

Measuring the benefits of a psychology placement year

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Abstract

Placement programmes are considered to provide students with an induction into the work environment and a valuable learning experience. Aston University maintains one of the highest success rates of any UK University for graduate employment and it is thought that the placement year plays a large role in this success, however the benefits of placements in theoretical subjects like Psychology are often less obvious than those for practical subjects like Optometry or Engineering. Here we compared Psychology students on the 3 year vs. the 4 year sandwich course on a number of attributes using both quantitative and qualitative methodologies. Final year students who had taken a placement year achieved significantly higher marks in their final year ($F_{1,407}=31.52, p<0.001$) and were rated more favourably by academic staff on a measure of transferable skills ($F_{1,43} = 11.08, p<0.005$). In addition, post-graduation, students who had taken a placement year reported a better idea of their career direction and could be argued to be further on in terms of their career progression and pay levels. Qualitatively, focus groups of placement and non-placement students suggested a number of benefits of taking a placement year, including better time management, confidence and responsibility. Whether the benefits of a sandwich placement in a psychology degree outweigh the costs to students and their families, and the need for further research to identify the scope and longevity of possible early career benefits are discussed.

Introduction

Graduate employability is currently hot on the government agenda. Knight and Yorke (2004) argue that four ways of enhancing student employability are offering: work experience, modules in entrepreneurship, careers advice and portfolios / records of achievement. Indeed, Dearing (1997) recommended increased work experience for students within HE and help to reflect on that experience. Barnett (1994) argued that whereas traditional forms of higher education concentrate on 'knowing that', 'knowing how' (operational competence) is sought by business and government. Harvey, Moon and Geall (1997) note that (p2), "If there was to be a single recommendation to come from the research, it would be to encourage all undergraduate programmes to offer students an option of a year-long work placement and employers to be less reluctant to provide placement opportunities". It is therefore clear that work placements are generally regarded as a good way to increase graduate employability.

Work experience placements have been a feature of more vocational courses, such as Engineering and Business Studies, for many years, but are less common in more theoretical courses such as Psychology. However, even for courses that traditionally offer work placements, there is some discussion regarding how the placement is best assessed (e.g. Neill and Mulholland, 2003). Reddy and Hill (2002) describe an action research project in order to examine learning outcomes and assessment strategies for a

psychology placement year and outline the importance of helping placement students become “reflective, autonomous learners”. However, for subjects like Psychology, there has been little research on whether a placement is actually beneficial for students at all.

Harvey (2003) notes that employability is about developing a range of attributes and abilities rather than just job-getting skills, and is not distinct from learning but rather grows out of good learning. In favour of non-formal learning, Eraut (2000) notes that learning does not come from instruction alone. However, Harvey, Geall and Moon (1998) argue that work experience should be regarded as a means to an end and not be regarded as intrinsically beneficial. They propose seven areas that are crucial to work experience: it should be meaningful, there should be an intention to learn from it, there should be reflection and articulation, it is assessed or accredited, there is quality monitoring and the experience adds to a work-experience portfolio. With increasing financial pressure on students, an evaluation of the shorter and longer term benefits of incurring the added cost of taking a placement year is now important and timely.

Almost all undergraduates with a successful Association Graduate Recruiters (AGR) employer placement can expect preferential treatment in graduate recruitment. Indeed, one third of AGR employers would offer a graduate job on the basis of a successful placement (AGR graduate recruitment survey 2003). In psychology, it is generally accepted that unpaid clinical experience helps students gain their first assistantship post. However, are there benefits outside of this? Possible benefits of a placement year include a ‘head start’ in competitive careers, mediated by personal development, skills and attributes and sometimes inside knowledge.

The Aston placement year is a long-term tradition with recent growth. The university can trace its roots to a School of Metallurgy started in 1875 and in becoming first a College of Technology and then, in 1966, a University, it retained objectives appropriate to its mission as a technological university. The emphasis on sandwich courses and the maintenance of strong links with industry arise naturally from the institution’s history. The usual undergraduate pattern in the UK is for three years of continuous study. Aston students taking a sandwich degree take a year (minimum of 30 weeks) of work experience between the second and final years. Students find their own placements with support and assistance.

