EXAMINING REQUIRED FLEXIBILITY IN DELIVERY OF GRADUATE APPRENTICESHIP TO BEST MEET STAKEHOLDER NEEDS AT A SCOTTISH UNIVERSITY

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Abstract: The UK-wide apprenticeship levy, introduced in 2017, saw the creation of Degree Apprenticeships in England and Graduate Apprenticeships (GAs) in Scotland; the differing approaches resulted as education is a devolved matter in Scotland and under the jurisdiction of the Scottish Government. GA Frameworks were developed through a consultative approach between government, industry and education providers in order to create a defined number of offerings aligned to the Scottish Government priorities of a high-skills economy. GAs allow learners to develop towards a recognised professional standard (e.g., Incorporated Engineer) by gaining a Higher Education qualification and developing their competencies in parallel through employment in a relevant organisation. Whilst the qualification requirements are defined, how these are achieved is down to each institution. This autonomy in how learning and assessment is provided within the degree programme has provided important flexibility to institutions and programme teams to meet the demands of stakeholders: students, organisations (private, public and third sector) as well as the university and its programme teams. This paper outlines perspectives on the different delivery models adopted across several GA Frameworks at Glasgow Caledonian University obtained through interviews with a purposive sample of key stakeholders. Particularly, how the differences in delivery balance (a)synchronous delivery, on/off campus, workplace and university activities, and student support, as well as timetables to meet stakeholder needs and the Framework requirements are evaluated. Moreover, it explores how this flexibility was so important during COVID- 19 and what lessons have been learned from education during the pandemic that will influence future approaches.

Keywords; graduate apprentices, graduate apprenticeships, work-based learning delivery model.

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1. INTRODUCTION

Higher Education (HE) is seen by many governments as a tool for socio-economic development through nurturing highly skilled graduates that contribute to and create societal and economic wealth. The introduction of the Apprenticeship Levy by the United Kingdom government in 2017 reflected a direct government intervention in the UK to reinvigorate an alternative pathway to employment and training, that combined educational studies with workplace experience. The UK government levies 0.5% of a company's annual wage bill (for companies with a bill greater than £3 million) to pay for this, with companies able to recoup this money

by engaging current employees or recruiting to approved apprentice schemes (Powell and Foley, 2020).

At the heart of these apprenticeships was the desire for industry to have more influence over the training and education opportunities available to their staff and to meet their requirements. To ensure consistency of these apprenticeships, standards were created through a consultative process. However, within the UK context, education is a devolved matter (for example, in Scotland determined by the Scottish Government, and the UK Government for England), which resulted in different nomenclature - Degree Apprenticeships (DAs) in England and Graduate Apprenticeships (GAs) in Scotland. Consequently, different approaches to developing these standards emerged across the UK. In Scotland the standards (GA Frameworks) are developed through Technical Expert Groups (TEGs) whose membership is pulled from industry, employers, educational providers, professional bodies and social partners (Apprenticeship Scotland, n.d.).

Universities that were appointed, through tender, to run specific GAs, then had to develop programmes that reflected the GA Frameworks, defining a range of knowledge, skills and behaviours that apprentices need to evidence by the end of the formal educational aspect of their apprenticeship, as well as encouraging a clear ethos of work-based learning in teaching, learning and assessment. Of note is that the GA Frameworks do not prescribe how the educational aspects need to be delivered, so the teaching, learning and assessment strategy is designed and developed through the programme development process, and then enhanced during the actual delivery. Therefore, the potential successful operation of a GA (for apprentices, their employers, and the university) can be influenced by the way in which the GA is delivered and adapts. There is limited published work on the design and delivery of Graduate Apprenticeships (as will be discussed in the literature section below), so, the research question for this article is "*In what ways does institutional autonomy and flexibility in how Graduate Apprenticeships are delivered permit a responsive approach to meet changing stakeholder needs?*" This question will be asked in the context of one Scottish university (Glasgow Caledonian University) that operates several GA programmes across Engineering and Computing.

The next section will outline literature around reviewing the design, development, and delivery of apprenticeships, and particularly consider what is known around how Graduate Apprenticeships meet and adapt to the needs of stakeholders. Section three will then synthesise across the Engineering and Computing GAs the constraints and flexibilities. Then, the methodology for this research will be outlined with the findings and discussions following, before finally the conclusions and next steps being outlined.

