collated consistently each year and therefore the first month of the analysis was dedicated to structuring the data in a compatible format to facilitate year-on-year comparisons. To facilitate the analysis of the NSS data set a selection of criteria was applied whereby responses were only selected from 2009 to 2010 that met the following criteria were:

1. The university was located in England;
  2. Only universities classified as either a Russell Group, Pre-1992 and Post 1992 university were selected;
  3. Only HLSTs that achieved responses of 23 or more were selected for analyses.
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This selection criterion led to 25 universities, being selected for analysis. This included 1 Russell Group, 1 Pre-1992 and 23 Post-92 universities.

A number of Non-parametric statistical tests were applied, to the NSS data, to reveal significant differences between Gender, Ethnicity, International student group and Year of NSS completion. Correlations analysis was also undertaken to determine the strength of association between NSS questions (1-21) and question 22 (overall satisfaction). Finally, Decision Tree analysis permitted the identification of key NSS variables that contributed to overall satisfaction.

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## Conclusion

The author has identified 31 key issues from the NSS findings that have been segmented into eight themes. The main findings are presented in Table 1b.

Table 1b: Key findings of the NSS for the HLST discipline (2009-2010)

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The implications of these findings are discussed in the next section.

### **Recommendations**

The NSS provides important evidence for setting the quality of educational delivery in higher education. Through highlighting areas of concern for students that require policies and investment from senior management that can be implemented by Faculty heads and course leaders. The findings from the NSS reveal that senior management at University, faculty and course level (see Table 2a) need to develop policies that address the needs of the institute, staff and students to create a conducive environment for teaching and learning is achieved.

Table 2a: Policies requires by Senior Management

Senior Level	Mission Statement; Developing strategic priorities; Investment in Systems, Resources, Staff, Enterprise, Research; Strategies for staff recruitment; Establishment of Quality Systems; Marketing of University; Estate Investment.
Faculty Level	Allocation of resources; Timetabling of teaching; Allocation of Research allowances; Development of Partnerships; Review of Faculty Performance; Module evaluations and focus group research; Development of Online and Offline Promotional material; Remuneration incentives.
Course Level	Module composition; Assessment timetabling; Review of student performance (disaggregated); Establishment of best practices to engage students in teaching and learning; Prioritising resources for next year; Student Recruitment strategies.

The findings from the NSS can be utilised by universities to enhance their competitive position through the adoption of university management practices that will strengthen the delivery of a valued service by students.

The key issues to arise from the NSS are:

1. How do we interpret the results?
2. Which issues should be prioritised?
3. How should the results be conveyed to all stakeholders?
4. How do we improve student satisfaction?
5. What reward mechanisms will lead to improved services?
6. How do we measure change?

The answer to these questions can be elicited from the recommendations highlighted in Table 2b:

Table 2b: Recommendations to improve the educational experience of students in HE.

1	<p><b>Course Management</b></p> <p>To help dispel any student confusion it is vital that courses are managed efficiently and that information is readily available and transparent to students.</p> <ol style="list-style-type: none"> <li>1. Administrators and course leaders need to work together to ensure that adequate scheduling (timetabling) of lectures seminars/tutorials and dissemination of information to students.</li> <li>2. Course teams need to consider a bespoke induction, for students in every year of the course, to help prepare students for the academic expectations from the university and support/resources available to them.</li> <li>3. Course teams need to have dedicated members contributing to the academic development and administrative operations to ensure the continued evolution of the course and its subsequent management of student services.</li> <li>4. The delivery of modules needs to be reviewed in line with the needs of the student target market. Course team will need to consider a number of delivery options in terms of block delivery, evenings, weekends, online engagement, delivery at alternative geographical locations and sites.</li> <li>5. Course teams need to consider reducing the number of electives in Year 1 and 2 to help ferment a more cohesive student cohort in terms of identity and collaboration between students.</li> <li>6. Course leaders need adequate time and resources allocated to manage cohorts.</li> <li>7. Course leaders and their team need to be given a loci of authority to make operational decisions. Course teams should be given control over the management, administration, recruitment and delivery of the course programmes to ensure that adequate resources are prioritised to enhance the student experience.</li> <li>8. Course teams will need to consider a number of options to communicate course updates to students. This could involve announcements in seminars, Lectures, the universities online portal, mobile text message, Social media announcement on course Facebook or Twitter page.</li> <li>9. Course teams review the composition of core and optional modules to ensure that a distinct experience is being attained from the course programme.</li> </ol>

	<ol style="list-style-type: none"> <li>10. Course teams develop a skills matrix from which to assess the contribution of each module to the overall distinctiveness of the course.</li> <li>11. Course teams review the wording in all student and module documentation to ensure that the vocabulary is clearly meaningful to students.</li> <li>12. Course Teams ensure that quality systems for progression, plagiarism, awards, etc are in line with the sector standards.</li> <li>13. Course teams assess the potential of courses to specialise the learning for specific industry sectors. Thus allowing the course to offer tailored programmes to professionals from specific industries.</li> <li>14. Course team need to undertake a periodic strategic review of the market trends and future needs of employers and professional bodies to revitalise the curriculum and ensure that the course is still appealing to students and employers.</li> <li>15. Course team should actively engage in developing partnerships with business, professional and academic bodies both nationally and internationally to enrich the practical, theoretical and cultural diversity of the course.</li> <li>16. Course teams should be comprised of individuals that have a wealth of talent and experience to add to the value of the educational experience of students.</li> <li>17. Course teams should develop appropriate module guides and elective information that will be prove helpful for students in making decisions about specialising in certain fields for their discipline.</li> <li>18. Cancelled lectures/seminars should be communicated to students via their personal Email account and other social media (course Facebook, Twitter, etc).</li> <li>19. Course Teams need to play an active role in the recruitment, retention and development of new academic staff. To ensure that highly qualified and inspiring tutors are recruited that can add to the curriculum development and valued student learning experience.</li> <li>20. Course teams need to analyse the disaggregated module assessment results by gender, UK ethnicity and international students to gage an accurate picture of student achievement.</li> </ol>
2	<p><b>Improving Teaching</b></p> <p>The regression and decision tree results clearly highlight that teaching plays a pivotal role in overall student satisfaction. Consequently, universities need to invest in training of their lectures to ensure they are engaging and involving their students in lectures and seminars. This could involve:</p> <ol style="list-style-type: none"> <li>21. Tutors understanding that the catalyst to inspiring students is that staff are approachable, deliver inspiring lectures and activities that encourage interaction.</li> <li>22. Engaging students with practical real life examples/activities.</li> <li>23. Giving students sufficient time to take notes in a lecture.</li> <li>24. Tutors varying their tone of voice to emphasise key issues.</li> <li>25. Inviting guest lectures from professionals in industry to help students appreciate the practical application of theory.</li> <li>26. Encouraging pedagogical innovation by integrating tools for a student population that is digitally wired and multimedia orientated through social media.</li> </ol>

	<p>27. Giving tutors greater latitude of freedom to develop new pedagogical practices and recognising that failure is part of the process of evolution.</p> <p>28. Allocating adequate resources to staff in terms of time (scheduling of duties) and finance to undertake research (attending conferences, hosting workshops, bidding for grants, pursuing joint collaborations, etc) to ensure that staff can develop theoretically robust material that is engaging and practically relevant to helping students acquire specific skills.</p> <p>29. Faculties / departments investing in teaching and learning experts to disseminate best pedagogical practices in the faculty and sector.</p> <p>30. Identifying new modes of delivery and engagement to reduce the staff student ratio and enhance the student learning experience.</p> <p>31. Reassessment of workload activities for academic staff to ensure a balanced portfolio of activities that leads to motivated, committed and inspiring individuals for the institute and its stakeholders.</p> <p>32. Balanced scheduling of teaching to ensure staff can take holidays and pursue their research. Thus creating an environment that supports tutors and encourages them to inspire others.</p> <p>33. Recognition that teaching is multidimensional and is influenced by many variables (class size, assessment, cohort composition, online resources, level of engagement, range of presentational tools used, tutor personality, etc). Hence, investment is required to capture the teaching abilities of staff that require the collection of information from a variety of sources (students, staff, research publications, conference workshops, pedagogical innovation, etc) to appreciate the teaching abilities of staff.</p> <p>34. Development of appropriate module evaluation forms that provide a much deeper appreciation of the student learning experience.</p> <p>35. Publication and workshop delivery of the research output of staff in the faculty.</p>
3	<p><b>Feedback on Assessments</b></p> <p>One of the most cited themes that receive poor rating is assessment and feedback. Consequently, it is important that universities develop strategies to communicate performance in assessments to students. This could involve:</p> <p>36. Formative feedback in classes and one-to-one meeting is proving very useful in helping students prepare for assessments.</p> <p>37. Developing feedback indicators that are meaningful to the students.</p> <p>38. Assessment feedback sheets offering precise and practical information on how to improve future assignments.</p> <p>39. Course teams reviewing the number of assessments in each module and ensuring there is consistency and continuity in the course.</p> <p>40. Module tutors developing templates that offer guidance on how to meet the learning requirements for the module.</p> <p>41. Course Teams developing an assessment timetable for each programme to ensure a balanced schedule of assessments will take place over the academic year so as not to overburden UK students.</p> <p>42. Course teams considering the inclusion of non-teaching weeks, in the academic calendar, to allow students to prepare for assessments and catch-up on their academic reading.</p>

	<p>43. Course teams ensuring a blend of assessment methods are utilized in the course.</p> <p>44. Course teams monitoring the level of group work activity on the course to ensure that students are not overburden and over-reliant, on the commitment of other students, to pass their modules.</p> <p>45. Course teams consider developing generic feedback sheets, bespoke for each course, to help convey consistency of feedback.</p>
4	<p><b>Academic Support</b></p> <p>Many students would appreciate more contact with their academic tutors and universities will need to consider how they can schedule their finite resources to meet the needs of students and academic staff. This could be resolved through:</p> <p>46. Induction programmes that clearly highlight information and resources helpful to students during their course of study. This would relieve the burden on academic staff to continually repeat the same message on finding sources of information for the course / module.</p> <p>47. Induction programmes that help students appreciate the how to use the online university system, access library online material, provide maps of the campus buildings, offer guidance on how to structure material for the various assessments, provide opportunities for students to interact with other course colleagues, etc.</p> <p>48. Induction programmes that emphasize the distinction between college and university and the responsibility of students to manage their own independent learning.</p> <p>49. Induction programmes that help students appreciate the pedagogical delivery at University to ensure that there is coherence and comprehension between pedagogical delivery and student learning to help improve student assessment success.</p> <p>50. Academic tutors attending workshops to help them become aware of the concerns of students on the behavior and attitude of academic staff. The key issue that arises from many internal interviews and surveys is that students want staff to demonstrate they care about students. Consequently, staff need to appreciate they need to be perceived as approachable.</p> <p>51. Academic tutors offering precise directed reading to help alleviate the number of queries from students.</p> <p>52. Academic tutors offering dedicated ‘drop-in times’ to discuss student queries.</p> <p>53. Eliciting views on student expectations from the University and the course and then communicating realistic expectations.</p> <p>54. Making students aware that they are a partner, in the learning journey of higher education and have certain academic responsibilities.</p> <p>55. Administrative staff realizing that they play a vital role in supporting the learning experience of students and consequently they should be trained on diplomatically responding to student queries.</p>
5	<p><b>Organisation and Management</b></p> <p>Universities need to realise that the administrative and management systems need to cater to the needs of staff and students to create a more productive and efficient</p>

	<p>environment for work and study. Management needs to ensure that they address the following:</p> <ul style="list-style-type: none"> <li>56. Reducing the avalanche of Emails that build up in staff Email accounts. A more effective means of communication that is targeted at appropriate individuals needs to be developed to help overcome the current communication apathy that exists in many universities.</li> <li>57. Scheduling of lectures and seminars should be limited to a few buildings to help create a faculty and course identity and reduce the amount of time that is spent travelling from one building to another.</li> <li>58. Scheduling of course timetables needs to consider the growing number of students who are working part time and need to leave by 5pm.</li> <li>59. The gaps between lectures/seminars should be minimised to help students use their time more constructively.</li> <li>60. The increasing numbers in class sizes needs to be capped and strategies to offer smaller seminar classes should be investigated.</li> </ul>
6	<p><b>Learning Resources</b></p> <p>Many students are concerned about the lack of books and IT resources available at university. To help address student concerns universities can:</p> <ul style="list-style-type: none"> <li>61. Develop induction programmes on how to access information databases online. Thus allowing students to access material from their home computer.</li> <li>62. Invest in more books, PCs and learning spaces to help students prepare for seminar activities and assessments.</li> <li>63. Invest in more books available for a shorter period of time.</li> <li>64. Invest in online books.</li> <li>65. Consider offering tablets/notebooks to students to reduce the burden on current IT systems and increase student satisfaction.</li> </ul>
7	<p><b>Personal Development Planning (PDP)</b></p> <p>The findings clearly show that the development of personal skills has a major influence on student satisfaction. Therefore, it is essential that universities help students develop confidence in communication and problem solving. Course teams need to evaluate whether:</p> <ul style="list-style-type: none"> <li>66. Module content and assessment(s) are helping students develop skills for employment.</li> <li>67. There is the possibility of including a two week placement or longer in organisations to help students contextualise their learning. This is particularly important for students on non-sandwich degrees.</li> <li>68. A the skills map of the course addresses Key subject skills, International awareness, Enterprise, Social Responsibility, Practical experience are being developed in the course.</li> </ul>

8	<p><b>Educational Experience of UK ethnic students</b></p> <p>What is of real concern, from these findings, is the fact that many UK ethnic minorities are dissatisfied with the majority of the themes in the NSS survey and appear to have a significantly different educational experience in higher education in England.</p> <p>69. Post-92 and Pre-92 universities need to reflect on processes, policies and resources to enhance the learning experience of UK ethnic minorities.</p> <p>70. The educational experience of UK ethnic minority students needs to be captured to help target appropriate resources to aid those students.</p>
9	<p><b>Educational Experience of students living at home</b></p> <p>There is a major difference in the educational experience of students living at home and with more and more students choosing to live at home when deciding to study at university. A greater consideration needs to be given as to how their educational experience can be improved.</p> <p>71. Universities need to ensure that they target information to students living at home who are primarily concerned with the management of courses and the level of academic support available.</p>
10	<p><b>Engaging International Students</b></p> <p>Universities need to urgently review their approach to engaging international students through pedagogy and curricular activities to ensure that these students are developing skills to help them at university and in their career.</p> <p>72. The previous pedagogical educational experience, of international students, should be elicited to determine the expectations of these students and whether this perception is correct for a UK higher education.</p> <p>73. Academic staff should use a number of global examples in their seminar activities to contextualise the theory for international students and help UK students appreciate the global dimension of practices.</p> <p>74. Workshops need to be offered to help international students develop the appropriate skills (language, referencing, writing style, crucial thinking, etc) to cope with the demands of higher education in the UK.</p> <p>75. Academic staff should be encouraged to attend workshops to gain a better understanding of the challenges facing international students.</p>
11	<p><b>Publishing Faculty Performance</b></p> <p>Universities should make public the detailed findings of their performance on the NSS to demonstrate not only transparency but also commitment to improving the educational experience for students.</p> <p>76. Workshops should be delivered to help raise the awareness of the faculty performance and elicit ideas to develop action plans to improve the services delivered by the faculty.</p>

	<p>77. NSS performance of courses should be disseminated to faculty staff and administrators to help learn lessons for improvement.</p>
12	<p><b>University Student Charter</b></p> <p>Results from the NSS can be used by higher education institutes to guarantee a level of service in terms of teaching and learning experience for the students.</p> <p>78. The findings of the NSS can be promoted as an indication of the level of support and academic experience that students can expect from the university / faculty.</p> <p>79. Universities can utilise traditional and social media to project the image and reputation of the university in delivering academic performance in specific areas to current and future students based on NSS results.</p>
13	<p><b>Improving the Response Rate for the NSS</b></p> <p>To improve the response rate of the NSS survey each department should evaluate their completion rates and develop appropriate tactics to improve the response rate to ensure that HEA targets for minimum completion are surpassed. This will help universities undertake meaningful analysis of the NSS data.</p> <p>80. University faculties and departments should identify which students intend to complete the NSS in December and then develop promotional campaigns to target students through alternative Emails, computer login announcement reminders, tutor promotion of NSS in lectures and seminars, and finally NUS involvement to encourage students to participate in the survey.</p> <p>81. Research needs to be undertaken to find out why there is a gender bias in completing the NSS.</p>
14	<p><b>Triangulating the NSS findings</b></p> <p>Universities should undertake internal surveys and focus group interviews of students, at every level, to gauge a much deeper insight into the student experience based on gender, UK ethnicity and international student group. These results should be triangulated with the NSS findings to corroborate student views and measures to enhance the student experience. Specifically, universities should focus measurements on:</p> <p>82. What are the satisfaction levels when two or more tutors are teaching a module?</p> <p>83. What are the satisfaction levels based on cohort composition: size, ethnicity, gender, etc?</p> <p>84. The views of Alumni, employers, staff, partners of the university need to be undertaken to ensure that all stakeholders are considered when developing an alignment of strategic learning goals.</p> <p>85. Detailed analysis of disaggregated (based on gender, age, ethnicity, term time accommodation, etc.) student performance data for annual course reviews should be undertaken to identify specific profiles of students achieving lower than expected academic results.</p> <p>86. A pre-NSS survey, could be administered, to identify any significant matters</p> <p>87. Qualitative feedback from students should be collected, to add a further insight</p>

into the student experience.

88. Analysis of the profile of students who apply for courses should be compared with internal data.
  89. The views of academic and administrative staff should be collected through online surveys and focus group interviews to appreciate their concerns and recommendations.
  90. Identifying the reasons for the attrition rates of students from courses
  91. Measurements of student views before and after semester results have been conveyed to students. To determine how student academic performance influences their levels of satisfaction.
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## **Future research**

The author recommends that further research is undertaken to provide a richer insight into the students experience in Higher Education. The key areas that require further investigation are:

- How do students use the NSS to make informed decisions;
  - NSS needs to be viewed contextually and not simplistically and the findings need to be investigated further through qualitative research;
  - The range of communication tools used to inform students, about the NSS, needs to be reviewed for their effectiveness;
  - Further research is required to identify the pedagogical preferences of domestic and international students;
  - The interpretation of the wording used for the NSS questions and the inclusion of new NSS questions needs to be investigated;
  - A review of the student experience of Year 1 and 2 students needs to be undertaken;
  - The views of students who do not complete the NSS should be investigated to identify any differences in views and profiles of students who do not complete the NSS;
  - Identifying why there are fewer males that respond to the survey compared to females;
  - The educational experience of UK ethnic minorities;
  - Challenges facing international students and how universities can help overseas students acculturate to the UK higher education experience;
  - Identifying whether the NSS data collection should be conducted after graduation;
  - The impact of the NSS results on staff morale.
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### **Appendix 1: Profile of HLST students completing NSS**

This appendix will highlight the number of students completing the NSS survey, over the last three years, at English university HLSTs.

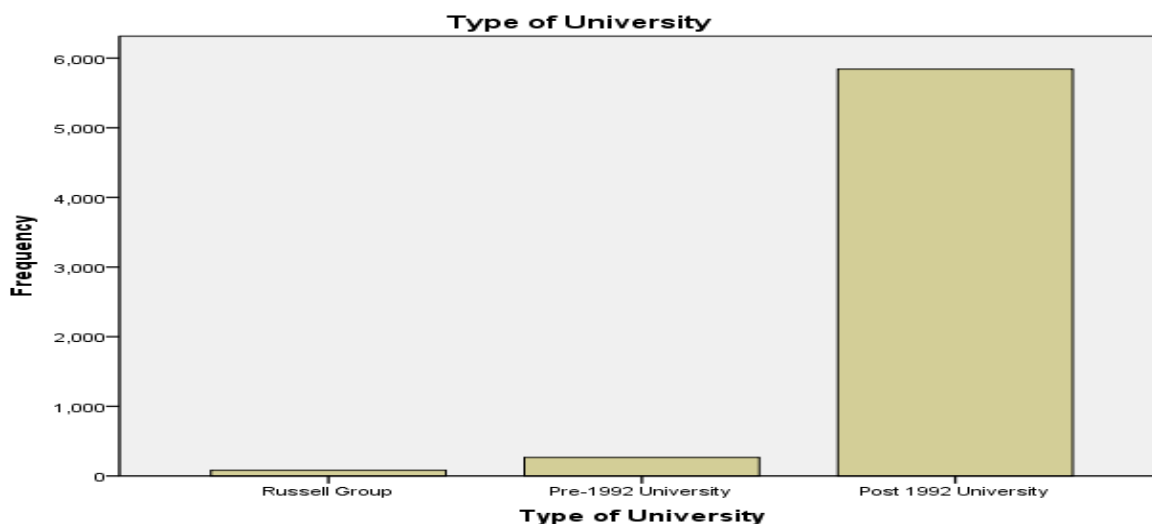
#### HLST NSS results

The number of students who completed the NSS survey, by type of university, is detailed in Table 1. The findings clearly show that Post 92 universities have seventy two times as many HLST students as a Russell Group University and almost twenty two times more than a Pre-1992 university who complete the survey (see Table 1 and Figure 1).