About half of those taking a sandwich year choose psychology specific placements and work in an apprentice role with a professional psychologist, often in a research or clinical setting. The remainder do more broadly psychology related work, for example in human resource management. Nationally there are far more psychology graduates than openings in professional psychology and students can choose to aim either for highly competitive professional careers in psychology or for related careers (eg. in teaching, advertising, business and the civil service). Psychology specific placements are mostly unpaid (but students may apply for another year of student loan) psychology related placements are mostly paid (sometimes rather well).

The wide range of placements means that an academically level playing field cannot be guaranteed, so assessment is no longer based on a conventional academic task. Assessment instead aims to support the development of reflective and autonomous learners. The main requirement is for a placement log showing awareness of own

learning. A placement report is also required and a poster, derived from the log and the report, must be presented to first and second year students at an October placement fair.

The psychology subject group was re-formed in 1999 having been part of the Business School for many years. The sandwich year was inherited but its benefits and purpose in psychology were not clear. It was considered that it might help with career choice, help students onto the first rung of the professional psychology ladder, help them to build their CVs and to develop generic employability skills. However it also delays graduation and employment for a year and can be expensive for the student and his or her parents. Therefore this cycle of research was started in order to begin to understand who it benefited and how. One feature emerging from Reddy and Hill's (2002) research on placement assessment was that the sandwich year was clearly valued by students to the extent that a 'placement culture' seemed to exist, passing on support for the idea and even details of specific placements from year to year. The power of the placement culture is apparent in that while only 40% of psychology applications are for the sandwich course, 66% of psychology students take a sandwich year. Across the University over 75% of students take a voluntary or compulsory placement year.

For psychology students, we were interested in four main issues; i) whether placement students achieved better marks, (ii) whether placement students demonstrate better skills, (iii) what students think about the costs and benefits of the placement year and (iv) whether placement students differ from non-placement students in their career direction, progress and pay level.

Methods and Results

Note on ethical approval. The investigations reported here were conceived as action research in which the researcher/practitioners investigated their own educational practice in order to reflect on it and develop it further. Under the School of Life and Health Sciences ethical guidelines at this time for research of this nature, staff were required to conform to a code of practice and formal approval was not required.

Issue 1: Do placement students achieve better marks? If so, is this attributable to the placement?

Method: Final year results data from all of the 414 Human Psychology students (of whom 225 had taken a sandwich placement year) at Aston University over the past six years were analysed. Four outliers reflecting students who had not completed the year for various reasons were excluded from analyses. Only results from the final year itself were considered, as opposed to final degree percentages (which include second and placement year results), since biases in placement weightings and / or lenient placement project marking could have otherwise affected the results.

Participants: This retrospective study looked at the population of Aston University Human Psychology graduates over the six years from 1997-8 to 2002-3. Approximately 85% of graduates were female and 92% were under 21 at admission.

Results: Box plots showing the final year percentage marks of students who had and had not taken a placement year are shown in Figure 1. It can be seen that the median percentage marks for students who had taken a placement year are consistently better than for students who had not.

