Research Article

Why am I Here? Student Choice in the Biosciences

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Abstract

Undergraduate recruitment is a significant activity for all universities. This brief report sets out the results of a survey regarding the course and institutional choices of the 2005-06 entry cohort of bioscience students in four universities. The key findings show that enjoyment of the subject and the wish to learn more are the primary reasons underlying subject choice for this cohort and that the reputation of the institution and course content were the main reasons for selection of the university. In terms of information used to make that choice, the prospectus and visits to the institution were rated as the most significant, though, in contrast to previous studies, web-based information and league tables also figured as being important in decision-making. Over 70% of the respondents indicated that they wanted a career in the Biosciences after graduation.

Keywords: degree choice, UCAS, Bioscience degrees, university choice

Introduction

Over recent years, the volume and availability of information regarding undergraduate degree course and university selection has increased dramatically and, in many subject areas, there has also been a significant increase in the numbers and variety of degree programmes. Students in years 12 and 13 of school or college education are therefore faced with a wide range of choices regarding university entry. The first choices are whether to go to university and, if so, what subject to read. For those considering following degree programmes in the Biosciences, there are some 95 Higher Education institutions (HEIs) that offer some form of Bioscience provision and many HEIs offer a range of degree programmes within the general subject area.

There is a wide variety of information and advice regarding which HEI to choose. Universities publish traditional prospectuses and brochures and all have extensive web sites, almost all of which have had input from professional marketing departments. There are the information published by UCAS itself, frequent articles and league tables published in the newspapers, numerous commercial publishers, web sites such as RealUni.com, the Push Guide, Springboard, the Times Good University Guides, Apply2Uni and many more, all offering information and advice and, in a few instances, more substantive services such as bespoke personal statements, interview workshops and example admissions essays. Most schools and colleges offer advice through

designated careers advisers and often through the subject teachers. Of course, friends and family may also be a source of advice.

For the universities, the market for students is very competitive and all universities now invest substantially in producing recruitment materials in hard copy and in electronic format. Admissions and academic staff are often also engaged in attending careers fairs, organising open days and taster courses etc. for potential applicants as well as other forms of outreach activities. Many of these activities are designed and undertaken with limited evidence for their efficacy in terms of actual student recruitment.

The Institute of Employment Studies (IES), on behalf of Universities UK, undertook a detailed survey of the choice process of 20,000 undergraduates who applied for entry in 1998 (Connor *et al*, 1999). In that survey, rankings of the sources of information placed the prospectus in first place with 40% of students rating it as the 'most helpful source of information or advice' followed by a visit (26%). Interestingly, electronic media (internet and CD ROMs combined) were rated least, with less than 3% of students having found them useful. In a survey of 1400 students attending universities in the North West, in the year 2000, the main influence on decision making was found to be the institutional visit (36% of students), which is supported to some extent by the marked finding that for 92% of the students, the location was the most important overall factor (Young, 2000).

From the perspective of the student, the choice is clearly important. Higher education is an expensive option, both financially and in terms of time. Therefore there is a risk attached to the choice (Moogan *et al*, 1999) and a poor choice of course or institution can result in non-completion. Yorke (2000) highlighted wrong programme choice as one of the most significant factors in non-completion, which may be attributable in part to factors such as poor advice, parental pressure to follow a specific course and inaccurate or misleading information about the course or institution (Hall, 2001; Yorke, 2000). Studies of student choices have also shown that perception of risk is a significant factor in the decision making process, particularly for lower social class groups (Connor & Dewson, 2001).

Most studies that have been undertaken have been wide ranging in terms of subject coverage and there has been little attempt to identify factors of choice that may be operating at the subject level. With this in mind, a small survey was undertaken of the first year Biological Sciences students at four different universities. As part of the agreement for participation, it was granted that the individual universities would not be identified.

This paper presents the main findings of the survey as an observation and with deliberately restricted discussion of the reasons underlying any of the observed trends.

Methods

The survey was carried out using a short questionnaire (Appendix 1). This was structured around five main themes: three of the themes investigated the reasoning behind the students' decisions to come to university, to study Biosciences and to choose their particular university. There was also a series of questions regarding the sources of information used in the decision-making and the final theme was to ask about the career intentions of the students following graduation. The responses were structured with a five point Likert scale, ranging from 'Strongly Agree', through 'Neutral' to 'Strongly Disagree', with the exception of the questions regarding career intentions that were ranked from 'Definitely' to 'Definitely Not'. As well as the scaling, the respondents were subsequently asked to identify which criterion they thought was the most important in each case.

Four participating institutions were chosen to provide a broad spread across the sector of HEIs offering the C100, generic Biological Sciences programme. These four universities spanned the range of entry criteria as shown in Table 1, Universities A – C being pre-1992 universities, University D being post-1992.

