

New opportunities through computing apprenticeship degrees, mostly in Scotland

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Degree Apprenticeships

- Higher education apprenticeships.
- Apprentices are employed and salaried.
- With 20% time for study outside workplace (e.g. day or block release).
- Takes about as long as a traditional degree (e.g. 4 years in Scotland; runs through summer).
- Academic credits for agreed work-based learning, including applied / research project in final year.
- Called *Graduate Apprenticeships* in Scotland; different governance & finance to England & Wales.



Computing Degree Apprenticeships

4 frameworks in Scotland (and in this research):

- BEng Cyber Security
- BSc Data Science
- BSc Information Technology for Business Management
- BSc Software Technology



Timeline

Previous
education
etc.

Recruitment

Choosing
DA &
routes in

Starting
the DA

First year

Mid DA

Final
year,
looking
back

Mentors &
tripartite
teams

Career and
salary

Choosing DA and routes in

Methods

- Survey new apprentices (2017-21)
- Interview first year apprentices (2018-21)

Findings

- Mostly (e.g. 63% Smith et al. 2021) already employed and upskilling.
- Importance of salary, keeping job, no debt.
- Opportunities for career changers and mature learners.
- Motivated by gaining work experience and enjoy learning that way.



Prior educational experience

Methods

- Survey new apprentices (2017-21)
- Interview first year apprentices (2018-21)

Diverse paths in, patchwork of:

- Further education.
- Higher education – degrees gained or dropped out of.
 - Second chance.
- Previous apprenticeships (e.g. following path from modern to graduate apprenticeship).
- Potential for advanced entrance.



Recruitment

Methods

- Content analysis of job adverts, Scotland & England (2019-20)


Findings

- Huge salary range.
- Lack of info about actual job role.
- Lack of info about alternative entry qualifications.
- Looking for *graduate* skills.

Impact: Changes to template used for adverts in Scotland.

APPRENTICESHIPS.SCOT

From Skills Development Scotland

GA	Developer (year 3 entry) Graduate Apprentice 1 position available		Apply
💰	£16,500 to £20,000 per year	🕒	Full-time (37.50 hours)
📅	14/4/2025	📍	Edinburgh
GA	Cyber Engineer (year 3 entry) Graduate Apprentice 1 position available		Apply
💰	£16,500 to £20,000 per year	🕒	Full-time (40.00 hours)
📅	14/4/2025	📍	Edinburgh
GA	Engineering Design & Manufacturing Graduate Apprentice 13 positions available		Apply
💰	£21,525 per year	🕒	Full-time (37.00 hours)
📅	7/5/2025	📍	EDINBURGH

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Starting apprenticeship: Motivations and apprehensions

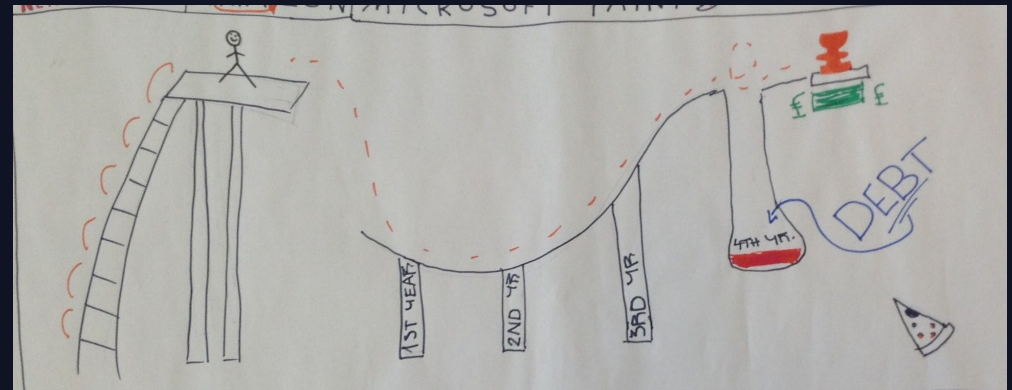
Methods

- Rich Pictures with new apprentices (2017-18)
- Survey new apprentices (2017-21)
- Mirror study with on-campus students (2017)

Findings:

Hazardous journey ahead, with reward at the end.

- Motivations: careers and money
- Apprehensions: Time balance, academic challenges.
- On-campus students also worried about money and debt.





