Enhancing Graduate Employability in Product Design: A case study exploring approaches taken on a BSc Product Design course

Matthew Watkins and Martin Higginson
Department of Product Design, Nottingham Trent University, UK
Phil Clarke
The Hive Centre for Enterprise & Entrepreneurship, Nottingham Trent University, UK

Abstract

Purpose – This paper presents a case study to discuss approaches taken within a traditional undergraduate degree course to embed employability skills, encourage student uptake of sandwich placement and increase graduate prospects. A number of new initiatives are presented, including working with live industrial clients, formally preparing students for placement applications and the introduction of an externally facing student run design consortium. Alongside these new initiatives, details of the existing sandwich year provision are also considered and their effectiveness.
Design/methodology/approach – A case study based action research approach presents changes to a specific undergraduate course, measuring the effectiveness over a 4-year period using externally collected national DLHE data and internal student feedback to assess the long-term effects on employability.
Findings – The paper considers improvements in the graduate employability over the 4 year period covered, in particular, an increase in the graduate employability from 81%-100% and graduate prospects from 62.5% to 95.2% for sandwich students. Data presented also considers additional student feedback correlating with an increase in their preparedness for employment.
Practical implications – The implications of undertaking the changes highlighted within this paper have been relatively straightforward, due to the small incremental nature of the changes and the opportunities available through the agencies within the university, and should be replicable at least in part at other HE institutions.
Originality/value – This paper considers the impact of employability initiatives undertaken on a single undergraduate course and how these have affected the employability of graduates over a 4-year period, supported by student feedback both internally and externally through national feedback mechanisms. It is anticipated that this research would be beneficial for informing and guiding the development of employability on other undergraduate programmes.

Keywords: Industrial placements, Employability, industry-led-projects, Work-Based-Learning, Entrepreneurial Education, Curriculum development.

Paper type Case study

Introduction

Graduate employment and specifically positive 'graduate prospects' as measured in the Destination of Leavers in Higher Education (DLHE) (HEFCE, 2016), are increasing in both importance and visibility amongst Higher Education (HE) providers in the United Kingdom (Taylor & Hooley, 2014). Such statistics are available to the general public through the Key Information Set data (KIS) (Unistats, 2017b). KIS gathers a range of data such as the National Student Survey (NSS) results, DLHE data, percentage of taught content, assessment modes and the costs associated with courses and accommodation in a format that is easily accessible by prospective students and available on each of the undergraduate course webpages as well as centrally through Unistats for comparison. In addition DLHE data is included as a key metric in the new Teaching Excellence Framework (TEF) (HEFCE, 2017b), comprising of 2 of the 6 core metrics.

Increasing student fee levels are causing students to accrue higher levels of graduate debt, which relates to an intensified focus on the value of undergraduate study and by association graduate employment and salaries (Wilton, 2014). Graduate employment and graduate salaries, are not exclusively of interest to students and their parents, but also the government. The current student-funding situation requires students to repay their loans accrued through their undergraduate course

of study from their graduate salary, once they reach a specified threshold. However, estimates suggest that only 26% of current graduates will pay off their entire debt within the specified period (Belfield et al. 2017). Set against this economic backdrop, it is not only graduate employment but also the graduate salaries that are subject to scrutiny. The DLHE presents a range of data including:

- Positive outcomes - graduates employed 6 months after graduation
- Graduate prospects - graduates that are employed within graduate level positions within 6 months in relation to their original course of study
- Further study where graduates have continued their studies at postgraduate level
- Graduate salaries
- Additional employment information, giving detail on the type of contract, position, name of company and the geographic location of graduates
- Feedback on the graduates' preparedness for work

This paper documents a longitudinal case study approach (Yin, 2009) that explores how employability is embedded within a traditional degree level course. In particular, it considers the BSc in Product Design at Nottingham Trent University, offered as a 3-year non-sandwich and a 4-year sandwich year course. Product Design is a discipline that has higher than average employability, due to the largely applied nature and vocational skills based content, which leads to a variety of roles in the Design and Engineering disciplines. However, the BSc Product Design degree is still an academic discipline in its own right and not an integrated learning route such as a Degree apprenticeship.

Typically students on the course will have undertaken A 'levels or a BTEC Extended Diploma as prior study. All students who enrol on the BSc Product Design course are actively encouraged to undertake the 4-year sandwich (SW) year option, due to the employability advantages (Crebert et al., 2004; Taylor & Hooley, 2014; Wilton, 2014), however a 3-year route (non-SW) route also exists. The non-SW option is popular amongst international students due to visa requirements and a small but growing number of home UK students who wish to complete their studies as quickly as possible. This is despite the SW year being a zero fee cost option throughout the 2012-2016 period addressed in this paper.