Table 1 *Admissions profiles for the four universities*

University	UCAS Tariff	A2 grades
A	320	ABB
B	300	BBB
C	180	DDD
D	160	DDE

Three hundred paper copies of the questionnaire were sent to the participating Universities and distributed, by their lecturers, to Year 1 Biological Science students during a lecture within the first three weeks of their arrival at University, in September/October 2005. The completed questionnaires were collected at the end of the lecture and analysed. When the respondents were sub-divided, for example, by university, the numbers involved were not sufficient to identify any statistically significant differences. Therefore differences between the groupings are only highlighted as potential trends.

Results

In total, 191 responses were collected from the four Universities. 75 of the students were male and 116 were female. In terms of cohort size, this represented a range of return rates of 60 – 81%.

In response to the question 'Why did you choose to study Biosciences at university?', 97% of students agreed with the statement that they were studying the Biosciences because they enjoyed the subject and wanted to learn more, with 59% agreeing strongly (Figure 1). For 73% of the students, this was the most important reason for studying the subject (Figure 2). Furthermore, 44% of the respondents agreed that wanting to learn more about the subject was the single most important reason for going to university

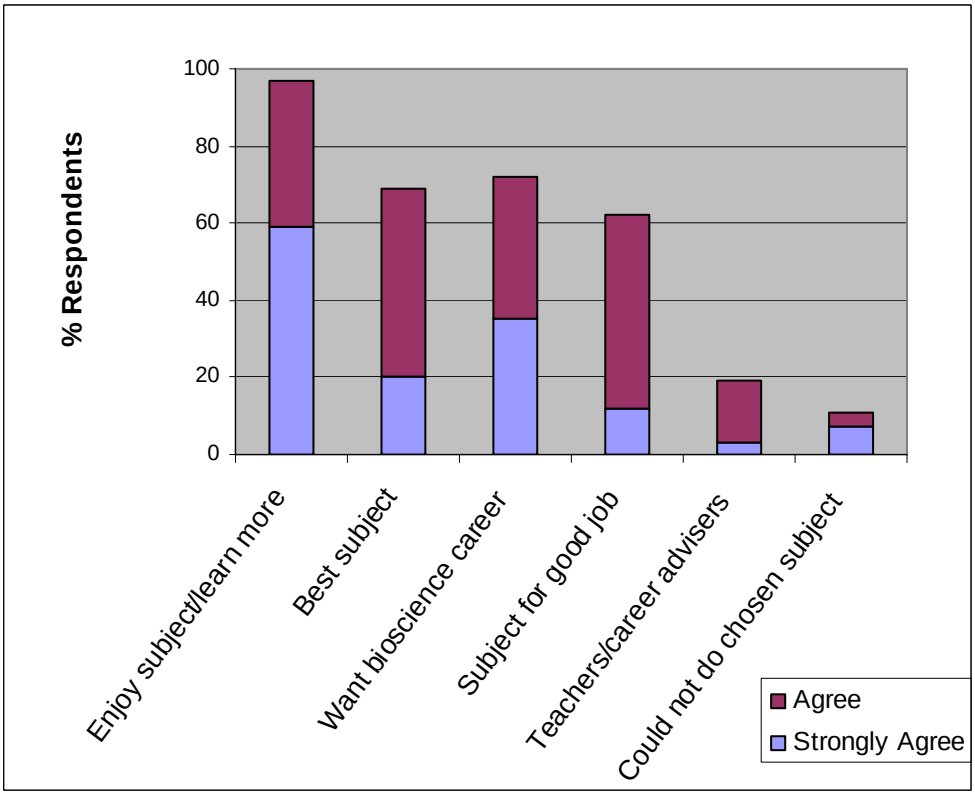

Figure 1 *Why study the Biosciences? Aggregated data from the four institutions showing the percentage of first year bioscience students who agreed or strongly agreed with the statements regarding subject choice.*

