**Re-shaping Built Environment Higher Education:**

**The Impact of Degree Apprenticeships in England**

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**Abstract**

The Richard Review of the United Kingdoms (UK) Apprenticeships in 2012 proposed degree apprenticeships (DA) as a new model for the unification of academic and vocational learning. Apprenticeships have long been acknowledged as a practical vehicle to develop the vocational skills and educational achievements of the UK employee resource. The UK Government set a target of 3 million apprenticeship starts between 2015 and 2020. In order for higher education institutions (HEI) to participate in the new apprenticeship marketplace, they need to consider distinct factors that do not surface in traditional Bachelors programmes. Cognisant of these challenges this paper evaluates the development of the new degree apprenticeship programmes for built environment education through the research lens of HEI. This paper evaluates extant literature and primary data collected from qualitative interviews carried out across the UK HEI sector during 2017. Research findings are presented following analysis using NVivo. Narratives on the barriers, benefits, and opportunities, of degree apprenticeships, including academic quality assurance, governance, and pedagogic dimensions are presented. The findings include industry designed curriculum producing a different graduate output, redefining the purpose of HE, restructuring governance and resource, additional contractual obligations for stakeholders and the embedding of work-based learning strategies.

**Key Words:** degree apprenticeships, barriers, benefits, built environment

**Introduction**

Across Europe and in the UK specifically there are concerns that the shortage of vocational skills are compromising the productivity and performance of the economy (European Commission, 2012). The Universities and Colleges Admissions Service (UCAS), which is a United Kingdom-based admissions service for British universities, has reported a decline in applications to Bachelors programmes in architecture, building and planning, falling by 14% between 2006 and 2016 (Universities and Colleges Admissions Service, 2017). The subject areas of architecture, building and planning are the primary professional disciplines within built environment education (JACS 3.0: Principal subject codes | HESA, 2018). However, overall, the national applications to Bachelor’s programmes in British universities have increased by 19% over the same time frame.

The UK Government has identified construction as an industry with strategic value to the UK economy capable of propelling Britain into the global leadership of the industries of the future (Department for Business and Industrial Strategy, 2017). The Government’s aspirations and ambitions for the built environment are to improve productivity and performance and reduce overall project costs by 30% and project delivery time by 50% before 2025 (Department for Business and Industrial Strategy, 2017). It is therefore anticipated that there will be an increasing demand for a staff resource that is capable of driving the built environment to deliver on these ambitious targets. This provides industry and HEIs the challenge of working together to produce the next generation of talent with the attributes and knowledge to provide the appropriate level of impact the industry requires to respond to the Government targets.

**Literature Review**

A review of industry reports and Government publications highlights the ongoing skills gap in the built environment (Construction Industry Training Board, 2017; Department of Business, Energy and Industrial Strategy, 2017). These skills gaps are exacerbated by a disconnect between the knowledge and abilities of graduates leaving HE and the expectations and the demands of employers (Farmer, 2016). The National Centre for Universities and Business in 2014 called for *really big thinking* on how academia and industry should collaborate to develop a workforce fit-for-purpose and to address the gaps in skills and knowledge that are required (Time Higher Education, 2018). In 2012, the Richard Review of Apprenticeships proposed degree apprenticeships (DA) as a new model for the unification of academic and vocational learning – the kind of model that is a key element in the revision of the traditional apprenticeship system to extend and include intellectual apprenticeships to produce professionally qualified, work-ready employees (Pratt & Johnson, 1998).

The traditional apprenticeship frameworks linked industry with technical colleges and professional higher education institutions. They offered an alternative to staying in full-time education and were targeted mostly at producing master craftsman or technicians. The system was successful in delivering the employees industry required by exposing the apprentice to on-the-job training and classroom-based education.

DAs take the traditional apprenticeship approach and combine practical training with study beyond technician level. They extend the principles into undergraduate and postgraduate education with the aim of producing professionals with exemplary educational backgrounds, meaningful work experience and in some cases professional charter in disciplines such as engineering, architecture, surveying etc. DAs bring together the learning space of the workplace and the classroom providing the potential for industry, professional institutions and academia to actively work together. They are a vehicle for maintaining and growing a pool of highly skilled, professional labour, whilst improving the ability to attract and retain the best talent achieving an increasing level of workforce loyalty and contribution (Antcliff, Baines & Gorb, 2016).