A SW year is common in Product Design undergraduate courses in the UK and traditionally consists of work based learning (WBL) through an industrial placement, undertaken between the students 2nd and final year of study (Wilton, 2014). Whilst the sandwich year is typically and most commonly undertaken in industry with a duration of at least 36 weeks, there are additional opportunities such as undertaking a European study exchange, which can be undertaken on its own or combined with WBL. Successful completion of the sandwich year leads to an additional qualification of a Diploma in Professional Practice, or should the students complete 15 or more weeks but less than the required 36 weeks, a Certificate of Professional Practice is awarded instead.

This paper will outline how employability measures have been embedded in the curriculum since 2012 to address the common employability issues within HE (Kinash et al.2016), including a range of employability strategies recognised in the literature (Kinash et al. 2016; Taylor & Hooley, 2014). These interventions documented were implemented initially in 2012-13, reacting to a low proportion of students obtaining placements and were observed and developed over a 4 year period aligning with an educational action research model, involving a cyclic 4 stage process: identifying the the problem, planning an action, implementing the action and evaluating the impact (Cohen, Manion, & Morrison, 2005). Throughout this paper the data presented will consider the implications on both the SW and non-SW routes identifying between the different routes where relevant. Whilst both the SW and non-SW students benefitted from the employability interventions outlined, their

employability experiences are distinctly different in relation to the extent that they undertook or lacked formal WBL similar to Taylor & Hooley (2014) study. The paper considers the effectiveness of these changes in relation to a positive correlation in the graduate prospects on the course from 2012-2016, which is particularly pertinent since course numbers have increased by 55.6% over a five year period with 42 students entering the final year of study in 2017-18 compared to the 27 in 2012-13.

Integration of employability into the curriculum

The employability interventions start in the students' 1st year of study, when they are introduced to the breadth of the design discipline in the context of Design Management. Through the 'Design Management 1 module' students are taught the importance of being flexible practitioners, in light of how the design discipline has evolved and continues to do so. The importance of remaining relevant and flexible in a fast moving global economy is a key aspect of this teaching and it is a vital message for all undergraduate students (Bridgstock, 2009; Helyer, 2007, 2011) and one that is pressed home, through real life examples from industry. In addition students are taught to contextualise the discipline of Product Design within industry and recognise the benefits and value added nature of design, being taught skills and tools relating to Product Management and undertaking exercises exploring the causes behind a failing or stagnating company and suggesting solutions. Whilst this is 'light touch' it encourages the students early on in their training to identify and use Design Thinking outside of their traditional discipline boundaries and apply problem solving approaches in an industrial context. Such exercises enable students to think holistically and consider wider business implications, a vital lesson which precludes them from becoming too insular and failing to relate to wider needs of the industry they enter.

Employability Preparation

The main interventions take place during the students' 2nd year of study, which starts with four weeks of Professionalism within 'Design Management 2'; this involves a lecture and seminar each week that focusses on employability and obtaining a work based placement. This aspect was absent prior to 2013, when the tutor observed that whilst students were applying for placements, uptake was poor due to a lack of understanding of how to go about the application process. Students were relying on limited prior high school teaching on producing CVs and covering letters, which were too generic, limited and lacking in professionalism. Therefore, a 4-week series on professionalism was included at the start of the year to address deficiencies. The first week featured a lecture on preparing a CV and completing application forms with guidance on what employers are looking for and shocking statistics for the students on the length of time employers spend looking at applications (Sundberg, 2012). Followed by a seminar where students were asked to dissect good and bad examples of CVs. The second week addressed covering letters and the third week presentations in much the same way. The fourth week considered interviews detailing how students should present and conduct themselves as well as mannerisms and coming across as keen and enthusiastic. The interview session was followed by a session from the employability team, where students were asked to select a placement role from the placement portal and prepare a presentation for the role that their peers would also prepare interview questions for ahead of a mock interview. Whilst this may have felt like a forced exercise to some students, the presence and input from the tutor and employability advisors during the mock interview ensured that students took the exercise seriously and subsequently found it was illuminating and helpful.

At the end of this five-week period, students produced a CV, covering letter and presentation for the job they had identified and submitted these for assessment as part of the module. The students were also encouraged to use these to apply for the actual placement role at the same time. This encouraged students to 'start the ball rolling' on placement applications within six weeks of the start of 2nd year. Such an early start is vital, as a growing number of placements are advertised in the autumn term of 2nd year and can often close their applications prior to Christmas. Without this early submission deadline, students would typically wait until later in the year when they are more comfortable with their work that they have produced for their portfolios, restricting their chances due to the dwindling number of roles available, which are more likely to be highly competitive. The early applications have in some cases brought in placements from employers that NTU had not had students intern with before and so it widened the universities net of potential placement employers and meant that more students were placed overall. Initially it seemed rather odd to assess students on these applications, as it was not part of their skills as product designers, and as such, the assessment percentage weighting is rather small. Whilst it may not specifically relate to academic skills and knowledge, it will greatly affect their ability to use their academic skills in industry if they are not able to find employment. In addition, whilst the students see that this is a beneficial exercise, to have no assessment would have reduced the likelihood that the students would complete the work when they have other competing academic demands on their time (Kinash et al. 2016).