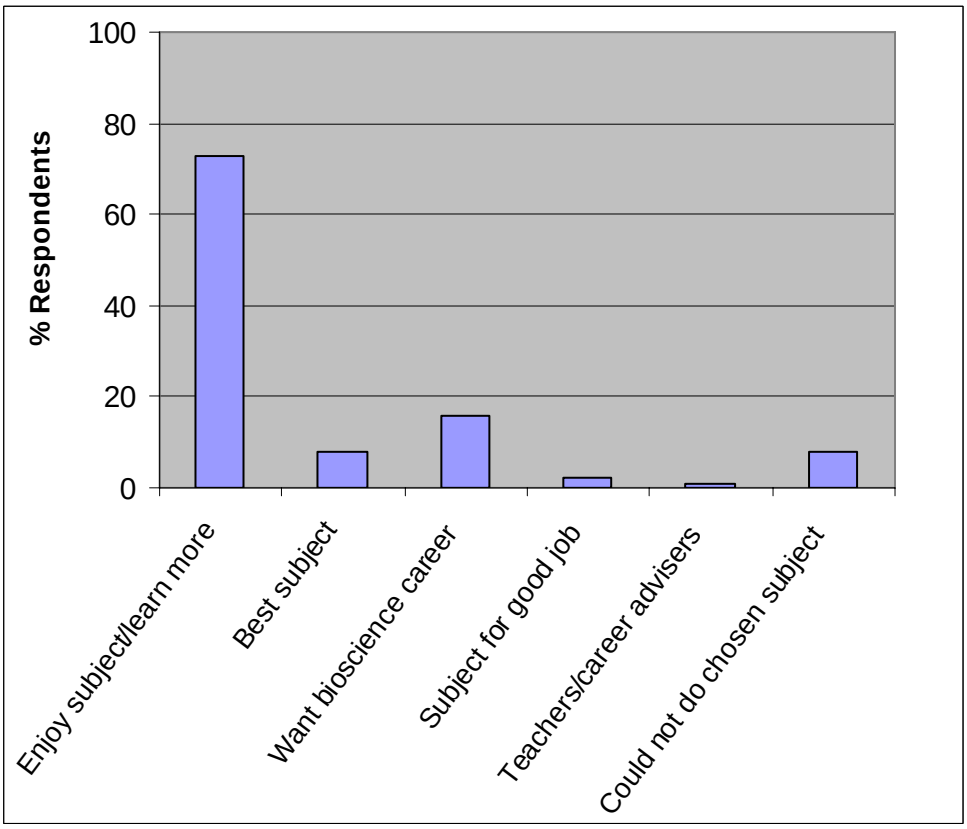

Figure 2 *Why study the Biosciences: the most important criterion? The percentages of the students rating each choice aspect as the most important criterion in their decision to study the Biosciences at university.*

(Figure 4). There was an indication of a gender difference, with more females (75%) compared with males (68%) rating this as the most important criterion. There was also an institutional spread: of the respondents from University A, 81% rated subject enjoyment as the most important criterion compared with 51% at University B. For Universities C and D, the proportions were 59% and 74% respectively.

Although 69% of the students agreed that a reason for studying Biosciences at university was that it was their best subject (Figure 1), only 8% regarded this as being the most important factor (Figure 2). Again there was a small gender difference here with 15% of the males compared with 4% of the females rating it as the most important reason.

Evidence of a long term commitment to the subject was expressed by the view that 72% of the students wanted a career in the Biosciences (Figure 1), with 62% of them agreeing with the view that it is a subject that would help them get a good job, though only 12% agreed strongly with this view. Overall, 16% of the students rated this as the most important reason for reading Biosciences. There was no gender difference regarding a career in the Biosciences but some institutional differences were again apparent, with 24% of University B and C students and 21% of University D students rating desire for a career in the Biosciences as the most important reason for studying the subject compared with only 5% of University A students. For 96% of all the respondents, the potential for obtaining a good job was a reason for going to University and 30% of them cited this as the most important factor (Figure 4).

Overall, 99% of respondents agreed that they attended university to help broaden experience (Figure 3) and for 12% of the respondents this was cited as the most important criterion for going to university (Figure 4). There was also evidence of expectation with regard to attending university in that parental and school expectations both registered about 40% agreement and almost 90% of students had perceived going to university as the next logical step to take in their careers (Figure 3). However, expectations were not ranked in terms of the most important criteria (Figure 4). It is clear that other factors also impact on decision making in that almost 80% of the respondents agreed that a reason for coming to university was that students have a good time, though only 3% cited this as the most important factor.

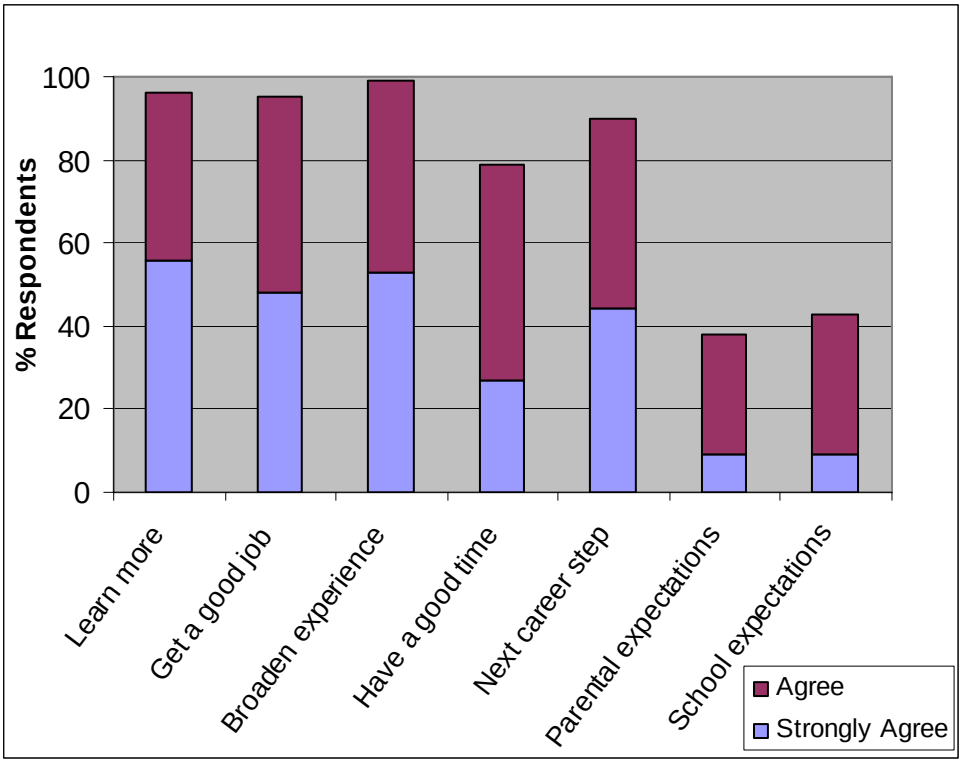

Figure 3 *Why go to university? The aggregated data from the four institutions showing the percentage of first year bioscience students who agreed or strongly agreed with the statements regarding the reasons for going to university.*

