Supporting Degree Apprenticeship students: Tutors' and Students' perspectives

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eSTEeM final report – Supporting Degree Apprenticeship students: Tutors' and Students' perspectives

Executive Summary

Recently the UK government has initiated various initiatives and strategies to address the need for increased STEM skills in the workplace. Amongst those strategies is the introduction of apprenticeships in STEM subject areas, to which the Open University has responded by introducing apprenticeships at both undergraduate and postgraduate programmes.

This project addressed the fundamental question as to whether the Open University graduate apprentices need a different tuition or support strategy, and to identify any issues apprentices may face with the actual support strategies.

There were three main objectives:

- to explore the kinds of support available and assess their effectiveness;
- to assess the relevance of the assessment strategies;
- to identify key benefits of studying via the Open University apprenticeship programmes.

Our case study was Year 1 Digital and Technology Solutions programme with focus on TMXY130 (Introduction to Computing Technologies) and TXY122 (Career Development and Employability). Both the students' as well as the academic and practice tutors' perspectives were considered and contrasted. Whilst the initial proposal included the study of the English apprenticeships only, we were able to engage with a larger student body, as the Computing and Communication apprenticeship programmes had been broadened across the nations, with the Applied Software Engineering Degree Apprenticeship programme in Wales and two graduate apprenticeship schemes in Scotland. This opened the opportunity to gather a wider number and range of responses, and to compare experiences across the nations.

Following a literature review, a mixed method research approach was adopted, including, surveys, forum postings analysis, students' module performance analysis, as well as analysis of the end of year tutors debriefing sessions.

The main findings showed that most students performed well in both TMXY130 and TXY122 (good retention and pass rates). However, English and Welsh apprenticeships completion rates are much higher than the Scottish completion rates, with the suggestion that high workload in Scotland is an issue, as apprentices study 120 credits per year rather than the 90 credits studied in England and Wales.

The majority of apprentices are however, satisfied with the support available both from the Open University and their employers, as well as being satisfied with the modules content and assessments. Many however, raised concerns about the maths units and how they are assessed. Similarly, both practice tutors as well as the Open University academic tutors raised concerns about the relevance of the maths units, their usefulness in the workplace as well as the challenges understanding the terminology used in the Cisco units. The management units in TXY122 have also emerged as a common theme of dissatisfaction. The need of day-time tutorials to accommodate for the apprentices having time dedicated to their Degree Apprenticeship studies during the day has also been raised. The benefits of studying via the Open University apprenticeship programmes such as being assigned to a practice tutor in the workplace, as well as the outstanding tuition strategy and the flexibility of the learning provision have been quoted as the main benefits of studying via the Open University apprenticeship programmes.

Introduction

The project 'Supporting Degree Apprenticeship students: Tutors' and Students' perspectives', investigated the effectiveness of the actual Open University (OU) degree apprenticeship support strategies. Indeed, in 2017 the OU embarked upon degree and graduate level apprenticeship programmes across several faculties, as a direct response to UK government initiatives to introduce degree and graduate level apprenticeships. Higher level apprenticeship programmes offer opportunities to develop essential skills, improve productivity, and can help improve government-led goals such as widening participation and progression (UK Parliament website, 2019). The goals of this project relate to the kinds of support available to apprentices, the relevance of assessment (theory-based and work-based) and to identify key benefits of studying via the OU apprentices programmes.

The main focus was on investigating the apprentice tuition support with particular focus on the support from subject-specific tutors (what are the specific issues that apprentices face?) and the support from practice tutors (how can practice tutors best integrate support from the university and employers to ensure a seamless apprenticeship experience?), as well as how can work-based assessment (relevant to the apprentices' workplace) be integrated into the degree apprenticeship programme? Although our initial case study was Level 1 TMXY130 (Introduction to Computing Technologies) and TXY122 (Career Development and Employability) degree apprenticeship modules, we have considered other modules in the Degree Apprenticeship (DA) programme.

This report is organised as follows; the motivations of the project are presented first in order to set the scene and contextualise the research, followed by a brief overview of the OU DA model. The research methodology is then set out and the results analysed. Finally, the main findings are detailed alongside the conclusions and future directions from the project.

