
# Placement year academic benefit revisited: Effects of demographics, prior achievement and degree programme

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| Journal: | *Teaching in Higher Education* |
| Manuscript ID: | CTHE-2011-0018.R1 |
| Manuscript Type: | Original |
| Keywords: | placement, academic performance, socioeconomic status, gender, ethnicity |
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## Abstract

Investigations of whether students taking undergraduate work placements show greater academic improvement than those who do not have shown inconsistent results. In most studies, sample sizes have been relatively small and few studies have taken into account pre-existing student differences. Here data from over 6000 students at one university over six cohorts and a range of programmes are analysed. Consistent academic benefit from placement experience, regardless of ethnicity, gender, socioeconomic background and subject is shown. However the impact of demographic factors on both achievement and on the probability of taking a placement suggests that future research should take these factors into account. The role of placements in promoting employability is contextualised as a secondary benefit to the primary goal of educating the mind in the Newman (1852) tradition. Possible causes of, and further research into, the improved academic performance identified are discussed.



**Keywords:** placement, academic performance, socioeconomic status, gender, ethnicity

**Running Head:** Placement year revisited

## Introduction

Harvey, Moon and Geall with Bower (1997) confirmed the value that employers place on undergraduate work experience. Blasko with Brennan, Little, and Shah (2002) found "*measurable employment benefits*" (p.7) for graduates who had 'substantial' (9 months or more) work experience during higher education. This included having a job that the graduate does not feel over-qualified for, a higher salary (males only) and greater job satisfaction (males only). Cranmer (2006) suggested employability skills teaching had limited impact within the classroom, but found a positive effect of structured work experience and employer involvement in degree course design and delivery. Little and Harvey (2007) lamented the decline in UK students taking work placements and reported enhanced intellectual and personal development and motivation to study in those who take them.

Understanding the benefits of work experience requires thought about the point of undergraduate education. Newman (1852) argued that its importance lay not in providing technical skills for the workforce, or in accumulating knowledge for its own sake, but in educating the mind and cultivating understanding. For Newman the aim is to develop students' critical faculties so that they can see things as they truly are, get to the point, discard irrelevance and detect sophistry. Arguably, in developing these critical faculties, the student is also developing the qualities required in a knowledge economy. Graham (2005) suggested that the point of studying a subject is internally referenced, it is '…*the exercise and the enriching of the life of the mind for its own sake*.' (p.55). But the process of exercising and enriching the life of the

mind also confers the intellectual capacity to adapt to and explore the potential of change and to make a useful contribution to knowledge work.

Encouraging critical evaluation should remind us to examine the new orthodoxy of employability. Brown, Hesketh and Williams, (2003) suggested that the idea of a knowledge driven economy needs treating with caution and that employability is not only about graduate competencies but also about the level of supply and demand in the economy. Consensus theory (Kerr, Dunlop, Harbinson and Myers, 1973) sees technical innovation as driving social change and knowledge as the key new factor in wealth creation leading to buoyant demand for graduates. However Hughes and Tight (1998) found little evidence to support the link between skills and economic performance and suggest that increasing participation in higher education leading merely to credential inflation.

Morley (2001) suggests that discourse on employability is part of the repositioning of higher education as an industry and questions how it interacts with gender, ethnicity and socio-economic status. Coaldrake and Stedman (1999), writing about Australia, suggest that until the 1960s higher education was an elite undertaking with small numbers of students, high levels of academic autonomy and relatively little financial support or interest from government or industry. They suggested that subsequently it has become viewed as a "…*driver of national economic and social development through the formation of human capital*" (p.3). The traditional academic values of critical thinking and disciplinary study endorsed by Newman (1852) came to be juxtaposed with new expectations for training for professional entry and career credentials. As expenditure rose, so did the pressure from governments for the

implementation of reporting processes and for influence over the quality and nature of scholarly output in terms of students and subjects taught. Coaldrake and Stedman (1999) suggest that "*Government has gradually re-positioned itself from being a patron of universities to a purchaser of higher education, and expects demonstrated accountability and returns for its investment*" (pp.4-5). Biesta (2006) suggests that education is gradually changing from *'learning to be'* to *'learning to be productive and employable'* (p.170). This can be conceived as bringing higher education into line with economic requirements as massification increases costs and the importance of 'knowledge work' increases. However it can also be seen from a European point of view as 'Anglo-Saxonisation'; a takeover of the political economy of higher education by a particular Anglo-American view.