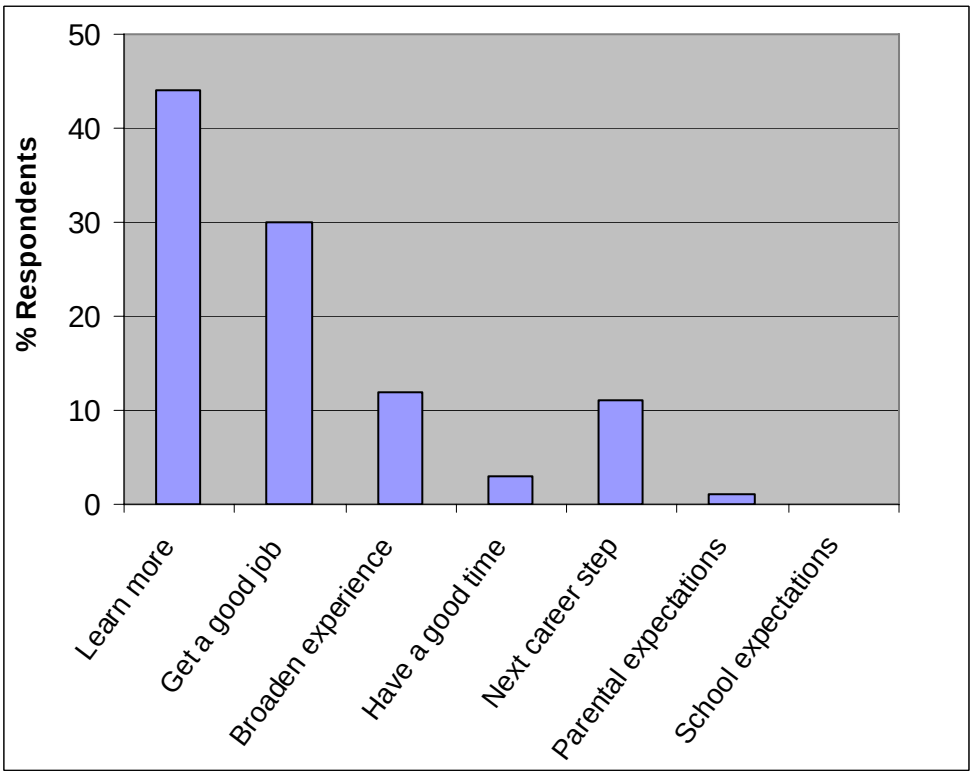

Figure 4 *Why go to university: the most important criterion? The percentages of the students rating each choice aspect as the most important criterion in their decision to go to university.*