Table 1 Breakdown of HLST students by type of university

		<b>Frequency</b>	<b>Percent</b>
	Russell Group	81	1.3
	Pre-1992 University	265	4.3
	Post 1992 University	5843	94.4
	<b>Total</b>	<b>6189</b>	<b>100.0</b>

Figure 1: NSS HLST responses by type of university



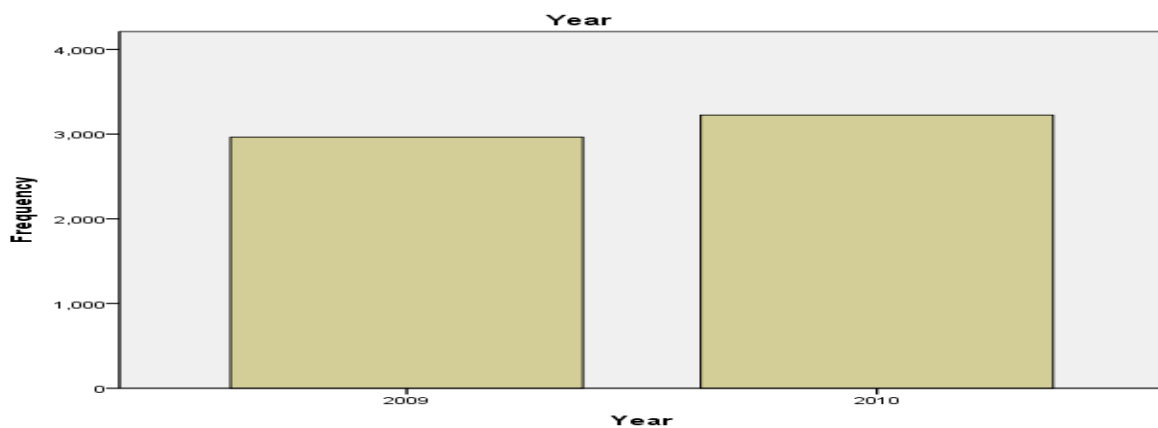
There has been a consistent and steady rise in the number of HLST students who complete the survey, over the last two years (see Table 2).

Table 2 Breakdown of HLST responses over the last two years

		Year		Total
		2009	2010	
Type of University	Russell Group	38	43	81
	Pre-1992 University	127	138	265
	Post 1992 University	2799	3044	5843
<b>Total</b>		<b>2964</b>	<b>3225</b>	<b>6189</b>

The number of students, completing the NSS survey, has incrementally increased over the last two years (see Figure 2).

Figure 2: Increase in HLST student responses



### Conclusion

The majority of students completing the NSS are from Post-92 universities and the number of students completing the NSS is increasing year on year.

### Statistical tests

The results presented in Appendix 1 only provide a frequency and percentage count of the number of HLST students who completed the NSS in the last two years (2009-2010).

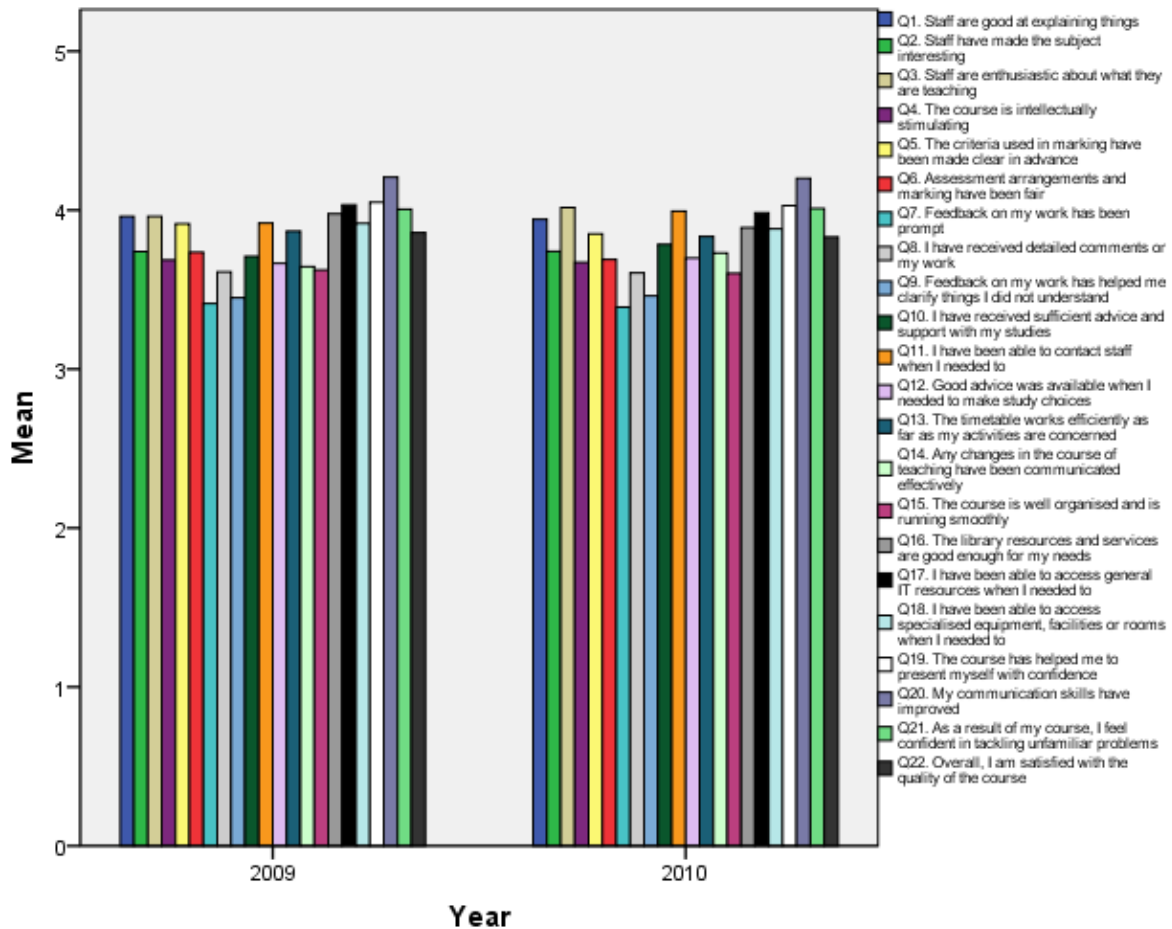
## Appendix 2: Mean score of NSS variables

The result in this appendix provides a graphical display of the mean score for each NSS variable and NSS theme.

### Mean scores of NSS variables

The mean ranking of the NSS variables, over the last two years, is provided in Figure 3. The results indicate that assessment and feedback are consistently scored the lowest by students. These results will be discussed in more detail later in the report.

Figure 3 Mean of NSS variables over the last two years



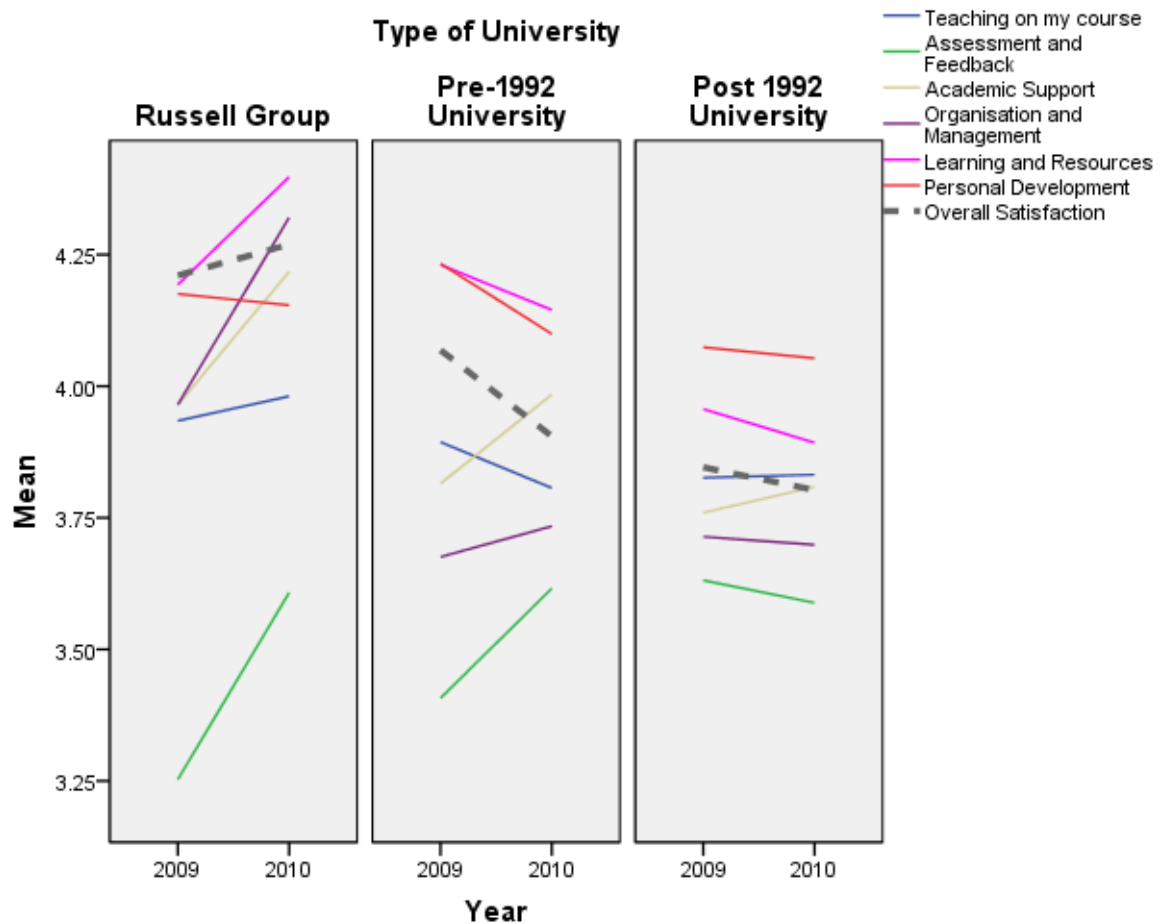
To provide an insight into the scoring of the NSS variables these variables have been grouped into seven themes (teaching Q1-4, Assessment and Feedback Q5-9, Academic Support Q10-12, Organisation and Management Q13-15, Learning Resources Q16-18, Personal Development Q19-21 and the Overall student satisfaction theme Q22).

### Mean scores of NSS themes

The results of the mean ranking of NSS themes over the last two years, is provided by Figure 4. The results highlight that assessment and feedback are consistently scored the lowest in terms of satisfaction. However, further statistical analysis will show that these are not the main factors in driving overall student satisfaction in higher education (see Appendix 12 and 13).

What is of interest from Figure 4 is that the overall student satisfaction, in HLSTs, is actually decreasing for Pre and Post-92 universities. Post-92 universities appear to have the most dissatisfied students in terms of teaching and academic support and administration. This is of concern since it will later be demonstrated that these are vital to ensuring student satisfaction.

Figure 4: Mean scores of NSS themes by type of university and year of survey



### Conclusion

The mean scores for Assessment and Feedback are the lowest of the all the NSS variables (& themes). Pre-92 and Post-92 universities are, on average, witnessing a decline in the overall satisfaction of students.

### Statistical Tests

The results presented in Appendix 2 highlight the means (average scores) of each NSS variable.

### **Appendix 3: Breakdown of NSS results based on Gender**

This appendix will highlight the significant differences between male and female students to NSS questions.

#### Gender Analysis

In terms of Gender, Russell Group and Pre-92 universities have slightly more male students (see Table 3) and Post-92 universities have many more female students who complete the NSS. There were 2529 males and 3660 females who were included in the analysis. As previously stated (see Table 1) Post 92 universities have significantly more students who complete the NSS survey.

Table 3: Distribution of Gender by type of University

			Type of University			Total
			Russell Group	Pre-1992 University	Post 1992 University	
Gender	Male	Count	47	145	2337	2529
		%	<b>58.0%</b>	<b>54.7%</b>	<b>40.0%</b>	40.9%
	Female	Count	34	120	3506	3660
		%	<b>42.0%</b>	<b>45.3%</b>	<b>60.0%</b>	59.1%
Total		Count	<b>81</b>	<b>265</b>	<b>5843</b>	<b>6189</b>
		%	100.0%	100.0%	100.0%	100.0%

The findings in Table 4 reveal that there has been a consistent and steady rise in the numbers of students completing the survey in the last two years. What is interesting is the rise in the number of male students who complete the survey in 2010 in comparison to 2009.

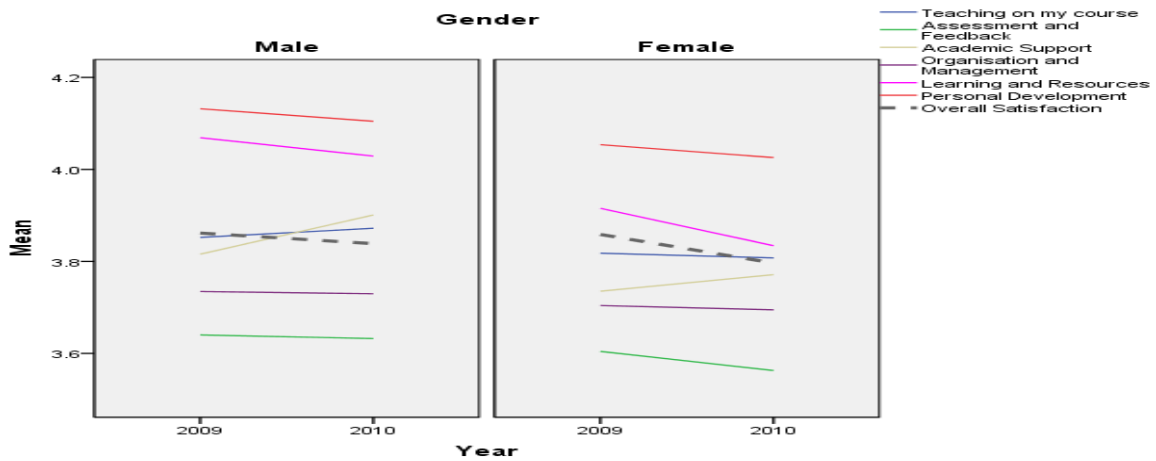
Table 4: Percentage of Males/Females completing NSS over the last two years

			Year		Total
			2009	2010	
Gender	Male	Count	1183	1346	2529
		%	<b>39.9%</b>	<b>41.7%</b>	40.9%
	Female	Count	1781	1879	3660
		%	<b>60.1%</b>	<b>58.3%</b>	59.1%
Total		Count	<b>2964</b>	<b>3225</b>	<b>6189</b>
		%	100.0%	100.0%	100.0%

#### Mean Scores by Gender

The results of the mean ranking of NSS variables by Gender and year of NSS are provided in Figure 5. Assessment and feedback and organisation and Management are scored the lowest in terms of the NSS themes.

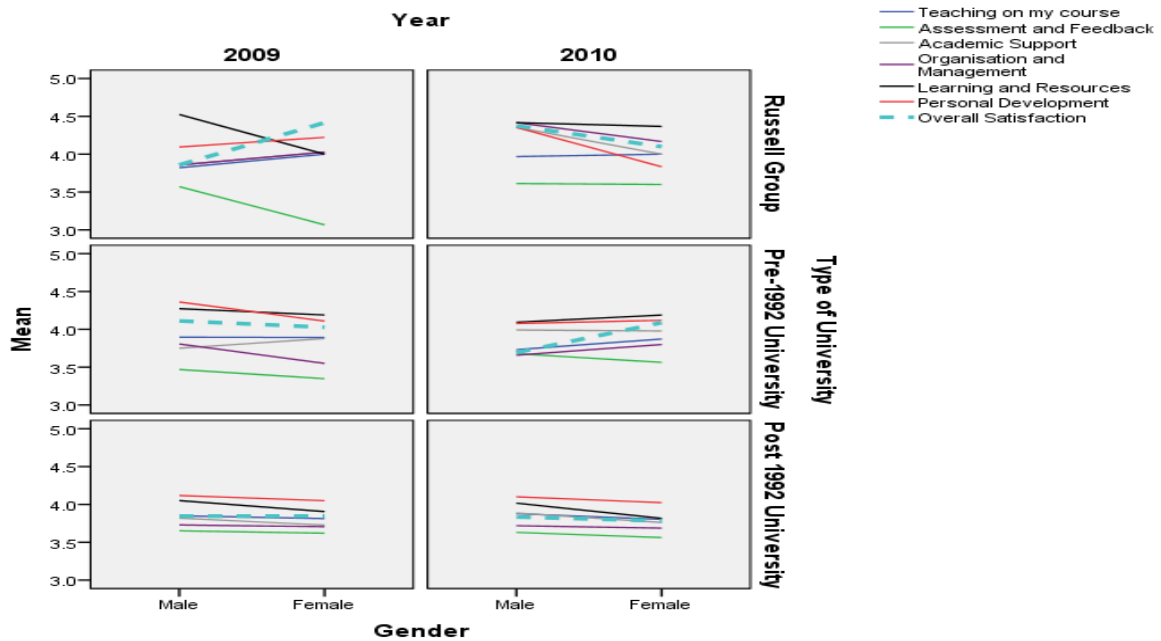
Figure 5: Differences between the academic experience of male and female students



The NSS themes, based on gender analysis are presented in Figure 6 also show that the most important themes (organisation and management, personal development, teaching, academic support), in terms of significantly influencing overall student satisfaction, are scored higher by males than females.

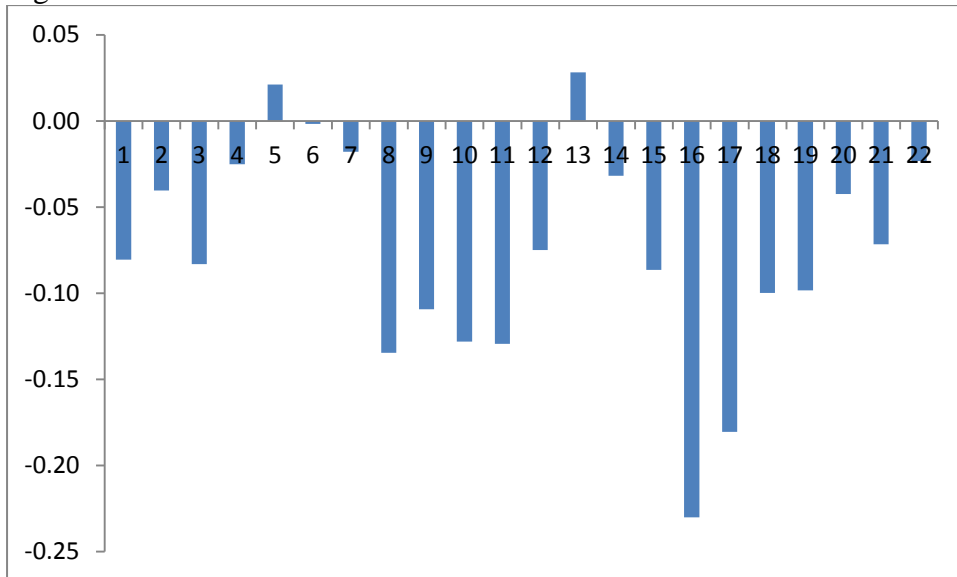
Males studying at Russell Group universities have shown a marked increase in their overall satisfaction.

Figure 6: Mean scores of NSS themes by gender and type of university



Further analysis of the differences between the genders at universities has been undertaken to reveal that Post 92 universities reveal a significant lower level of student satisfaction for female students (see Figure 7).

Figure 7: Difference between Female and Male NSS scores at Post 92 Universities



The results in Figure 7 highlight the major differences between male and female NSS scores. Female students score the learning resources (especially Q16 the library resources match my needs) lower than male students. In terms of academic support female students score Q11 (I have been able to contact staff when needed) and Q10 (I have received sufficient advice with my studies) lower than male students. As for personal development female students score Q21 (I feel confident in tackling unfamiliar problems) the lowest, in this category. The assessment and feedback (Q8 and Q9 relating to receiving detailed comments and those comments helping students clarify things they did not understand) variables have also been given lower scores by females. Finally in terms of Teaching female students score Q1 (staff are good at explaining things) and Q3 (staff are enthusiastic about what they are teaching) lower than their male counterparts.

### Conclusion

Male students significantly score all NSS themes higher than female students, although all students show a declining level of student satisfaction. The key NSS variables that influence overall satisfaction are scored lower by female students.

### Statistical Test

To determine any significant differences between male and female students, for the NSS questions, the Mann-Whitney test was applied. As the independent variable (Gender: male and female) is nominal and the dependent variables (NSS questions) are ordinal the most appropriate test is Non-parametric for which Mann-Whitney is ideal. The test determines the ranking of the NSS responses, for each variable/theme, by male and female students and then compares the difference between the ranking of male and female students to determine if there are any significant differences.

#### **Appendix 4: Key significant finding based on Gender, Type of University and Year of NSS**

The findings in Table 5 reveal that male students are significantly more satisfied with nearly all NSS variables (except Q4,5,6, 7, 12, 13, 14 and 22). Russell Group university students were overall most satisfied with their university experience in particular they were significantly more satisfied with the advice that is offered to them to help make study choices, the management and timetabling of the course and the IT resources available. Pre-92 university students were significantly more satisfied with being able to contact a member of staff when they needed to. Post-92 university students were significantly more satisfied with the detailed comments they received on their work. In the last two years the NSS scores have significantly increased for staff are enthusiastic about what they teach and students being able to contact staff when they needed to although students scored the library resources and services lower in 2010 than 2009.