Figure 1 about here

It is possible, however, that students who take placements are higher achievers than those who do not. Thus, a two factor ANOVA was employed that considered the effects of placement (placement/ no placement) and year (2nd year/ Final year) on percentage marks for the year. This gave us the opportunity to investigate whether or not the effect of going on placement was to differentially *improve* students' results, independently from their second year performance. This analysis showed a significant main effect of year ($F_{1,408}=119.66, p<0.001$), with final year results being higher than second year results (59.3 vs. 61.7: Partial Eta squared = 0.227). Thus, 22.7% of the overall variance in the results was attributable to year of study. There was also a main effect of placement ($F_{1,408}=23.01, p<0.001$), with students who had gone on placement scoring higher marks overall than students who had not (61.6 vs. 59.4: Partial Eta Squared= 0.05). However, there was also a significant placement by year interaction effect ($F_{1,408}=15.58, p<0.001$), which suggested that students who had been on placement improved their performance across the years more than those who had not (3.2% vs. 1.5%: Partial Eta Squared=0.037). Post-hoc analyses showed that both groups actually significantly improved their marks in the final year, ($F_{1,223}=121.48, p<0.001$, and $F_{1,185}=22.51, p<0.001$ respectively) and that the groups differed significantly (although differentially) at both measurement points ($t=2.6, p<0.01$: equal variances not assumed and $t=6.1, p<0.001$). An additional ANCOVA analysis confirmed that students who had been on placement achieved significantly higher final year marks than those who had not ($F_{1,407}=31.52, p<0.001$) even when the effect of second year marks had been removed. The percentage mark achieved in the second year was a significant covariate ($F_{1,407}=290.36, p<0.001$).

The effect sizes of these results are not large, the variance in marks accounted for by placement status is between 3 and 5 %. However students improved their final year average marks by a mean of 3.2%, whereas non-placement students improved, on average, by less than half that amount. Degree boundaries for 1st, 2:1 and 2:2 class degrees (the most commonly awarded) fall at 70%, 60% and 50% respectively, so a difference of 3.2% can make an important categorical difference. A post-hoc hypothetical analysis, removing 1.27% (the mean difference between the improvement made by placement and non-placement students multiplied by 0.75, the weighting given in the final year) from all of the placement students changed the number of First Class Degrees awarded from 19 people to only six people and 2:1 degrees from 161 to 157 people. (These values are assuming that numbers are rounded up in the awarding of degrees, which is commonly the case). The difference (after collapsing 3rd and pass categories) between the two hypothetical distributions of

degree classes was statistically significant ($\chi^2_{3,224} = 32.95, p < 0.001$). A hypothetical 31 out of 224 people (14%) actually achieved better degrees by taking a placement year.

Conclusion: The data and analyses clearly show that placement students achieve higher marks in their final year and that this effect appears to be due to greater academic improvement of these students compared to their peers.

Issue 2: Do placement students demonstrate better skills in their final year?

Method: Final year dissertation supervisors in the Psychology department at Aston University were asked to retrospectively rate their supervisees' skills at the start and at the end of the final year on a 61-item Likert type scale (see Appendix 1). The scale was derived from an existing instrument used to elicit employers' views of their placement students' transferable skills (see Reddy and Hill 2002) and research by O'Hare and McGuinness (2004) on the skills and attributes developed by psychology undergraduates.

Lecturers were unaware that the purpose of the scale was to compare placement and non-placement students and were largely unaware of which students had taken a placement. Not all students were rated on all items if the lecturer felt that they could not judge their student on any particular attribute.

Participants: We approached all of the full time lecturers who were blind as to the purposes of the study (n=13) to take part, but were successful in gaining responses from only 9 of these. Although this could lead to a degree of non-response bias regarding which lecturers were prepared to do the task, there would not be expected to be any systematic bias in terms of the students (placement/ non-placement) that they supervised.

Results: Ratings were received from nine supervisors. Each rated all of their supervisees resulting in 45 sets of ratings (58% of the 78 students in supervision). A mean rating for each student over the 61 items was calculated so that differences in the number of ratings that each student received would not affect the results. Mean ratings at the start and at the end of the final year were analysed with a 2 factor ANOVA considering the effects of Time (start/ end) and Placement Status (Placement/ No Placement). There was a significant effect of Time ($F_{1,43} = 57.99, p < 0.001$) with all students judged as better at the end than at the beginning of the final year (3.18 vs. 3.75). There was also a significant effect of Placement Status ($F_{1,43} = 11.08, p < 0.005$), with students who had been on placement judged as significantly better than those that had not (3.79 vs. 3.06). The interaction between these two factors failed to reach significance ($F_{1,43} = 2.09$).