Motivation

In the UK apprenticeships have had a reboot in response to business requirements (Keep and James, 2011) and this has led to a variety of new apprenticeship frameworks and standards being developed across England, Scotland and Wales (Hoyle, 2016). Defining the term 'apprentice' can itself be a challenge, with various definitions across UK countries who currently offer apprenticeship programmes (IfATE, 2020; Skills Development Scotland, 2020; National Assembly for Wales, 2020). Whilst the detail of such definitions is outside the scope of this research it is worth noting that a common theme underpins all definitions, in that training or skills development must have direct links to the workplace. In fact, it is the employers who define apprenticeship standards across the nations and also the employers who determine how apprentices are assessed (IfATE, 2020). Rather than adopt the traditional master-apprentice relationship, apprenticeships now follow a tri-partite model which includes the education provider, so a further stakeholder to consider (Lambert, 2016). Delivery of such apprenticeships can pose great challenges, one of which being how to develop innovative and relevant assessment processes at degree level. Indeed, in order to address the requirement of a seamless apprenticeship experience, thought must be given to the design of appropriate assessment techniques and support strategies. When designing effective assessment strategies for apprentices, it can be helpful if the focus moves away from gaining knowledge of particular concepts and techniques and move towards strategies involving problem-solving, communication and design (Barroca and Kear, 2016). Where assessment relates to the workplace it can be beneficial to employers, as the learners can focus on specific problem areas for example, or gain a different perspective (Morris and Goodyear, 2018). Consequently, apprentices should be supported to be able to develop their working role, using their academic studies to help inform practices in the workplace. Guided by these principles we will seek to understand whether the OU assessment and support models are helping students to achieve these goals.

The OU Degree Apprenticeship model

The OU has responded to the recent promotion of apprenticeships by introducing apprenticeships at both undergraduate and postgraduate programmes. To give a sense of scale, the OU had over 1400 apprentices in the 2018/19 academic year, and around 7000 apprentices forecast by the end of 2022/23 (Open University, 2020). At present, in England the Open University offers apprenticeships in the areas of business, healthcare, IT, policing, and social work, with another planned in the near future in the area of laboratory science. This is in addition to IT-based apprenticeships in Scotland and Wales.

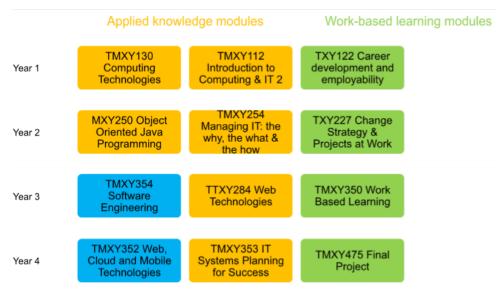
Apprenticeships fit closely with the OU mission of widening participation as they offer a different kind of study path in comparison to a traditional degree. The OU has devised an academic model for degree apprenticeships and the area of greatest relevance for this project is "Accessible provision and a seamless apprenticeship experience" (see Figure 1).



Figure 1 – Academic model Principles for Apprenticeships (Open University, 2020)

The case study Year 1 Digital Technology Solutions (DTS)

The key driver behind the project was to investigate the support of DA students during early Year 1 studies from both tutors' and students' perspectives. Initially, for the first phase of this research, the study focussed on apprentices in England, as this was the first Computing and Communication (C&C) apprenticeship programme to be introduced at the OU. The apprenticeship programmes are based on the OU's foundation degree and, consequently, comprise of both applied knowledge (yellow) and work-based learning modules (green) as shown in Figure 2.



Specialism modules

Figure 2 - England undergraduate degree apprenticeship programme, DTS (Open University, 2020)

Towards the end of the programme, in Years 3 and 4, apprentices can select specialisms (shown in blue in Figure 2). Each of the modules has a dedicated academic tutor (AT), but apprentices also have a practice tutor (PT), who provides a range of support throughout the programme, primiarly helping apprentices plan, monitor and control their progresss towards meeting each of the Knowledge, Skills and Behaviour learning outcomes on the apprenticeship programme. They tend to remain with the apprentice thoughout their studies, and act as the first point of contact when dealing with any matter relating to practice-based learning across the qualification.

Research activities

A mixed methods research was adopted in this project, with both quantitative and qualitative data collected and analysed. Firstly, a literature review of the degree apprenticeship initiatives in the UK and other international apprenticeship programmes has been carried out, with a particular focus on students' support and assessment. Informal discussions with module team members of DA modules, as well as various stakeholders, have been held to understand the wider context of the DA programmes and gain an insight of the issues students may face. The target modules were TMXY130 and TXY122, as these are the first modules the students study on the apprenticeship programmes. We have however looked at comparator modules such TMXY125 (Professional Practice 1).