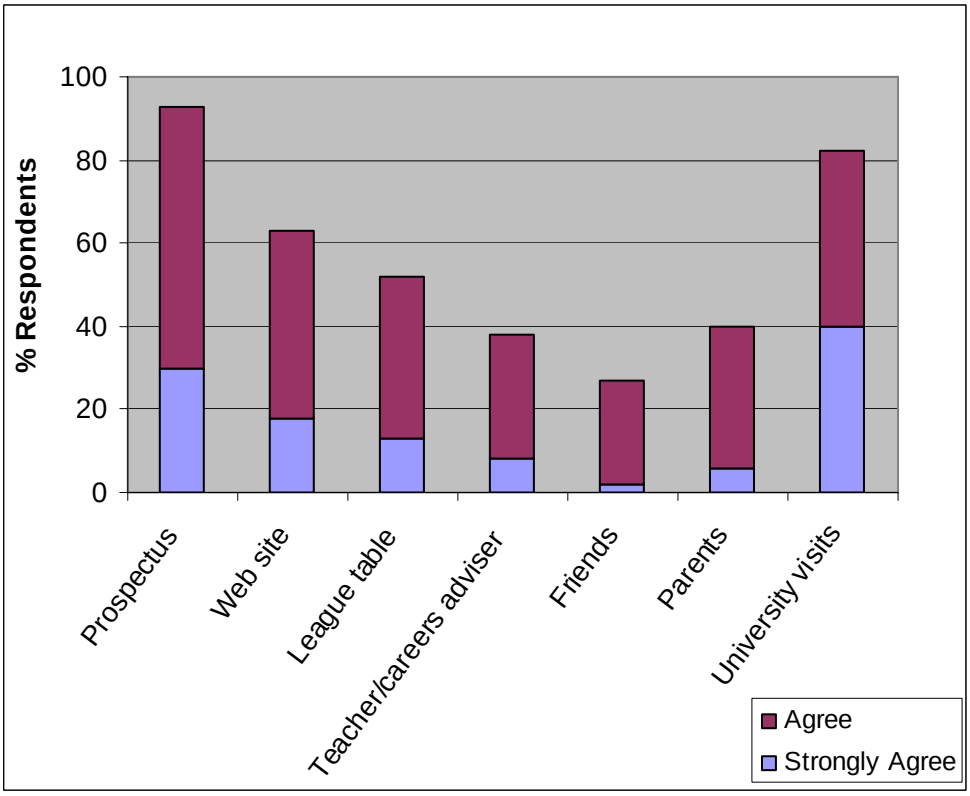

Figure 5 *Information usage? The aggregated data from the four institutions showing the percentage of first year bioscience students who agreed or strongly agreed that they had consulted the different sources of information.*

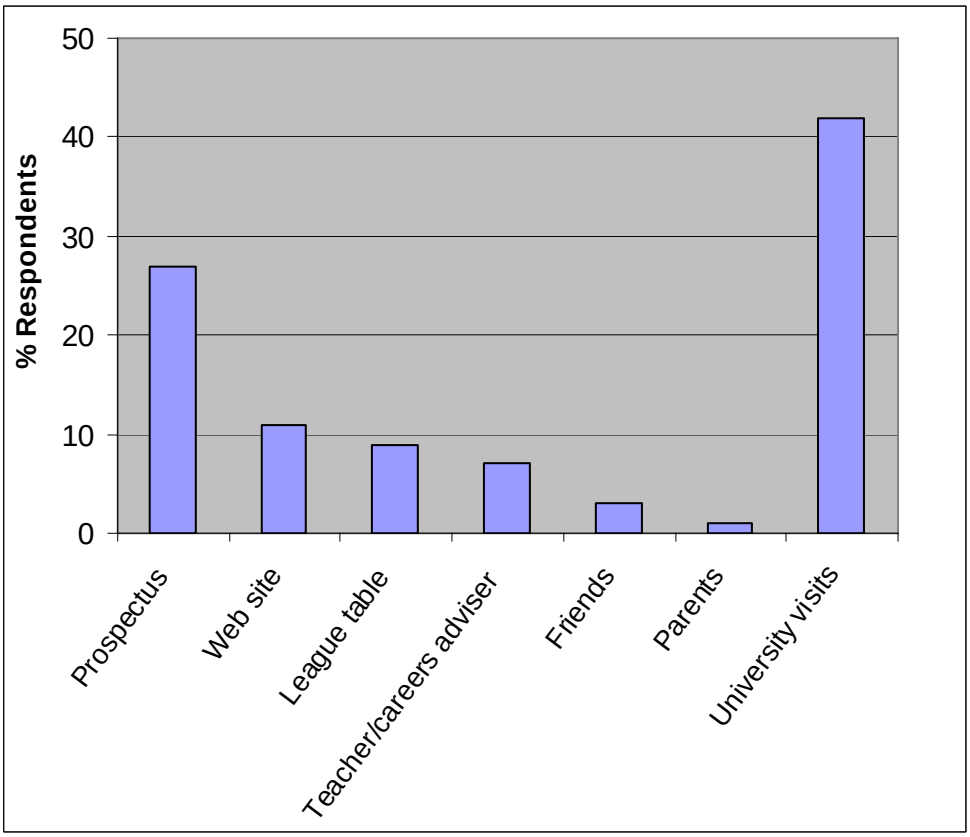

Figure 6 *Information usage: the most important criterion? The percentages of the students rating each information source as the most important criterion in their decision-making.*

Concerning the types information accessed by students when choosing the university at which to study, the two main sources were the prospectuses and visits: 93% of respondents agreed that they had read the prospectuses, and for 27% this was the most important source of information (Figures 5 & 6). There was a gender difference in terms of the prospectus with 30% of females compared to 22% of males identifying it as the most important source of information. Visits had been made by 82% of the students and for 42% of students this was the deciding factor. However, there were marked differences between the students at the different institutions. Ninety-five percent of the cohort from University A reported having visited one or more universities, compared with 78% for B, 67% for C and 53% for D. Likewise, there were institutional differences in terms of the value placed on the visit with 56% of University A students identifying the visit as the most important factor in their decision making, compared with 38% and 36% for B and C, respectively, and 6% for D.

Websites and league tables were also consulted: 63% of students agreed that they had studied the web sites and 52% of students agreed that they had compared the league tables but neither of these was cited significantly as the most important factor (11% and 9%, respectively) for the group as a whole. There were no gender differences in usage but again, institutional differences were apparent with league tables having being consulted by 62% of University B students compared with 21% of C students; for Universities A and D, the figures were 55% and 25%, respectively. Website usage also showed institutional, but not gender, differences with Universities B and D recording 76% and 75% consultation compared with 51% and 50% for A and C, respectively. It was interesting to note that 28% of the University D students rated the web site as the most important compared with less than 15% of the students from the other universities.