Table 5: Significant differences in responses based on Type of University, Gender and Year of NSS

		Gender	Type of UNI	Year of NSS (2009 - 2010)
<b>Teaching</b>	Q1. Staff are good at explaining things	Male		
	Q2. Staff have made the subject interesting	Male		
	Q3. Staff are enthusiastic about what they are teaching	Male		↑
	Q4. The course is intellectually stimulating			
<b>Assessment &amp; Feedback</b>	Q5. The criteria used in marking have been made 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	Male	Post-92	
<b>Academic Support</b>	Q9. Feedback on my work has helped me clarify things I did not understand	Male		
	Q10. I have received sufficient advice and support with my studies	Male		
	Q11. I have been able to contact staff when I needed to	Male	Pre-92	↑
<b>Organisation and Management</b>	Q12. Good advice was available when I needed to make study choices		Russell Group	
	Q13. The timetable works efficiently as far as my activities are concerned		Russell Group	
	Q14. Any changes in the course of teaching have been communicated effectively			
<b>Learning Resources</b>	Q15. The course is well organised and is running smoothly	Male	Russell Group	
	Q16. The library resources and services are good enough for my needs	Male	Russell Group	↓
	Q17. I have been able to access general IT resources when I needed to	Male	Russell Group	
<b>Personal Development</b>	Q18. I have been able to access specialised equipment, facilities or rooms when I needed to	Male		
	Q19. The course has helped me to present myself with confidence	Male		
	Q20. My communication skills have improved	Male		
<b>Overall Satisfaction</b>	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	Male		
	Q22. Overall, I am satisfied with the quality of the course		Russell Group	

#### **Statistical Test**

Non-parametric analysis were applied to the NSS variables to determine significant differences for the categories in Gender, Type of University and Year of NSS completion.

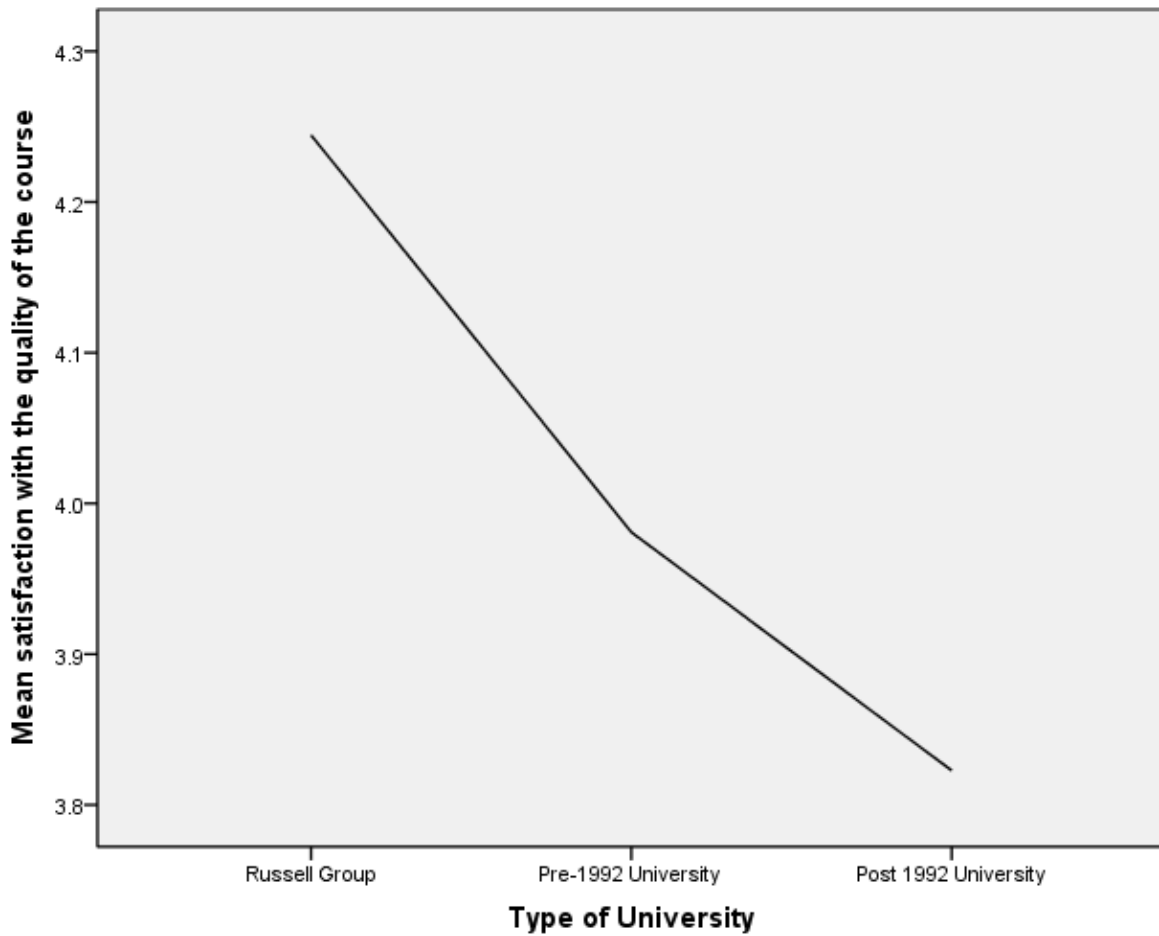
**Appendix 5: Level of student satisfaction by type of university**

The findings in Appendix 5 provide a visual presentation of the relationship between level of student satisfaction and type of university.

**Analysis of Satisfaction**

The results show that Post-92 universities need to improve their overall satisfaction levels to match or exceed the student satisfaction experienced by HLST students studying at a Pre-1992 and Russell Group university (see Figure 8).

Figure 8: Overall Satisfaction of Students by type of University



**Conclusion**

Post-92 universities have not achieved the level of student satisfaction achieved by Pre-1992 and Russell Group universities.

**Statistical Test**

Graphical test of the mean ranking of satisfaction by type of university was undertaken.

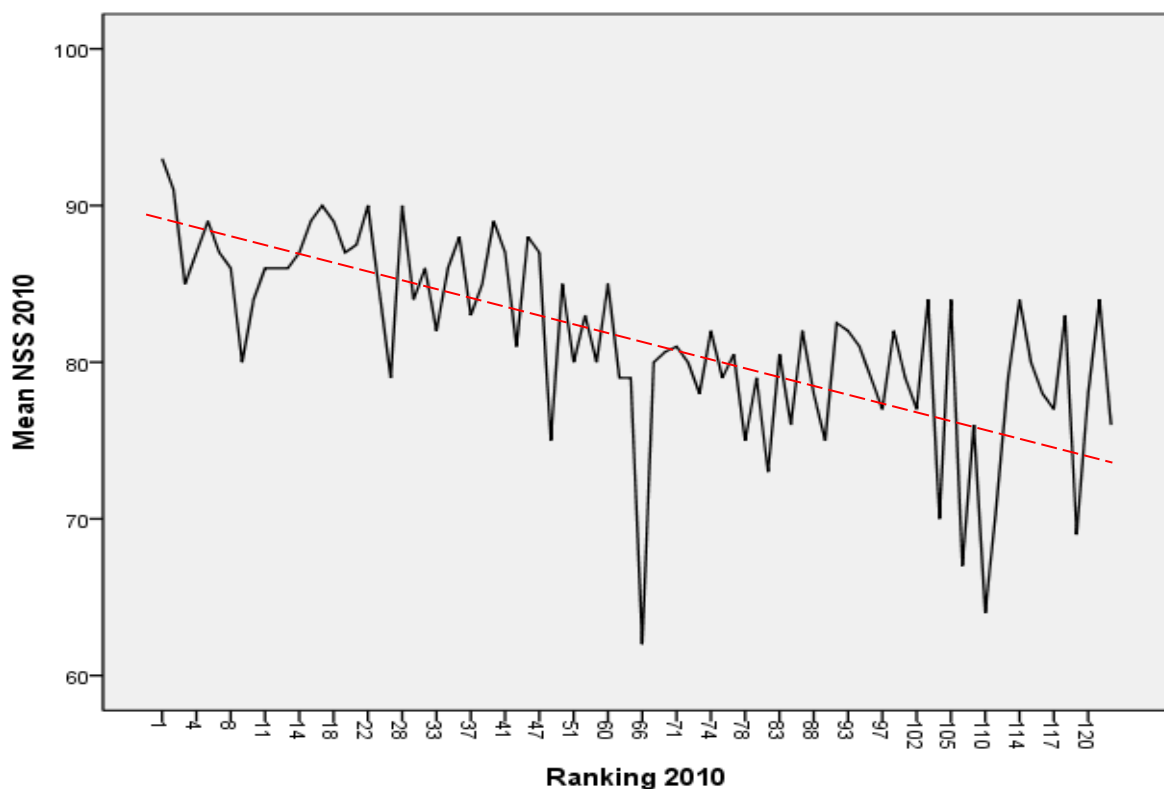
### **Appendix 6: Effect of NSS results on University League Table Ranking**

The results in this appendix will highlight the link between the NSS scores achieved by a university and its position in the league table ranking of universities.

#### How NSS scores affect University League Table Ranking

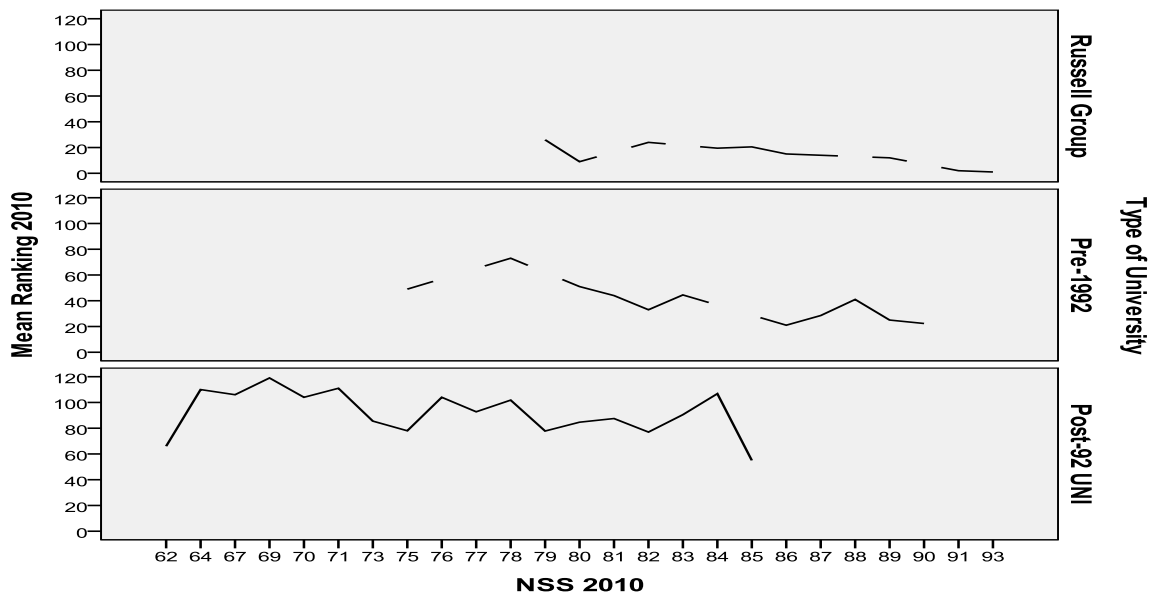
National newspapers (Guardian, 2010, Times, 2010) are now using the NSS scores to compile their league table ranking of universities. The result of the NSS contributes 25% to determine the league table rank place of a university. The importance of the NSS results become apparent, when you correlate the university league table position with the NSS overall student satisfaction score for each university. The results provide conclusive evidence that universities with high league table ranking achieve significantly higher NSS scores from their students (See Figure 9). Furthermore, the NSS results provide an opportunity for universities to improve their position in published league table rankings by focusing their resources on NSS variables that will lead to higher overall student satisfaction scores (see Appendix 12: Table 30 and Appendix 13: Table 21a).

Figure 9: NSS score and university league table ranking



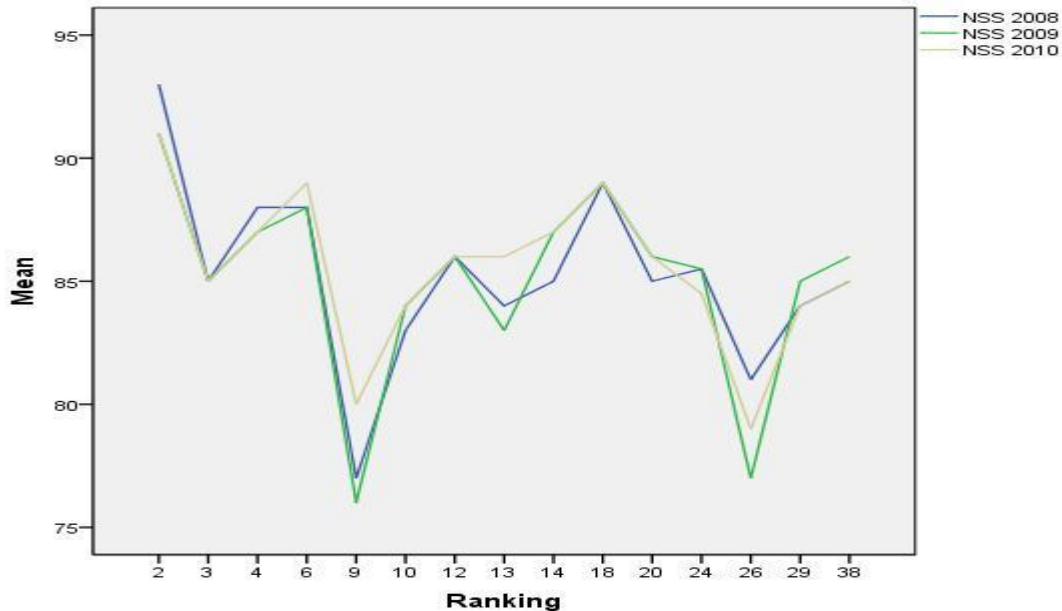
If we review the results further and breakdown the analysis by type of university then the results clearly show that Post-92 Universities achieve the lowest NSS scores (see Figure 10)

Figure 10: League table and NSS performance by type of University



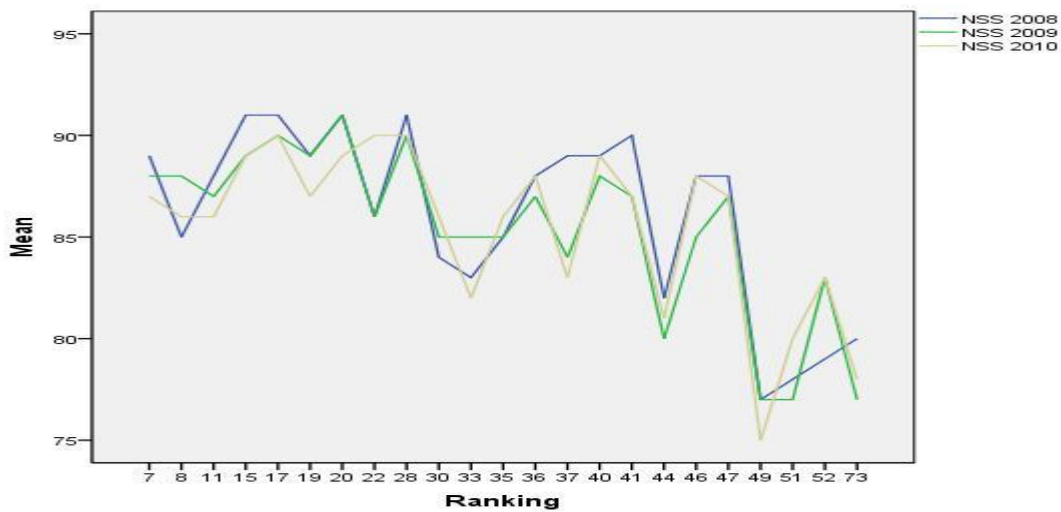
The NSS results in Figure 10 reveal that there is a specific range of NSS scores based on the type of university. Whereby, Russell Group universities have NSS scores in the upper quartile range (79 to 92) and Post 92 universities NSS scores range from 62 to 85.

Figure 11a: NSS and league table ranking of Russell Group universities over the last 3 years



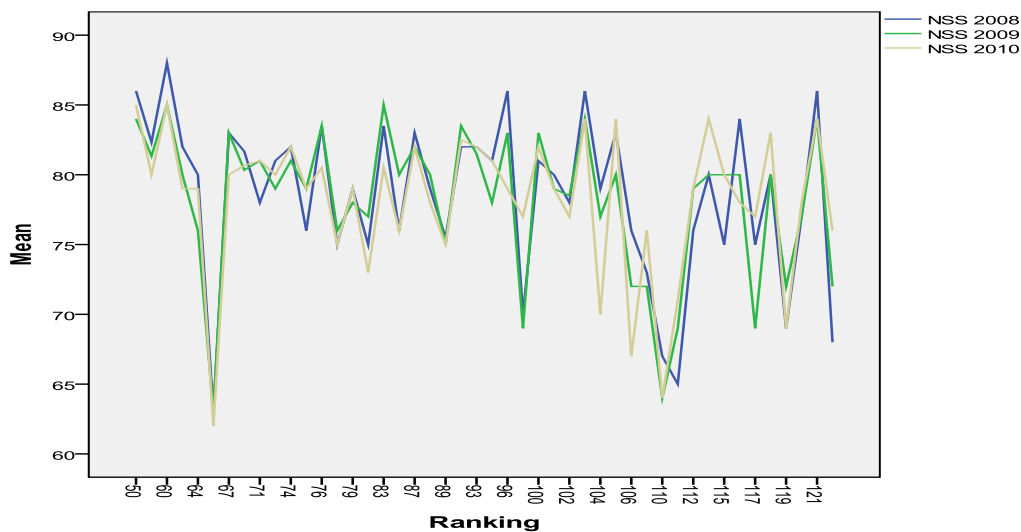
Overall the majority of Russell Group universities have improved their NSS scores in the last two years. Only three (20%) of Russell Group universities achieved lower scores in 2010 in comparison to 2008.

Figure 11b: NSS and league table ranking of Pre-92 universities over the last 3 years



Since 2008 only nine (39%) Pre-92 universities scored lower NSS results.

Figure 11c: NSS and league table ranking of Post-92 universities over the last 3 years



The trend overall, for Post-92 universities, is that the majority (15 – 65%) have seen a reduction in student satisfaction over the last two years. There does not appear to have been a major improvement in overall student satisfaction, from students studying at Post-92 universities, in the last two years.

### Conclusion

The results clearly highlight the influence of a university’s NSS overall student satisfaction score on the ranked position of a university in published league tables. The majority of Post-92 universities have seen a reduction in the overall satisfaction of the students at their institutes.

### Statistical Test

Correlation and graphical cross-tabulation of NSS score and league table ranking was conducted. Correlation analysis provides statistical evidence that two variables are correlated and the cross-tabulation results allow us to present the results graphically to highlight the trend.

**Appendix 7: Overview of student Satisfaction based on A-levels, Term time accommodation, Age, Region, mode of study**

This appendix will highlight student satisfaction of NSS variables based on A-levels, Term-time accommodation, Age, Region and Mode of study.

A-Level Grades

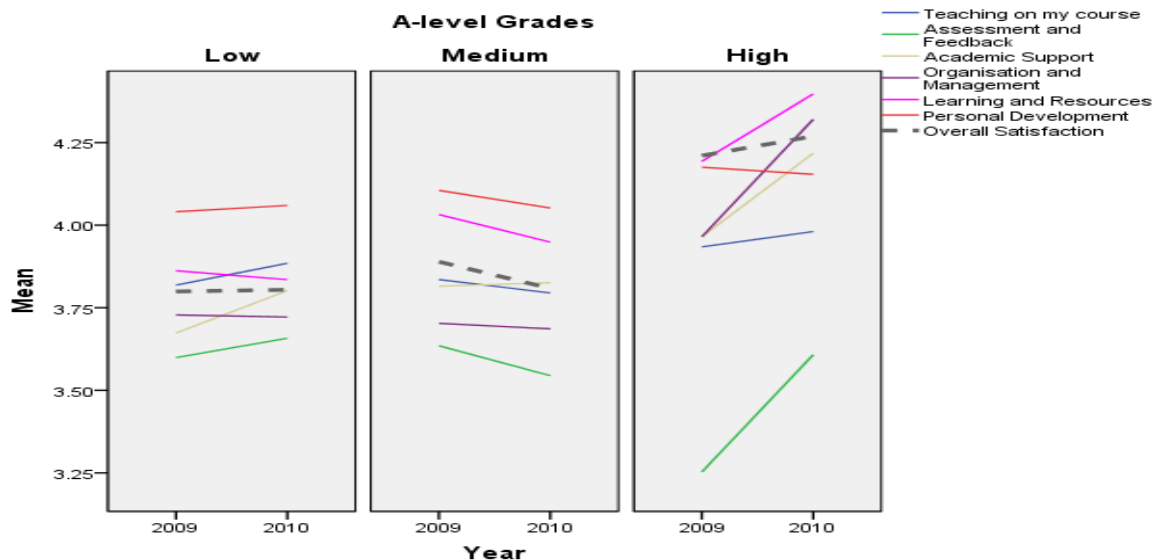
To analyse the average A-level points the data was divided into three categories (low, medium and high) based on the average A-level points. Table 6 highlights the categorisation of the A-level points.

Table 6: Distribution of Average A-level points by A-level grade categories

		A-level Grades			Total
		Low	Medium	High	
Average A-level points for	12	1577	0	0	1577
the HEI	14	783	0	0	783
	16	0	2180	0	2180
	18	0	1568	0	1568
	24	0	0	81	81
<b>Total</b>		<b>2360</b>	<b>3748</b>	<b>81</b>	<b>6189</b>

It is interesting to note that students with high A-level points also had the highest levels of satisfaction with their educational experience at University and that their satisfaction levels have increased year on year. Whereas students with medium A-level grades are experiencing lower levels of satisfaction year on year for almost all NSS themed questions except academic support. Finally, students with low A-level grades have experienced a marginal improvement in teaching, academic support and assessment and feedback. All students, regardless of their A level points, scored assessment and feedback lower than any other NSS themed question (see Figure 12).