First year

Method

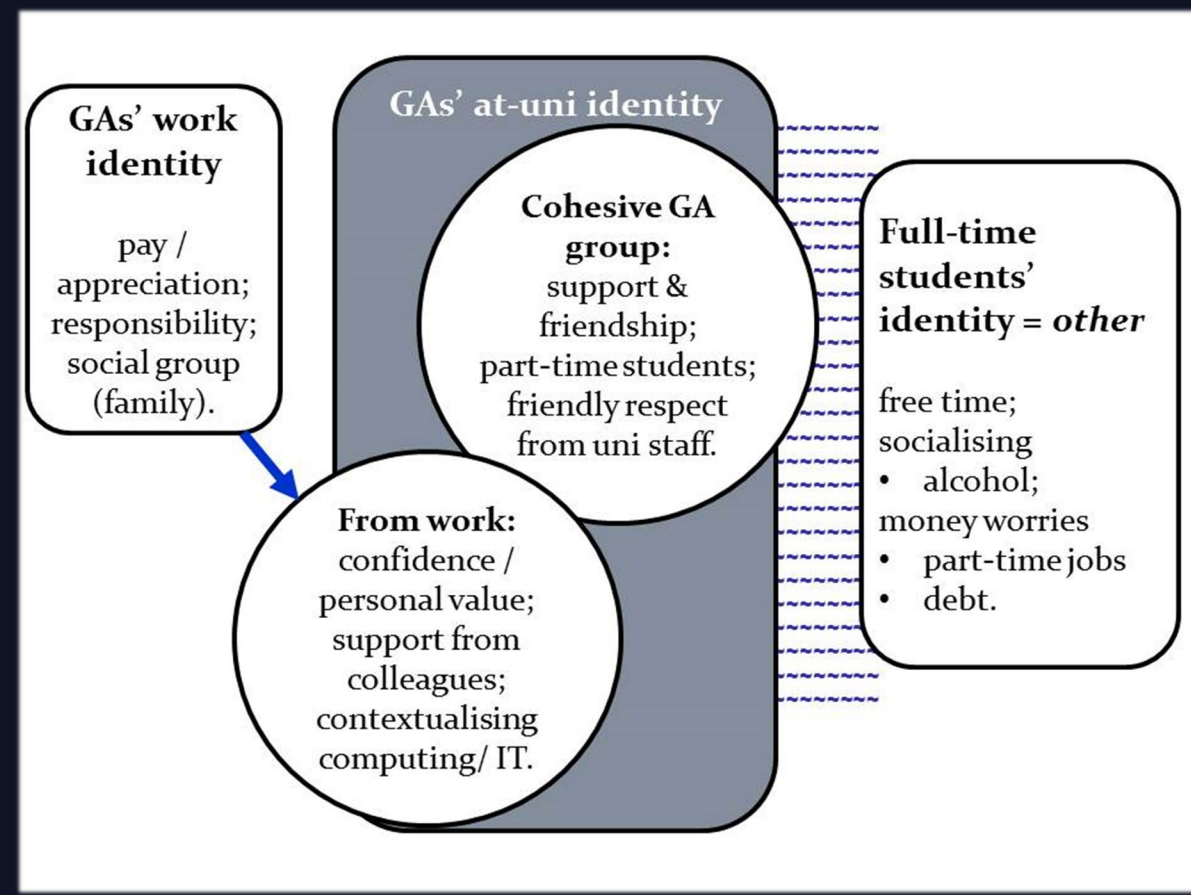
- Interview first year apprentices (2018-21)

Findings: Identity

- Identity as worker: job provides self-confidence.
- See themselves in contrast to on-campus students.
- Importance of cohort as community.

Findings: *balance work ~ study ~ life*

- Working and studying: win-win for finance and skills.
- Challenge for balance and integration.
- Helped by work colleagues.





Mid-Apprenticeship

Method: Q sort with 2nd years (2018-19)