Tutors, careers advisors, parents and friends were consulted by 40% or fewer of the respondents but none of these featured significantly as a determining factor.

For selection of the specific university, the reputation of the institution was viewed as being important, with 97% of the respondents agreeing with the statement that they chose their university because it has a good reputation (Figure 7) and for 44% of them, this was the most important factor (Figure 8). When looked at by institution, Universities A, B and C were almost identical with 49%, 47% and 47% ranking reputation as the most important criterion, compared with 11% for University D. ‘I particularly liked the course offered’ was also a strong criterion with 81% of the respondents agreeing with the statement and 29% rating it as the most important factor. Again, there were some institutional differences: on this measure, University D scored the highest with 68% of the students ranking the course offered as most important criterion compared with 29% each for B and C and 23% for University A.

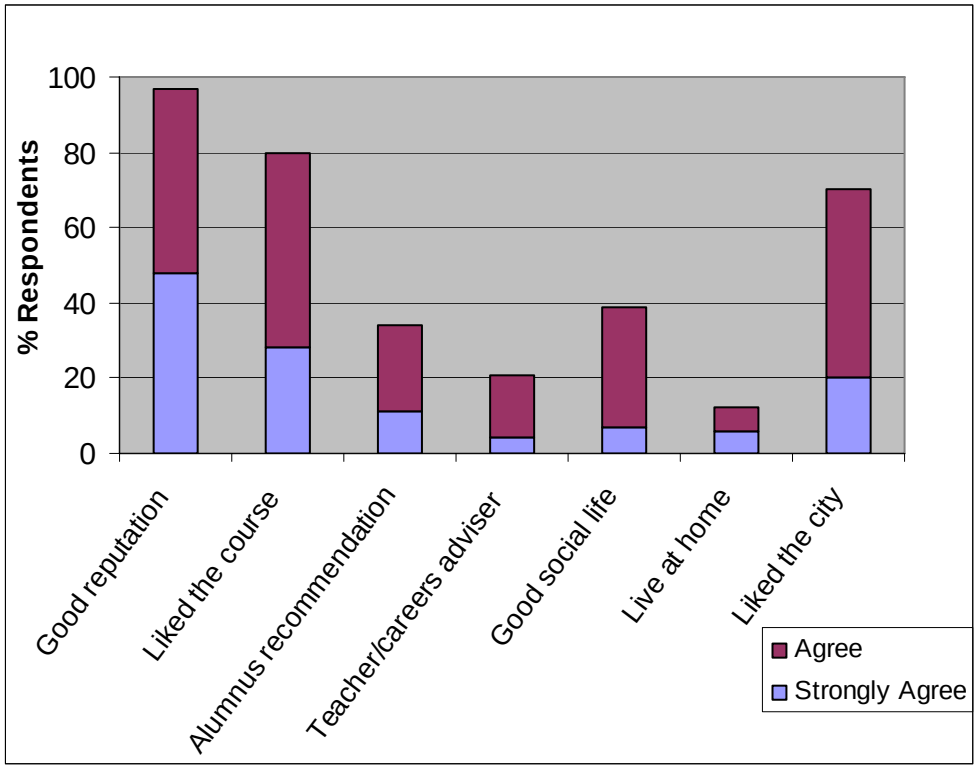

Figure 7 *Why this university? The aggregated data from the four institutions showing the percentage of first year bioscience students who agreed or strongly agreed with each statement regarding their reason for choosing their university.*