Live Industry Project briefs

Students typically spend 1st year studio practice refining the fundamental design skills akin to their discipline through focussed design briefs. However, in 2nd year this is built upon by introducing the students to more complex real world briefs, which make up typically 4 of the 6 studio project briefs given, which are either set by an industry partner, charity or undertaken as a response to a national competition. Such briefs are typically well received by the students as Net Generation learners particularly enjoy undertaking projects that are relevant, real world (Hounsell, 1997; Marton & Säljö, 1997; Ramsden, 1997; M. A. Watkins, 2014) and benefit society (Oblinger & Oblinger, 2005; M. A. Watkins, 2014); literature suggests that such factors increase engagement.

A range of live industry projects have been undertaken with the students in 2nd year over the past 4 years that have led to a number of highly successful outcomes. Such briefs offer students the opportunity to engage with real problems in a collaborative and close manner with industry. Over the past four years students have engaged in live briefs with a variety of companies including Artex, Demand, Hillarys Blinds, PepsiCo and Sapa. These opportunities are very beneficial giving students' experience of working in teams and presenting their solutions professionally to clients, which is of course helpful to both interview situations and their future careers. Such opportunities also provide much needed critique and questioning from industry, offering the students rich feedback and the opportunity to respond to industrial questions in a university context.

Most recently, an industry collaboration with McGee, a large London based construction company has resulted in very successful student project work being patented and prepared for market. The project was particularly well received by the students mostly due to the direct and focussed engagement of the company and this is explored in more detail in a separate paper (Watkins et al. 2017). With all industry collaborative briefs we ask that representatives are sent to deliver the brief and attend the student's presentations at the end of the project where typically a prize is given for the winning solution. In addition, the brief will often involve further interaction through field trips. The benefit of these projects extends beyond the students as the industrial partners also greatly appreciate the format and come back year after year. In all cases, these companies conducting

projects have sought out the university and course rather than the other way round, due to the reputation that has been built. Companies often comment on how they find the problem solving approach of the students refreshing and inspiring, particularly the industries that do not typically lend themselves to product or industrial design, but appreciate the design thinking approach and the ability of the students to think out of the box (Helyer, 2011).

Placement and the European Project Semester (EPS)

As previously mentioned, the course includes provision for vocationally relevant supervised work experience to enhance graduate employability and professional skills through its placement program. Successful completion leads to a Diploma of Professional Practice in addition to the degree qualification. Whilst 36 weeks is the minimum requirement for the Diploma, many students extend their experience to a full calendar year. Whilst on placement, students are asked to document their experience through a contemporaneous diary and reflective report, which is supplemented by a visiting tutor's report and an employer's report completed at the end of the defined period.

The companies taking on these students cover a wide range, in terms of size and specialisms including large multinational brands ranging from confectionary to automotive and small niche sectors and consultancies. Many of these companies have offered internships over a number of years and in some cases employ Alumni in key positions who often completed their own placement at the company, for which the placement can often be viewed as a long interview (Petersen, 2017). Some have even founded their own companies and now recruit students.

During placement between 3-4 contact points with the students are established. Initially contact with the students' takes place soon after the placement commences by the Employability team to ensure appropriate settling in has taken place and to address any issues early on. Following this, academic staff contact students where possible within the first term of the placement via email, telephone, video conferencing or similar, which is followed up by a physical visit. Visits are structured and comprehensive and involve both the student and their supervisor. In addition to the role being undertaken and discussions on possible future collaborations with the company, diaries are typically checked and students are reminded of requirements for placement awards as well as guidance being provided on preparation for final year. Such visits are documented on a standard form and include questions both to the student and supervisor about progress, challenges and ability. Additionally there are questions both to the student and employer about the student's study and its relevance to placement, highlighting aspects of the curriculum that have been particularly beneficial to placement, areas of the curriculum that haven't been useful and aspects that weren't covered and could have been. Of interest to this specific paper students typically note 'Design Management' as being a particularly memorable and useful component of their learning prior to their placement experience, more than any other aspect.