In 2015 the UK Conservative Party took heed of the review and as part of its manifesto pledged to create 3 million new apprenticeships in England by 2020 (Conservative Party, 2015). The pledge was based on the development of employer-led DA standards with independent assessment supported by a new *apprenticeship levy* system. This study aims to investigate the introduction of DAs in the built environment in HEIs in England. More specifically, it will present a series of recommendations for HEIs, highlighting the barriers preventing participation; present the opportunities and benefits that can be gained; and discuss the academic quality, governance, and pedagogic practice for engagement with DAs.

***Review of Apprenticeships***

The Richard Review of Apprenticeships in England was commissioned in June 2012 by the Secretaries of State for Education and Business, Innovation, and Skills. The task they set was to review apprenticeships and identify a set of principles and priorities for the optimization of future apprenticeships and to ensure new apprenticeships would deliver high-quality training and professionally recognized qualifications (Richard, 2012, p. 20).

The recommendations outlined in Richard’s (2012, pp.15-9) report include:

* redefining apprenticeships: Richard suggested that apprenticeships should be targeted at those who are new to a job which requires sustained and substantial training,
* focussing on the outcome of the apprenticeship: determining what the apprentice should be capable of doing when they have completed their training as well as embedding independent assessment into the process,
* recognizing that industry standards and requirements should form the basis of every apprenticeship,
* ensuring apprentices have reached a good attainment level in English and maths before they have completed their apprenticeship,
* Government funding creating incentives for apprenticeship training: the purchasing power for investing in apprenticeship training must lie with the employer,

The review answered the questions of what an apprenticeship system would look like in a future economy and how it would work. Richard recognized that apprenticeships matter to society and the economy: they provide a meaningful opportunity to benefit not only the apprentice but also society by means of directing people into fulfilling work, in addition to helping employers develop a more loyal and productive workforce. In 2015, the Government launched nine new industry designed DAs, these would become the innovative model. “DAs bring together the best of higher and vocational education: allowing students to combine academic study with practical workplace experience” (Department for Business, Innovation and Skills, 2015). This was in response to the recommendations made by Richard.

***What is a degree apprenticeship?***

DAs are an educational route, developed in 2014, that generally provides a pathway for apprentices to gain a Bachelor’s or Master’s degree. They combine higher education (HE), with on-the-job, vocational training through an active and contractual arrangement between an HEI and an employer and through this perhaps offer the way for HE to add value to apprentices’ lives (Carter & Tubbs, 2017). The set of criteria which defines a DA has been approved by the Institute for Apprenticeships (2018), which, in summary, explains the apprentice must:

* have a contract of employment,
* be paid at least the appropriate minimum wage,
* have an apprenticeship agreement with their employer,
* be allowed 20% structured off-the-job training,
* complete an end-point assessment

Tuition fees are financed from an *apprenticeship levy fund*. Non-levy paying employers are also able to withdraw funds of up to 100% of tuition fees from the central levy pot. Apprentices would be unable to contribute or make a payment towards their tuition fees; thus, creating the opportunity for students to complete a Bachelor’s or Master’s degree (where an approved DA existed) without incurring the burdensome debt typical of traditional programmes. The apprenticeship levy was introduced in April 2017. It requires employers with a payroll of over £3-million to pay 0.5% of their payroll bill (offset by £15,000) via pay-as-you-earn (PAYE) taxation to fund apprenticeships for all companies based in England (Department for Education, 2018). The collected levy funds are then used to develop the skills and expertise of employees to enable employers to respond to an increasingly competitive, yet ambitiously growing economic climate. Education providers are by default providing the support required to enable employers to access these funds. This is time intensive and costly and requires the design and provision of additional employer engagement extending challenges to existing administrative functions (Mulkeen et al., 2017).

Employers are placed at the heart of the process. Their centralized position ensures the apprenticeship is aligned to industry expectations and the apprentice acquires the skills and expertise demanded of the sector. Groups of like-minded employers, known as *trailblazers*, come together to formulate an *apprenticeship standard* for a specific occupational role that is focused and relevant to their business needs. The trailblazer consortiums are balanced with both large and small employers however there is some unrest amongst smaller employers that the DA standards developed are more suitable for the larger employer and discourage the engagement of smaller employers. “DAs ultimately require more collaboration, co-operation and co-creation between the employer and the provider” (Mulkeen et al., 2017).