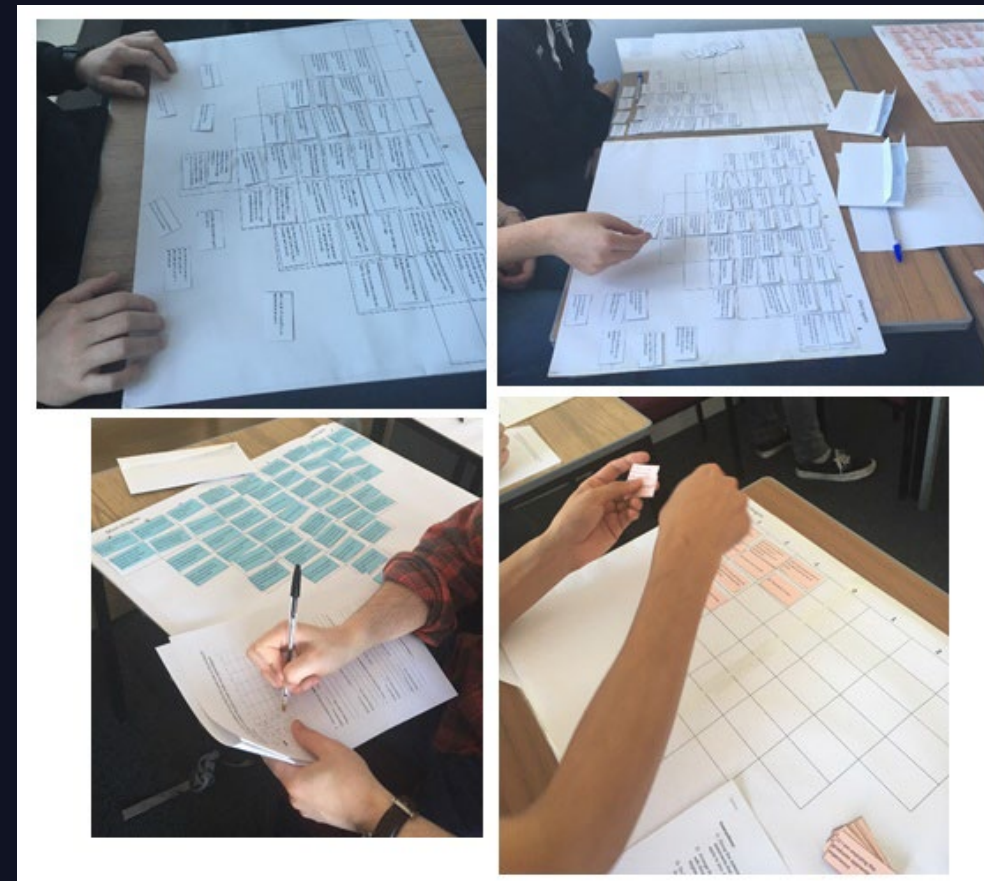
- Apprentices sort statements (agreement, importance)

Personas

- ❑ *Aligned Student-worker* – enjoys working and studying; mostly new to work role (e.g. software testing); work includes some downtime to catch up on studies.
- ❑ *Busy Professional* – already has responsible position at work; challenge to fit in studies.
- ❑ *Cast Adrift* – lacking support in workplace, e.g. no mentor or career development plan.

Impact

We use the personas in training workplace mentors.



All years: Covid lockdown

Methods

- Reflective, iterative, online survey for apprentices studying computing, engineering, and early years education (2020).

Findings

- Three domains –work / family / study – compete for apprentices' time.
- Very different experiences according to (e.g.) working at home or onsite, increase or decrease in work, caring responsibilities.

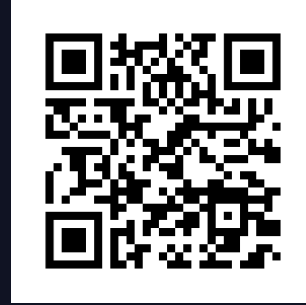




All years: workplace mentors

Methods

- Online surveys of workplace mentors and university staff (2024);
- Review of training guides (2024).
- Activity Theory Analysis.



Findings

- Lack of training provided to workplace mentors – mostly only at induction.
- Lack of opportunities to learn from each other.
- Mentors trained by experience; mostly enthusiastic.

Impact: blog with animation & infographic

For Mentors

Key Elements of **INCLUSION**

Learn about inclusive mentoring for work-based learning

Visit our blog:
<https://blogs.napier.ac.uk/wblmentors/>

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<https://blogs.napier.ac.uk/wblmentors/>



Final year, looking back

Methods

- Interviews with final year apprentices (2021-23).
- Longitudinal analysis of computing interviews, paired with 1st year interviews.
- Conservation of resources analysis of final year interviews of computing and business apprentices.

Findings

- Importance of integration between work and study.
- Role of workplace mentor in facilitating this.
- Gain for employer – skills, keystone projects, etc.
- Importance of cohort: new friendships.



After graduation (current study)

Method

- Survey of graduates (Computing and Engineering) who completed in last few years (2024)

Aims

We're particularly interested in what our data says about social mobility, but we don't have the final analysis yet.



Next: Tripartite Representatives

- Investigation into the role of university staff who support the apprentices through tripartite meetings with the apprentice and their workplace mentor.
- Comparison across UK nations.
- Methods: case studies and rich pictures.
- Collaboration with Northumbria University and University of Hertfordshire.
- Funded by Society for Educational Studies.
- Starts May 2025.

University of
Hertfordshire **UH**



**Northumbria
University**
NEWCASTLE

SES

Society for Educational Studies



Insights

Computing degree apprenticeships

- Good opportunities for school leavers, career changers, and upskillers.
- May not need any previous computing qualifications.
- Apprentices can quickly become useful employees (e.g. as software testers).
- Huge diversity of contexts, especially due to work status and responsibilities.

Degree apprenticeships in general

- Job + study = hard work
- Lack of awareness of opportunity – combination of apprenticeship and degree is not well known; status worries.



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Thanks for listening

Please contact me for list of
abstracts.

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