Typically, the third contact point is the placement student's attendance at the placement conference held at the university. This supports the 2nd year students in their quest to find a suitable placement and is an important part of the placement student's development with an opportunity to gauge how their individual learning experience compares to their peers. For staff, hearing the students confidently discussing their role is often a revelation; "What happened to that timid lad in the corner"? is a typical response as the transformation with many is often beyond what could be imagined in such a short space of time.

Offered in addition to placement is the European Project Semester (EPS), a 15 week programme taught in English which at its core is focussed around a problem solving activity (the project) and is

supported by a number of structured allied activities e.g. communications, team building, project management, etc. Adhering to the key principles of EPS, the emphasis of the programme is for small multi-cultural, multi-disciplinary teams to work together to solve a defined problem that is often industry or research linked; hence something akin to departments working together to meet common goals within an industrial setting.

The EPS programme originated in Denmark in 1995 and grew steadily from 1998 from within the now Technical University of Denmark. Since then, EPS has grown steadily and currently includes 18 Universities from 12 European countries with the prediction of further growth. NTU has sent students out on EPS since 2007 and became a full participant in the scheme in December 2014, welcoming its first cohort of 20 European students in September 2016.

As part of the European Credit Transfer and Accumulation System (ECTS), it is possible for students studying in different countries to transfer their credits from one country to another, which enables student-centred learning and 'allows merging of different types of learning such as work-based and university in a lifelong learning perspective' (European Commission, 2017). 30 ECTS are gained from EPS, which equates to a workload of 60 credits under NTU's credit point system (where 120 credit points equals one year of study). Since commencement, the EPS participation with BSc students has permitted student to use these credits towards the final year of the award through the accreditation of prior learning (QAA., 2004).

The final year of the BSc course incorporates two 60-credit point modules, of which one is based on a major project, involving many of the same skills as the EPS project completion. So students can use their EPS credits in place of this module and concentrate their efforts on the other module. Alternatively, students can choose instead to use the credits (and weeks) towards a placement award and undertake a full final year, with advice at hand as to what might best suit the individual concerned. Both options have been exercised in recent years and whilst each has relative merits and risks, both have resulted in very successful outcomes for the students involved.

Whether it is through a work based placement or an EPS semester, the majority of students clearly relish the opportunity and responsibility of placement and their personal development is clear to see. Even when the occasional negative comment is voiced about experiences to date, it is usually communicated in a mature and balanced way which in itself shows the influence of the environment the students have been working in which for many, the first taste of the 'real' world.

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Table 1 Students undertaking a sandwich year placement or EPS

The curriculum developments, including professionalism for placement and the inclusion of live briefs began in the 2012-13 academic year and therefore first benefitted students who commenced placement in 2013-14. It is clear from Table 1 that this had a profound impact on the students' ability to secure placements despite the increased number of students and therefore competition in the latter years.

'The Hive' Consortium

The Dearing Committee inquiry of Higher Education recommended universities participate in programmes to promote and support enterprising students and assist them in starting their own businesses whilst providing resources to further encourage student entrepreneurship through innovative programme and course design (Dearing, 1997). The Hive was initially established to encourage engineering students with the commercial exploitation of their ideas and products. The

Hive Centre for Enterprise and Entrepreneurship was set up adjacent the University's School of Architecture, Design and the Built Environment, encompassing the subject area of Product Design.

The University continues to provide investment and support, with funds from Higher Education Innovation fund (HEIF) (HEFCE, 2017a), Higher Education Funding Council for England (HEFCE) and the EU. The Hive delivers high quality business support and training to graduates and assistance with the development and establishment of new businesses. Whilst recently there have since been changes to the localised goals and targets for Hive programmes, the strategic objective for The Hive has largely remained the same, with support for undergraduates now at the heart of its operational strategy. The development of entrepreneurial graduates is key to the success of the University and The Hive, through initiatives to develop workforce skills and foster entrepreneurship in the creative industries.

The Hive's natural affinity with Product Design is partly due to its physical proximity, but also because many design students are keen to develop businesses and enterprise skills. Many product design students have passed through The Hive and have established their own businesses, whilst others have attended training programmes, providing them with the knowledge and resources to become self-employed freelancers. Most will have attended business lectures or workshops from The Hive as part of their formal studies.

As the provision of WBL within the curriculum has grown the Hive has played a more proactive role in the development of placement activity. Individual students, without a work placement, but a convincing business idea, were offered the opportunity to work with The Hive, whilst mentored by Hive business advisers. Over a 36-week period, they developed a business plan, conducted market research and aimed to commercialise the business although trading was not a prerequisite. Take-up was steady, although careful management avoided it becoming an "easy option" for those unwilling to find a traditional placement. Regular mentoring and training activities formed part of this managed process.