The remit of the trailblazer is to engage with appropriate trade organizations and professional, statutory and regulatory bodies (PSRBs) to align the requisite skills and competencies demanded of the role. Trailblazers interact with potential training providers, usually HEIs in the case of DAs, to design robust learning, teaching, and assessment strategies that are connected to the apprentice’s workplace. The resulting collaborative relationship between employers, PSRBs, and HEIs has the potential to realize the *added value* of DAs: programmes that embrace the constructive alignment of focused academic curricular with workplace learning and engagement in the PSRB membership process (Institute for Apprenticeships, 2018). Employers favour the DA standards closely aligned to a PSRB (Institute for Education, Bath Spa University, 2018).

It is useful to draw a distinction of the main features of DAs relative to other forms of study for built environment programmes. These are presented in **Table 1.**

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| **Table 1*****Alternative modes of study*** |
|  | **Degree apprenticeship** | **Full time degree** | **Part Time degree** |
| Level of study | 6 – 7 | 6 – 7 | 6 – 7 |
| Duration | 2 – 5 years | 4 years | 5 years |
| Funding | Government/employer | Student(circa £27,000) | Student/employer(circa £27,000) |
| Employmentstatus | Employed throughout | Employed during12 month placement | Varies |
| Salary | At least min wage | Dependant onplacement | Dependant oncircumstance |
| Curriculum | Employer lead(accredited with PSRB where appropriate) | HEI lead(accredited with PSRB where appropriate) | HEI lead(accredited with PSRB where appropriate) |
| Contract | Employer - HEI | HEI - Student | HEI - Student |
| Mode of study | Part time/blended | Full time | Part time |

These DA programmes have brought benefits and opportunities and a wave of challenge to existing institutions and systems. Not only the costs of setting up the programmes, empowering the employer’s voice, governance and organisational culture clashes. There is also a typical perception of what an apprentice is and the status associated with the title of apprentice is not one usually associated with the professionally qualified employee. The complexities of adapting the delivery of taught modules to online learning and managing an arms-length relationship between the employer and the HEI are new time intensive yet critical activities (Mulkeen et al., 2017). There is also concern over whether employers are ready to invest the necessary time and have the ability to evaluate skills and behaviours. In particular, the smaller employers which may not have the support of established training schemes and human resource departments (Institute for Education, Bath Spa University, 2018).

To summarise, DAs:

* are resource intensive for employers and HEIs
* deliver graduates with the requisite skill set and competencies demanded by the role
* align university study with occupational-based workplace learning
* provide tuition-free education for the apprentice
* require increased levels of collaboration and integration between HEI and Employer

This study explores these distinctive characteristics with those who have delivered DAs.

**Methodology**

An exploratory sequential mixed methods design was adopted which focussed on establishing perceptions and experiences of HEIs delivering DAs (Cresswell, 2007).

***Participants and Sampling***

Adopting a purposive sampling method, HEIs were identified which had completed a year of DA delivery and as a result had the ability, experience and knowledge to provide the depth and range of data required. Six were selected to take part in the study. Due to the newness of DA provision at HE only a small sample was obtainable, this is acknowledged as a potential limitation to this study. The chosen HEIs were geographically spread across England and offered Bachelor’s and Master’s degrees in built environment subjects. This project was limited to studying Register of Apprenticeship Training Providers (RoATP). The RoATP is a list of education and training organizations approved by the Institute for Apprenticeships (IFA) to deliver training on behalf of employers using the apprenticeship service.

Nine employees were selected using a non-probabilistic sampling method. Although the respondents formed a convenience sample, they were representative of the target population regarding their socio-demographic characteristics. The sample included representations from academics, business development and administration departments with the most senior respondent operating at the level of dean and the most junior as administrative support. These three departments are considered significant as they represent where disruption has occurred within HEI with the introduction of the DA programmes (Institute for Education, Bath Spa University, 2018). **Table 2** below shows the remit and responsibilities of the respondents.