The data collection took place on TMXY130 and TXY122 for the October 2018 and May 2019 presentations (2018J-2019E). Student surveys as well as the SEaM (Student Experience on a Module) surveys data and students' feedback were collected. Furthermore, forum postings, analytics data and students' performance have also been considered. Finally, the academic tutors' as well as the practice tutors' perspectives have been considered through end of module briefing sessions (semi-structured discussions).

Initially, the research plan included student interviews following the surveys in order to gain an understanding of the students' perspectives. However, due to the small cohorts and the low response rate to the online surveys a decision to drop the interviews as a research instrument was made. Students survey data has been completed, alongside analysis of the forum posts, module analytics as well as the SEaM data.

Data Collection and analysis

The overall approach to the study commenced with an observation of apprentice experiences on the first modules in the C&C programme; namely, the level 1 module TMXY130 (Figure 2). For Stage 1 the activities were relatively

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limited, as there was a very small cohort of apprentices in two tutor groups. The methodology employed a mix of quantitative and qualitative research methods, in particular the use of analytics data via the SAS Visual Analytics toolkit for module results completion, and analysis of student forum posts. Tutor viewpoints were gathered via an online meeting, and also via forum posts. At the end of Stage 1 the project team had gathered a limited amount of data, but relatively little that reflected the apprentice voice.

Several changes were made after Stage 1 was completed, and these fed into Stage 2. For Stage 2 we were able to engage with a larger student body, as the C&C apprenticeship programmes had been broadened across the nations, with the Applied Software Engineering Degree Apprenticeship programme in Wales and two graduate apprenticeship schemes in Scotland. This opened up the opportunity to gather a wider number and range of responses, and to compare experiences across the nations. They encompass similar programmes to the English apprenticeship.

Stage 1

This phase was small-scale, as it focused on only those students in the first cohort of TMXY130. A close analysis of the forum posts showed great satisfaction with the module content as well as assessment as an emerging theme. Indeed, the majority of posts asked questions related to the mode of assessments and the content of what is being assessed.

The external examiner for 2017J (also a cluster examiner, covering TMXY130) was complimentary. The only remark specifically concerning TMXY130 related to the slightly different performance between the students in the two tutor groups. One tutor had all of the early starters, so they would have had a more gentle start on the DA programme and overall this group performed slightly better. This has been fed back to the DA project team in C&C.

Very little could be heard of the student voice in the forum postings. Student performance was monitored again on the 2018J presentation, alongside the performance of the students on the Welsh apprenticeship programme, and also Scottish Graduate Apprenticeship programmes, as these apprentices have a higher workload than the Degree Apprenticeship students in England and Wales so differences in performance were expected. The results of this stage were encouraging but we wanted to find out more regarding the wider apprentice experience.

Stage 2

The second stage was more wide-ranging and was focused on both students and tutors. Student perceptions were captured via a survey, and tutors were invited to a module briefing. However, due to limited student numbers it was not possible to conduct interviews, so we focused on student surveys and forum data. This was a significant change to the project, but as further data was available from the SEaM survey open text comments we do not feel that the lack of interviews has impacted the project results.

The students' perspective

Two surveys were sent to students in May 2019, the project survey and the SEaM survey.

The project's main survey was sent to students in May 2019 (2018J cohort), but the response rate was relatively low after the invitation and reminder, with only 4 completed, and 1 incomplete response. A second reminder email was sent before the reporting deadline, resulting in 3 further participants.

General feedback (Online survey – low response rate ~13%, 8 respondents out of 62 surveyed)

- 75% have never studied online or at distance;
- 88% satisfied with the support from module tutors;
- 100% satisfied with the support from the practice tutors;
- 88% satisfied with the support from their employers for their DA studies;

eSTEeM final report - Supporting Degree Apprenticeship students: Tutors' and Students' perspectives

- 100% satisfied with the support from the Open University.

Assessment:

- 100% the assessment relates well to the module content of TMXY130;
- 100% the assessment relates well to the module content of TXY122;
- 63% TXY122 'Career development and employability' is relevant to their current job role;
- 100% TMXY130 'Introduction to Computing Technologies' is relevant to their current job role.