Conclusion: Results suggest that students who had been on placement were rated higher by their supervisors on a number of attributes compared to those who had not. This suggests that students do develop skills and attributes on placement that benefit them academically as well as in the work place, results underscores Knight's point

that "...what makes for employability in graduates overlaps substantially with what makes them good researchers." (reported in Akhurst, 2004 p.5).

It should be noted however that the research instrument used had been developed informally and little investigation of its reliability or validity has been made¹. Further research on the skills and attributes of undergraduates with versus without sandwich placement experience is needed to support the finding reported here. This might be better based on occupational measures with established psychometric properties that measure attributes or competencies of interest to employers such as communication, leadership, team working, cognitive ability, analytical / critical thinking, initiative and flexible thinking, innovation, ability to 'fit in' and self presentation / self confidence.

Issue 3: What do students think about the costs and benefits of a placement year?

Method and participants: Three focus groups (of which two were successfully recorded and transcribed) on the experience of a sandwich year placement had already been conducted and used in the development of a version of the questionnaire referred to above to elicit employer's views of their placement students' transferable skills and reported in Reddy and Hill (2002). Participants were an opportunity sample of final year students who had taken a placement, recruited by asking for volunteers at a lecture and offering payment for participation. Group had between six and nine participants and reflected the 85% female student cohort with all participants but one being female in each group. The eight themes identified in the two transcribed focus groups were:

Communication. (14 occurrences classified, eg. 'I learned loads of communication skills', '.....talking to...[men in suits]... I found they were just like my dad', '....you do learn to talk to people a lot better in lots of different ways')

Time management. (Nine occurrences classified, eg. '....you've got more time management awareness', '....we can plan and use our time better')

Confidence (Eight occurrences classified, eg. '....feel more confident', '....more confident...not so scared of different things happening really')

Taking responsibility (Seven occurrences classified, eg. '....responsibility', '....solve a problem', '....learn how to be proactive')

Self presentation (Four occurrences classified, eg. '....conduct yourself in a business way', '....sound confident', '....bluffing confidence', '....I wouldn't say I was more mature, but I have the potential to act more mature')

Making presentations (Three occurrences classified, eg. '....we were quite good at presentations')

¹However a small availability sample (n=26) of final year students in autumn 2004 with a two-week interval produced a test-retest reliability coefficient of 0.659. Range restriction may have contributed to this relatively low figure.

Writing skills (Three occurrences classified, eg. '....sentence construction', '....letter writing')

Teamwork (Two occurrences classified, eg. '....ability to build up relationships within a team')

These themes can be thought of as benefits of placement experience. In line with an action research approach (after Zuber-Skerritt, 1992), to integrate research and programme development in an iterative process we re-visited this data and carried out two further focus groups. The first of these consisted of the moderator's six placement tutees, all female and aged 21 to 24 years, who had completed their placements two to three months earlier and who had been visited at work by him at least once. These students were asked, and paid to, participate as it was anticipated that the ease and familiarity between moderator and students that had developed through placement supervision, and the moderator's knowledge of the placements, would contribute to the frankness and depth of the discussion. Analysis of the data suggested that a second focus group with a comparison group of students who had not taken a placement would be useful. This took place in March 2004 using a paid opportunity sample (also all female and aged 21 to 24 years) who responded to an appeal for participants made at a lecture.

Results: The first (placement) group struck an informal, lively and celebratory, although not uncritical, tone. Participants nostalgically reviewed their experiences in a rather rose-tinted way and enjoyed the opportunity to talk, perhaps highlighting the limited opportunity to debrief at the end of the placement. A pro-placement feel was present with some detailed criticisms. Themes of confidence and communication were clearly apparent, as found in earlier groups, and participants claimed that they had learned much from being on placement and thought that the incidental hardships (not being paid in some cases, having to pay fees to the university, some unrewarding work, boredom, moving alone to a new location) were clearly outweighed by the benefits. A similar thematic structure was found to that reported above.