2. REVIEW OF PRINCIPLES AND PRACTICE OF DESIGN, DEVELOPMENT AND DELIVERY OF GRADUATE AND DEGREE APPRENTICESHIPS

Established in 2017, Graduate Apprenticeships in Scotland are still a relatively new award route and the research discourse around these qualifications is still emerging. For the most part, discourse is practitioner led, with research outputs primarily emerging from the Higher

Education Institutions offering GA awards. In England, there is a similar pattern of research emerging from studies of DA Programmes.

GAs present a unique challenge in fusing work and learning for the duration of the award. Bellew et al (2018) highlight the benefits of GA programmes in providing an unprecedented opportunity for continuous work experience alongside degree level study, but caution that this presents pedagogical challenges in balancing the (often conflicting) needs of the different stakeholders: the providers, who must ensure academic quality; employers, who must provide an environment appropriate for work-based learning for apprentices (with associated costs to short-term productivity); and students who must continually balance and manage their work and learning effort. Balancing the needs of different stakeholders to create a practical solution has driven design and delivery of GA programmes. Lester (2020), exploring the sustainability of DAs in England, highlights the importance of strong employer-university relationships, essential for collaborative development of provision, collaboration during delivery (and particularly assessment) and to facilitate championing the benefits of DAs in the broader community.

The design of GA programmes has been explored by several practitioners, often as part of the process of designing the programmes themselves. Barr & Parkinson (2019) describe the development of a Software engineering GA. In this study, the research team consulted industry partners to identify four key considerations: mode of delivery (block or day release); content delivery (online or face to face); entry requirements (particularly as GA programmes are designed to offer alternative routes into higher degree study); and maintaining relationships over extended periods of time. Their colleagues Dziallas, Fincher, Barr & Cutts (2021) looked at the same programme once it was in its second year of operation to attempt to understand student employer and university perceptions. That study described how the design of the programme used a block release model to mitigate rapid context switching that is inherent in day release models. It was also felt that extended block release would facilitate cohort formation, though the authors concede that a block release approach may be less appropriate in later years of the programme. In England, Patelli, Beaumont & James (2020) reported on their successful use of an eight-week residential bootcamp to equalise widely varying initial skill levels on a Digital and Technology Solutions (DTS) DA. Young & Zarb (2019) describe a largely online GA delivery model that was supplemented with an on-campus day for each module to allow students to build meaningful relationships with each other. While the default mode of all GA/DA provision reported has been to utilise a combination of face to face and online provision to support learning, the emergence of COVID in 2020 forced all UK based programmes to pivot to a wholly online mode for much of the next year. Sheen, Griffiths, Wilson & Cunningham (2021) describe the redesign of a DA in User Experience (UX) launched in Autumn 2020 where staff focused on creating a strong community of learners, and took advantage of the flexibility afforded by recorded lectures and the opportunity to use digital communications technology in an authentic way to create a course that still met the needs of the DA group.

Some studies explored a key aim of DA/GA provision: asking whether these new programmes could address the perceived skills gap between traditional HE awards and the needs of industry. Young (2020) highlights the importance of linking academic theory with workplace practice

in GA contexts and describes the introduction of a Professional Development Module designed specifically to encourage students to reflect on their transferable skills. Yang & Seyedebrahami (2022) report on the design of the DTS DA programme described above. To ensure that the DA award met the requirements of the standard set by the Institute for Apprenticeships & Technical Education, transferable skills requirements were mapped to module learning outcomes to facilitate transparent and explicit embedding of these skills into course content.

3. SYNTHESIS OF GRADUATE APPRENTICESHIP POLICY AND FRAMEWORK PRINCIPLES (GENERALLY AND FOR CASE STUDY INSTITUTION)

Inspecting the different Scottish Government GA Frameworks available, the most pertinent shared aspects are that a GA: is a work-based degree (exit at SCQF10 – Honours, or SCQF11 – Masters); meets industry and professional body requirements; must clearly demonstrate work-based learning requirements; and is a partnership between stakeholders. Table 1 summarises specific commonalities of the Frameworks and highlights where autonomy of the programme teams is possible. Of note, these Frameworks define an extensive set of low-level learning outcomes (up to 150 for some programmes) that map to curriculum requirements. They provide appropriate guidance yet still allow some flexibility in curriculum design. Most flexibility is in the modes of delivery, with the GA Frameworks offering a range of potential modes from online, to block delivery to day-release, as well as in how the work-based assessments are encompassed into the programmes.