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| Table 2***The Respondents*** |
| **CODE** | **Discipline** | **Responsibility** |
| RESP01 | Academic | Built Environment, Faculty Based |
| RESP02 | Academic | Built Environment, Faculty Based |
| RESP03 | Business Development | Built Environment, Faculty Based |
| RESP04 | Business Development | Built Environment, Central University |
| RESP05 | Administrative (TEL) | Built Environment |
| RESP06 | Academic | Built Environment, Faculty Based |
| RESP07 | Administrative (Programme Support) | Built Environment, Faculty Based |
| RESP08 | Academic | Built Environment, Faculty Based |
| RESP09 | Administrative (Programme Support) | Central University |

**Data Collection and Analysis**

Each interviewee was asked pre-prepared open questions during an in depth semi-structured interview designed to elicit their experience, knowledge, and understanding of DAs in the built environment, from the perspective of their employing HEI. The themes identified in the literature review informed the content of the interview, allowing time for additional issues to be discussed.

Each in-depth exploratory interview was audio-recorded and then transcribed by an audio-typist. The names of the interviewees and HEIs were anonymized using an alpha-numeric reference to protect their identity: respondents were labelled RESP01 to RESP09. Results from the content analysis were categorized according to the qualitative interview themes.

This study adopted Coffrey & Atkinson’s (1996) approach to coding. Blocks of text were initially coded to broad topic areas to identify and group similar themes. Clusters of text coded to the broad thematic nodes were then re-coded in greater detail using a hierarchical or tree-structured system designed to gather smaller, related concepts into a standard subordinate set or to merge themes into one which replicated the lumping method advocated by Bernard & Ryan (2009). This rigorous data analysis framework provided links between the empirical data and the researchers claims presented.

**Results and Discussion**

The results from the interviews were categorized according to the following three themes and 11 sub-themes, see **Table 3**.

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| Table 3***Thematic Content Based on Interviews*** |
| **Theme** | **Sub-theme** |
| Benefits and opportunities | Collaboration |
|  | Employability |
|  | Finance |
| Barriers | Organizational systems and cultures |
|  | Gaps in understanding |
|  | Procurement and tendering |
|  | Administrative (Programme Support) |
|  | Employers |
|  | End-point assessment |
| Academic quality | Governance |
|  | Quality Assurance |

***Benefits, Barriers and Opportunities***

The respondents appeared optimistic at the prospect of developing and delivering this model of a collaborative study for new and existing industry partners and saw it very much as an opportunity for growing and expanding programme provision. Universities UK report a drop-in part-time students studying first degrees of 12.6% during 2006 – 2016 (Universities UK, 2017). However in all cases the respondents acknowledge that DA would provide an opportunity to grow collaboratively designed and delivered programmes with industry to narrow the widening gap between education and industry.

*Collaboration*

A significant number of respondents acknowledge that DAs are a convenient platform from which to collaborate with employers to undertake research and innovation projects, including Knowledge Transfer Partnerships (KTP); and to arrange *guest* lectures and site visits; RESP08, an academic, exclaimed, “*Being able to work with employers on quite a close relationship, enables me to link in with site visits, problem-based learning, and external lecturers.”* While RESP03, also an academic, said, “*There are all sorts of spin-offs in terms of research and other things, and potentially placements for full-time students* […] *beyond the taught element* […] *it could even extend to employee staff placements. So, we are increasing and making sure that their industry knowledge and experience is as relevant as it possibly can be, and bringing that back into the classroom.*”

Using an example, RESP01, a senior academic, shared, “*It provides a structured engagement with employers which we haven't had in the past. Most of our engagement tends to be through student year-out training and the ‘milk round’ sort of graduate employment.*”

The alignment of the DA with the requirements of the PSRBs was praised by RESP04, “*We’re able to provide a more seamless service from the initial recruitment of the apprentice through to them getting professional membership [*…] *from whatever their starting point.*” This holistic approach was referred to by a number of the respondents and these views highlight the significance of capacity building in HEI, PSRBs and employers to be able to maximise the opportunities available through collaboration.