The second focus group, with non-placement final year students and the same moderator and run in a similar way, also included familiar students known through teaching and dissertation supervision. The tone of the group was somewhat defensive and apologetic and gave the impression that participants felt that they really should have taken a placement and might be disadvantaged by not having done so. This may in part be because the moderator was also the senior placement tutor responsible for promoting the placement year. Participants described placement students as more focussed, having better time management, more confident, more aware of their own skills and knowing

“....what it's like to get up at 8.30am” (sic).

However, participants also felt that placements were not always good experiences although noting that students learned at least what they did not want to do;

“I’ve only met one final year student who is psychology who is happy with their placement as a footing ... most of the people I know from the final year have said its not cleared up anything, just that they don’t want to do ‘x’ now.”

They also saw that a placement, while a pleasant and probably useful break from studying, could also break the flow of study,

“...they are really worried that when they come back in September they’ll be out of touch and thinking ‘oh God look at all this work again’ and they’ve got out of sync with it really.”

Although

“...having a break can bring you back quite refreshed in your final year.”

Conclusion: A consistent discourse emerges, reflected in all five focus groups, that placements are desirable and beneficial. The benefits identified by students support the evidence above that placement experience leads to better final year skills, and suggest that professional level employment experience can contribute to several aspects of final year academic success.

The focus group method, working with a topic guide loosely in mind, provided insight into the social construction and propagation of student discourse on the meaning and importance of placements. In all groups students participated vigorously. We felt that the method effectively accessed authentic student voices and that this was evident in the informal tone and language, in the pleasure students seemed to take in narrating their own stories and reflecting on their experiences, and in their willingness to criticise. This authenticity encourages confidence in the data and also supports the idea that what students’ broadly value above all about placements at this pre-career stage are the opportunities for personal growth and development available through participation in adult working life.

Focus groups are essentially idiographic with little scope to generalise from data but in this context they offer a qualitative context for the quantitative data in issues one and two above. The moderator’s position of interest and incomplete understanding accorded well with his role as placement tutor but may have inhibited negative comment while facilitating discussion generally.

Issue 4: One and two years after graduation do 3 and 4-year students differ in career direction, career progress and pay level?

Method and participants: All 121 psychology graduates from Aston University in the 2002 and 2003 cohorts were sent a brief questionnaire (see Appendix 2) in early spring 2004 seeking categorical responses to questions about i) career direction, ii) career progress, iii) work and education since graduation, and iv) pay level. 109 replies were received (90% response): 78 from placement students and 31 from non-placement students.

Results:

i) Career direction: A higher percentage of placement than non-placement students reported knowing which career direction they wanted to go in (63% vs. 42%) – see Figure 1. A Kendall's Tau test for ordered contingency tables suggested a trend towards a significant positive correlation between length of study and knowledge of career direction ($\tau=1.739$, $p=0.08$). The distribution suggests that former placement students have a clearer direction in that they predominate in the "I know the career that I want" category while non-placement students predominate in all three "not sure" categories. Of course at the survey point placement students would probably have between just over a year and just over two years of work experience (if the placement year is included) compared with non-placement students who would probably have had from a few months to just over a year of experience. The results should therefore be expected. Whether this is a confounding variable or an illustration of the benefits of a placement is a moot point. If we view this as a confounding variable we should compare placement students six months after graduation (study, study, work, study pattern plus six months of work) with non-placement students 18 months after graduation (study, study, study pattern plus 18 months of work). This is an avenue for future research.

Figure 2 about here

A slightly higher percentage of placement students reported having the job or career that they wanted and twice the percentage of placement students reported being in work that was "a step towards" what they wanted to do (see Figure 3). If the categories are collapsed then 74% of placement students were in the job they wanted, in training for it or in work that was a step towards it compared with 55% of non-placement students. Possibly the placement students include numbers of students working as assistant psychologists with a view to training for clinical psychology. A Kendall's tau analysis suggested no significant relationship between length of degree and actual career progress ($\tau=0.496$, n.s.).