Shared mandatory aspects across GA Frameworks	Shared areas of flexibility
1. Focus on development of personal, interpersonal, and professional competences to support employment in a range of roles; 2. Importance of core technical content providing most of the required Learning Outcomes; 3. Transferable and recognised across a range of employers; 4. Ongoing involvement and contribution of employers; 5. Industry mentor to support apprentice's learning with suitable experiences, opportunities, and a development plan; 6. Allow Recognition of Prior Learning (progression and experiential learning).	a. in how GA is to be delivered; b. in how Recognition of Prior (informal) Learning provides flexible entry into the programme; c. in how the work-based learning and assessment is implemented between the university and the employer.

Table 1: Summary of shared aspects and opportunities for flexibility in Scottish Government Graduate Apprenticeship Engineering and Computing Frameworks

In the case of the institution in this case study (Glasgow Caledonian University) a review of the Programme Approval Documentation for the GA programmes indicates that these were predominantly developed from existing programmes, or part-time programmes in the case of subject areas where the institution had a strong existing provision. Furthermore, the assessment typically included the adaptation of Project modules to emphasise work-based learning activities. Elements of work-based assessment were also included within academic modules where this was appropriate to the module subject matter. All programmes include an aspect of reflective learning, but only one uses a dedicated logbook to achieve this outcome.

An area where the Engineering and Computing programmes diverge is in the utilisation of industrial mentor support for the apprentice. The Computing programmes split the roles between a mentor and a technical supervisor, where the latter is responsible for day-to-day support, particularly in relation to projects, and the former has a role as a first point of contact in the workplace and in facilitating work-based learning. In terms of the University support, all programmes have a dedicated GA/Year Tutor to support the apprentices.

Academic programmes typically evolve and undergo regular review within the institution's quality enhancement procedures. The majority of the programmes that have been running for more than one cohort have undertaken major review or minor changes to the programme during this period, and it has been found that the GA Frameworks allow sufficient flexibility to allow these processes to take place. All the above show the considerable flexibility that is possible within the GA Framework system.

4. METHODOLOGY

An exploratory research approach is taken to this research, due to the limited extant publications, to uncover the views of the Programme Leaders (PLs) on the considerations that influenced (and continue to influence) the operation of their GAs. Qualitative, in-depth interviews were conducted with a purposive sample of PLs; PLs were chosen as they have overall academic responsibility and oversight of the apprentices and therefore could provide an initial, yet holistic perspective. Four (of a possible six) PLs were interviewed by the lead author (not a GA PL) using MS Teams (which was used for recording and provided an initial transcription); the automated transcription was then checked for accuracy. Two of the PLs had held this role from the inception of their programmes, the others took up this role later. The interviews lasted between 52 and 58 minutes. The transcribed interviews were then analysed using descriptive coding process, with a second cycle to determine commonalities, as well as key differences (important in this case to explore the autonomy of PLs in meeting stakeholder needs).

5. FINDINGS AND DISCUSSION

From the analysis of interviews, a number of key themes were identified: 1) how the GA programmes had been adapted from existing provision – both in terms of the curriculum, but also in terms of the delivery pattern; 2) the practical considerations of work-based assignments and the range of possible ways to embed work-based practice; 3) the organic evolution of how the programme was delivered (including how they responded to COVID-19); and 4) the importance of some key roles "to bridge" between the university and employers to support apprentices. These four themes will be addressed in turn below.

Theme 1: Adapting existing provision. Firstly, all four GA programmes evolved from existing provision for several practical reasons, including that the programmes were already accredited by the relevant Professional Institutions (PEIs), that they had been delivered in a part-time mode already, that there were existing links with industry, and were supported by research and expertise within the relevant departments. Also, for resourcing reasons,

maintaining connections between the current programmes and the GA programmes offered benefits, particularly around creating a student community, "*I realized that they [apprentices] enjoyed being part of the larger cohorts because they learned from somebody else, and they interacted with somebody else. It widened their network of contacts as well, and especially when they were on campus, I think I found that they enjoyed being able to join the big group*" (I3). The ability to mix students and apprentices resulted from the decision to bring apprentices in on a day-release model that "*getting that time away from their work, a dedicated study time where you're not got maybe the distractions of a phone call for this or something like that ... getting that time away from work to be on campus, to meet your classmates, to have that interaction. And so we really wanted to kind of maintain that model*" (I1). However, the choice of day is important to meet all parties' expectations, with most programmes using Monday or Fridays: one PL commenting that employers were "*happy ... we've now moved to Mondays and Fridays only for classes*" (I2). The choice of delivery mode is not defined in the GA Frameworks. As can be seen, this provides flexibility for the university, but must suit the needs of the employers also.