Figure 12: Satisfaction based on A-level grades



It is no surprise that Russell Group universities attract students with high A-level grade points (see Figure 13 and Table 7).

Figure 13: Mean A-level points by type of University

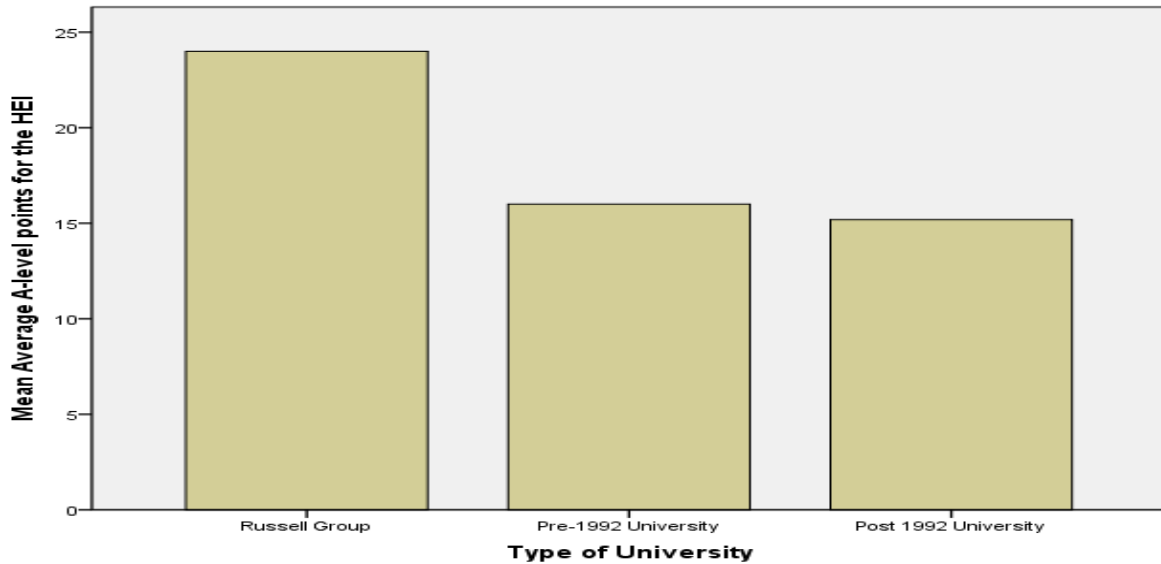


Table reveals that Post-92 have the widest distribution of students with A-level grades in comparison to the other two major types of Universities.

Table 7: A-level grades by type of university

		Type of University			Total
		Russell Group	Pre-1992 University	Post 1992 University	
A-level Grades	Low	0	0	2360	2360
	Medium	0	265	3483	3748
	High	81	0	0	81
Total		81	265	5843	6189

### A-level Grades by Gender

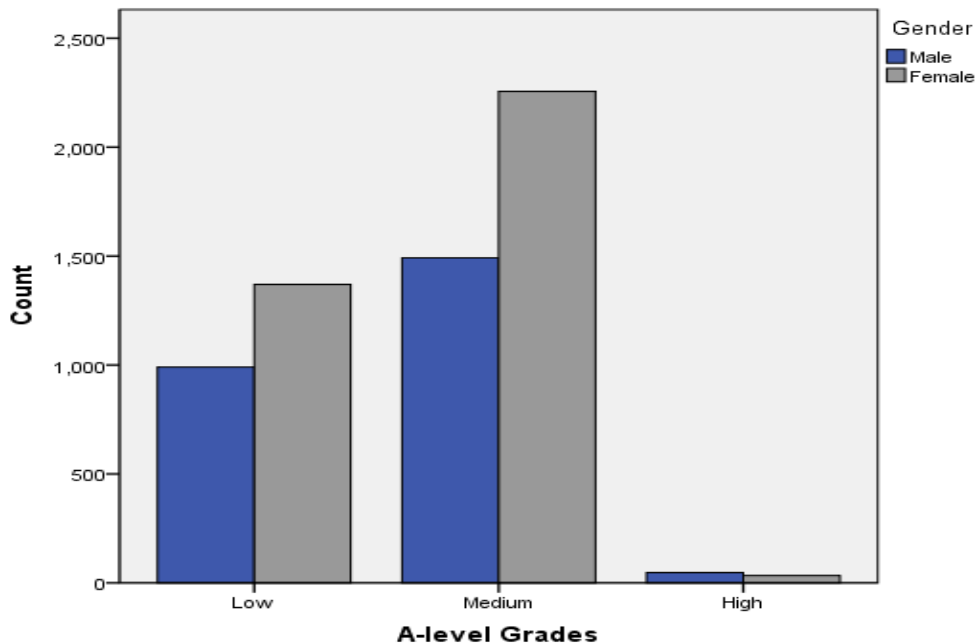
Female students, in this survey, achieved considerably more low and medium A-level grades than male students (see Table 8)

Table 8: Percentage distribution of A-level Grades by Gender

			Gender		Total
			Male	Female	
<b>A-level Grades</b>	<b>Low</b>	Count	990	1370	2360
		%	<b>41.9%</b>	<b>58.1%</b>	100.0%
	<b>Medium</b>	Count	1492	2256	3748
		%	<b>39.8%</b>	<b>60.2%</b>	100.0%
	<b>High</b>	Count	47	34	81
		%	<b>58.0%</b>	<b>42.0%</b>	100.0%
<b>Total</b>	Count	2529	3660	6189	
	%	40.9%	59.1%	100.0%	

The distribution of A-level grades by Gender is highlighted in Figure 14. Female students, who responded to the NSS, have achieved higher A-level grades at the medium range level.

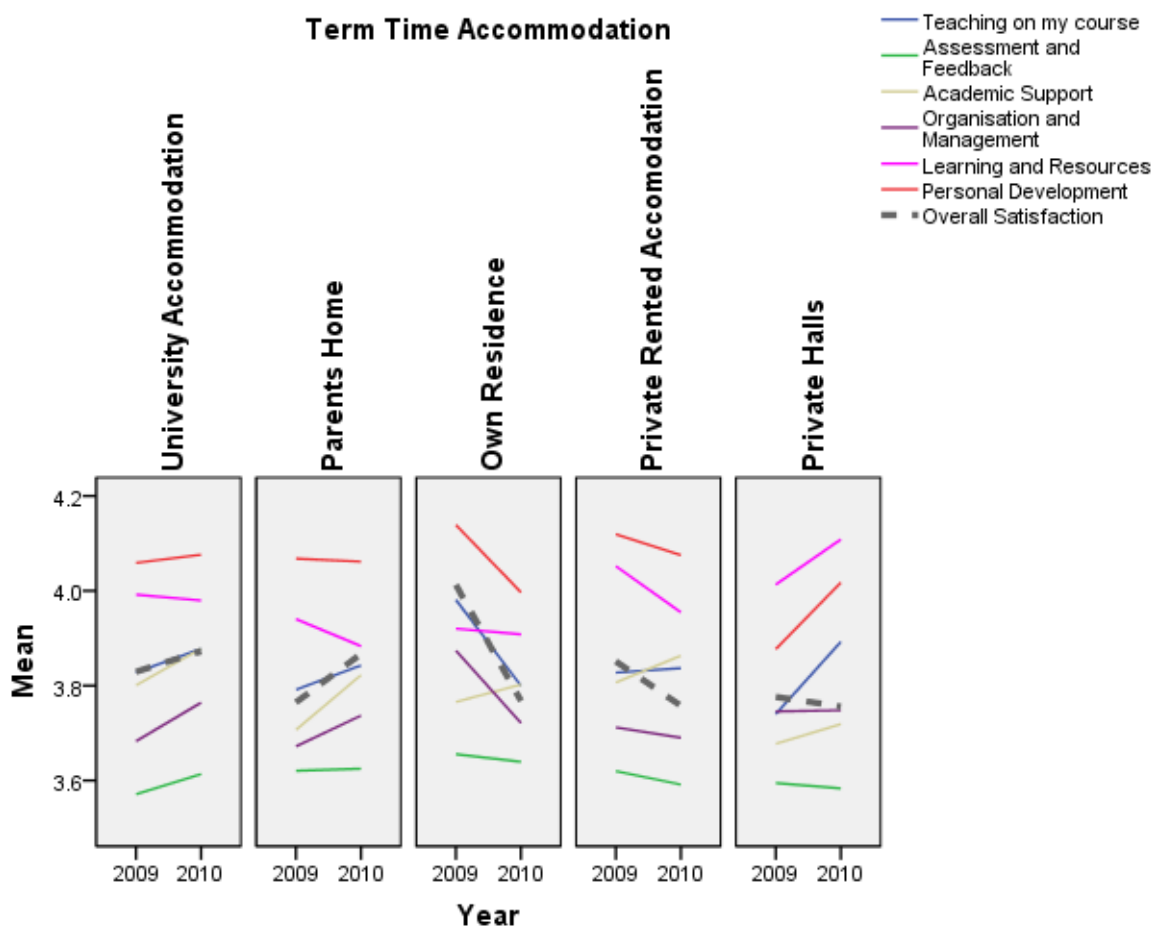
Figure 14: A-level grades by Gender



### Satisfaction based on Term Time Accommodation

Students living in university accommodation and at home have rated their overall satisfaction with the educational experience at university higher than other types of accommodation who have seen a declining satisfaction in learning resources (see Figure 15).

Figure 15: Satisfaction based on Term Time accommodation



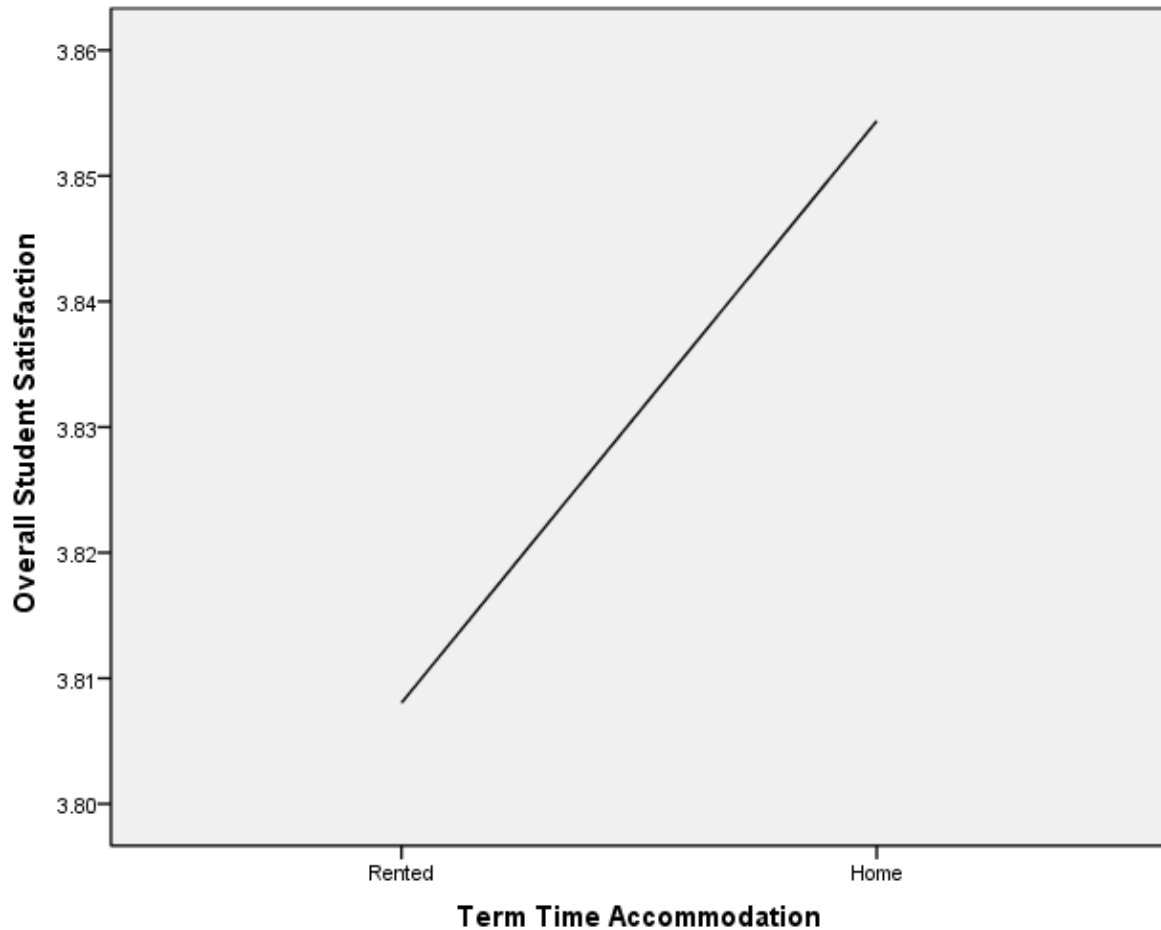
To provide a more detailed appreciation of the differences in the types of accommodation on student satisfaction. Term time accommodation was classified into two distinct categories Rented and Home (see Table 9) to reveal distinct differences in educational experience.

Table 9: Students living in Rented and Home Accommodation

		Frequency	Percent
Valid	Rented	2679	43.3
	Home	2010	32.5
	Total	4689	75.8
Missing	System	1500	24.2
Total		6189	100.0

The results in Figure 16 clearly show that there is a difference in the overall satisfaction with the university educational experience and that students living at **HOME** are more satisfied than those students living in rented accommodation. This is of interest to universities as more students are electing to stay at home when undertaking studies at university.

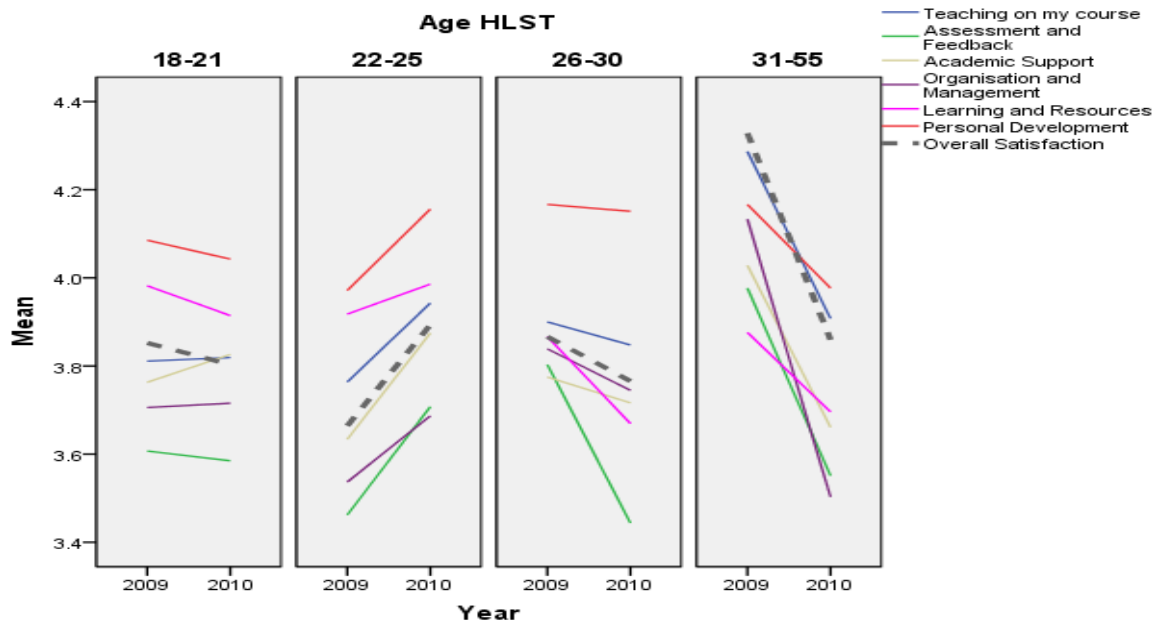
Figure 16: Satisfaction based on type of accommodation



### Satisfaction based on Age

There is only one age group that has shown a year on rise in the overall satisfaction with their educational experience and these are students aged 22 to 25 (see Figure 17). This age group are particularly content with their personal development and show an increasing contentment with the teaching and academic support provided by the university.

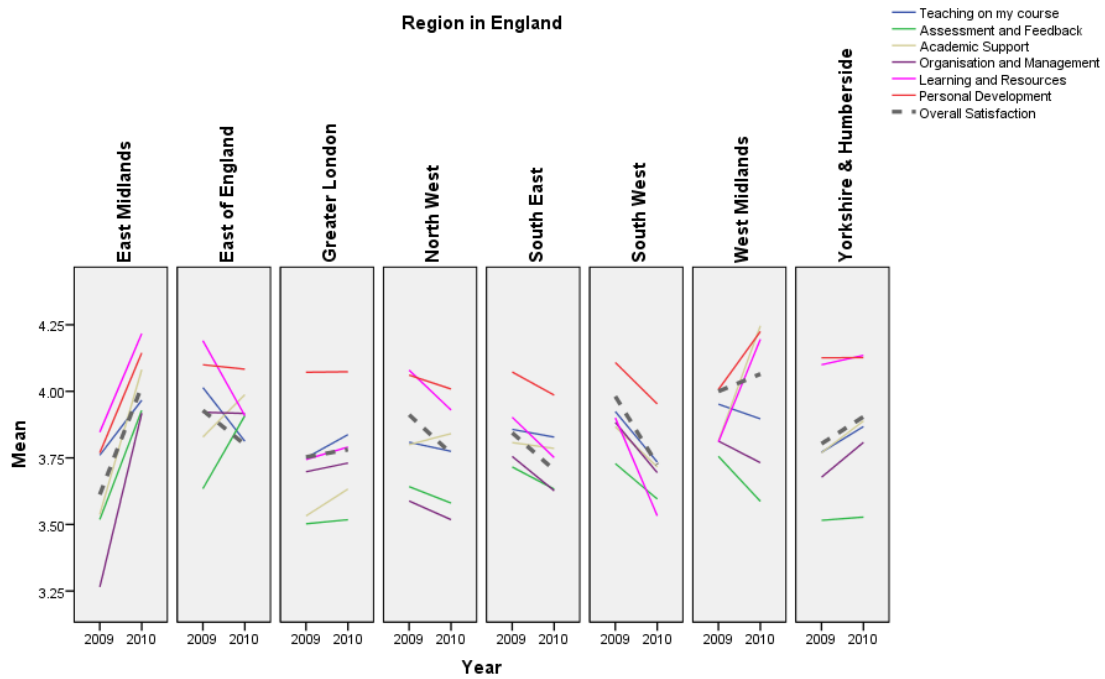
Figure 17: Satisfaction by Age



### Satisfaction based on Geographic Region

The three regions that have the highest overall satisfaction by HLST students are geographically located in the East Midlands, West Midlands and Yorkshire and Humberside (see Figure 18).

Figure 18: Satisfaction based on Region

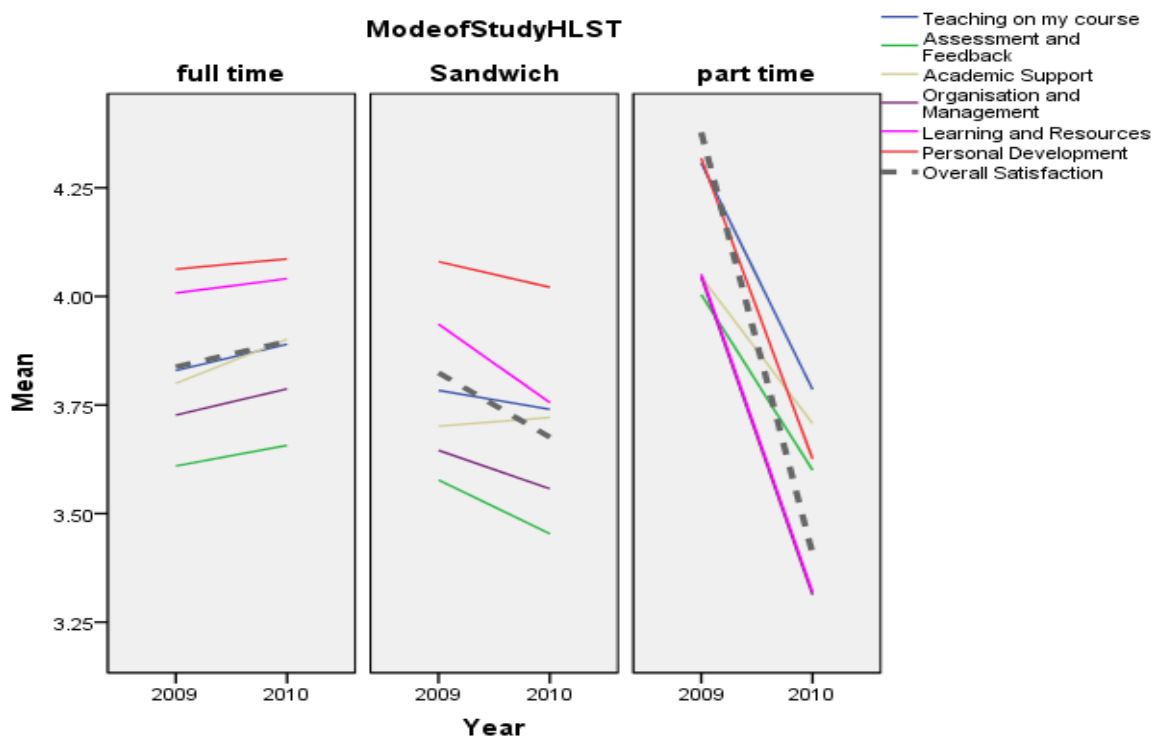


### Satisfaction based on Mode of Study

There are three main classifications for mode of study (full time, Sandwich and part time). Students on a full time degree have shown a rise in overall satisfaction with their higher educational experience. While part time and sandwich students have scored a lowering in their satisfaction with the educational experience at university (see Figure 19).

