

## **Economy, Infrastructure and Skills Committee: Degree Apprenticeships Inquiry**

### **Note of visit to Data Science Campus, Office of National Statistics, Government Buildings, Newport – 4 March 2020**

Attending: Russell George AM (Chair), Oscar Asghar AM, Hefin David AM, Vikki Howells AM, Helen Mary Jones AM, Joyce Watson AM, Lara Date (Second Clerk), Lucy Morgan (Research Service).

Meeting included: Peter Fullerton (Deputy Director, Data Science Campus), Alison Adams (Head of Talent, Data Science Campus), Millie Tyler (Parliamentary Unit, UK Statistics Authority). Data Science Degree Apprentices: Jonathan Rees, Vondy Smith, Evie Brown, Stuart Newcombe.

The visit was an opportunity for Members to speak directly to degree apprentices about their experience of the pilot in Wales. Those present were in their first year of a Data Science degree apprenticeship (DA), so currently at Level 4 working up to a Level 6 degree after 3 years. They studied one day a week (Mondays) at Cardiff Metropolitan University and worked 4 days a week at the Data Science Campus. Second year apprentices were unable to attend as Wednesday was their study day, but Members viewed two video interviews with second year apprentices made by the employer.

Members received a brief presentation about the ONS and DA programme from Peter Fullerton and Alison Adams, including the apprenticeship format and gender balance of the cohorts. Members then had a very informative discussion with the four apprentices about their personal journey, the benefits for them, and any negatives or teething problems.

The employer explained the importance of the programme given that demand for data scientists has tripled over the past five years: Alison Adams said “it’s about growing our own talent pool”. We were told that ONS were interested in building a degree apprenticeship to fill a gap and it enabled them to recruit in an area where more skills are needed. There is a sector pathway from Level 4 Data Analysis, through Level 6 Data Science to Level 7

Artificial Intelligence Specialists. ONS said it would welcome Level 7 (Masters level) being available in future, this is offered in England.

When asked how DAs differ from a graduate recruitment programme, one apprentice noted that he didn't feel he had the right skills and experience to go in at that level, and Peter Fullerton said that the traditional graduate route may not be open or appeal to the people coming into apprenticeships – it is another alternative pathway. Peter Fullerton said that the traditional graduate route may not be open to the people coming into apprenticeships – it was another alternative recruitment pathway.

To apply for this apprenticeship applicants are required to have 3 A levels, one in a STEM<sup>1</sup> subject or a Level 4 Data Analysis apprenticeship.

Members asked about the difference between a degree apprenticeship and undertaking a part-time degree whilst being employed. Both employer and apprentices described differences between DAs and a part-time degree. For the employer the benefits were working alongside the provider to co-design the degree, the links with the work projects, and the fact that learning was embedded back in the workplace. This allowed the degree to be linked directly to the workplace, rather than the work and what was being studied feeling disjointed. Alison Adams had undertaken two part-time degrees herself and was clear it was a very different experience. She said it was a better route at Bachelor degree level.

When asked about the comparison between a degree apprenticeship with ONS and employment opportunities offered by private sector employers in areas like artificial intelligence, the reply was that many people were attracted to the public good aspect of the work over the profit motive. The Data Science degree apprenticeship is open to both private and public sector employers. Demand had exceeded the employer's expectation. Apprentices were free to leave the organisation on completion. Of the Level 4 apprentices, 8 had gone through and stayed in ONS and been promoted on, others had gone to work for Welsh Government, the Wales Audit Office and the Cabinet Office.

---

<sup>1</sup> Science, Technology, Engineering, Mathematics

It had not been a completely smooth journey for the employer and **lessons had been learnt** on employer collaboration with the provider and support for the apprentices. ONS said there had been “some casualties along the way” – some people moving from Level 4 to Level 5 had found it “a real jump” to move into the degree-level academic world and “had struggled”. Three apprentices had withdrawn at Level 4 and four from Level 5 – there was learning to be had in terms of the **level of commitment** required. The apprentices also noted the importance of understanding and being prepared to commit time to studying, including sacrificing other things. One said it was “quite a big jump”, and “important to be very organised.”

The employer noted an important benefit of the DAs was the **provision of additional core skills** – resilience, presentation skills and time management.

**Gender breakdown** of the cohort was encouraging – 12 apprentices in Year 1: 8 male and 4 female, 8 apprentices in Year 2 – 3 male and 5 female. It was noted that the Data Science degree apprenticeship cut across all aspects of the sciences including social sciences. Cohort employers included ONS, Welsh Government, Companies House, Ministry of Justice and AI-focused start-up Nightingale HQ.

**Employer involvement in programme design** was from the start – as soon as the tender had been won ONS were going through the design with Cardiff Met, and there was also ongoing regular feedback with the provider. ONS said that their work with Cardiff Met on the DA had helped the university develop their Data Science Degree. The apprentices agreed their course was truly co-designed, and the degree apprenticeship was “more than the sum of its parts”, because the learning feeds back into the workplace and vice versa.