Therefore, there is a question around assessment of the work-based learning modules.

The students were also surveyed via the Student experience (SEaM) survey, that went to all students at the end of the module (return rate was~ 17.7%). The questions relating to assessment showed that students were confident with the assessed tasks although some of the guidance could be clarified, as sown in Figure 3.

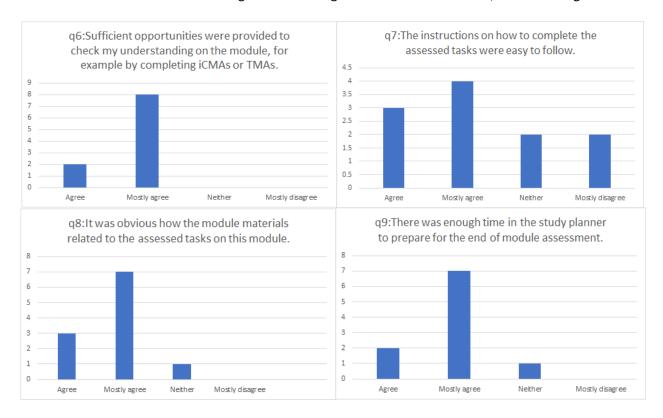
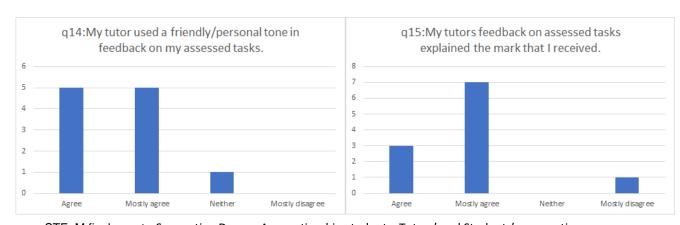


Figure 3 – TMXY130-18J SEaM Survey responses (Assessment related questions 06-09)

Similarly, apprentices were also predominantly happy with their tutor support, as shown in Figure 4.



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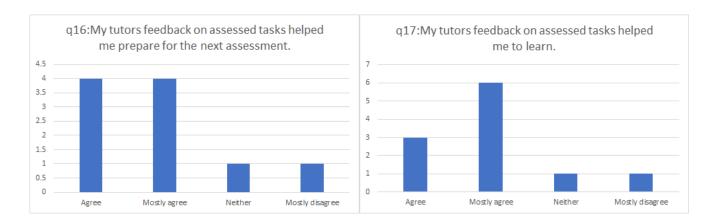


Figure 4 – TMXY130-18J SEaM Survey responses (tutor support related questions 14-17)

TMXY130-18J SEaM open comments data and forum posts analysis

The closed question responses were supplemented by several freeform comments where students expressed great satisfaction with the module materials, with some particularly mentioning Netacad and Packet Tracer activities. However, 40% of the respondents to the open comments mentioned finding the maths materials challenging with some saying they need to seek clarifications from other DA students. Tutorial support was also appreciated. With one student commenting

"Very interesting module in which I have learnt a lot!", another one saying

"I felt that some of the maths information was not well explained in the material and I had to rely on the community to work it out together. But maybe that was the point?" and a third one commenting

"The amount of tutorials for this module far outweighed that of about module and I feel my results and marks reflect that. "

TMXY130 2018J and 2019J students' forum posts analysis shows (out of 21 participants in 2018J and 11 participants in 2019J) that assessment and maths were again the main themes discussed, with Cisco materials and Packet Tracer posts being the second most popular.

Students' performance analysis

Table 1. Student's performance for TMXY130 and TXY122 (SAS Visual Analytics, 2020)

	TMXY130-	TMXY130-	TMXY130 -	TXY122 -	TXY122 -	TXY122 -	TXY122 -
	17J	18J	19 J	18B	18J	19B	19J
Number of	42	90	113	28	72	42	78
students at							
start							
Number of	42	90	113	28	72	42	77
students at							
Reg 25							
Completion	78.6	84.4	82.3	82.1	76.4	90.5	77.9
%							

As shown in Table 1, results for TMXY130 demonstrated good retention and pass rates. A further breakdown of performance was conducted, as some apprentices make a gentle start on the programme, commencing TXY122 in February and TMXY130 in October. Others commence both modules in October, so a more intensive study mode. A comparison across the nations was also conducted. Of those who completed the 2019J presentation, 73 were from England (81 at start), 9 from Scotland (20 at start) and 11 from Wales (12 at start).