Mason et al (2003) highlighted the importance of taking subject related differences into account in their study of the relationship between placement experience and graduate careers. Similarly, Blasko et al (2002) found differences in the career benefits of placement experience between vocational and non-vocational degree programmes; non-vocational degree graduates actually benefitting more. More recently, Moores and Reddy (in press) showed that psychology graduates who had taken a placement year were more likely to be in graduate level jobs up to six and a half years post-graduation and were more satisfied with their careers. The relationship between work placements and academic marks has been less well studied. Where the link between the placement experience and the academic work is explicit, for example for vocational courses, one would expect that academic marks would benefit from placement experience. However, for non-vocational degree programmes there is the potential for decreased academic performance both pre-

placement (due to the time spent seeking placements) and post-placement (because of the break taken from academic study). In fact, research findings are mixed and the interpretation of results is rendered difficult as students are not randomly allocated to placement and non-placement courses.

Mandilaras (2004), Gomez, Lush and Clements (2004), Rawlings, White and Stephens (2005), Mendez (2008), Surridge (2009) and Reddy and Moores (2006), all report higher final year marks for students who take placement years (for Engineering, Bioscience, Information Systems, Economics, Accounting and Finance and Psychology students respectively). However, Bullock, Gould, Hejmadi and Lock (2009) found that although the placement and non-placement differential increased from the second to the final year for Bioscience students, it decreased for engineering students. Furthermore, Duignan (2002, 2003), found no effect of a placement year on academic performance for business students under either 'architecture' that he investigated. (The amount the university is involved in the placement itself and any follow up to the placement in order to 'embed' the benefits) He argued that the more academically capable students seemed to be choosing to take a placement year and that actually, the *non*-placement year students were showing a greater gain in marks in their final year.

Many studies of the relationship between placements and academic marks use different metrics to measure the benefits and investigate different degree programmes. It may be that the size of any changes varies across programmes and that mediating mechanisms differ too. As already noted, in more vocational programmes there is likely to be more overlap between academic programme and

work experience. For non-vocational programmes, this link is less likely but other factors may also be important. Generic communication and organisational skills may be developed, self-efficacy and motivation may be improved, and work experience may help to further the development from dualist to relativist thinking and reasoning. Reddy and Moores (2006) found a 3.2% mark increase from second to final year for placement students and Surridge (2009) reported a 3.6% increase. These may not be insignificant in the context of 15 percentage points probably covering most of the variance (56%-70%). Here, we measure the academic benefits of placement experience in different subjects in which a placement year is optional (including more vocationally orientated programmes) in a single university; we use a variety of metrics in each case. In addition, we investigate whether any positive effects of a placement year on academic performance may be due to a maturity effect, rather than the work experience itself. Further, Blasko et al (2002) suggest that work experience during a degree programme has a larger positive effect on employment for lower socio-economic status groups – the work experience helps to bridge the divide that was already present. Here we investigate to what extent any bridging effect for lower socioeconomic status groups can be observed, and whether it also occurs for black and ethnic minority students as well as students of differing success levels.

## Method

*Data:* Anonymous data were obtained from the University electronic records system for graduates from 2003-2009. The dataset comprised 12144 students. Records contained information on: degree programme, degree classification, second year average mark, final year average mark, gender, age on entry, ethnicity, award year,

whether or not the student took a placement. Additional coding was used to indicate whether or not a placement year on each student's degree programme was possible, optional or compulsory. Some data cases were incomplete - where, for example, the degree classification had been recorded but the marks had not due to inconsistent use of the system in the early stages of its adoption. However, around 6000 students who had had the opportunity to take an *optional* placement year had data available on both second and final year performance.