**Affordability** emerged as a key issue for the apprentices themselves. Several talked about financial commitments being a factor in the decision and ability to undertake degree-level study: “I have a mortgage and a wife”, “I’m older, I need financial stability”. A Level 5 apprentice commented that the DA provided a better balance of working, earning and learning.

The **direct application of skills in the workplace** was a key benefit for the apprentices: A Level 5 2<sup>nd</sup> year apprentice said “I see directly where my skills are being applied.” Another 2<sup>nd</sup> year said that having the qualification was

important for her to be able to demonstrate “unquantifiable job skills” and it allowed her to “have an edge” in the labour market.

**Support from the education provider** was described as good, for example a 2<sup>nd</sup> year said that Cardiff Met had been good on scheduling and timetables. The issue of **scheduling** was described as a teething problem by the 1<sup>st</sup> year apprentices – but once raised with the University this was resolved. Another issue for apprentices was **the importance of having enough notice of deadlines, and sufficient time to complete assignments** when also working 4 days. The apprentices also said they had fed back to the education provider that workshops in the first term had felt at **too low a level**, for someone just leaving A levels, compared to the technical level at which apprentices were working in the workplace, with insufficient ‘hands-on’ involvement from lecturers. This had been raised and the University had ‘stepped up’ – it was possibly a **design issue** at the start. The second term was much more applied to the work and the hard technical skills required. It was also noted that the provider needed to get all students in the cohort up to the same level. Overall, there was a positive feeling amongst the apprentices that the feedback they had given to Cardiff Met had been implemented.

Apprentices reported that some of their cohort had been provided with **support from the education provider with personal life issues**, and that they all had the assurance that the provider had policies in place to support them.

There was **good collaboration between employer and provider** – the lecturer had come to ONS and the employer had visited the provider to see assignment presentations. Both apprentices and employer gave the impression of **constructive engagement between employer–provider–apprentices**: increased understanding and shared skills and knowledge both ways was a key benefit of the DAs. The apprentices said the education team were genuinely interested in what they were doing in the workplace. There was also **collaborative working on shared projects** between cohort members with different employers, e.g. between ONS and Ministry of Justice.

The apprentices said the employer allowed some **flexibility**, on top of the 1 study day a week, for a bit of time in work to be used to support their learning, e.g. using data available on campus, and in advance of assignment

deadlines. Anecdotally it was reported that cohort members employed in Welsh Government had some initial problems accessing systems in their workplace that had to be resolved.

The apprentices felt the **balance between work and study** – 4 days in work and one with the education provider was right – they felt **valued as part of their team** in the workplace being there 4 days.

Apprentices valued **the application of learning in the workplace**: “we use real-life data and work in a real life environment and see the value of our work”. This was seen as a real advantage of the DA over a part-time degree – apprentices were learning practical skills that were useful to the employer and applied in a work environment, and were working with experts in the field. Apprentices also valued the opportunity on their study days to talk to and learn from the other cohort members with different backgrounds and work experiences.

When asked if they were learning truly **transferable skills** to take to another workplace, rather than skills very specific to the current employer, the apprentices believed the skills gained were very transferable, and it was possible the level of expertise gained was actually higher than it would be elsewhere. One apprentice also noted there was a private start-up included in the employers, so it was not just focused on the public sector.

The apprentices described their **diverse backgrounds** and previous experience. One had no degree beforehand, having left a first year chemistry course for a change of career direction, and had then come in from employment in the hospitality sector. Another had come from England to gain skills in data science after working in debt advice in the third sector. One had come from private industry where he felt unfulfilled but had needed to maintain financial stability whilst changing career path.

The DA offered the **opportunity to change career path** and prove themselves in the workplace, expanding their skills without **the requirement for an existing level of expertise being a barrier** to recruitment. When asked why they chosen to do a DA, a Level 5 apprentice noted that they had reached a point in their career where they needed more skills. A Level 4 apprentice said that their interest in data science had emerged whilst they were working

elsewhere and that the applied nature of the DA was key for them. They also commented that they had looked at doing a part-time degree and part-time working but preferred the DA as it was more practical.

On **parity of esteem** and **perceptions** of a DA versus a standard undergraduate degree, apprentices reported some scepticism from friends and family, including friends thinking that they were on an internship, but when peers fully understood the DA offer it was seen very positively, even as being “too good to be true”.

One said that without the DA his future would have been more uncertain working in the third sector where fixed terms contracts are commonplace – he had **more job security while being up-skilled**. Another noted that he was being paid more than in previous employment.

The Data Science DAs were advertised via Civil Service Jobs as well as by word of mouth, but it was felt that more could be done to **publicise and promote their availability**, assuming opportunities continued to be made available.