The result in Figure 19 show that full time students are overall most satisfied with their educational experience. The most dissatisfied students are part-time students who year on year have shown a declining level of satisfaction with their educational experience. Finally the sandwich students score the learning resources, Teaching and organisation and management lower in 2010 in comparison to 2009.

Figure 19: Satisfaction based on Mode of Study

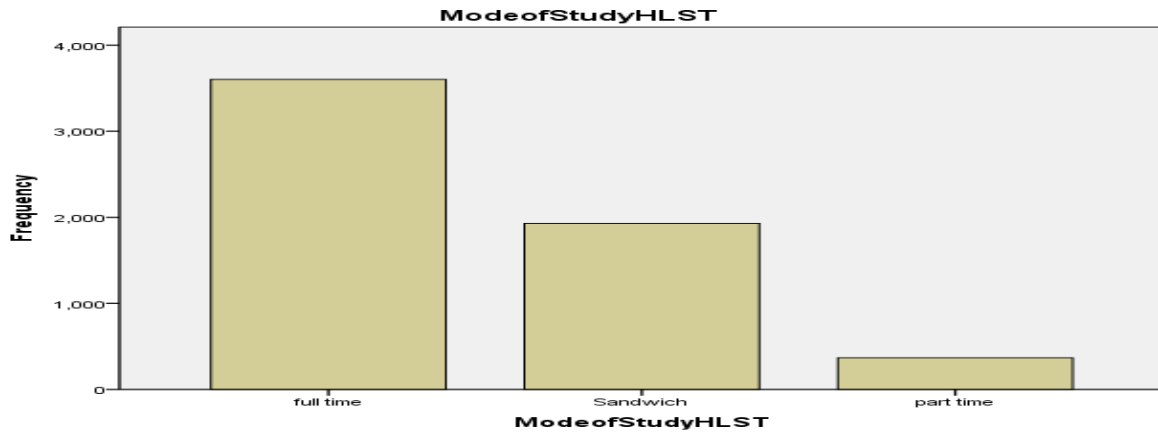


The results in Table 10 show that the overwhelming majority of students who complete the NSS by mode of study are full time students (see also Figure 20)

Table 10: Number of students studying by mode of study

		Frequency	Percent
Valid	full time	3603	58.2
	Sandwich	1929	31.2
	part time	368	5.9
	Total	5900	95.3
Missing	System	289	4.7
Total		6189	100.0

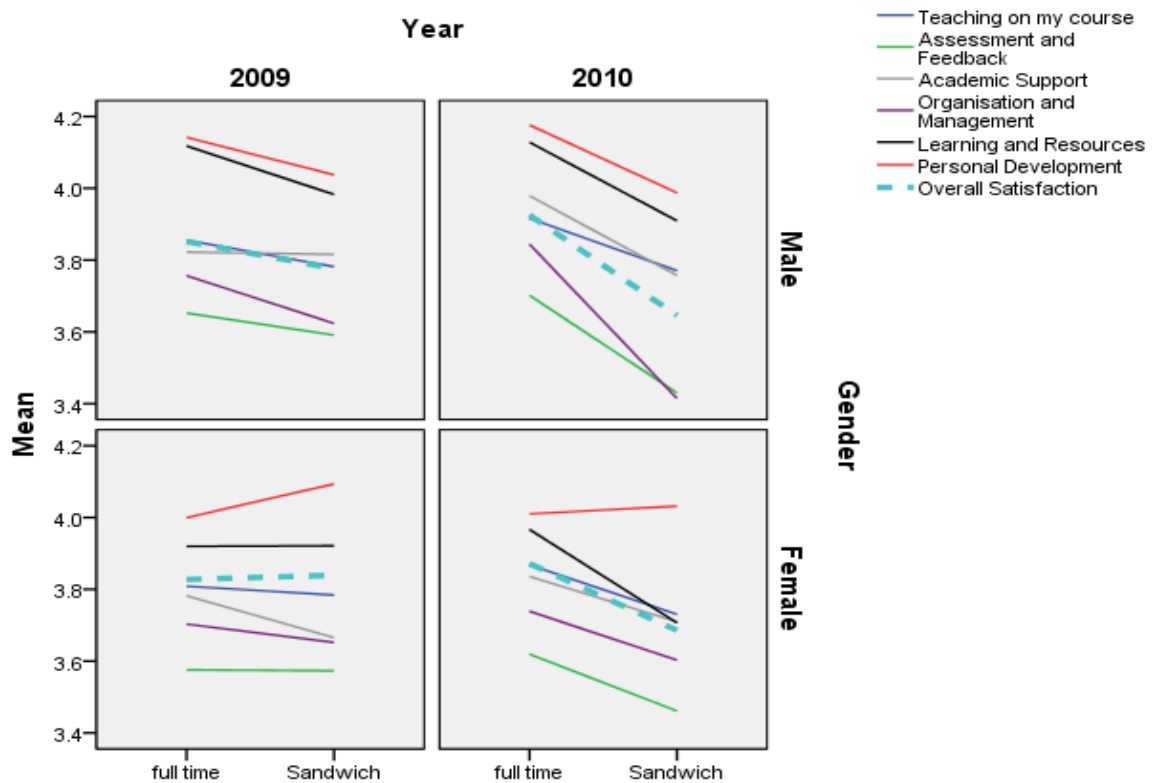
Figure 20: Response rates based on mode of study



**Further Analysis by Mode of Study**

The results in Figure 21 reveal that male full-time students score all NSS themes higher than students who have completed a sandwich year. Female students who have completed a sandwich year score the personal development higher than full-time students

Figure 21: Difference between Male and Female students by mode of study



### **Satisfaction based on Socio Economic Class**

To develop meaningful analysis of the Socio Economic Classification (SEC) of students the main SEC categories were segmented into five distinct groups which were fairly similar to the SEC categories, namely:

1. Higher Professional
2. Lower Managerial
3. Intermediate
4. Self Employed
5. Semi-skilled

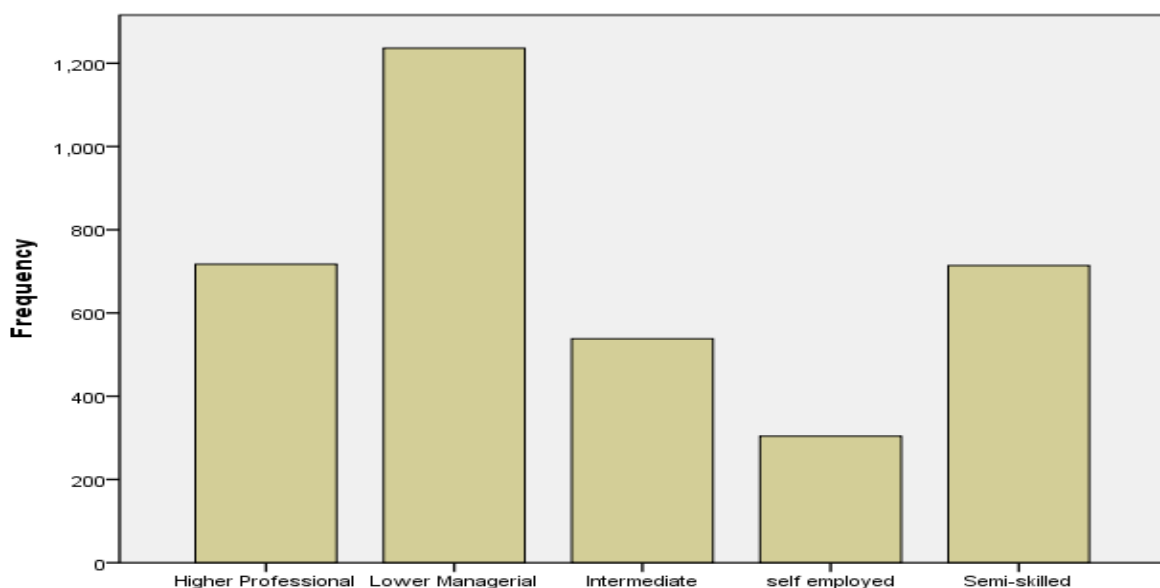
The category of unemployed was not included as there were very few students who selected this option and the category of not classified was also not selected as the category would not have yielded any insightful findings. The results in Table 11 and Figure 22 show the number of students who selected the SEC categories that are used for analysis.

Table 11: Socio-Economic Classification

Socio-economic classification \* SECandHLST Crosstabulation

Count		SECandHLST					Total
		Higher Professional	Lower Managerial	Intermediate	self employed	Semi-skilled	
Socio-economic classification	Higher managerial and professional occupations	717	0	0	0	0	717
	Lower managerial and professional occupations	0	1236	0	0	0	1236
	Intermediate occupations	0	0	538	0	0	538
	Small employers and own account workers	0	0	0	304	0	304
	Lower supervisory and technical occupations	0	0	0	0	181	181
	Semi-routine occupations	0	0	0	0	533	533
Total		717	1236	538	304	714	3509

Figure 22: Social Economic Background



The students on HLST course come from a range of socio economic backgrounds (see Table: 12)

Table 12: Responses based on Social Economic Background

		Frequency	Percent
	Higher Professional	717	11.6
	Lower Managerial	1236	20.0
	Intermediate	538	8.7
	self employed	304	4.9
	Semi-skilled	714	11.5
	Total	3509	56.7
Missing	System	2680	43.3
<b>Total</b>		<b>6189</b>	<b>100.0</b>

Post-92 universities attract a wide range of students from socio economic background although the majority of students, completing the NSS, are from the lower managerial and semi-skilled backgrounds (see Table 13).

**University Destination based on SEC**

As most students who completed the NSS were from Post-92 universities it was also no surprise that students from all SEC were also at Post-92 universities (see Figure 23 and Table 13).

Figure 23: Student destination based on SEC

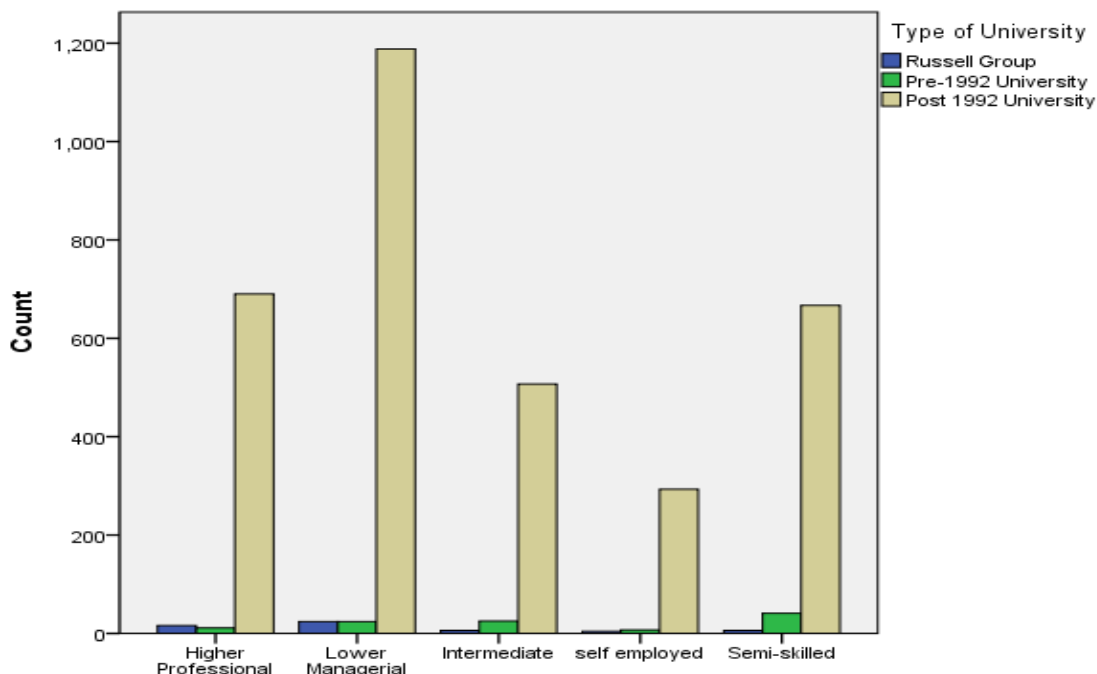


Table 13: University destination based on Student Socio Economic background

		Type of University			Total
		Russell Group	Pre-1992 University	Post 1992 University	
	Higher Professional	16	11	690	717
	Lower Managerial	24	24	1188	1236
	Intermediate	6	25	507	538
	self employed	4	7	293	304
	Semi-skilled	6	41	667	714
Total		<b>56</b>	<b>108</b>	<b>3345</b>	<b>3509</b>

Advanced statistical analysis revealed that there were no significant differences between the SEC of students and the type of university.

**Appendix 8: Key significant differences based on Gender, A-levels, Term Time Accommodation, Age Group, Region, Mode of Study and SEC.**

The findings in Table 14 reveal that students with high A-level grades score Teaching, Academic support, Organisation and Management, Learning Resources and overall satisfaction significantly higher than students with lower A-level grades. Students living at home score the Teaching, Assessment and Feedback and Organisation and Management higher than students in rented accommodation although students in rented accommodation score the academic support and learning resources higher. In terms of age students in their mid-twenties and higher thirties range score the teaching, assessment and feedback, organisation and management and overall satisfaction higher than any other age group. There is no one geographic region that scores higher in all NSS themes but universities in the East of England, West Midlands and Yorkshire and Humberside scored significantly higher in almost all NSS themes. If we compare all modes of study (full time, sandwich and part time) then part time students significantly score Teaching, Assessment and Feedback, Academic Support and Organisation and Management higher. However, if we compare just the majority of students by mode of study (i.e. full time and sandwich) then full-time students significantly score all NSS themes except Personal Development higher in terms of satisfaction. In terms of satisfaction by socio economic classification there were no significant differences.

Table 14: Significant differences based on A-level grades, term time accommodation, age group, region, mode of study and SEC

		A Level Grades	Term Time Accommodation	Age Group	Region	Mode of Study (all types)	Mode of Study (ft and Sandwich)	SEC
Teaching	Q1. Staff are good at explaining things			22-25, 31+		Part-time	Full-time	
	Q2. Staff have made the subject interesting	High		22-25, 31+		Part-time	Full-time	
	Q3. Staff are enthusiastic about what they are teaching			22-25, 31+	West Midlands, East of England, Yorkshire and Humberside	Part-time	Full-time	
	Q4. The course is intellectually stimulating	High	Home	26-30, 31+	East Midlands, Greater London	Part-time	Full-time	
Assessment & Feedback	Q5. The criteria used in marking have been made clear in advance					Part-time	Full-time	
	Q6. Assessment arrangements and marking have been fair		Home		North West, East Midlands	Part-time	Full-time	
	Q7. Feedback on my work has been prompt				East of England, South West			
	Q8. I have received detailed comments on my work			22-25, 31+	South East, East Midlands	Part-time	Full-time	
Academic Support	Q9. Feedback on my work has helped me clarify things I did not understand	Low		22-25, 31+	East of England, West Midlands	Part-time	Full-time	
	Q10. I have received sufficient advice and support with my studies				West Midlands, East of England	Part-time	Full-time	
	Q11. I have been able to contact staff when I needed to	High	Rented		West Midlands, Yorkshire and Humbersides, South West	Part-time	Full-time	
Organisation and Management	Q12. Good advice was available when I needed to make study choices				West Midlands, East of England	Part-time	Full-time	
	Q13. The timetable works efficiently as far as my activities are concerned	High		26-30, 31+	Greater London, South West, Yorkshire and Humberside	Full-time	Full-time	
	Q14. Any changes in the course of teaching have been communicated effectively			26-30, 31+	East of England, South West	Part-time	Full-time	
Learning Resources	Q15. The course is well organised and is running smoothly	High	Home	26-30, 31+	East of England, West Midlands	Part-time	Full-time	
	Q16. The library resources and services are good enough for my needs	High	Rented		East of England, Yorkshire and Humberside	Full-time	Full-time	
	Q17. I have been able to access general IT resources when I needed to	High	Rented		Yorkshire and Humberside, West Midlands, East of England	Full-time	Full-time	
Personal Development	Q18. I have been able to access specialised equipment, facilities or rooms when I needed to	High	Rented	18-21, 22-25	East Midlands, Yorkshire and Humberside, West Midlands	Full-time	Full-time	
	Q19. The course has helped me to present myself with confidence							
	Q20. My communication skills have improved				West Midlands, Yorkshire and Humberside			
Overall Satisfaction	Q21. As a result of my course, I feel confident in tackling unfamiliar problems							
	Q22. Overall, I am satisfied with the quality of the course	High		18-21, 31+		Part-time	Full-Time	

### Statistical Test

Non-parametric analysis were applied to the NSS variables to determine significant differences for the categories A-level grade, term time accommodation, age group, geographic region, mode of study and socio economic group.

**Appendix 9: Analysis of NSS by Survey week of completion and method of data collection**

This appendix highlights which survey weeks lead to high satisfaction scores and by which mode of data collection.

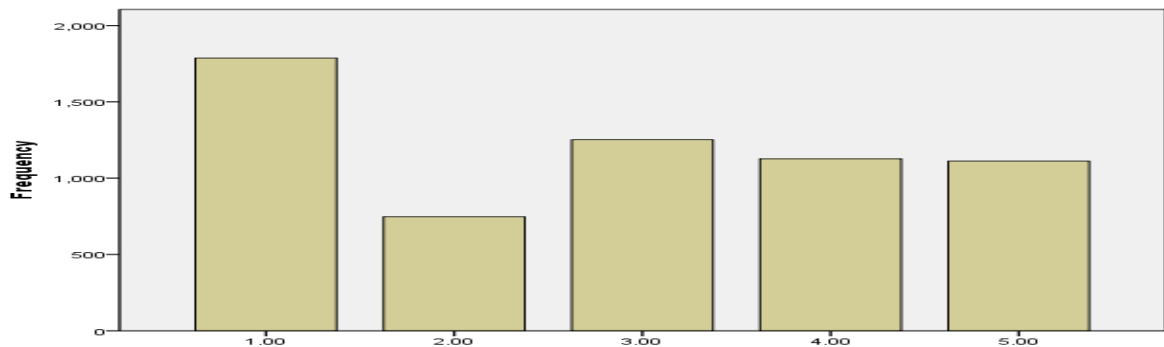
**Response rates to NSS survey in the first 5 weeks**

The majority of students complete the NSS survey in the first week of administration with a drop in the second week followed by a rise in the third week and then a steady decline by week 5 (see Table 15 and Figure 24).

Table 15: Response to NSS survey in first 5 weeks

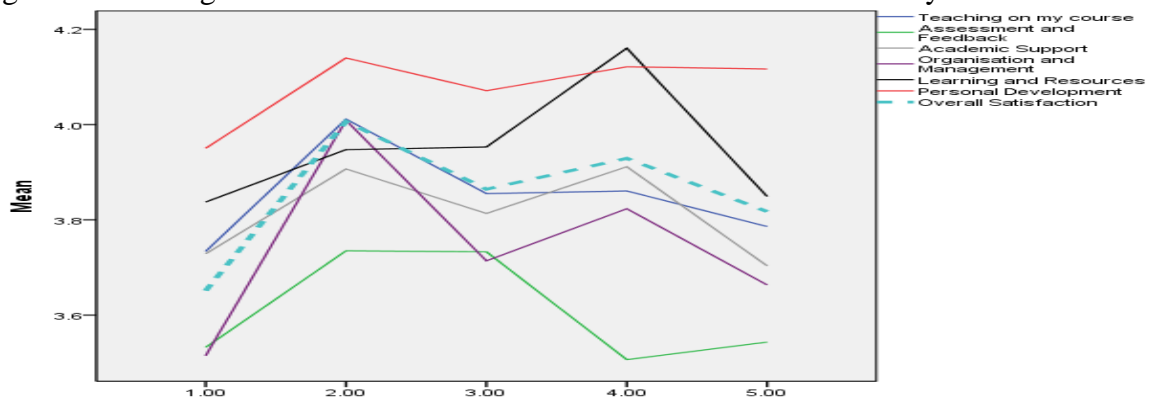
		Frequency	Percent
Week	1.00	1787	29.7
	2.00	747	12.4
	3.00	1252	20.8
	4.00	1127	18.7
	5.00	1112	18.5
	<b>Total</b>	<b>6025</b>	<b>100</b>

Figure 24: Response to NSS survey in the first 5 weeks



Students score most of the NSS themes the highest in week 2 and week 4 (see Figure 25).