*Employability*

RESP05 saw the DA as an education vehicle from which apprentices are exposed to theory and practice, thereby equipping them with the skill set to succeed as a professional in the real world. “W*e make sure that everything is always relevant and up-to-date* […] *giving the students, equipping them as best it* [sic] *can* […] *to then enter the real world, and not only pass their studies, but actually be ready for their employment, and to move, progress forwards with their apprenticeships.*” In addition to the benefits for employers, the benefits afforded to apprentices were highlighted by RESP04. “*It provides an opportunity to transform higher education, particularly in implicational subjects* […].” Temporarily putting to one side the financial benefits of DAs, respondents discussed the opportunities and employability advantages available to apprentices and closing the theory practice gap.

Employability characteristics such as the development of self-motivated students was also significant. As an illustration, RESP06 and RESP07, remarked, “*the more vocationally relevant the work that you're doing, the more likely it is that students are going to want to succeed and engage in it. It's about the* [apprentice’s] *engagement at the end of the day.*” while RESP02, academic, pointed out, “*I am hoping the students will be much better motivated to go on to get their professional status* […] *The companies might gain by their employees looking further into the distance.*” It is evident that several interviewees recognized DAs motivate apprentices to engage in the educational and professional practice-based ethos of the programme. The frequent workplace visits and active dialogue between the stakeholders facilitated this and maximised the opportunity of aligning the work-based learning and the classroom where previous forms of part-time programme delivery had struggled.

This signifies new ways of working with an enhanced experiential journey but nonetheless expanding service provision and input for HEI and employers.

*Finance*

A small number of respondents talked about the benefits and opportunities for students associated with finance, professional membership, and informed career pathways to promote retention. Focusing, firstly, on cost savings for the students RESP01 said, “*lots of applicants came along* [to our open-day presentation] *and their parents particularly said, ‘Why should we pay £27,000+?”* When a direct comparison is made with the cost of a DA programme with no charge to the student and a full time sandwich programme, which costs £27,000, it is clear that financially the DA is a more favourable option. Against this background, RESP06, an academic, simplified this advantage by saying, “*students don't come out with half a hundred grand's worth of debt*”; while RESP08, also an academic, focused on the additional benefits. “*We already have the kind of student who’s more vocationally inclined and perhaps couldn’t afford university.*” This opinion was expanded on by RESP03 with a faculty-based administrative, business development role, who connected the cost-saving benefits of DAs with the apprentice’s ability to receive a Bachelor’s degree, gain a professionally-recognised qualification, and have the necessary work-related experience demanded of a specific role. “*For those people who don't want to come out with a huge amount of debt, it's a no-brainer really, isn't it!? You're trained for a job, you've got a professional qualification, you'll have your degree,* [and] *you're work-ready*.”

The DA removes the barrier of tuition fee loans for students previously deterred by the threat of burdensome debt, widening accessibility and inclusivity for students.

**Barriers**

Bringing together culturally different sectors to co-design and co-deliver new educational programmes is not without barriers and challenges. The integration of different organisational structures and cultures and the implementation of new systems and procedures is made challenging due the gaps in understating and the ongoing formation of the apprenticeship system.

***Organisational Systems and Cultures***

RESP04, employed by a privately funded HEI, felt their strong historical position in the commercial marketplace gave them an advantage over government funded HEIs. “*I think we face fewer barriers than other institutions. Some […] universities were asking themselves […] is this right for us; what do we need to put in place to deliver this? I felt like we didn’t need to answer […] it’s so well aligned to our mission and our ways of working that we've already decided that this is for us.*” They suggested HEIs should rise to the challenges posed by DAs and overcome the barriers they encounter. “*I think that is one area where the HEIs have got to be brave […] remove potential layers of snobbery that might exist in some HEIs of the Further Education* [FE] *system and recognise the really good practice that's there for apprenticeships. So instead of trying to reinvent the wheel around degree apprenticeships, look at the good practice that is in their local FE College.*” This opinion was reflected by significant sample of respondents and highlighted the urgency for traditional HEIs to respond with a commercial outlook in order to integrate effectively with employers. Something which is alien to traditional HEI’s.