*Analysis:* With large data sets such as those used here, the finding of statistically significant or meaningful effects does not always equate with psychologically meaningful effects. Of course, what is psychologically meaningful in this context will vary between different people. The relative benefits of a placement year can therefore be measured in different ways, including:

i) The mean difference in final year marks between those who did and did not take a placement year. This provides an easy to understand measure of the end point differences between groups, but does not take into account pre-existing differences between the groups.

ii) Whether or not there is a significant interaction between placement status and year of study in an ANOVA looking at marks i.e. do students who take a placement year improve more in their final year than those who do not? This provides information on whether or not the two groups show differential improvement across the years, but does not measure the size of that improvement.

iii) An ANCOVA to test the difference between the groups in the final year, taking into account the second year performance. The proportion of variance in

final year performance that can be attributed to the placement year when the effect of second year marks has been accounted for is estimated by partial eta squared ($\eta_p^{2)}$. Partial $\eta^2$ estimates can therefore be interpreted in a similar manner to partial $r^2$ correlation coefficients.

iv) The value of Cohen's d. This is a measure of effect size which takes into account the amount of variability in each group (placement vs. non-placement students) and indicates differences in standard units. For example, a Cohen's d value of 1 would indicate that the groups differed by a whole standard deviation. Generally a Cohen's d of 0.2 would be considered a small, 0.5 a medium and 0.8 a large effect. Cohen (1988) suggests that large effects are frequently "*at issue.... in fields characterized by the study of potent variables or the presence of good experimental controls or both*" (p.13). Educational and applied research is usually associated with medium (0.5) or smaller effect sizes.

v) The value of Kendall's tau in an analysis of association between placement year status and degree classification. Kendall's tau values fall between -1 and 1 and can be interpreted in a similar way to a correlation coefficient.

Thus, measures (ii) and (iii) take into account second year performance. Measures (i), (iv) and (v) do not, but may more easily understood.

## Results

Table 1 summarises the results of the analyses conducted for the main degree programmes offering an optional placement year at Aston University. Only degree programmes that had sufficient data (defined as having a minimum of 30 students who did and 30 students who did not take a placement year) are listed.

Table 1 shows that the majority of degree programmes have: (i) better marks for placement students in the final year (ranging from 2 to 7 percentage point marks); (ii) a statistically significant interaction between placement and year of study, suggesting greater improvements from second to final year amongst placement students; (iii) a statistically significant difference in final year marks between placement and non-placement students even when second year marks are taken into account; (iv) effect sizes for the placement year of Cohen's d in the 'medium' range (0.5 to 0.8); (v) a significant association (Kendall's tau) between placement status and degree classification. Contrary to what one might expect given the relatively small overlap between probable placement experience and curriculum, BSc Human Psychology showed relatively large effects on every measure. Perhaps less surprisingly, BSc Computing Science and BSc/ MSc Chemical Engineering also showed large effects. Results from BSc/ MSc Electrical and Electronic Engineering and BSc Public Policy and Management and Business Administration suggested that any differences between students' marks in the final year for these courses probably related to pre-existing differences in the second year. BSc Applied and Human Biology, BSc Business Administration and Psychology and BSc Psychology and Sociology showed statistically significant differences between placement and non placement students in final year marks, even when accounting for second year performance, but the lack of a significant interaction between placement status and year of study

suggested no significant difference in the extent to which each group *improved* their marks in the final year.

**TABLE 1**

A mixed measures ANOVA was conducted on all of the data in which a placement year was optional, ignoring the degree programme taken, to examine effects of year (second/ final) and placement status (yes/no) on marks. The effects of year ($F_{1,6584}$=1555.68, $p$<.001, $\eta_p^2$=.191) and placement ($F_{1,6584}$=397.25, $p$<.001, $\eta_p^2$=.057) were significant, suggesting higher marks are achieved in the final year and by placement students. The interaction between year and placement was also significant ($F_{1,6584}$=47.97, $p$<.001, $\eta_p^2$=.007), suggesting that placement students improve more than non-placement students in their final year. An ANCOVA on the same data showed a significant effect of the placement year ($F_{1,6583}$=225.52, p<.001, $\eta_p^2$=.033) even when second year marks were used as covariate ($F_{1,6583}$=5697.20, p<.001, $\eta_p^2$=.464). This result suggests that 3% of the variance in final year marks can be attributed to the effects of the placement year, once the effect of year of study has been excluded.