Figure 25: Scoring of NSS themes over the first 5 weeks of the NSS survey



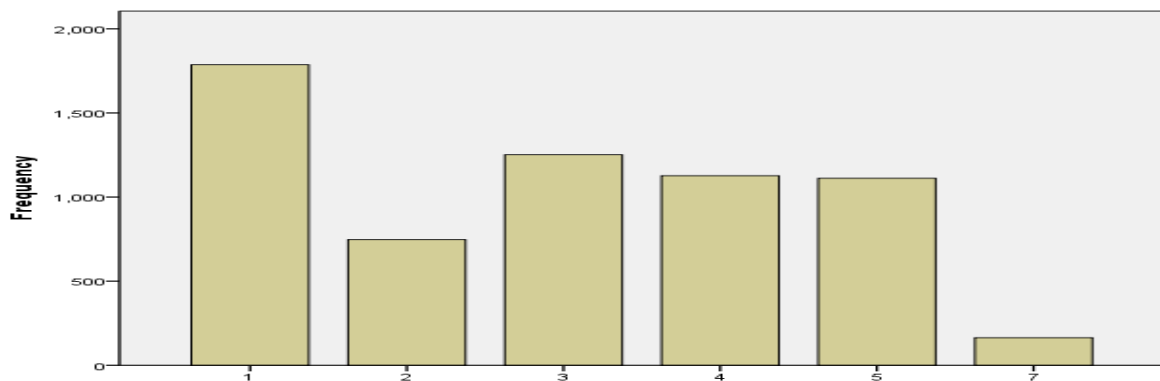
### **Response Rates over 7 weeks of the survey administration**

Students are contacted via Telephone after week 5 to increase the response rate this leads to a small number of students complete the survey in week 7 (see Table 16 and Figure 26).

Table 16: Response to NSS survey over the 7 weeks

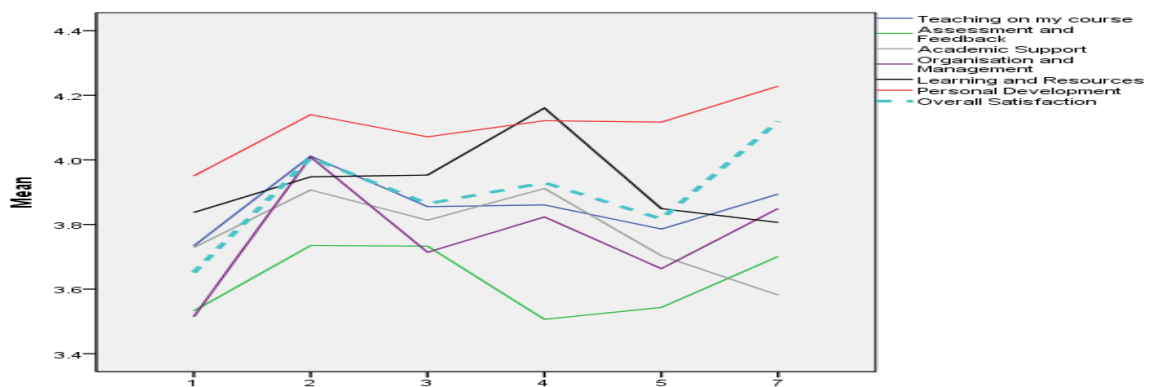
		Frequency	Percent
Week	1	1787	28.9
	2	747	12.1
	3	1252	20.2
	4	1127	18.2
	5	1112	18.0
	7	164	2.6
	Total	6189	100.0

Figure 26: Response to NSS survey over the 7 weeks



When students are contacted, after week 5, we see that the scores for most of the NSS themes are rated higher in week 7 (see Figure 27).

Figure 27: Response to NSS themes over 7 weeks of survey completion



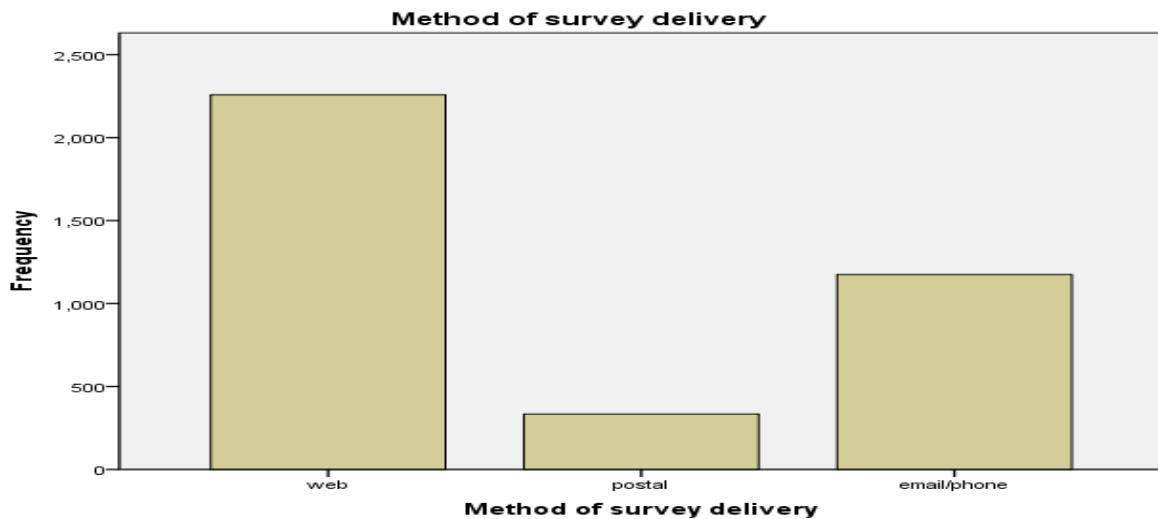
**Satisfaction Levels based on method of data collection**

The most popular method of collecting student responses to the NSS survey is online forms via the web (see Table 17 and Figure 28)

Table 17: Response rates to method of data collection

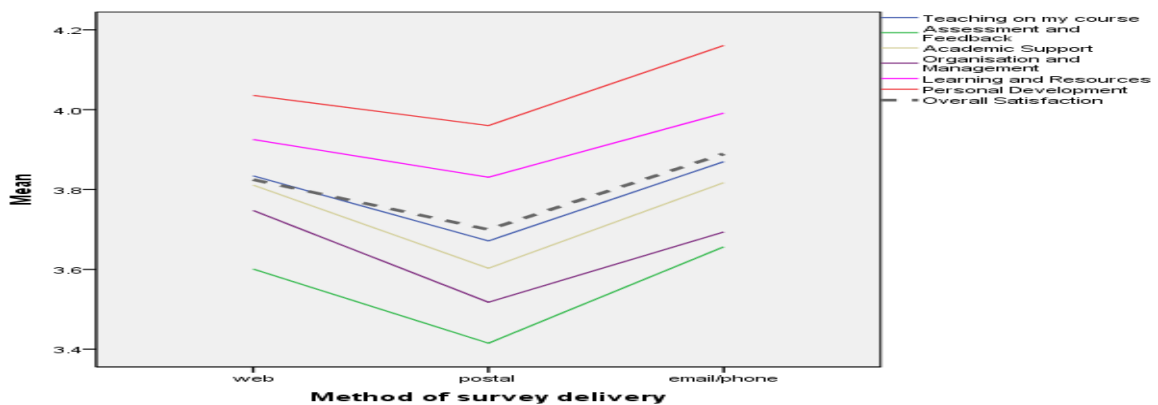
		Frequency	Percent
Method of data collection	web	2258	59.9
	postal	334	8.9
	email/phone	1175	31.2
<b>Total</b>		<b>3767</b>	<b>100.0</b>

Figure 28: Response numbers to method of survey



The methods of data collection that lead to high responses to NSS themes are Web and email/phone (see Figure 29)

Figure 29: Method of survey that leads to high response rates



**Appendix 10: Significant differences to NSS questions based on Survey week and method of survey data collection.**

The results in Table 18 reveal that weeks 2 through to 4 lead to high response rates for the NSS questions and that Email/phone and the web are the most popular methods of data collection that lead to high satisfaction scores for the NSS variables.

Table 18: Significant differences of responses based on survey week of response and method of survey distribution

		Survey week (1-5)	Method of Survey
<b>Teaching</b>	Q1. Staff are good at explaining things	weeks 2 & 4	Email/phone
	Q2. Staff have made the subject interesting	weeks 2 & 3	Email/phone
	Q3. Staff are enthusiastic about what they are teaching	weeks 2 & 3	Web and Email/phone
	Q4. The course is intellectually stimulating	weeks 2 & 4	Email/phone and Web
<b>Assessment &amp; Feedback</b>	Q5. The criteria used in marking have been made clear in advance	weeks 2 & 3	
	Q6. Assessment arrangements and marking have been fair	weeks 2 & 3	Email/phone
	Q7. Feedback on my work has been prompt	weeks 2 & 3	Email/phone
	Q8. I have received detailed comments on my work	weeks 2 & 3	Email/phone
	Q9. Feedback on my work has helped me clarify things I did not understand	weeks 2 & 3	Web
<b>Academic Support</b>	Q10. I have received sufficient advice and support with my studies	weeks 2 & 4	Web
	Q11. I have been able to contact staff when I needed to	weeks 2 & 4	Email/phone
	Q12. Good advice was available when I needed to make study choices	weeks 2 & 4	Email/phone
<b>Organisation and Management</b>	Q13. The timetable works efficiently as far as my activities are concerned	weeks 2 & 4	Web and Email/phone
	Q14. Any changes in the course of teaching have been communicated effectively	weeks 2 & 4	Email/phone & web
	Q15. The course is well organised and is running smoothly	weeks 2 & 4	Web and Email/phone
<b>Learning Resources</b>	Q16. The library resources and services are good enough for my needs	weeks 3 & 4	Email/phone
	Q17. I have been able to access general IT resources when I needed to	weeks 2 & 4	Email/phone
	Q18. I have been able to access specialised equipment, facilities or rooms when I needed to	weeks 2 & 4	
<b>Personal Development</b>	Q19. The course has helped me to present myself with confidence	weeks 2 & 4	Email/phone
	Q20. My communication skills have improved	weeks 4 & 5	Email/phone
	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	weeks 2 & 4	Email/phone
<b>Overall Satisfaction</b>	Q22. Overall, I am satisfied with the quality of the course	weeks 2 & 4	Email/phone

**Statistical Test**

Non-parametric analysis was applied to the NSS variables to determine significant differences for the categories in Survey week and method of data collection.

## **Appendix 11: Correlation of Satisfaction with NSS variables**

This appendix will highlight the significant correlations of NSS variables (Q1 to Q21) with Q22 (overall satisfaction). Only significant correlations, with correlation coefficients greater than .5, will be highlighted.

### Correlation Results

The NSS variables that are most correlated with Q22 (overall satisfaction) also happen, as will be shown later (see Appendix 12 and 13), to be the NSS variables that contribute most to the overall satisfaction of the student experience in higher education (see Table 19). The themes most highly correlated with overall student satisfaction are Organisation and Management (Q.15), Teaching (Q.4, 2 1, 1), and Personal Development (Q. 21, 19, 20) and Academic Support (Q. 10, 12). What is most notable is that assessment and feedback is last in the top 10 NSS variables that are highly correlated with Q22 (overall satisfaction).

Table 19: NSS variables Correlated with Q22 (overall Satisfaction)

	<b>NSS Variables</b>	Correlation Coefficient (Spearman's Rho)	Sig. (2-tailed)	N
Organisation and Management	Q15. The course is well organised and is running smoothly	.619	.000	3735
Teaching	Q4. The course is intellectually stimulating	.580	.000	3734
Teaching	Q2. Staff have made the subject interesting	.565	.000	3725
Personal Development	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	.553	.000	3722
Academic support	Q10. I have received sufficient advice and support with my studies	.541	.000	3727
Personal Development	Q19. The course has helped me to present myself with confidence	.539	.000	3723
Teaching	Q1. Staff are good at explaining things	.533	.000	3727
Academic support	Q12. Good advice was available when I needed to make study choices	.528	.000	3682
Personal Development	Q20. My communication skills have improved	.495	.000	3723
Assessment and Feedback	Q9. Feedback on my work has helped me clarify things I did not understand	.479	.000	3717

The findings in Table 19 reveal that ensuring that a course is running smoothly, the teaching is engaging, interesting and relevant to students and supported by staff availability to answer student queries and finally help students acquire confidence in communication has a significant impact on the overall satisfaction of the student experience of higher education.

### Conclusion

The NSS variables (Q1 to 21) significantly correlated with Q22 (overall students satisfaction) relate to the following themes (Organisation and Management, Teaching, Personal Development, Academic Support and Assessment and Feedback).

Statistical Test:

To appreciate which NSS variables influence overall student satisfaction it is necessary to conduct bivariate correlations of all NSS questions with Q22 (overall satisfaction).

Spearman's Correlation analysis is ideal for non-parametric data that has been collected using an ordinal (likert) scale. The statistical test provides a measure of the association between two variables (Siegal and Castellan, 1998, p.235). A criteria of only selecting a Spearman's Rho value of greater than .5 will be adopted, as at this level we start to see strong relationships emerging between two variables.

**Appendix 12: NSS variables that significantly influence student satisfaction**

This appendix will highlight which NSS variables significantly influence student satisfaction. The results have been determined by applying advanced multivariate analysis namely, multinomial regression analyses on the NSS data.

Predicting student satisfaction

The key NSS variables to emerge as contributing most to overall student satisfaction are Q15, Q4, Q2, Q19, Q1. These variables are all significant and have the highest Wald value and odds ratio (Exp B) for the definitely agree category (see Table 20). These NSS variables are themes that emerged in the previous appendix (11) Table 19 namely, Organisation and Management, Teaching and Personal Development.

Table 20: Multinomial Regression – All universities (NSS variables influencing satisfaction)

		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
	Intercept	-17.670	.823	461.399	1	.000			
Organisation and Management	Q15	1.097	.089	150.971	1	.000	2.995	2.514	3.567
Teaching	Q04	.919	.091	102.235	1	.000	2.507	2.098	2.996
Teaching	Q02	.668	.106	39.838	1	.000	1.950	1.585	2.400
Personal Development	Q19	.600	.128	21.954	1	.000	1.821	1.417	2.340
Teaching	Q01	.567	.121	21.920	1	.000	1.764	1.391	2.236
Academic Support	Q10	.486	.095	26.348	1	.000	1.626	1.351	1.958
Personal Development	Q21	.431	.132	10.703	1	.001	1.538	1.188	1.991
Academic Support	Q12	.287	.093	9.438	1	.002	1.332	1.109	1.600
Assessment and Feedback	Q05	.176	.082	4.577	1	.032	1.193	1.015	1.402
Learning Resources	Q16	.138	.081	2.932	1	.087	1.148	.980	1.346

The key findings in Table 20 reveal that the efficient running of the course, engaging and stimulating lectures that are supported by academic staff willing to offer advice and support to students and the development of student confidence and the ability to solve problems significantly influence the overall student satisfaction of higher education.

### Conclusion

The NSS variables that have a significant influence on overall student satisfaction are from the following NSS themes: Organisation and Management, Teaching, Personal Development and Academic Support.

### Statistical Test: Multinomial Regression

When issues relating to distribution and level of measurement become an issues then multinomial regression can overcome this problem by transforming the data using logarithmic transformation.

When we are trying to make predictions of membership to more than two categories then multinomial (polychotomous) logistic regression is highly preferable. Multinomial regression assumes that the outcome variable is categorical so that predictions can be made (computed) to determine which of the categories the NSS variables belong to. In this case we aim to predict the probability of an outcome variable (Q22 – overall student satisfaction) given other known NSS predictor values (Q1 to Q22). Each predictor variable in the logistic regression equation has its own coefficient.

In logistic regression there is an analogous statistic known as the Wald statistic, which has a chi-square distribution. The Wald statistic tells us whether the '*b*' coefficient, for that predictor is significantly different from zero. If the coefficient is significantly different from zero then we can assume that the predictor is making a significant contribution to the production of the outcome (Field, 2009, p.287).

The odss ratio,  $\text{Exp}(B)$ , is an indicator of the change in odds resulting from a unit change in the predictor. The  $\text{Exp}(B)$  is used for interpretation of the results because if the value is greater than 1 then as the predictor increases, the odds of the outcome occurring increase.

**Appendix 13a: Decision Tree Analysis: Alternative approach to identifying NSS variables that influence student satisfaction**

This appendix will use another statistical test to determine which NSS variables (Q1 to Q21) have the most influence on student satisfaction (Q22).

**Decision Tree Analysis: Identifying factors that influence student satisfaction**

Multinomial regression analyses are confirmed by decision tree analysis which provides evidence that Organisation and Management, Teaching, Academic Support and Personal Development have the most impact on overall student satisfaction (see Table 21a).

**Table 21a: Decision Tree results of NSS variables most contributing to overall satisfaction**

	<b>Independent Variable</b>	<b>Importance</b>	<b>Normalized Importance</b>
Organisation and Management	Q15. The course is well organised and is running smoothly	.091	1.0
Teaching	Q1. Staff are good at explaining things	.090	1.0
Teaching	Q2. Staff have made the subject interesting	.068	.7
Teaching	Q4. The course is intellectually stimulating	.067	.7
Personal Development	Q19. The course has helped me to present myself with confidence	.059	.7
Personal Development	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	.058	.6
Academic Support	Q10. I have received sufficient advice and support with my studies	.044	.5
Academic Support	Q12. Good advice was available when I needed to make study choices	.043	.5
Assessment and Feedback	Q9. Feedback on my work has helped me clarify things I did not understand	.038	.4
Personal Development	Q20. My communication skills have improved	.035	.4

The overall accuracy of the decision tree predicted model is 82.2%

The findings in Table reveal that ensuring that a course is running smoothly, the teaching is interesting, engaging and relevant to students and supported by staff availability to answer student queries and finally helping students acquire confidence in problem solving has a significant impact on the overall satisfaction of the student experience of higher education.

### **Appendix 13b: Decision Tree – Identifying factors that influence student dissatisfaction**

Decision Tree analysis of factors influencing dissatisfaction are presented in Table 21b. The results support many of the key issues identified through multinomial regression in Appendix 12 (Table 20).

Table 21b: variables that lead to student dissatisfaction

	<b>Independent Variable</b>	<b>Importance</b>	<b>Normalized Importance</b>
Organisation and Management	Q15. The course is well organised and is running smoothly	.091	1.0
Teaching	Q1. Staff are good at explaining things	.090	1.0
Teaching	Q2. Staff have made the subject interesting	.068	.7
Teaching	Q4. The course is intellectually stimulating	.067	.7
Personal Development	Q19. The course has helped me to present myself with confidence	.059	.7
Personal Development	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	.058	.6
Academic Support	Q10. I have received sufficient advice and support with my studies	.044	.5
Academic Support	Q12. Good advice was available when I needed to make study choices	.043	.5
Assessment and Feedback	Q9. Feedback on my work has helped me clarify things I did not understand	.038	.4
Personal Development	Q20. My communication skills have improved	.035	.4

The overall accuracy of the decision tree predicted model is 82.2%

The findings in Table 21b reveal that the main factors that lead to student dissatisfaction are almost identical to the issues that lead to satisfaction namely: that the course is running smoothly, the teaching is interesting, engaging and relevant to students and supported by staff availability to answer student queries and finally helping students acquire confidence in problem solving and communication has a significant impact on the overall satisfaction of the student experience of higher education.

#### Conclusion

Results from both multinomial and decision tree analysis confirm that Organisation and Management, Teaching, Personal Development and Academic Support have the most influence on the overall satisfaction of the student experience in higher education. Therefore, it is vital that universities invest in the efficient management of courses and investment in academic staff to deliver engaging, interesting and relevant lectures that are supported by friendly advice. Finally it is vital that students acquire confidence in problems solving skills. The statistical results have shown that students are significantly satisfied when they perceive that university has delivered in these organisational, pedagogical, support and personal development areas.

### Statistical Test

While regression analysis provides one means of identifying highly important influences (Thomas and Galambos, 2004, p.254). Decision tree analysis offers a richer account. Both tests reveal that different indicators (and sometimes the same indicators) are influenced by a different array of experiences, and that these experiences affect the satisfaction of the different types of students. Therefore, this test is ideal to identify which factors influence students based on Gender, UK ethnicity and country of origin.

The most popular decision tree regression test is the non-parametric test CART (Classification and Regression Tree). Classification trees are useful in that they provide fairly comprehensible predictors in situations where there are many variables which interact in complicated, non-linear ways. The CART algorithm will identify the most significant variables and eliminate non-significant variables. CART can identify which NSS variables (Q1 to Q21) are associated with high overall student satisfaction. The optimal tree size is determined through the use of the cross-validation procedure.

The CART statistical test has two strengths:

1. CART does not require the data to be normally distributed;
2. The explanatory variable can be categorical, ordinal and continuous.

The CRT method ranks each independent (predictor) variable according to its importance to the model. Furthermore, for categorical (nominal, ordinal) dependent variables a table is computed that shows the number of cases that were classified correctly and incorrectly for each category. The results for the CRT show that the overall percentage of classification was very high (85%).

## **Appendix 14: Mean scores of UK ethnic students**

This appendix will highlight the significant differences of the responses by UK ethnic students to NSS questions.

### UK Ethnicity Analyses

To determine if UK students differed in their education experience based on their ethnic group the students were first segmented into six distinct ethnic groups namely White, Black, Indian, Pakistani, Chinese and Mixed to compare results. A number of non-parametric statistical tests are applied to determine whether there are any significant differences in the mean scores of NSS variables based on UK ethnicity.

### Mean Scores by ethnicity of UK students

In terms of ethnic student diversity, Pre-92 and Post 92 universities have a very wide diversity of UK ethnic students (see Table 22) that complete the NSS.