In 2013 The Hive was approached by the BSc Product Design course leader, with a request to explore the possibility of providing a placement experience for a group of design students who had been unable to find a traditional industrial placement. The students possessed the requisite technical ability but typically lacked confidence in interview situations, but wanted a formal structured placement experience before proceeding into their final year. Inspiration for this enterprise came from an initiative undertaken at Edinburgh College of Art, whereby final year Graphic Design students setup companies consisting of students employed in differing roles across all levels of the course (Sharman & Patterson, 2013).

An initial group of five students developed a business entity, supervised by The Hive and the course tutor as business advisor and design manager. Students developed a business strategy; but more importantly developed commercial work to generate revenue. Formal links were established with another of the University's innovative business programs, Future Factory, who provided real projects for the students working for local businesses. Future Factory, established in 2009 with European Regional Development Funding (ERDF), supported East Midlands SMEs in the adoption of more sustainable ways of doing business.

The student company, 'Design View' worked on projects proposed by Future Factory, interacting with staff as well as directly with local companies owners to specify and develop work concepts. Such projects were not charged at commercial rates, as it was a means of enabling Design View members to consider important business issues such as costing, time management and project

planning. After 36 weeks, the team had acquired additional and valuable business knowledge in support of their technical skills. Revenue earned over this period was minimal, partly due to the number of Future Factory projects undertaken in relation to external paid projects; however it was always made clear to the students that income would not be the most important outcome for the programme.

In subsequent years, two more groups of students gained real work experience, entrepreneurial knowledge and skills. 'Anomaly Design' (Worcester, Bent, Borton, & Liggins, 2014) mostly Nottingham-based, developed further links with the Future Factory and The Hive through associated businesses and programmes. Working alongside a professional designer, they successfully developed a resource pack for local creative businesses which highlighted the essential elements of intellectual property as part of University and IPO collaborative project. The students also undertook a number of other projects for local companies obtained through attending local networking events and achieved revenue of approximately £4000 over the placement period.

The third group were located externally to the University sharing living accommodation and a work-studio. They maintained regular contact via Skype enabling The Hive to ensure they conformed to the agreed placement programme. Their greater independence encouraged local business contacts and commercial work, achieving a revenue of approximately £8000 and created a number of potentially commercial products.

This programme of support is unique across the University. Individuals can explore their own entrepreneurial abilities and ideas through a placement, supported by members of The Hive team. Prior to this program, it was not possible for students, without a business idea and with very little demonstrable entrepreneurial flair to undertake an in-house placement here at The Hive. This "design placement opportunity" enabled such students to complete a placement programme, meeting all the requirements of their course, without which they would have been hard pressed to find a placement opportunity acceptable to the University.

Results & Impact

In order to assess the success of such innovations in the curriculum across the whole cohort rather than in individual student cases, the course DLHE survey data for the course from 2012-2013 to 2015-16 has been considered. Literature has conflicting views on the usefulness of DLHE data, due to the lack of detail it considers, being described as a measure of employment rather than employability (Beaumont, Gedye, & Richardson, 2016; Bridgstock, 2009; Dacre Pool, Qualter, & J. Sewell, 2014) that fails to take account of the social-economic backgrounds of students and the status or prestige of the HE institution attended (Dacre Pool, Qualter, & J. Sewell, 2014). However, the DLHE data is the only nationally recognised measure of graduate employment and its wide spread use permits comparison across similar courses that otherwise wouldn't be possible. Furthermore, it is the measure used in a variety of metrics and therefore is of significance to the UK HE sector (Taylor & Hooley, 2014). The DLHE data presented in table 2 demonstrates a gradual increase in employability both in relation to positive and graduate outcomes over this period. The data sets available considered either the SW route or the combined SW and non-SW cohort. However, the survey return from non-SW students, who did not undertake a placement, was too low to qualify for the DHLE survey baseline in all years. Therefore, the non-SW data has been extrapolated from the difference between the SW data and whole course data below in table 2 to highlight differences between the routes where possible.

------INSERT TABLE 2 HERE-------

Table 2: Graduate Outcomes

By extrapolating the SW data from the combined cohort data and adjusting for an equal size cohort of non-sandwich to sandwich students the following differences between the routes can be seen in the final two columns of table 3 between the success of the SW vs non-SW students.

------*INSERT TABLE 3 HERE*-------

Table 3: Comparison of SW and Non SW DLHE Graduate destinations with adjusted difference for non-SW students

The data in 2012-13 is skewed by the fact that there were only two non-SW students that year who were both still unemployed after 6 months hence the -95% adjusted difference for Positive outcomes. However, for all years there is a significant difference in graduate prospects for non-SW students compared to SW students, which is hardly surprising as sandwich students will typically have 9 months to a year industry experience over the non-SW students.