*Just being older:*

One possibility of the positive effects of a placement year could be that students are simply one year older. An ANOVA was conducted for students who started at University when they were 17, 18, 19 or 20 years old to investigate the effects of age, year of study and placement on academic performance. This analysis showed significant effects of year of study ($F_{1,5764}$=121.28, $p$<.001, $\eta_p^2$=.021), placement ($F_{1,5764}$=22.57, p<.001, $\eta_p^2$=.004) and age ($F_{3,5764}$=18.20, $p$<.001, $\eta_p^2$=.009). The year

by placement interaction remained ($F_{1,5764}$=5.52, $p$<.05, $\eta_p^2$=.001), and placement by age ($F_{1,5764}$=4.33, $p$<.01, $\eta_p^2$=.002) and year by age interactions ($F_{1,5764}$=5.48, $p$<.001, $\eta_p^2$=.0043) emerged. There was no year by age by placement ($F$<1) interaction. Overall the data suggested that the small number of students who, exceptionally, entered the university when they were only 17 years old, had a higher level of academic performance overall and the placement and non-placement students were more equally matched for academic performance in this age group. The lack of a three way interaction suggested that the age groups benefitted in a similar (albeit small) way from doing a placement year.

**TABLE 2**

*Lower compared to higher achievers:*

A second possibility to explain the positive effects of a placement year is that since generally the more highly achieving students choose to go on placement, higher achievers would be expected to show greater improvements in the final year even without placement experience. To investigate, a new variable was created by allocating students to either a higher or a lower achieving group on the basis of their second year marks – see Table 2. Students scoring 60% or above (i.e. at least 2.1 degree classification level) in their second year were coded as 'higher' achieving, those scoring less than 60% as 'lower' achieving. An ANOVA including the factors of achievement level, placement year, and year of study showed significant effects of year ($F_{1,6582}$=873.41, $p$<.001, $\eta_p^2$=.117), placement ($F_{1,6582}$=180.53, $p$<.001, $\eta_p^2$=.027) and achievement ($F_{1,6582}$=5759.22, $p$<.001, $\eta_p^2$=.467). There was also a significant interaction between achievement and placement ($F_{1,6582}$=74.79, $p$<.001, $\eta_p^2$=.01), suggesting that even amongst lower achievers, the better performing students overall went on placement, and between year and achievement

($F_{1,6582}$=811.67, $p$<.001, $\eta_p^2$=.11) suggesting that actually *lower* achievers improve more in their final year. The year by placement interaction was significant ($F_{1,6582}$=122.24, $p$<.001, $\eta_p^2$=.02). The interaction between all three factors was not significant ($F_{1,6582}$=2.34) suggesting that lower and higher achieving students benefited equally from a placement year.

*Demographic Factors*

Currently male and ethnic minority students in the UK do not - on average - show as high achievement at graduation as female and white students. Thus, a third possibility to explain the apparent benefits of a placement year was that the effect is mediated by demographic factors (including ethnicity, socioeconomic status and gender) of those students who choose to take a placement year. To investigate this explanation we analysed the data to see whether there were any associations between the demographic factors of ethnicity, socioeconomic status and gender and the decision to take a placement year (for programmes in which a placement year was optional).

**TABLE 3**

A chi squared analysis showed a significant association ($X^2$=44.18, $df$=4, $p$<.001) between ethnicity (using the broad groups: White/ Asian/ Mixed/Black/Chinese and other) and taking a placement year (where one was optional) – see Table 3. White and Mixed race students had the highest percentage of students who had taken a placement; Asian and Chinese and other the least. A further chi squared analysis showed an association between the National Statistics Socio-Economic Classification category (NS-SEC, an occupationally based system aiming to classify all adults in the UK) of students and taking a placement year ($X^2$=57.79, $df$=7,

$p$<.001). A Kendall's tau analysis (*tau* =.06, $p$<.001) showed a weak but significant relationship suggesting that the higher the NS-SEC category the more students took a placement. A somewhat smaller percentage of students in the lower NS-SEC categories took a placement year, with numbers varying from 61% to 70%. A chi squared analysis showed a trend towards a relationship between gender and taking a placement year where one was optional ($X^2$ =5.72, $df$=4, $p$=.057), with females more likely to have taken one than males (66% vs. 64%). In summary therefore, males, some black and minority ethnic (BME) students, and students from lower NS-SEC categories were less likely to have taken placements than females, white and mixed race students, and students from higher NS-SEC categories.