35 students studied TXY122 commencing in 19B (February), and 49 in 19J (October). There was no significant difference in their TMXY130 performance when comparing B and J starts, but B start is slightly better, up by $^{\sim}2\%$ when comparing completion rates.

In Scotland, TMXY130-19J completion rate was much lower, at 45%. All students started TMXY130 alongside TXY122 on a J start (October), and also studied TMXY125 (Professional Practice) so a very high workload. This might be a factor that contributed to the lower completion rate.

In Wales, TMXY130-19J completion rate was again high, at 91.7%. 7 students studied TXY122 19B (February), 8 on 19J (October). When comparing B and J starts, there is only a slight difference in completion rates.

In summary – TMXY130-19J England completion rate was 90.1.%, whereas Scotland completion rate was 45% and Wales completion rate 91.7%, with the suggestion that high workload in Scotland is an issue, as apprentices study 120 credits per year rather than the 90 credits studied in England and Wales.

Tutors' perspective

Items from two debriefing sessions with tutors from the 2017J and 2018J presentation have been collected (Figure 5 shows frequently occurring words in tutors' de-briefing comments) and categorised into positive and negative categories. Furthermore, a thematic analysis was conducted on comments in each of the categories in order to identify the emergent themes. These categories were also quantified to gain a better understanding of how widespread the tutors' views were.

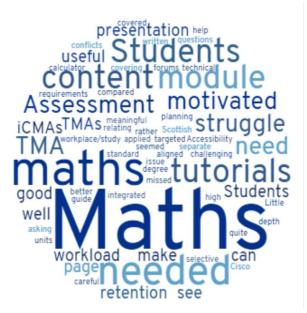


Figure 5 Frequently occurring words in tutors' de-briefing comments

The most evident emergent theme is maths with most tutors expressing that students not only found the maths content very challenging and pitched at a challenging level for OU level 1, but also found it separate from the

other study units and doesn't necessarily integrate well with the rest of the module content. The timing of the maths units was also discussed, and tutors questioned if it was aligned with the DA students' needs.

Assessment (including TMAs and iCMAs) has also emerged as an important theme, with concerns over the maths assessment in the TMAs. These have been widely discussed as some students skip the maths questions altogether, raising the need for maths-focused tutorials to better prepare the TMAs. iCMAs were perceived as useful to see where more targeted support might be needed, with multiple attempts allowed to enable opportunities for learning and understanding via the iCMAs. For some of the TMA writing questions, it was perceived that the marks awarded for the format and presentation of the answers were higher than the marks awarded for the actual answers which was a concern for many of the tutors. Finally, the need of an assessment calculator has also been discussed as it was perceived that most students do not read the module guide and are not aware of the assessment requirements.

A further thematic analysis of the TMXY130-2017J, 2018J and 2019J tutors' forum posts confirmed maths, the Cisco materials and assessment as being amongst the most the emerging themes. Most queries related to the maths content and how it is assessed (Figure 6).

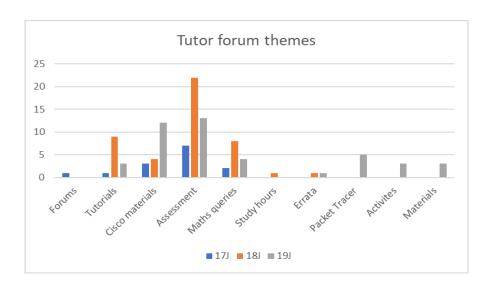


Figure 6 - TMXY130-17J, 17J and 18J tutors' forum posts emerging themes

Practice Tutors' perspective

Similarly to the tutors, the practice tutors' views have also been collected through a couple of debriefing sessions, categorised and analysed. There were general comments as well as comments related to each of the modules TMXY130 and TXY122, (Figure 7 shows the frequently occurring words).

General comments included issues related to workload and how one day a week equates to the notional 900 hours associated with 90 credits. The fact was also highlighted that all OU study (including work-based learning) would fall under 'off the job' training. There were also some misunderstandings about 'work-place learning' actually means, and the fact that some employers want more direct connection between work projects and the module content (new tasks rather than reflection on existing issues).