Theme 2: Work based assessments. In terms of curriculum of the programme, the key adaptation to the existing programmes was around enhancing work-based elements (as mandated by the GA Frameworks). Two programmes already had specific work-based learning modules at each level, capturing relevant workplace learning, whereas the other two programmes adapted project modules at each level of the programme to accommodate work-focused learning. These modules ensured a clear focus on work-based learning as well as a design that allowed apprentices to complete the required number of credits per year, which requires the use of the summer term. In one programme, this work-based learning is assessed by the employer (technical supervisor), "*actually the mark comes from this supervisor, not from us. It's another way to give them a beautiful responsibility. You [industry supervisor] supervise a lot of his work at place of where you will give him the mark. Obviously based on our credit criteria of the module handbook*" (I4), whilst in other programmes assessment is conducted just by academic staff; of note is that workplace monitoring is definitely a key part of the industrial mentor's role. Examples were given of work-based assessments in other modules, but importantly a balance between authenticity and equity in assessment was highlighted, "*we could have asked them to do 3D modelling of a part from their workplace, but we felt that the additional challenge that might be proposed by that would actually unfairly penalize them against the students who had taken similar modules full time*" (I1). Also, the importance of having options for apprentices for work-based assessments is important, "*perfect example that students that were on furlough during the pandemic and we have a fallback position. We can give them a task which is fairly generic, they can contextualize for their, to make sense in the workplace*" (I2). So, flexibility in how to embed work-based learning and to adapt assessments to the changing situation are vital.

Theme 3: Evolution of Delivery. Another theme that was identified was how the programmes have evolved in response to feedback. The example of adapting to feedback in selection of the teaching days has been outlined above, with other examples including how workplace learning was captured through log-books. Programmes used various mechanisms to understand evolving needs, for example Industry Advisory Boards, but also by holding annual workshops/sessions with apprentice and employers to review the running of the programme and to identify areas of good practice and aspects that are not working. This

ongoing enhancement aligns well to the Scottish sector approach of ongoing enhancement. Additionally, this mechanism also strengthens the existing relationships between employers and the university.

COVID-19 brought specific challenges and solutions that differed between programmes. In Engineering programmes, the lack of access to laboratory and practical work experience proved particularly challenging, but solutions for students to access advanced software were found. In other programmes, the existing use of flipped classroom approaches pre-COVID made the adaptation smoother in some regards, but brought challenges in terms of building and sustaining learning communities. The benefits of recorded lectures, improved electronic communication means for supervision and more direct engagement with employers (via Teams) are features that will be sustained in the emergence from COVID-19, allowing for greater emphasis on community building during on-campus sessions.

Theme 4: Bridging Roles. Building on that point of relationships, a final and important theme related to specific roles that supported the effectiveness of the GAs – in industry (mentor and technical supervisor), as well as the GA Tutor role (in university). Some programmes determined two employer roles, whilst others just had an industrial mentor, with some flexibility depending on the nature of the organisation, "*if a student is working for a small or medium sized organization, they may only have capacity in that company to give them a mentor and not necessarily have two persons that would take up the role of mentor and technical supervisor*" (I3). The GA tutor role (supporting the apprentice and industry mentor) was highlighted as being key – from providing updates on students' progress, supporting apprentices and employers to find appropriate projects, as well as ensuring that students are getting the required work experience (breadth and depth of exposure). In one programme a highly collaborative approach was outlined with employers partnering (or university seeking to find opportunities) to enable the apprentice to cover the breadth of a subject required for their studies and to meet the Professional Institution requirements. Such adaptability and partnership takes effort, commitment, and time, and is vital for some programmes to ensure they meet the requirements of the Frameworks; this is also an area where a nation-wide approach may offer opportunity to grow the number and diversity of employers and apprentices. So, the programme teams and employers need to adapt to create the learning environments to develop in their apprentices.

5. CONCLUSIONS AND NEXT STEPS

Graduate Apprenticeships are still in their infancy, and it is important to examine how to make these deliver for all stakeholders as they were envisaged. The findings of this case study across different GA programmes have indicated that flexibility in terms of roles and responsibilities in universities and in industry, in adapting to external and stakeholder changes and in terms of how the programme is delivered (in this case day-release) are important facets that are important for the programme leaders to meet the needs of the apprentices and their employers. Future research needs to explore further this flexibility (and constraints) from a wider range of stakeholders (particularly the employers and the apprentices, as well as university managers) to better understand how to enhance the mutual benefits from the triadic relationship between university, employers, and apprentices.

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