Since ethnicity, gender and socioeconomic status were shown to be factors in *choosing* to take an optional placement year we investigated (i) whether all groups benefitted equally from a placement year if they took one and (ii) whether the effect of a placement year in improving final year marks would remain significant with these factors taken into account. An ANOVA was conducted to investigate ethnicity, placement year, gender, NS-SEC category and year of study on marks. There were significant main effects of: year of study ($F_{1,6053}$=59.15, $p$<.001, $\eta_p^2$=.010); gender ($F_{1,6053}$=19.66, $p$<.001, $\eta_p^2$=.003); ethnicity ($F_{1,6053}$=35.377, $p$<.001, $\eta_p^2$=.023) and placement ($F_{1,6053}$=13.49, $p$<.001, $\eta_p^2$=.002). NS-SEC category had no significant effect ($F$<1). In addition, year of study showed significant two way interactions with both ethnicity ($F_{4,6053}$=3.29, $p$<.001, $\eta_p^2$=.002) and placement ($F_{1,6053}$=4.47, $p$<.05, $\eta_p^2$=.001). Ethnicity also showed a significant interaction with both NS-SEC category ($F_{23,6053}$=1.61, $p$<.05, $\eta_p^2$=.006) and gender ($F_{4,6053}$=4.72, $p$<.001, $\eta_p^2$=.003). All other interactions were non-significant. The data suggested that students achieved higher

marks in the final year than the second year, females achieved higher marks than males, placement students achieved higher marks than non-placement students and white students achieved higher marks than other ethnicities. The superior performance of females over males was true for all broad ethnicity categories except for 'Chinese and other' in which males performed slightly better. Mixed ethnic background and Black students improved less in the final year than other ethnicities. Placement students improved more in the final year than non-placement students, even with all demographic factors taken into account. Importantly the lack of any significant three, four or five way interactions with placement and year (e.g. non-significant placement by year by ethnicity; placement by year by gender or placement by year by NS-SEC) suggested that students of different ethnicities, gender and socioeconomic background benefit equally from placement experience.

In order to help understand the impact of the effects of the different factors in real terms (i.e. final year marks), particularly since values of partial eta squared were small, a sequential multiple regression was performed with the factor of second year mark entered at the first step, which explained 48.1% (adjusted $R^2$ =.481, significance of $F$ change $p$<.001) of the variance on its own[1]. Gender (0= male, 1=female), BME status (1=white, 0=other/ ethnic minority) and NS-SEC category (1-8) were entered in the second step and explained a further 1.8% (significance of $F$ change $p$<.001) of variance. Placement status (1=yes, 0=no) was added in the final step and explained a further 1.3% (significance of $F$ change $p$<.001) of variance bringing the total amount of variance explained by the model to 51.1%. The final regression equation suggested that, on average: taking a placement could be

[1] although second year performance will also be affected by demographic factors

expected to add an additional 1.83 marks to the final year mark; being female an extra 0.52 marks; and being white an extra 1.62 marks. All the factors except NS-SEC category were significant ($p$<.001). NS-SEC category narrowly failed to reach significance ($p$=.054).

## Discussion

The evidence presented in this paper suggests that students of different ethnicity, gender, and socio-economic background all show similar academic benefits from taking a placement year and that taking these demographic factors into account in an analysis of the placement year does not negate its benefits . Students on degree programmes not traditionally associated with placement years, and where the link between placement work and the degree programme is not explicit, still show academic benefit from a placement year and any benefit is not due to simply being a year older. Finally, lower achieving students benefit just as much as higher achieving students and therefore the benefits seen from taking a placement year are not explained by which students choose to go on placement in the first instance.