Table 22: UK ethnic students by type of university

		Type of University			Total		
		Russell Group	Pre-1992 University	Post 1992 University			
All UK Students by Ethnicity	<b>White</b>	Count	60	168	4367	4595	
		%	<b>90.9%</b>	<b>71.5%</b>	<b>82.4%</b>	<b>82.1%</b>	
	<b>Black</b>	Count	1	29	382	412	
		%	<b>1.5%</b>	<b>12.3%</b>	<b>7.2%</b>	<b>7.4%</b>	
	<b>Indian</b>	Count	1	4	172	177	
		%	<b>1.5%</b>	<b>1.7%</b>	<b>3.2%</b>	<b>3.2%</b>	
	<b>Pak</b>	Count	1	12	97	110	
		%	<b>1.5%</b>	<b>5.1%</b>	<b>1.8%</b>	<b>2.0%</b>	
	<b>Chinese</b>	Count	3	7	123	133	
		%	<b>4.5%</b>	<b>3.0%</b>	<b>2.3%</b>	<b>2.4%</b>	
	<b>Mixed</b>	Count	0	15	158	173	
		%	<b>0.0%</b>	<b>6.4%</b>	<b>3.0%</b>	<b>3.1%</b>	
	<b>Total</b>		Count	66	235	5299	5600
			%	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

The results in Table 23 show that there has been an increase, every year, from most ethnic groups completing the NSS survey.

Table 23: NSS responses based on UK ethnicity over the last two years

			Year		Total
			2009	2010	
All UK Students by Ethnicity	<b>White</b>	Count	2230	2365	4595
		%	<b>83.1%</b>	<b>81.1%</b>	<b>82.1%</b>
	<b>Black</b>	Count	195	217	412
		%	<b>7.3%</b>	<b>7.4%</b>	<b>7.4%</b>
	<b>Indian</b>	Count	85	92	177
		%	<b>3.2%</b>	<b>3.2%</b>	<b>3.2%</b>
	<b>Pak</b>	Count	50	60	110
		%	<b>1.9%</b>	<b>2.1%</b>	<b>2.0%</b>
	<b>Chinese</b>	Count	53	80	133
		%	<b>2.0%</b>	<b>2.7%</b>	<b>2.4%</b>
	<b>Mixed</b>	Count	72	101	173
		%	<b>2.7%</b>	<b>3.5%</b>	<b>3.1%</b>
	<b>Total</b>	Count	2685	2915	5600
		%	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

The results displayed in Figure 30 and Table 24 show that students from specific ethnic backgrounds (White, Chinese, Pakistani and Indian) significantly score some of the NSS themes higher than other UK ethnic groups.

Figure 30: Scoring of NSS themes by UK students

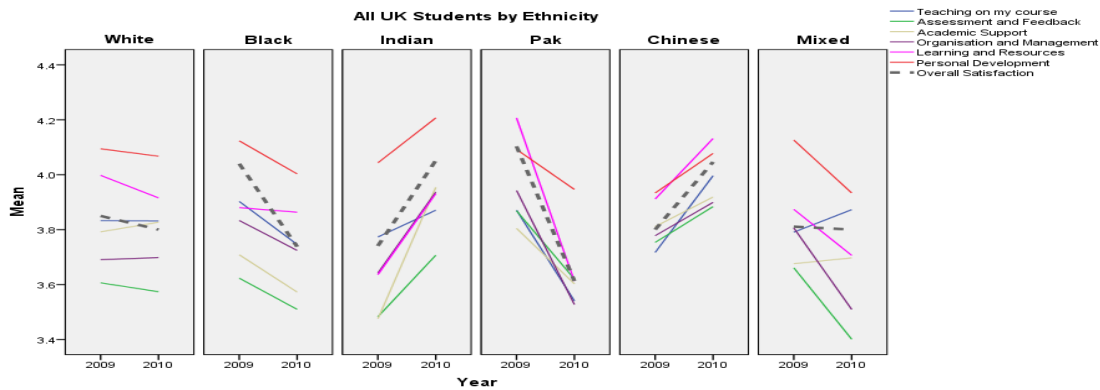


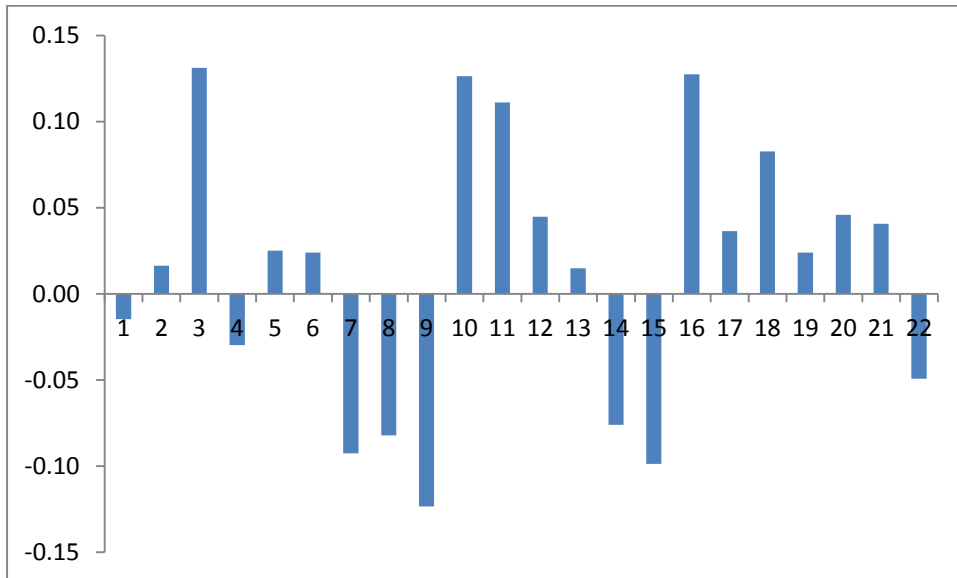
Table 24: UK ethnic students who score the NSS themes significantly higher than other ethnic groups

NSS theme	Ethnic Group (significant differences in higher NSS scores)
Teaching (Q.1,2,3,4)	
Assessment and Feedback	Chinese, Pakistani
Academic Support	White, Indian, Pakistani
Organisation and Management	
Learning Resources	Chinese, White
Personal Development	
Overall Student Satisfaction	

### Differences between UK ethnic students

The results in Figure 31a highlight the differences between white and ethnic students. The analysis reveals that White students are dissatisfied with the assessment and feedback, organisation and management, and teaching.

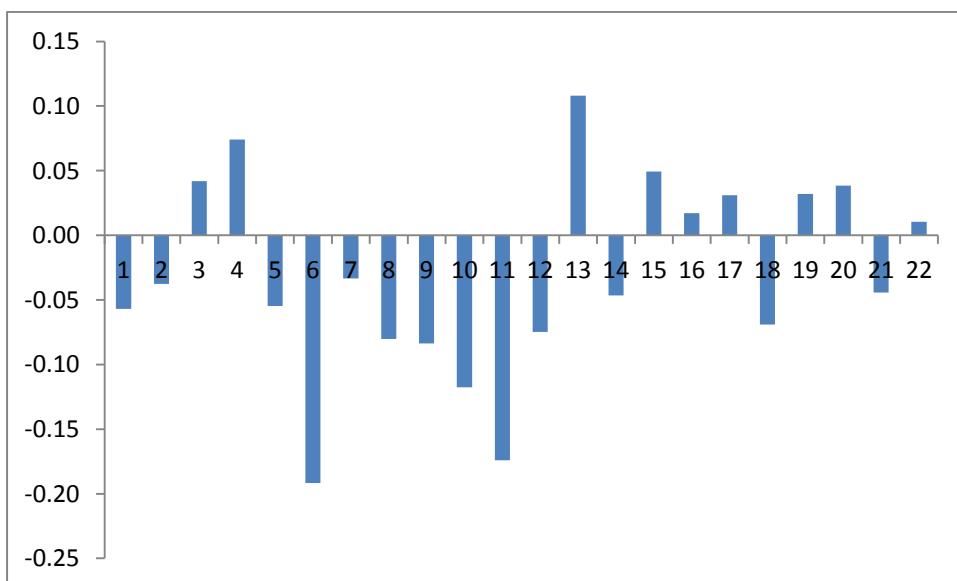
Figure 31a: Differences between UK White and all UK ethnic HLST students



Further analysis of all UK ethnic students in comparison to other UK HLST students reveals some interesting findings (see Figures 31b to 31f)

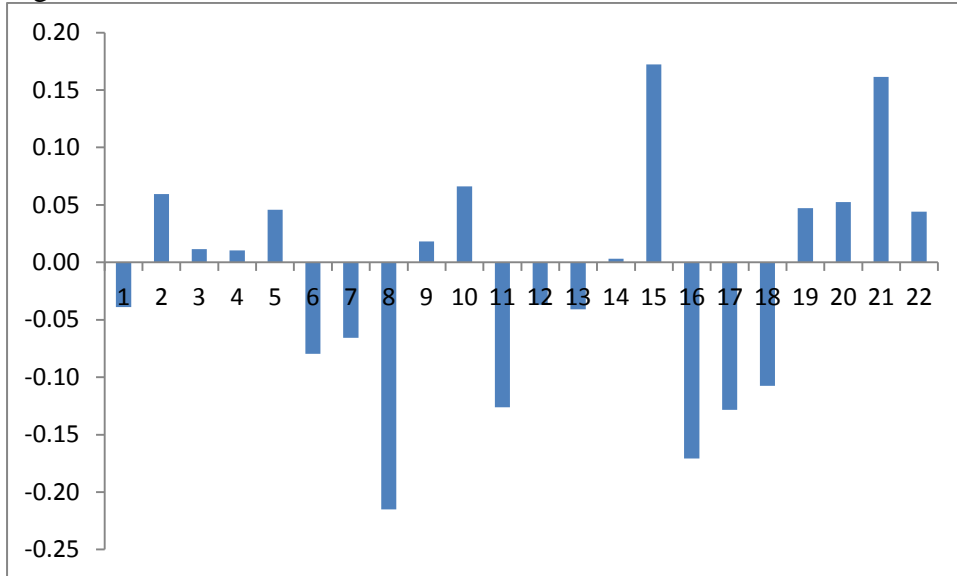
UK black students have lower satisfaction of the assessment and feedback, academic support and the way that tutors explain things (see Figure 31b).

Figure 31b Differences between UK Black and all UK HLST students



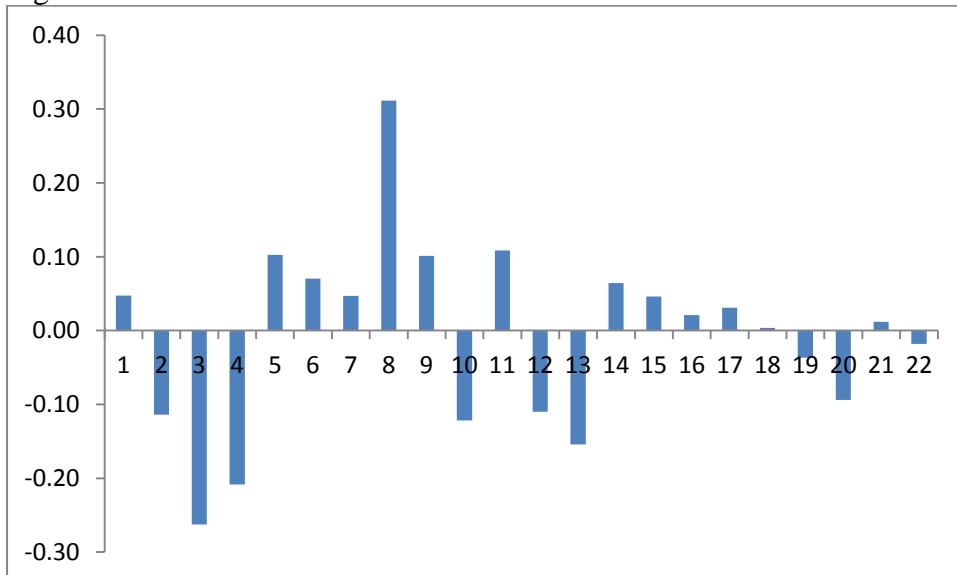
UK Indian students are not impressed with the assessment and feedback and the learning resources available at university (see Figure 31c).

Figure 31c Differences between UK Indian and all UK HLST students



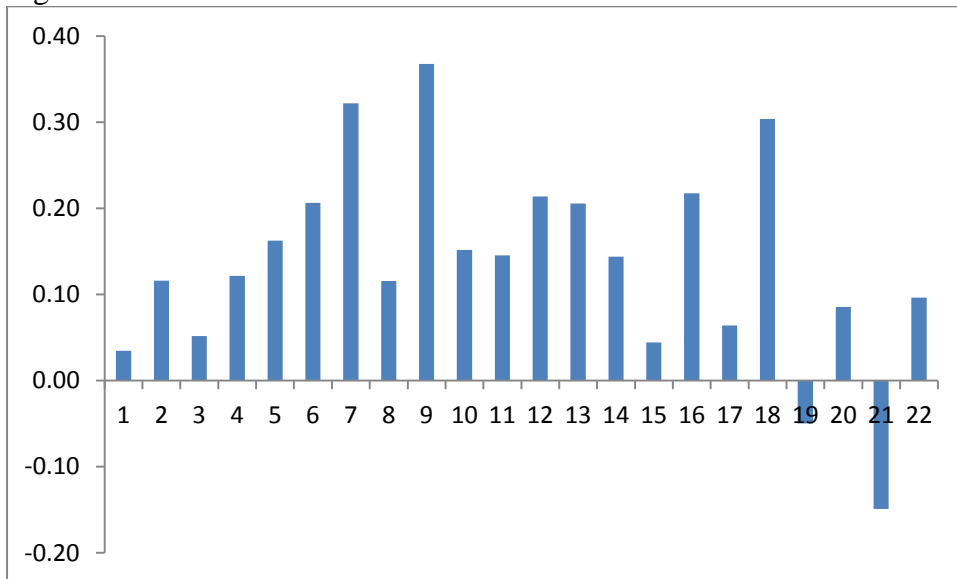
UK Pakistani students scored the Teaching, Academic Support and some elements of the personal development lower than other UK students studying HLST courses (see Figure 31d).

Figure 31d Differences between UK Pak and all UK HLST students



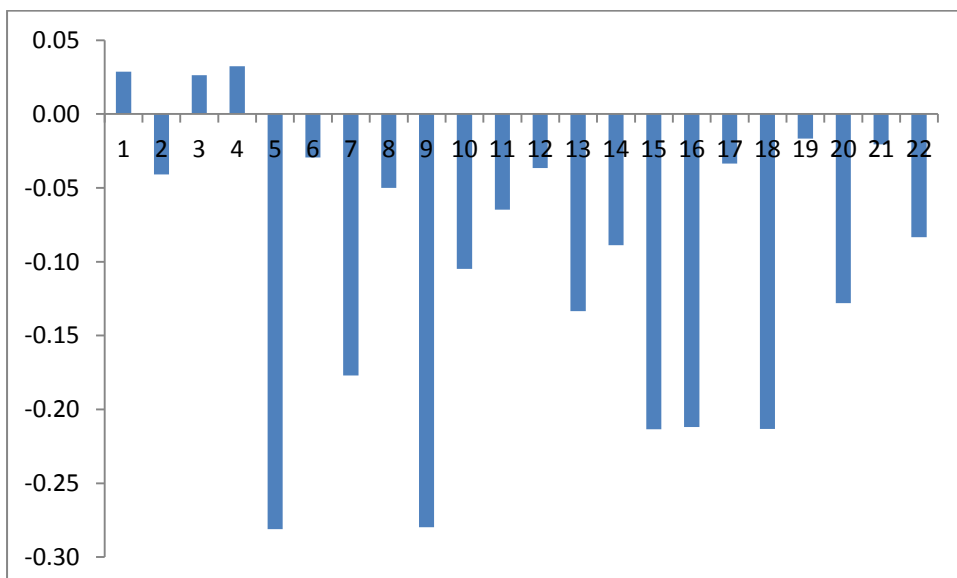
Chinese UK students score almost all NSS variables higher than other UK students with the exception of two variables related to personal development (see Figure 31e).

Figure 31e Differences between Chinese and all HLST students



UK mixed students score almost all NSS variables lower than other UK HLST students. However, mixed UK students recognise the good teaching offered at university (see Figure 31f).

Figure 31f Differences between Mixed and all HLST students



### **Key variables that influence UK students satisfaction**

Decision tree analysis was undertaken to identify the key NSS variables that influence satisfaction of UK students. The results in Table 25 reveal that they are similar to previous findings namely: Q15, Q1, Q4, Q2, Q19, Q21, Q10. These NSS variables relate the NSS themes of Organisation and Management, Teaching, Personal Development and Academic support.

Table 25: NSS variable influencing satisfaction for UK students

	<b>Independent Variable</b>	<b>Importance</b>	<b>Normalized Importance</b>
Organisation and Management	Q15. The course is well organised and is running smoothly	.095	1.0
Teaching	Q1. Staff are good at explaining things	.093	1.0
Teaching	Q4. The course is intellectually stimulating	.065	.7
Teaching	Q2. Staff have made the subject interesting	.062	.7
Personal Development	Q19. The course has helped me to present myself with confidence	.054	.6
Personal Development	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	.052	.5
Academic Support	Q10. I have received sufficient advice and support with my studies	.045	.5
Academic Support	Q12. Good advice was available when I needed to make study choices	.037	.4
Personal Development	Q20. My communication skills have improved	.034	.4
Organisation and Management	Q14. Any changes in the course of teaching have been communicated effectively	.033	.3

### **Conclusion**

Pre-92 and Post-92 universities have a more diverse UK ethnic group of students who complete the NSS than Russell Group universities.

The most satisfied UK students are Chinese and the least satisfied UK mixed students with other UK students scoring many NSS themes lower than other UK students.

Advanced statistical analysis revealed that the key NSS themes that have the most influence on UK student satisfaction are Organisation and Management, Teaching, Personal development and academic support.

### **Statistical Test**

To determine if there are any significant differences in the way that UK ethnic students scored the NSS questions the most appropriate test is the non-parametric Kruskal-Wallis test. The test assumes that the variables under study are ordinal and the observations are replaced by ranks. That is, all of the scores from all of the k samples are combined and ranked in a single series. Next the sum of the ranks, for each sample group (category) is computed and then the average rank for each sample group (category). The Kruskal-Wallis test assesses the differences among the averages ranks to determine whether they are so disparate that they are not likely to have come from samples drawn from the same population (Siegal and Castellan, 1998, p.207).

### **Appendix 15: Review of NSS scores from International students**

This appendix will highlight the responses of international students to the NSS variables. Five international groups have been identified and various statistical tests will be applied to highlight the significant differences between international students.

#### International Students at Universities

To enable comparison, of international students, a number of regions (five) were identified as being the most popular origin of international students studying in the UK (see Table 26). The international groups selected for analysis were based on the sampling criteria set by the HEA, whereby a minimum number of 23 students for each university category and for all years was applied to ensure that a sufficient number of students would be extracted from the NSS dataset to facilitate comparisons.

The results in Table 26 clearly shows the distribution of international student NSS responses across the three types of universities.

Table 26: Number of International students at the various universities

			Type of University			Total	
			Russell Group	Pre-1992 University	Post 1992 University		
HLST international students	Africa	Count	2	2	43	47	
		%	<b>13.3%</b>	<b>7.7%</b>	<b>6.4%</b>	<b>6.6%</b>	
	EU	Count	3	8	207	218	
		%	<b>20.0%</b>	<b>30.8%</b>	<b>30.9%</b>	<b>30.7%</b>	
	Eastern-Europe	Count	3	10	234	247	
		%	<b>20.0%</b>	<b>38.5%</b>	<b>34.9%</b>	<b>34.7%</b>	
	Nordic	Count	1	1	77	79	
		%	<b>6.7%</b>	<b>3.8%</b>	<b>11.5%</b>	<b>11.1%</b>	
	Chinese	Count	6	5	109	120	
		%	<b>40.0%</b>	<b>19.2%</b>	<b>16.3%</b>	<b>16.9%</b>	
	Total		Count	15	26	670	711
			%	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

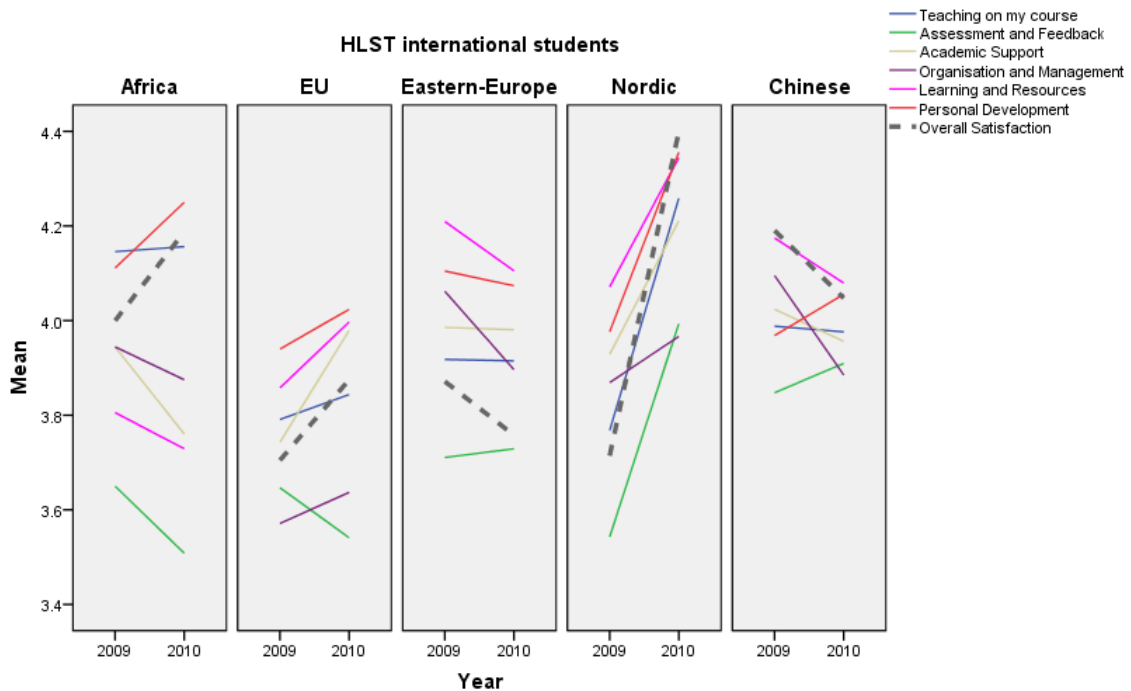
The growth of international students has been unprecedented in the English higher education system. The number of international students completing the NSS, every year, is increasing for most international groups (see Table 27).