***Gaps in Understanding***

Participants expressed similar points of view regarding the barriers encountered by HEIs, employers and students associated with their understanding of DAs. RESP02 explained, “*I think there are still huge gaps in understanding.*”

This situation is counterproductive to the Government’s sponsorship of the Richard Review of Apprenticeships and the recommendations outlined in the report. The apparent lack of understanding about DAs particularly by non-levy paying companies and the intervening steps taken by HEIs to help overcome the resultant problems was shared by RESP02. “*They haven’t got a clue. We tell them very, very simple stuff.”* In half of the respondents the difficulty of attracting students onto the DAs was referred too. RESP07, who explained, “*until there's a way of literally lining up a whole line of people that might want to do an apprentice* [ship], *it's going to be very challenging.*” The DAs will not be appropriate for all HEI applicants, RESP03 recounted an experience during an open-day presentation acknowledging that there were still students who wanted the *university experience* of a full-time student. “*Yes, we know we're going to come out with all this debt and we know this, but actually we want to have a full-time student experience at university.”* Until the level of awareness is raised across all of the stakeholder it will remain difficult to create apprenticeship vacancies and attract the student onto the DAs.

***Procurement and Tendering***

Further challenges encountered are concerned with the legal and procurement frameworks. Several respondents spoke about the public sector’s statutory requirement to adopt a best-value approach to service delivery. Interestingly, RESP04 from business development, commented, “*One of the barriers that we’re seeing is the procurement barrier**that’s arisen for the public-sector.*” While RESP07 shared the same concern, “*You're already on the Register of Apprenticeship Training Providers and then, suddenly,* [Local Authority A] *want you to go into a tendering process.”* This potentially bureaucratic hurdle was considered a central university responsibility. Allowing the academic teams to focus on DA delivery and development.

***Employers***

It was reported that from the respondents’ experience employers, levy and non-levy payers, are also experiencing barriers hindering their engagement. Several respondents reported that the employers are facing problems about the quality of the work-related experience and mentoring support they are required to provide apprentices. RESP08, an academic, considered the inter-relationship between the educational pathway and workplace environment of the apprentice critical and discussed how their HEI was developing and delivering formal mentor training to support employers with their additional responsibilities. RESP07, an administrative support team member, expressed, “*Some employers take on apprentices into roles that aren't suitable for the apprenticeship programme and then they don't get […] sufficient experience and exposure within their normal working roles to be able to support the broader programme.*” Concern about the employer’s responsibility to provide appropriate mentoring support, including PSRB counselling, was highlighted by RESP03, who said, “*they are very worried about the amount of time that they're going to have to invest with that individual in terms of the mentoring*.” Their observation, which highlighted the potential for apprentices employed by SMEs with limited opportunity to achieve the learning outcomes of the educational pathway or develop the skill set and competencies demanded by the accrediting PSRB, has far-reaching implications for the collaborative relationship between stakeholders. “*Some SMEs have got quite a narrow workload, and narrow focus on the kind of work that they get involved in. So, from their perspective, it’s being able to provide the apprentice with the breadth of experience that’s required of them to be able to fully demonstrate that they’ve achieved all the professional competencies.*” A solution was expressed by RESP08, who explained the intermediary measure taken by their HEI to establish a rotation scheme to broaden and consolidate apprentices’ experience. “W*e’re looking at strategies for how* […] *we get apprentices to swap employer, so they can have a different experience.*” Strategies like these are essentially at the route of the recommendations of the Richard Review. This delivers impact on the development of effective work based learning strategies which celebrate the learning in the HEI and on-the-job.

***End-Point Assessment***

A characteristic of the DA is the presence of the end point assessment. RESP08, academic and recently qualified Chartered Surveyor, raised a concern with the interconnected attribute of the educational and professional experience frameworks of DAs: although an apprentice may receive a Bachelor’s degree from an HEI, they will not complete the apprenticeship until they have passed the end-point assessment. As a case in point, they talked about the end-point assessment being evaluated by PSRBs and not HEIs. “*Their degree award is independent, so they’ll get their degree; they won’t complete their apprenticeship until they’ve successfully done the end-point assessment.*” A number of the respondents admitted that their focus was away from developing the end-point assessment at this stage as the programmes being delivered were still in their infancy, and this would be an area to be addressed at a later stage. However RESP08, an academic, also made reference to support systems being developed. *“So, we’re looking at how we can develop a mentoring system that we can provide internally to those students who don’t have that, to try and, say, improve their chances of successfully completing their end-point assessment first time round.”* The availability of appropriate end point assessment organisation needs to be developed to allow the successful completion of the end point assessment. In most cases this fall outside of the remit of the HEI but is a critical factor to the ability to be able to complete the DA.