Figure 3 about here

ii) Pay level: More non-placement than placement students were both in the top category (£28-32K) and the bottom category (Not yet working / <£8K) – see Figure 4. The modal pay category for placement students is "£12-16K" followed by "Not yet working / <£8K" and the position for non-placement students is reversed. Placement students predominate in four of the five higher pay categories and non-placement students in the lowest two. There are many factors at work here including former students working in unpaid or poorly paid positions while accumulating experience that will take them towards professional occupations, (clinical psychology, teaching). However the data at least superficially suggest that there may be immediate post-graduation financial benefits to having taken a placement, subject to the same potential confound identified above.

Figure 4 about here

Conclusion: Students who have taken a placement year are more likely to be in, or on the way to, their chosen career, are more likely to know what they want to do and may be earning a little more. As mentioned above there are many factors at work here. A five-year or longer term follow-up study of a graduate cohort would help to identify the extent to which placement students get ‘better’ jobs on graduation (however better is defined – pay, blue-chip organisations, entry to competitive careers) and the extent to which first destination predicts career trajectory or, whether as a suntan effect, it fades over time. If a placement as an unpaid (honorary) clinical assistant significantly improves the likelihood of a graduate getting their foot on the first step of the ladder to chartered clinical status as an assistant clinical psychologist, it could have a major effect on career destination. The very high response rate to this study is encouraging but may also reflect the brevity of the questionnaire which has produced only limited categorical data. The willingness of students to respond encourages a longer term cohort study which would benefit from recruitment in advance so that students could be asked agree to respond to much more detailed and regular questionnaires and to be available to participate in interviews or focus groups.

Discussion

The results of our analysis show that placement students achieve significantly better final year marks than non-placement students and moreover *improve* their marks from the second to the final year to a greater extent than do non-placement students (although both groups improve significantly). Our post-hoc analysis suggests that around 14% of students achieve a better class of degree because they have taken a placement year (although it should be acknowledged that because these students had slightly higher second year grades, they might have been expected to also improve more in their final year anyway). Supervisors’ ratings of students’ skills too, show that, on average, students who have been on placement are rated significantly higher on a number of attributes. Qualitative data from students who took a placement year suggests improvements in a number of other perceived attributes, although there was the perceived concern of “getting out of sync” with studying if taking a placement year. These results concur with results from other universities, as described by Harvey, Gaell and Moon (1998). The focus group data suggest that the impact of a placement year on some students can be substantial, with students ‘blossoming’ as a result of the experience, and that students felt themselves to have grown in confidence and in ability to communicate, manage their time and take responsibility for their work.

In our study, placement students also seem to show a trend towards being clearer about their desired career path and may be paid a little better, although they are not necessarily further along that career path than non-placement students at this early stage after graduation. Bowes and Harvey (2000) found that more placement students were employed than non-placement students (70% vs. 55%) although more non-placement students went on to further study (28% vs. 18%) rendering differences in

unemployment similar. However, amongst social science students they also noted a greater spread of results compared to other disciplines. We speculate (with a certain degree of insight) that our results may be related to a number of graduates working as psychology assistants in the clinical environment, with a view to accessing training for clinical psychology. Psychology assistants are poorly paid and places on clinical courses extremely difficult to find.

Is it worth taking a sandwich placement? It is possible that the benefits of a placement year seem greater because we are comparing 3 yr with 4 yr students; if we compared both groups after 4 years (with the 3 year degree group having their extra year of work experience *outside* of the degree programme) the benefits might be less. It should also be noted that of necessity, all of our methodologies are of only a quasi-experimental nature, with different types and qualities of students choosing versus not choosing to take a placement year. Students who take a placement are not necessarily a year older than non-placement students, those who do not take a placement include numbers of mature students and those who have taken a gap year. However placement and non-placement groups may differ in other important respects. In addition, many students come to Aston University specifically in order to take a placement year and so are well motivated to do it and may be more likely therefore to see their experiences in a positive light. The furtherance of placement programmes at other universities may not therefore lead to the same benefits. However, it did seem that the placement year provided many benefits to students in terms of both academic success and personal development. We should also point out that a placement year is of benefit to the university in two ways. First the sandwich year attracts additional HEFCE income at half rate. Second the placement option is attractive to many applicants and as so few UK universities offer sandwich placements it has become a distinctive feature in a crowded market, virtually a unique selling point. The value of placements is widely supported across the university and they have recently become compulsory in the Business School. With rising fees and costs in mind a university bursary has been introduced to offer some support to students on unpaid placements and psychology students will be among the major beneficiaries of this.