As noted in the introduction, the finding of better final year academic performance amongst placement students is not new, even if it is controversial. However, to our knowledge, this is the first study to compare academic performance improvements across a variety of different degree programmes, in such large sample sizes and controlling for demographic factors already thought to affect achievement at university. The possible atypicality of placements at this one university is a potential validity threat however.

For some programmes, the skills and knowledge gained on placement might intuitively be expected to be of more direct benefit to the student in the final year (e.g. Biology or computing related subjects). Bullock et al (2009) compared Biosciences and Engineering programmes - both of which might be expected to show a reasonably large degree of overlap between knowledge and skills obtained on placement and those required in the final year of the degree programme - but found that a placement year improved final year performance only for Bioscience students. Thus, the academic benefits shown across a variety of degree programmes in this research, and in particular the magnitude of some of the benefits in some degree programmes, could be considered somewhat surprising. In particular, Psychology students show large improvements in the final year and the placement effect sizes are similar to those shown by Chemical Engineering students. Indeed, the benefits conferred by taking a psychology placement year seem to at least match up to, and in many cases exceed, the benefits conferred by placement years on other degree programmes. This suggests that benefits other than gaining subject-specific knowledge and skills are important. Reddy and Moores (2006) found that staff rated final years who had taken a placement year more favourably on a measure of transferable skills. Little and Harvey (2007) reported post-placement students taking a more mature, independent and focused approach to their studies but generally failing to articulate or foreground the intellectual benefits of their work experience. However, they presented quotes suggesting that students have enhanced understanding and take a different approach to learning (p.241).

Students may find it difficult to explain precisely how they have developed intellectually, but if we are to take seriously the reconciliation of employability and

scholarship which we seek to trace back to Newman, and defend the *primary* value of higher education to be in educating the mind and cultivating understanding, further research into the range, nature and causes of the specifically *academic* benefits of placement experience is required. For example Perry (1970), Baxter Magolda (2000) and others propose that important changes in the development of epistemological reasoning, the way in which knowledge is viewed and thought to come about, occur in undergraduates. Students progress from thinking dualistically, to thinking from multiple perspectives and using relativistic terms, and finally, to taking a more constructivist approach to knowledge and making reasoned, value and evidence based commitments. Does placement work offer experiences, such as exposure to adult graduates and to complex problems, that help students to make progress in their epistemological development and is this a factor in their intellectual development and improved academic performance? Are differences in Approach to Study (Entwistle and Ramsden, 1983) detectable in post placement students? Does placement work promote intellectual development through deeper participation in a community of practice (Lave and Wenger, 1998)?

Blasko et al (2002) suggested that, in terms of careers, work experience may help bridge the gap between students of different socio-economic backgrounds. This research shows that in terms of academic benefits, taking a placement year will improve final year performance for students of different socioeconomic backgrounds, gender and ethnicity. However, the gap is *not* bridged in comparison to those of higher socioeconomic status, female gender and white ethnic backgrounds who have *also* taken placement years. Rather it will help to bridge the gap only between those of 'disadvantaged' gender or background who do take a placement and those

more 'advantaged' students that do not. This is an important finding in particular coupled with the fact that rather fewer males, ethnic minority students and students of lower socio-economic status backgrounds actually take placement years when they are optional. This means that those students that are statistically most in need of extra marks are less likely to get them. This suggests that universities should ensure that placement opportunities are promoted to students of all backgrounds and that additional support, up to and including financial support for unpaid placements, is offered to help less advantaged students to access them.

It has been suggested previously that the greater improvement of final year students who have taken placements might be expected since these students tend to be the higher performing students to begin with (i.e. the rich get richer). Our analysis of the extent to which lower versus higher achievers benefit from a placement year shows this is not the case. Firstly, lower achievers are shown to improve more than - *not less than* - higher achievers in their final year. Secondly, the lack of a significant three way interaction between placement, year and achievement (coupled with the significant year by placement interaction) suggests that lower and higher achievers benefit similarly from the experience if they do take one. However, it is the case that the students who choose to take placements tend to be higher achieving and that this effect may account for at least some of the apparent benefit of taking a placement.