Table 27: Number of International students completing NSS year over the last two years

			Year		Total	
			2009	2010		
HLST international students	Africa	Count	23	24	47	
		%	7.4%	6.0%	6.6%	
	EU	Count	105	113	218	
		%	33.76%	28.25%	30.66%	
	Eastern-Europe	Count	107	140	247	
		%	.3	.4	.3	
	Nordic	Count	30	49	79	
		%	9.65%	12.25%	11.11%	
	Chinese	Count	46	74	120	
		%	14.79%	18.50%	16.88%	
	Total		Count	311	400	711
			%	100.00%	100.00%	100.00%

The findings in Figure 32 reveal that Nordic and African students are the most satisfied with their university experience of all the international students.

Figure 32: Overall satisfaction of international students by theme

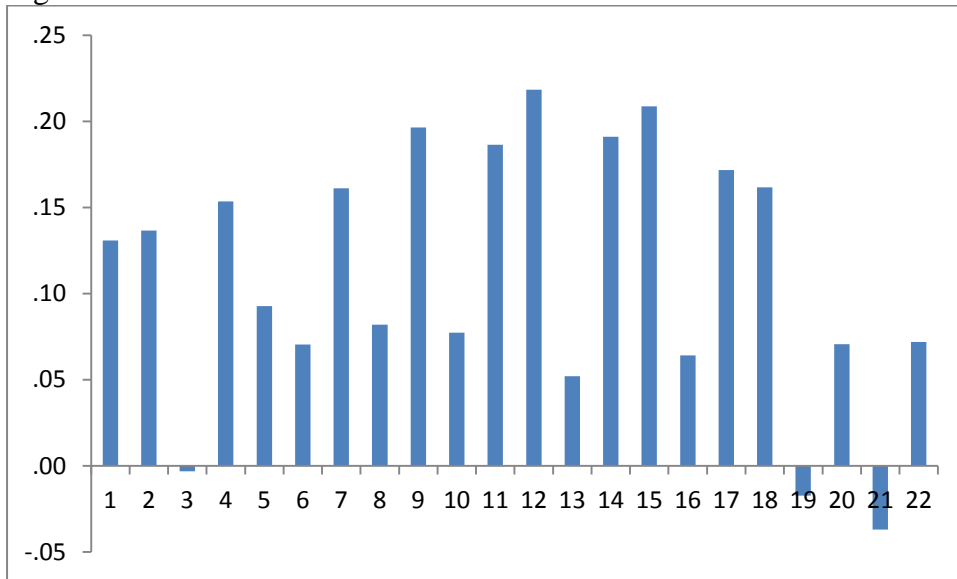


Mean scores of international students by NSS themes

The responses by international students have been cross-tabulated by NSS themes and the results clearly show that international students from certain regions have a less satisfied experience than international students from other regions (see Figure 33)

### Differences between International HLST students and UK students

Figure 33: Differences between International HLST and UK HLST students

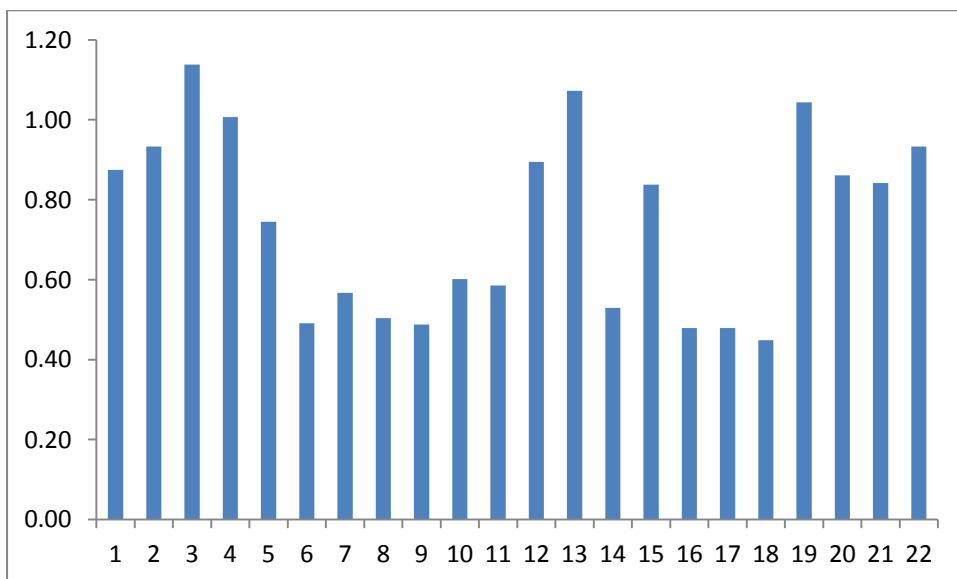


The results in Figure 33 show that international HLST students are far more satisfied with the higher educational experience than UK students. However, not all international students are satisfied with all levels of the educational experience at university. The key differences between international students is presented in Figures 34a to 34

### Differences between international HLST students

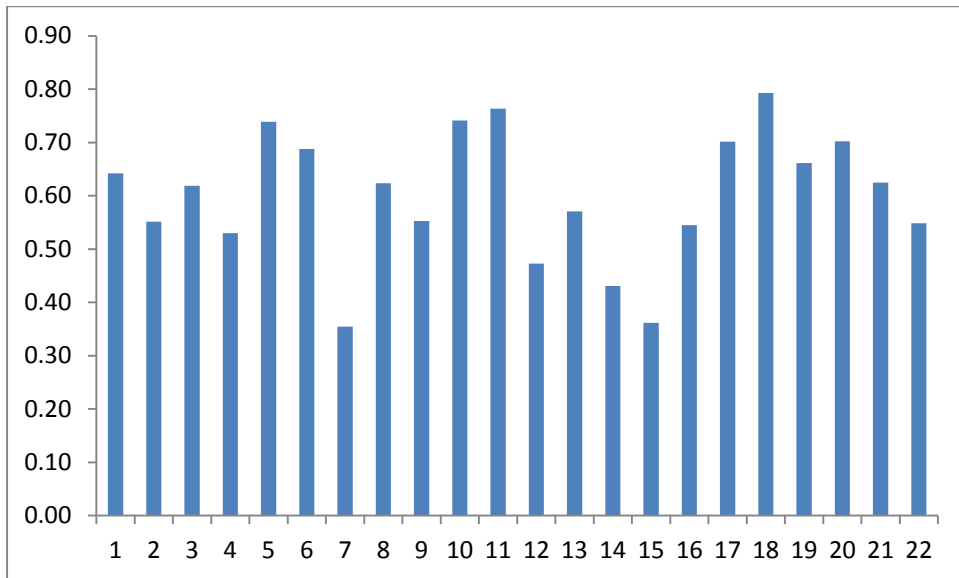
African students scored the teaching, academic support and personal development higher in comparison other international HLST students (see Figure 34a).

Figure 34a: Difference between African international students and all HLST international students



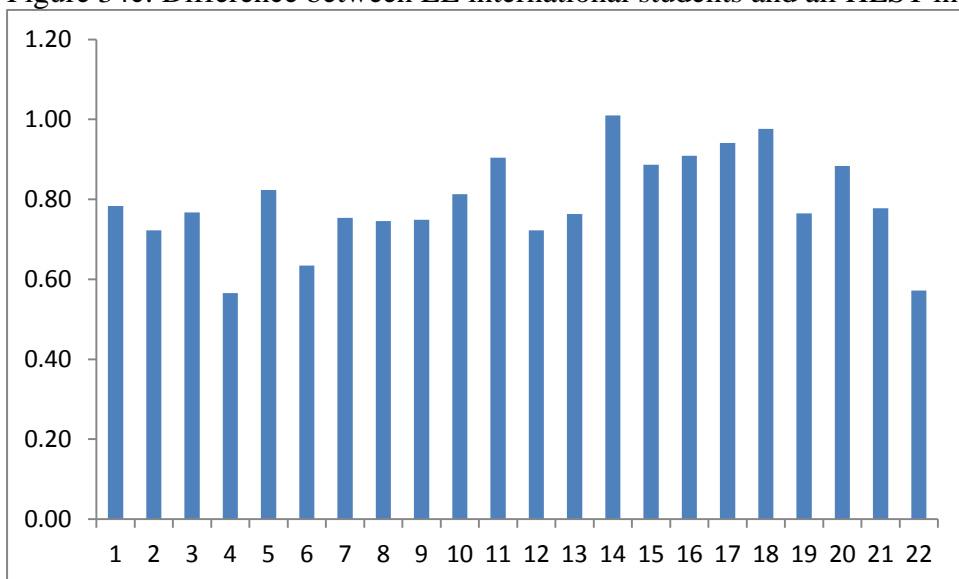
Western European Union (EU) students scored the academic support, learning resources and personal development very high in comparison to other international HLST students (see Figure 34b).

Figure 34b: Difference between EU international students and all HLST international students



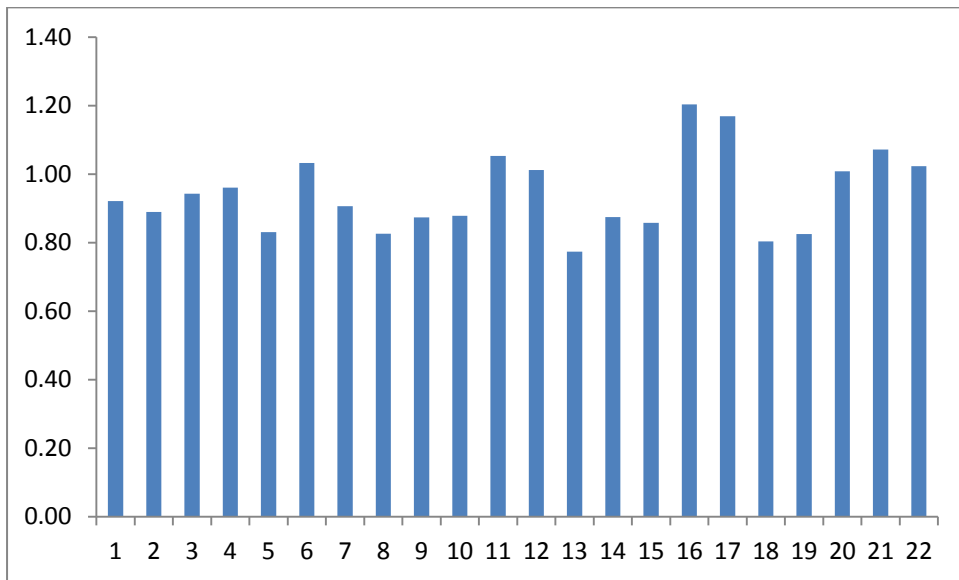
Eastern European (EE) students scored the organisation and management, personal development, teaching and academic support higher in comparison to other HLST international students (see Figure 34c).

Figure 34c: Difference between EE international students and all HLST international students



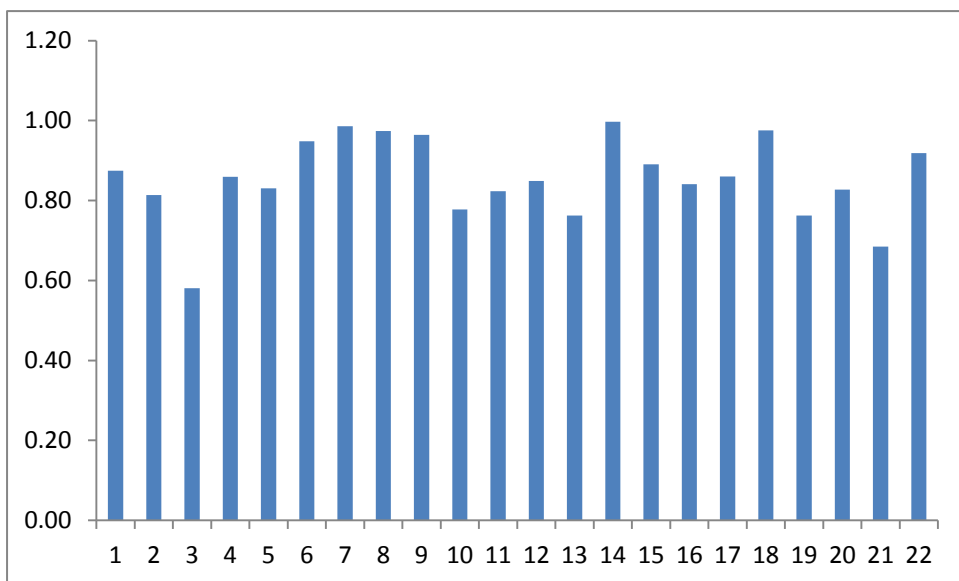
Nordic students scored the assessment and feedback, organisation and management, and some learning resources and personal development **lower** than other NSS variables in comparison to other international HLSt students (see Figure 34d).

Figure 34d: Difference between Nordic international students and all HLST international students



Chinese students scored the assessment and feedback and organisation and management higher in comparison to other HLST international students (see Figure 34e).

Figure 34e: Difference between Chinese international students and all HLST international students



### Predicting International student satisfaction

The overall satisfaction of international students is attributed to Teaching, Academic Support, Personal Development, Assessment and Feedback and Organisation and Management (see Table 28). These findings show a major difference in the priority of NSS themes in that international students score the Teaching much higher than any other NSS theme.

Table 28: Decision Tree Analysis for International Students: factors influencing satisfaction

	<b>Independent Variable</b>	<b>Importance</b>	<b>Normalized Importance</b>
Teaching	Q2. Staff have made the subject interesting	.075	1.0
Teaching	Q3. Staff are enthusiastic about what they are teaching	.065	.9
Teaching	Q4. The course is intellectually stimulating	.063	.8
Academic Support	Q10. I have received sufficient advice and support with my studies	.063	.8
Personal Development	Q19. The course has helped me to present myself with confidence	.060	.8
Teaching	Q1. Staff are good at explaining things	.056	.7
Personal Development	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	.042	.6
Assessment and Feedback	Q8. I have received detailed comments on my work	.032	.4
Organisation and Management	Q14. Any changes in the course of teaching have been communicated effectively	.032	.4
Organisation and Management	Q15. The course is well organised and is running smoothly	.022	.3

The key areas that lead to overall satisfaction for international students are related to engaging and stimulating teaching supported by academic pastoral guidance. The development of personal skills that give students the confidence to solve problems and detailed feedback in assignment. Finally, these activities are complemented by the efficient management of a course.

### Conclusion

The most satisfied international students are Nordic, African and Chinese students. The main NSS variables that influence international student satisfaction relate to Teaching, Academic Support, Personal Development, Assessment and Feedback and Organisation and Management.

### Statistical Test

The means of the NSS variables and themes are highlighted by region of international students. To determine any significant differences, of the NSS variables, between international students the non-parametric Kruskal-Wallis test is applied. Decision tree analysis is undertaken to determine which NSS variables has the most influence on overall student satisfaction for international students.

## Appendix 16: Key NSS variables that lead to satisfaction for UK and International students

The results in Table 29 reveal that UK male students are the most satisfied with their educational experience and that UK White, Indian and Pakistani students are most satisfied with the academic support provided by tutors. Furthermore, UK Chinese and White students are satisfied with the learning resources specifically access to specialised equipment. In terms of international students Nordic, African and Chinese students are overall the most satisfied with the educational experience at university.

Table 29: Significant differences of educational experience of UK and International Students

		Gender UK Students	UK Ethnicity	Gender International Students	International
Teaching	Q1. Staff are good at explaining things	Male			
	Q2. Staff have made the subject interesting	Male			
	Q3. Staff are enthusiastic about what they are teaching	Male			
	Q4. The course is intellectually stimulating			Male	
Assessment & Feedback	Q5. The criteria used in marking have been made 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	Male			
Academic Support	Q9. Feedback on my work has helped me clarify things I did not understand	Male	Chinese, Pakistani		
	Q10. I have received sufficient advice and support with my studies	Male	White, Indian		
	Q11. I have been able to contact staff when I needed to	Male	Pakistani , White		
Organisation and Management	Q12. Good advice was available when I needed to make study choices	Male			
	Q13. The timetable works efficiently as far as my activities are concerned				
	Q14. Any changes in the course of teaching have been communicated effectively				EE, Chinese, Nordic
Learning Resources	Q15. The course is well organised and is running smoothly	Male			Chinese, EE, African
	Q16. The library resources and services are good enough for my needs	Male			Nordic, EE, Chinese
	Q17. I have been able to access general IT resources when I needed to	Male			Nordic, EE
Personal Development	Q18. I have been able to access specialised equipment, facilities or rooms when I needed to	Male	Chinese, White		
	Q19. The course has helped me to present myself with confidence	Male			
	Q20. My communication skills have improved	Male			
Overall Satisfaction	Q21. As a result of my course, I feel confident in tackling unfamiliar problems	Male			
	Q22. Overall, I am satisfied with the quality of the course				Nordic, African, Chinese

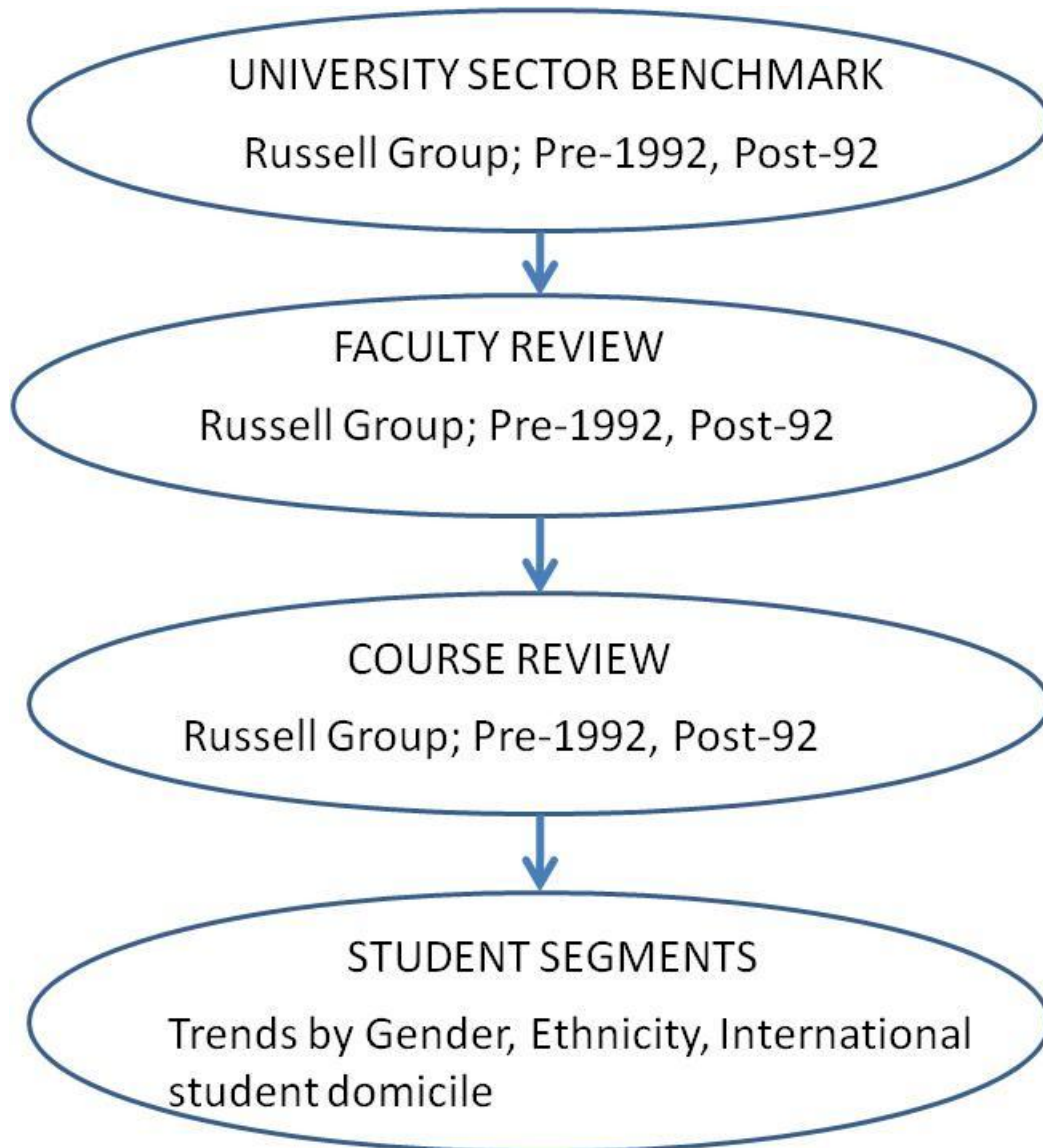
### Statistical Tests

Mann-Whitney and Kruskal-Wallis non-parametric statistical tests were applied, using SPSS, to determine any significant differences for categories in UK students and International students and genders for both groups of students.

**Appendix 17: Future Analysis**

Further Analysis of NSS results can be undertaken to breakdown the results in each university by faculty, course and profile of students on that course. These results can then be benchmarked with the sector averages to compile league tables of course performance in key NSS variables by the demographic profile of students on a course (see Figure 35)

Figure 35: Visual presentation of how NSS results can be segmented by unique characteristics



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