**Academic Quality**

Although respondents acknowledged the importance of using appropriate teaching, learning, and assessment approaches, it was the use of work-based learning (WBL) strategies that aroused most concern. RESP01, a senior academic, shared an account of how employer trailblazer consortiums were unaware of pedagogy. “*Any discussion on pedagogy or assessment or structure of work-based learning components wasn’t discussed.*” Perhaps controversially, RESP01 shared their experience of WBL and conviction about its effectiveness for DAs which is founded on a recurring theme shared by several interviewees: the need to resource DAs adequately to ensure a quality learning experience. “*The whole area of work-based learning is a massively complex one* […] *and I’m hesitating to get involved in it in the future because you've got* […] *issues with different types of employer, sizes, experience, expectation of the individual and the university, and to try and homogenize all that in terms of quality is a real tricky job. If we were to do it properly, which is the only way I will want to do it, is we would have to put some pretty big resources to think how we structured it and how we make sure that the mentors are trained, that the students are getting an equivalent experience if they're working for a* […] *sub-contractor*.” This was a comment made by a senior member of an academic team who has been involved in the delivery of degree apprenticeships in the built environment for over three years.

Concerns about WBL were not limited to academic quality assurance but included disinterest from employers who have a limited appreciation of its benefits for the learning journey, “*we might go to a work-based learning programme if the market from employers was strong enough for them to say, ‘We feel we can offer something which is of value here’ but I don't think the employers are that interested.*” Several comments were expressed about pedagogic benefits: these included opportunities for apprentices to disseminate their workplace learning in the classroom and with their mentor. By way of example, RESP03 explained, “*in terms of pedagogy* […] *you've got people who are coming away from that organization, they are learning independently from that organization theory, and they're bringing that back into the workplace.*”

Participants were also asked about the challenges they had faced during the DA programme internal validation process at their HEI. The accounts underline a potential disconnection between the taught and experiential learning journeys. RESP01 talked about the shift in HEIs’ focus from teaching to research activity, in response to the Research Excellence Framework (REF) and its effect on university positioning in league tables in the UK. There was a perception amongst the respondents that the number of academic staff with industry experience was in decline. RESP09, from the professional support team, contemplated how the relationship between HEI, the apprentice and the employer is continuing to evolve “*it's getting academics to understand that this is a different relationship we have with employers: a three-way agreement means a three-way agreement. Issues around confidentiality are different to a normal degree, and the way we interact with employers is different.*”

***Governance***

As anticipated, the governance and administrative structures of HEIs to support DAs were raised as an issue by respondents. RESP07, who was a professional support team member, “[governance] *is a massive issue to get across and to get threaded through faculty structures, departmental structures and make sure that there's some sort of consistent approach to the apprenticeship programme.*” Their comment suggests a standardized approach to the administration and governance of DAs is needed. For instance, they explained, “*I do think from the point-of-view of a large, multi-faculty university, it would be worth having central control.”* This view was upheld by other respondents and highlighted the desire to move responsibility to central university and away from the subject areas.

The comment made by RESP01, an academic, was supported by RESP09, administrative assistant, who said, “*they* [tutors] *need support from the central team to do that, because there are lots of things, bureaucracy, etc. that goes around the apprenticeship*.” RESP03, business development, also mentioned the need to monitor and report the effectiveness of governance structures supporting DAs to HEI executives; they explained how their HEI had evolved its governance structure over time to include a board attended by two pro-vice chancellors (PVC) with leadership responsibilities for DAs. This emphasises the demand for central university support “*One of the things that has happened since I’ve been here is we’ve set up a degree apprenticeships board specifically looking at lessons learned and those sorts of issues. We have two PVCs who sit on the board, because one of the things they’ve realised is we must be a lot more flexible and agile, and decisions need to be made. So that board meets every four weeks.*”