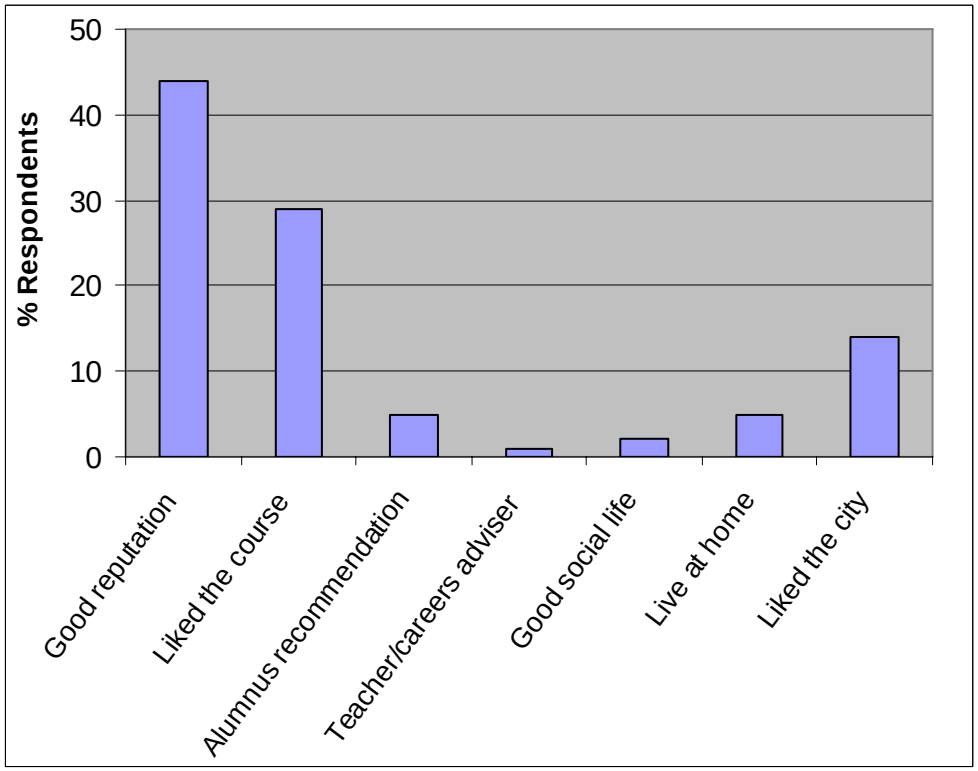

Figure 8 *Why this university: the most important criterion? The percentages of the students rating each aspect as the most important criterion determining their choice of university.*

'Having liked the city' ranked third in terms of institutional choice, but was rated as most important by only 14% of respondents, though 70% of them actually agreed that this was an important criterion. The other criteria: recommendation, quality of the social life and the wish to live at home were rated as most important by 5% or less of the respondents. Interestingly, 56% of students strongly disagreed with the statement regarding the wish to live at home. There were gender differences evident in the findings, in particular, 47% of the male students rated reputation as most important compared with 39% of the females. Conversely, 15% of the females rated liking the city as the most important criterion compared with 9% of the males.

In the final question, the students were also asked about their general career aspirations on graduation (Figure 9). 29% stated that they did not know what they wanted to do. Of the remainder, however, many were non-committal and ticked the 'maybe' or 'neutral' boxes (ranging from 35 – 69%). The two career options that were ranked most highly were 'research' (20% definitely) and 'career in biosciences' (21% definitely), though there clearly was an overlap between these two groups. 12% of the respondents were definite about wishing to study medicine after graduation and this group included all those who had stated that they had not been able to do their chosen subject.

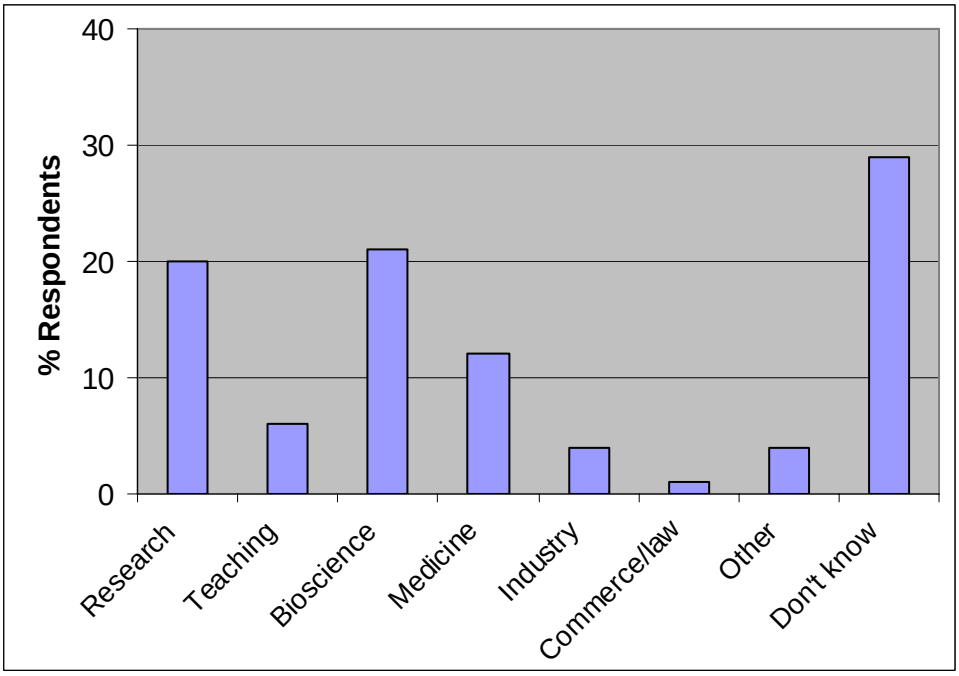

Figure 9 *Career intentions. The percentages of students indicating that they definitely wished to follow a specific career path on graduation. Note that the numbers in the 'Don't know' column have been discounted from the main group.*

Some of the respondents also had a clear picture of what career they did not wish to follow on graduation: for example, 27% definitely did not want to enter commerce or law, with 20% and 19%, respectively, similarly rejecting medicine and teaching as potential careers.

Discussion

Most of the published surveys of undergraduates regarding choice of course and university have ranged across a number of subject areas. The aim of this study was to cast some light on the degree programme selection process of a cohort of first-year Bioscience undergraduates spread across four different universities. This seemed timely as many universities are now devoting increased resources to recruitment.