Due to the smaller number of students who elected to share their salary information only the combined data for the SW and non-SW students is shown below in table 4, to account for the particularly low response from SW students for the 2013-14 cohort. The difference between the graduate salaries for the employed non-SW graduates in comparison to the employed SW was also rather negligible with the mean salary between non SW and SW differing only by £100 for 2015-16 and £200 for 2014-15.

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Table 4: Graduate salaries after 6 months for entire cohort extracted from DLHE data

However, what is interesting from table 3 and figure 1 below is the 20% & 23% jump in students earning over £20,000 and £25,000 respectively between the years 2013-14 and 2014-15, this improvement in graduate earnings also aligns with the 30% increase in placement uptake presented for the placement year for the same cohorts in 2012-13 and 2013-14, aligning with the changes in the 2nd year curricula.

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Figure 1: Graduate salaries after 6 months for entire cohort from DLHE data

The graph above provides a visual picture of the spread in the graduate salaries obtained by each cohort and with the exception of one particularly low outlier for 2015-16, demonstrates a gradual increase in the salary bands over the four-year period, slightly skewed by the much higher response rate from the 2014-15 cohort.

As part of the DHLE survey students are also asked how well prepared they felt they were for employment, further study and self-employment and this is shown below in figure 2.

------*INSERT FIGURE 2 HERE*-------

Figure 2: Graph showing students preparedness for Further Study & Employment from DLHE

The employment sections of figure 2 show a gradual increase in the students' preparedness overall but particularly with students stating that they were 'well prepared' from 2012-2015 with an unexplained drop in 2015-16, however of interest is the decrease in the number of students who felt

that they were 'very well prepared'. This difference could suggest a change in confidence amongst students due to changes in the job market. Or perhaps highlight higher student expectations in recent years due to increased fees and graduate debt. A comparison of this data with the further study column for the same year show a similar decline suggesting that the latter consideration of higher student expectation may be more appropriate.

The lower bars in Figure 2 compare the students' preparedness for further study alongside employment. Interestingly students' confidence in employment is markedly higher than further study across all 4-years. This is interesting as after an undergraduate period of study one might expect that students would feel more comfortable undertaking a postgraduate course of study than seeking work, but this is not the case, suggesting that the course design is more appropriate for preparing graduates for work than further study.

Benchmarking

Nationally the course compares very well against competitors, when comparing the KIS data of the other 11 BSc Product Design courses in the country that offer a specific SW route as opposed to an optional SW or non-SW routes. The mean graduate salary after 6 months across the 11 other courses is £21,900, with NTU graduates earning the 2nd highest salary in the country at £24,000 (Unistats, 2017a). Graduate prospects 6 months after graduating was an average of 89.1% across the 11 BSc Product Design courses when compared to 96% at NTU which was the joint highest course (Unistats, 2017a).

Comparing this to the national picture, a government report on graduate employment (Department for Education., 2017) states that for the period of 2012-2016 overall graduate employment for 21 – 30 year olds in the UK remained relatively static increasing by just 2.5% from 84.5% in 2012 to 87% in 2016, with median salaries of £24000 - £25000 respectively for this period. Whilst this is generalised and doesn't consider the specific disciplinary differences, this would suggest that the graduate employment on the course significantly outperformed the overall graduate market for the same period.

Further Work

Whilst the efforts made already have been successful, cohort sizes and student expectations have continue to grow and there are areas where the staff team have recognised potential improvements going forward. Whilst preparation for placement has been successful and receives positive comments from students on placement year, more could be done to prepare final year students for employment beyond graduation, particularly amongst the non-SW students and students who undertook EPS only, who may lack confidence in seeking employment. This aspect is highlighted in the preparedness question of the DHLE survey, which suggests room for higher returns in the number of students who state that they are 'very well prepared', which has been declining.

Staff have identified that some students working in more remote rural locations experience loneliness, which can result in students cutting short their placements. Further work developing the placement year experience, could consider how better to support students in maintaining their course community and support network on their SW year. An introduction of a dedicated web 2.0 weblog system could encourage and enable communication from students with their peers by sharing their experiences.

In addition to this study, a further study considering course specific longitudinal DLHE data (HESA, 2017) for graduates would be of interest, specifically considering salaries, progression and how

many graduates remain in an aligned discipline, or how many graduates enter an aligned field after the 6 months that are currently captured in the standard DLHE survey. This latter point is of particular interest and importance as the authors have noticed an increase in the number of students electing to undertake a gap year post-graduation.