***Quality Assurance***

The results showed the HEIs had adopted one of two approaches to the statutory requirement, under the auspices of the Quality Assurance Agency (QAA) UK Quality Code: either a revision to existing or development of new approval and monitoring frameworks, the former being articulated by RESP04, business development, “*The model we adopt for degree apprenticeships in terms of the core degree element is not that different from our standard delivery model…so we don’t find that we need to do full validations in most cases... It doesn’t really change the overall learning outcomes very much.*” While RESP01, an academic, discussed the latter, saying how their HEI had adopted the former approach to validate it’s DAs as quickly as possible from its existing traditionally-taught part-time Bachelor’s degrees, but because of this experience and aspirations to offer more DAs, had decided to develop a new academic quality assurance approval framework. “*The framework is a fast-track way of getting courses to validation,* […] *if we didn't have our work-based learning framework, I think we would be at sea. I think if we were going through our normal validation processes, it wouldn't be quick enough on its feet.*”

**Conclusion**

This research aimed to investigate the impact of DAs on the education of professionals in the built environment from the perspective of HEIs in England. Through a comprehensive literature review the distinctive characteristics of a DA were established. These characteristics presented a number of benefits, barriers and opportunities for HEI and it was the exploration of with these, through a series of semi-structured interviews with HEI and a subsequent content analysis, which established a series of impact factors illustrated in **Table 4.**

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| Table 4***Impact factors*** |
| ***Impact*** | **Resource intensive for both HEI and employer** |
| *Benefits* | Alternative income stream for HEI and an enhancing the student journey  |
| *Barriers* | Prioritising the additional resource required to maximise the tri-partite relationship, mentor support and work based learning |
| ***Impact*** | **Expanding service provision for the traditional HEI** |
| *Benefits* | Maximising opportunities for mutually beneficial activities beyond the DA. |
| *Barriers* | Attracting the appropriate resource with the communication skills to unite culturally different sectors |
| ***Impact*** | **Industry designed curriculum** |
| *Benefits* | Commercially aware graduate apprentices with academic achievement and professional membership |
| *Barriers* | Resourcing the current and evolving academic delivery |
| ***Impact*** | **New funding system - Apprenticeship levy**  |
| *Benefits* | Financial assistance for both student and employer |
| *Barriers* | Complex and inaccessible process subject to political influence |
| ***Impact*** | **Additional governance** |
| *Benefits* | Framework for consistency and continual improvement in DA delivery |
| *Barriers* | Bureaucracy and limited resource in new markets |
| ***Impact*** | **Authentic learning and embedding work based learning pedagogy** |
| *Benefits* | Aligning the workplace and classroom and encouraging innovation and application |
| *Barriers* | Commitment and priorities from all stakeholders |

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The key question is ‘can the increased level of resource required to deliver the distinctive characteristics of a DA ie work based learning, cross sector collaboration, professional competence, be enabled within HEI and employers?’ These activities support the findings of Mulkeen et al who acknowledge the essential nature of collaboration, co-operation and co-creation between employer and HEI.

Addressing the requirement for an increased level of staff resource, which is versed both in education and practice, is considered to be influential in enabling the benefits of the DA for all stakeholders. Developing this infrastructure is a critical component for delivering high quality DAs which deliver on the government expectations of producing work ready graduates. The DA is compromised by often conflicting organisational structures and commercial priorities across the stakeholders. An enhanced support structure requires a redefinition of the employer as an educator and a wider role for HEI as an educator and assessor in the workplace. One of the biggest challenges is the delivery of the industry designed curriculum, which would be expected to reflect currency in practice. A strategy for this sees an increased level of co-delivery across employers and industry, resulting in enhanced work based learning pedagogy and authentic project based learning opportunities.

The key stakeholder at the centre of the new educational philosophy is acknowledged as the apprentice, who undoubtedly benefits from the existence of the apprenticeship levy and a tuition fee free education. The ability to realize the Richard Review of Apprenticeships defined benefits is the central tenet of DAs. Progressing the work of Pratt & Johnson in the development of self-motivated, intellectual apprentices who engage in their learning process as the driving force of DAs. This level of apprentice has a longer-term view of career benefits, opportunities after graduation and ultimately a positive impact on the productivity and performance of the economy.

**Further Recommendations**

To further extend this research a study into developing the infrastructure within HEI and employers to allow for the effective delivery of DA’s is recommended.

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