The first set of questions related to the choice of course and showed that for 73% of the students the most important of the reasons for reading Biological Sciences was because they enjoyed the subject and wanted to learn more. This is a significantly higher proportion than has been reported for surveys spread across all subject areas; for example, Young (2000) reported that only half of the undergraduates in a group of North-West universities had chosen their subjects on the basis of previous enjoyment or interest in the subject itself. Interestingly, Young defined such decision-making as 'hedonistic' (definition: the theory that pleasure is the highest good and aim of human life; Oxford English Dictionary), in comparison with the 'pragmatists', the 42% of the North-West respondents who selected their courses primarily for career or employment reasons. Other studies have also reported a significant weighting of course choice based on career progression (Saunders *et al*, 1978). By contrast, only 16% of the Bioscience students in this survey had chosen their course primarily because it would get them a good job. This perspective is supported by the data for the primary reasons for going to university, where 44% reported that wanting to learn more about the subject was the most important reason for going to University, compared with 30% who felt getting a good job was the most important.

In terms of the information used (the third set of questions), the prospectus and visits to the institutions were ranked as the most important in terms of decision-making (27% and 42%, respectively). In terms of ranking, these correspond with the results of earlier studies: Young (2000) also found that the visit was considered the most important and the prospectus ranked second, though Connor *et al* (1999) reported the converse, with 40% rating the prospectus as most important compared with 26% the visit. A comparable study in Australia again reflected the significance of the visit with 71% of students rating this as being of significant importance (James *et al*, 1999).

Comparisons across the four universities showed that the proportion of students who had visited one or more universities appeared to be correlated with the entry profile of the university they were attending, as was the overall importance placed on the visit as a determining factor. This may be related to the processes associated with visiting. All the universities hold generic open days, allowing prospective students to visit as part of the process of choosing which institution to apply to. Universities making offers to applicants will commonly invite the applicants to visit. Of the universities involved in this study, only University A holds formal interviews as part of the selection process, thereby explaining why almost 100% of its students reported having visited. For the other universities the visit is voluntary. It is likely that the students attending the institutions with higher entry profiles will have had more

offers, based on their academic record, and are therefore more likely to have visited one or more institutions as part of their decision-making.

The importance attached to the prospectus, however, does need to be interpreted with some care. Whilst the students in this survey clearly regarded the prospectus information as a significant factor in their course choice, this is based on their having selected to read that specific prospectus. Students often receive such information unsolicited and the vast majority of that information is thrown away, often without having been opened (Chapman, 1981).

The most significant difference in information formats between the present study and earlier ones is the upsurge in the availability and significance of electronic media and league tables. Connor *et al* (1999) reported that less than 3% of respondents considered electronic media as important and neither study included league tables. This compares with the 63% of the students in the study reported here who had consulted the websites and 52% who had looked at the league tables. Despite the proportion of students who had consulted these sources, the numbers that rated them as most important were still relatively low (11% and 9%, respectively).

The proportions of students who had sought advice from careers tutors (70%) and family (76%) were similar to those reported previously (Roberts and Allen, 1997; Connor *et al*, 1999). Roberts and Allen (1997) also reported that over 70% of their respondents had discussed both course and university choice with friends which is higher than the 50% recorded here. In this survey, none of careers tutors, teachers, family or friends was ranked highly as a most important source of information.

Regarding institutional choice (fourth set of questions), the top four factors under consideration by the students were ranked as the reputation of the institution, the course offered, the city and the social life, respectively. Of these, 97% agreed that the reputation of the institution was important and this was viewed overall as the most important criterion by 44% of the students. Given that only half of the students reported having consulted the league tables, the derivation of the concept of reputation is of interest. For many students, reputation is identified with the age of the university and the entry grades (James *et al* 1999; Brooks, 2003) though other, even less tangible, criteria such as the extent to which the name of the institution is publicly recognised also probably play a part. In the present survey, the institutional reputation effect showed a division between the pre- and post-1992 institutions, with all three pre-1992 universities showing similar ratings, with between 47 and 49% of students ranking reputation as the most important criterion, despite significant differences in their entry requirements, compared with the post-1992 university where only 11% of the students rated reputation as the most important criterion underlying choice of institution. The study of the students across all subject areas in the universities of the North-West (Young, 2000) again revealed some differences with location being cited as a more significant factor, by 92% of students, compared with the reputation of the course (44%) and the reputation of the institution (41%). However, the

study of Australian students also revealed that institutional reputation and course were the most important criteria (James *et al*, 1999).

The final questions on career choice showed that the majority of these first year students did not have strong ambitions with regard to specific careers with 30% of the students admitting to not knowing what career they wanted. Of the remainder, no significant proportion highlighted any particular career as being their definitive choice. The enjoyment and commitment to the subject were again revealed, though, in that 72% of the students wanted a career in the Biosciences.

This study has indicated that, by comparison with the broad spectrum of university students, the majority of Bioscience students are motivated to attend university and study Biology because of a fundamental interest in the subject and a desire to learn more. This desire to remain with the subject is further reflected in terms of students' aspirations to seek a career in the Biosciences, in that. It is of interest that, despite the increases in availability of web-based resources, the most used and most significant sources of information regarding course and institution choice still appear to be the prospectus and the visit.

Acknowledgements

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