Conclusions

The results from the DHLE data demonstrate a positive progression in the employment and graduate prospects of both SW and non-SW students on the course, however the results clearly demonstrate the SW students are better prepared due to their placement experience. What is interesting though is that there has been improvement amongst the non-SW students, correlating with the changes from the introduction of placement preparation and industry led live briefs suggesting that these are perhaps having an impact on the students' graduate opportunities despite their lack of formal placement experience. However, to draw definitive conclusions on the effectiveness of these innovations, further data is required in the form of qualitative responses from alumni and a consideration of the longer term impact on the students employment from the 5 year longitudinal DLHE data. Furthermore, detailed DLHE data from similar Product Design courses across the same four year period would need to be considered to assess relative impact across the sector. Unfortunately, such data is currently only available to the individual institutions. However, the benchmarking section demonstrates that the course ranks very highly in comparison to competitor courses both in regard to the graduate prospects and salaries, suggesting that the approach is at the least successful and appropriate. Furthermore national graduate data suggests that the increases observed are not simply a product of an improving graduate market which has only seen an increase of 2.5% during this period of study (Department for Education., 2017).

The practical implications of undertaking such changes in the curriculum have been relatively straightforward, due to the small incremental nature of the changes implemented, the existing nature of the placement year and the opportunity and oversight of being the programme leader. Whilst a number of the smaller changes such as the employability preparation and live briefs can be replicated in other institutions, supporting agencies and facilities such as the Hive and the employability team have been crucial in enabling the scale of the improvement. In particular, the success of the Consortium would not have been possible without the support of The Hive.

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Placement Year	**2012-13**	**2013-14**	**2014-15**	**2015-16**
Number Placed/*Cohort size*	16/*24*	30/*33*	26/*31*	25/*31*
Achieve Diploma	8		21	22
Achieve Certificate	1			3
European Project Semester (EPS)	4	7^	2	3*
Lacking weeks or diary / report	3		3	
% Placed Diploma/ non diploma	33.3/*45.8%*	72.7%^	72.4/*82.8%*	71.0/*80.6%*
% EPS	16.7%	21.2%	6.9%	9.7
% SW (Placement & EPS Combined)	66.7%	90.9%	89.7%	80.6

*Students who undertook EPS also completed 10-15 weeks placement and met requirements for Certificate award. ^One student opted to complete full 36 weeks + EPS.

Table 3 Students undertaking a sandwich year placement or EPS

SW Students						**Combined SW and non-SW Students**					
Survey Year	Cohort Size	Respondents	Response Rate	Positive Outcomes (PO)	Graduate prospects (GP)	Survey Year	Cohort Size	Respondents	Response Rate	Positive Outcomes (PO)	Graduate prospects (GP)
2015-16	23	21	91.3%	100.0%	95.2%	2015-16	32	27	84.4%	96.2%	92.3%
2014-15	28	22	78.6%	100.0%	90.5%	2014-15	36	28	77.8%	96.2%	80.8%
2013-14	13	13	100.0%	91.7%	75.0%	2013-14	25	23	92.0%	95.0%	70.0%
2012-13	19	19	100.0%	81.3%	62.5%	2012-13	21	21	100.0%	72.2%	55.6%

Table 4: Graduate Outcomes

Year	**Cohort Size**	**Response Rate**	**SW only Response**	**NON SW Response**	**Total Student Response**	**NON SW % of Survey**	**Positive Outcome Difference**	**Graduate Prospects Difference**
2015-16	32	84.4%	21	6	27	22.22%	-17.10%	-13.22%
2014-15	36	77.8%	22	6	28	21.43%	-17.73%	-45.16%
2013-14	25	92.0%	13	10	23	43.48%	7.67%	-11.50%
2012-13	21	100.0%	19	2	21	9.52%	-95.03%	-72.45%

Table 3: Comparison of SW and Non SW DLHE Graduate destinations with adjusted difference for non-SW students

Survey	**No Elected to State Salary**	**Mean salary**	**Median salary**	**Earning over £20K**	**Earning over £25K**
2015-16	12	£23,900	£22,750	83.3%	41.6%
2014-15	18	£24,100	£24,250	83.3%	50.0%
2013-14	11	£21,400	£20,000	63.6%	27.3%
2012-13	12	£20,000	£20,000	50.0%	25.0%

Table 4: Graduate salaries after 6 months for entire cohort extracted from DLHE data