From the practice tutor's perspective the most emergent theme is maths (TMXY130) with practice tutors reporting that some students are struggling with the maths content especially with the Big O notations and Algebra. There was also a suggestion that materials jump from basic maths to a more advanced level too quickly with examples lacking clarity and materials confusing in some places. Practice tutors have also reported the difficulties navigating the Cisco materials as well as the challenges with the terminology. The assessment strategy has been perceived

as being not clear and different from other modules with students suggesting the different assessment strategies might lead to different time management tactics.

For TXY122, practice tutors reported students don't like the 'management' aspects of the module and preferred the computing parts. Students also preferred having hard copies of the module materials so bought the book. Another important theme that emerged was the students' low attendance to tutorials, with practice tutors commenting that most students are reluctant to attend tutorials in their workspace and, if they attend, they will not speak, with some students reporting they do not find tutorials useful or fitting

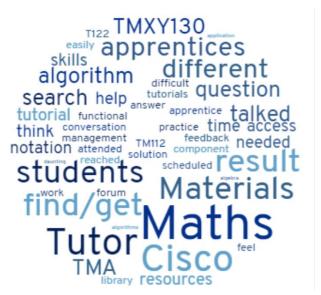


Figure 7 Frequently occurring words in practice tutors' de-briefing comments

Conclusion

The project was a small-scale investigation into several aspects of apprentices' support and learning for the Year 1 Digital Technology Solutions programme focusing on TMXY130 and TXY122. The main objective was to assess the actual support and assessment strategy from both the students' as well as the academic and practice tutors' perspectives. A mixed-method research has been carried out which revealed that overall apprentices' performance is better than the non-apprentice students, with apprentices achieving much better retention and pass rates than their non-apprentice peers.

Challenges faced by the students in the TMXY130 maths content and assessment have been emphasised by both the students and their academic and practice tutors. Moreover, the assessment of the work-based learning modules has also raised concerns, with the necessity to provide connection between work projects and the module content.

There was, however, little opportunity to explore the assessment aspect in depth, but this has now led to a bigger research project via a doctorate in education programme. Furthermore, one of the TMXY130 tutors was interested in exploring the opportunities for daytime tutorials for apprentices, as often apprentices have off-the-job time during the day, which makes it convenient for them to attend tutorials during this time. This is now being piloted in the context of a new eSTEeM project where early findings show that overall apprentices favoured daytime tutorials.

Dissemination

- Presentation of the preliminary findings in the Advance HE STEM conference, Birmingham 30th-31st January 2019. Session abstracts.pdf (advance-he.ac.uk)
- Presentation of the findings in the eSTEeM C&C Roadshow, 24th April 2019
- Presentation of the findings in the annual eSTEeM conference, 8th-9th May 2019 <u>2019-05-08-09-eSTEeM-conf-final-programme-web-version.pdf (open.ac.uk)</u>

Impact

The results of this eSTEeM project (our small-scale research study for level 1 DA modules), have highlighted certain difficulties that apprenticeship students face in the area of assessment; in particular, relating to assessment on work-based learning modules. This has informed discussions with module teams of DA modules within the C&C school and at a wider faculty and University levels. We will hopefully continue to do so through various channels. The project also led to initiatives such as the provision of day-time tutorials. This project has also inspired Christine Gardner to research the topic of apprenticeship assessment in more depth, in the context of her EdD studies. The findings have helped Christine shape her research questions and informed her research methodology. Moreover, following on from the project, Christine Gardner was also invited to join the RPEL (Recognition of Prior Experiential Learning) group and has been involved in implementing RPEL for the C&C apprenticeship programme.

List of deliverables

Kouadri Mostéfaoui, Soraya and Gardner, Christine (2019). Supporting Degree Apprenticeship students: Tutors' and Students' perspectives. In: Advance HE STEM Conference 2019, Delivering Next Generation Higher Education in STEM, 30-31 Jan 2019, Birmingham. HEA_ Supporting Apprenticeship students_final.pdf (open.ac.uk)

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<u>University approval processes</u> SRPP/SSPP – Approval from the Student Research Project Panel/Staff Survey Project Panel was obtained according to the Open University's code of practice and procedures before embarking on this project. Application number 2018/011. No Ethical approval or Data Protection compliance has been necessary.