It should be noted that the size of the effects in this study, though statistically significant, are – at least in the most part – rather small. It is therefore not surprising that inconsistencies have been found in the literature with some studies finding

differences and some not, especially where relatively small sample sizes have been used. Most studies have employed some kind of control or statistical adjustment for students' second year performance, but few have taken into account demographic factors already known to affect student performance. Overall, the results of this study show that although differences in final year marks between placement and non-placement students may be large, and although the placement year does have a significant effect on final year performance even when accounting for a number of demographic factors, not taking those demographic factors into account when evaluating the benefit of placement years may be exaggerating the effect. Given that some groups of students may find it difficult to take a year-long placement, future research on whether or not similar benefits can be conferred by shorter or part time placements would be valuable.



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**Table 1**. Statistical and descriptive measures of the benefits of a placement year across different degree programmes in which the placement year is (or was) optional. Numbers analysed in each category are included for information. The Kendall's tau statistic in each case indicates that a greater number of placement year students are gaining higher classification degrees

| Programme | Mark difference Yes vs. No | Placement numbers Yes:No* | Significance (ANCOVA) p value | Partial $\eta^2$ (ANCOVA) | Effect Size (d) | ANOVA interaction p value | Kendall's tau association with degree class |
|---|---|---|---|---|---|---|---|
| **BEng Electrical & Electronic Engineering** | 59 vs. 55 | 32:42 | n.s. | .016 | 0.35 | n.s. | .209 (p<.005) |
| **BEng/MEng Chemical Engineering** | 59 vs. 54 | 69:62 | <.001 | .116 | 0.73 | <.01 | .142 (p<.05) |
| **BEng/MEng Mechanical Engineering** | 61 vs. 57 | 60:38 | <.001 | .108 | 0.46 | <.01 | .179 (p<.05) |
| **BSc Computing for Business** | 60 vs. 55 | 182:57 | <.001 | .060 | 0.71 | <.01 | .234 (p<.001) |
| **BSc Computing Science** | 62 vs. 55 | 229:176 | <.001 | .063 | 0.82 | <.001 | .264 (p<.001) |
| **BSc Logistics** | 57 vs. 53 | 162:77 | <.001 | .054 | 0.59 | <.05 | .159 (p<.01) |
| **BSc Managerial & Administrative Studies** | 62 vs. 58 | 489:62 | <.001 | .040 | 0.71 | <.001 | .119 (p<.001) |
| **BSc Public Policy and Management & Business Administration** | 61 vs. 58 | 174:42 | n.s. | .008 | 0.58 | n.s. | .195 (p<.01) |
| **BSc Applied & Human Biology** | 63 vs. 61 | 68:130 | <.05 | .023 | 0.23 | n.s. | .080 (ns) |
| **BSc Human Psychology** | 63 vs. 60 | 398:256 | <.001 | .111 | 0.80 | <.001 | .237 (p<.001) |
| **BSc Business Admin & Psychology** | 62 vs. 58 | 130:49 | <.05 | .025 | 0.55 | n.s. | .213 (ns) |
| **BSc Psychology & Sociology** | 63 vs. 59 | 41:45 | <.05 | .056 | 0.61 | n.s. | .219 (p<.05) |

*Included in ANOVA

**Table 2**. Mean percentage marks achieved in the second and final years by higher and lower achievers by whether or not they took a placement year.

| | | n | 2nd year mark | Final year mark |
|---|---|---|---|---|
| Placement | Lower achievers | 2804 | 54% | 59% |
| | Higher achievers | 1918 | 65% | 66% |
| No placement | Lower achievers | 1352 | 52% | 56% |
| | Higher achievers | 512 | 65% | 64% |

**Table 3**. Numbers of students who chose to take a placement year according to their ethnic group (percentages in parentheses)

| Broad ethnic group | No placement | Placement |
|---|---|---|
| White | 1381 (32%) | 2940 (68%) |
| Mixed | 37 (27%) | 98 (73%) |
| Asian | 1071 (39%) | 1708 (62%) |
| Black | 121 (36%) | 218 (64%) |
| Chinese and other | 269 (40%) | 401 (60%) |