A number of key questions remain. Do the benefits of a sandwich placement justify the costs incurred in delaying graduation by a year, especially for those who are unpaid on placement and accrue additional debt? This individual decision also depends on answers to the following questions. Does placement experience confer an advantage in the job market and in what ways? Does a hypothetical advantage in first destination have a longer term effect on career entry and progression? (Arguably it might in clinical psychology where a failure to secure a post as an assistant clinical psychologist within a year of graduation will terminate this career option for most). Do placements act to reinforce existing socio-economic group patterns of achievement and professional entry or do they help to overcome them? It is possible that the better-off aim at clinical and other work in the professions and the less well-off, excluded from clinical psychology because they cannot afford to take an unpaid placement, find well paid careers in blue chip companies because they are attracted to the employment focus of a sandwich degree and apply to the better payers.

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Appendix 1: Skills checklist

Skills checklist (Staff version) **Dissertation student.....**

Please rate each of your final year project students from **1** (not very good at this) to **5** (very good at this) for each item. In column 1 rate your student as s/he was at the start of the final year, in column 2 rate your student as s/he was at the end of the final year.

Not very
good at this

1 2 3 4 5

Very good
at this

		At start of final year	At end of final year
1	Managing people and resources		
2	Creating		
3	Resourcefulness		
4	Responding to direction and supervision		
5	Enterprise		
6	Active learning		
7	Referencing		
8	Critical Reasoning		
9	Negotiating		
10	Self-assessment		
11	Testing hypotheses		
12	Decision making		
13	Questioning		
14	Active Listening		
15	Giving and receiving feedback		
16	Empathising		
17	Interpreting and evaluating information		
18	Career awareness		
19	Formulating Hypotheses		
20	Information handling		
21	Spatial-awareness		
22	Taking responsibility		
23	Initiative		
24	Self-confidence		

25	Literacy		
26	Assertiveness		
27	Time management		
28	Analysing		
29	Fieldwork Techniques		
30	Information gathering		
31	Laboratory skills		
32	Memorising and recalling		
33	Managing a project		
34	Speaking		
35	Psychomotor co-ordination		
36	Problem working		
37	Team work		
38	Numeracy		
39	Synthesising		
40	Networking		
41	Using general office software		
42	Responsibility		
43	Summarising		
44	Presenting Research		
45	Using research methodologies		
46	Writing		
47	Finding support		
48	Adaptability		
49	Using data analysis software		
50	Working independently		
51	Self-reflection		
52	Non-verbal communication		
53	Foreign Language Abilities		
54	Working flexibly		
55	Leadership		
56	Presenting to audiences		
57	Organising		
58	Graphical communication		
59	Evaluating		
60	Reliability		
61	Self-discipline		

Appendix 2: Graduate questionnaire

1. Do you know the career direction that you want to go in? (Please tick one)

Yes, I know the career that I want_____

When I graduated I had a clear direction but now I am not sure____

Possibly, I am not sure yet_____

Not yet, I am still exploring_____

2. Have you now got the job or career that you ultimately want? (Please tick one)

Yes, it's great! _____

Not yet, but I am in training for it now _____

No, but the work I am doing is a step towards it _____

No, but I am happy with what I am doing for the moment _____

No, this is not what I want to do in the long run _____

3. Please give brief details of training, paid or voluntary work since graduation

4. Please tick your current pay level (pa)

Under £8,000 £8 to 12k £12 to 16k £16 to 20k

£20 to 24k £24 to 28k £28 to 32k Over 32k

5. Your degree (please tick)

HP 3 year

HP 4 year

CH 3 year

CH 4 year