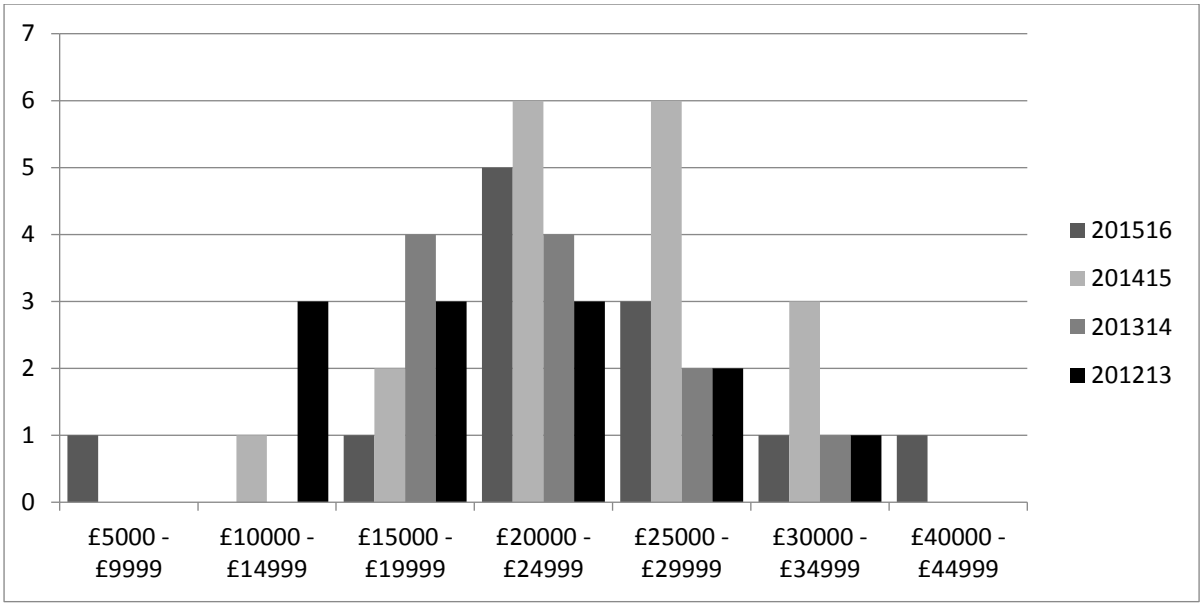

Figure 1: Graduate salaries after 6 months for entire cohort from DLHE data

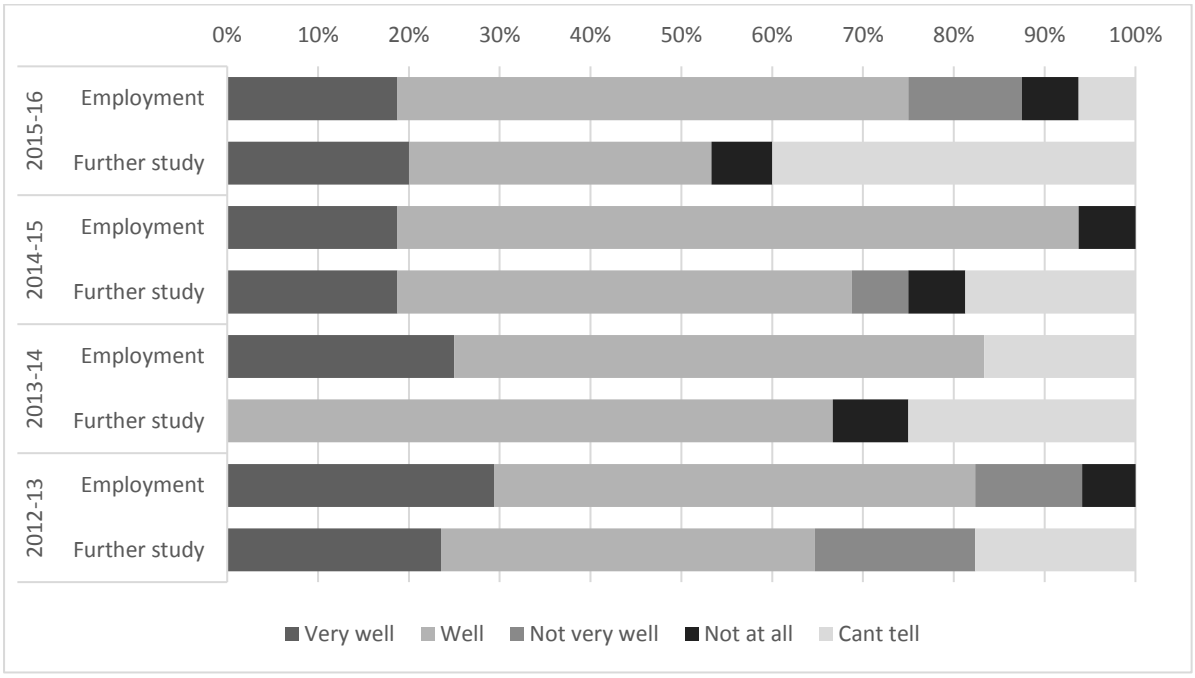

Figure 2: Graph showing students preparedness for Further Study & Employment from DLHE