Trailblazers: Stakeholder motivations for developing degree apprenticeships for the radiography profession

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Abstract

Introduction: Employer led apprenticeship trailblazer groups develop the occupational standard and end point assessment associated with a particular job or occupation. All degree apprenticeship programmes within England must align to these and for allied health professions, this is a new concept. Exploring stakeholder motivations for being part of the trailblazer groups is essential to inform subsequent curriculum design and implementation for this new model of education.

Methods: Eighteen semi-structured interviews were undertaken across the three radiography related (diagnostic, therapeutic and sonography) trailblazer groups using a pragmatic constructivist approach.

Results: Strong themes emerged around professional recognition, and conflicts between being 'educated' or 'trained', and between vocational and academic components of radiography training. Even within these pioneer groups there was a lack of understanding around degree apprenticeship programmes and their potential impact upon the workforce. Whilst the benefits on recruitment and retention of staff through widening participation were acknowledged, there were concerns around apprentice pay and mentorship. Evidence of professional protectionism was uncovered, balanced by professional pride and a strong desire for team working within and between institutions.

Conclusion: The study highlighted an urgent need for further research and awareness raising for employers and practitioners, prior to implementation of radiography-related degree apprenticeships.

Implications for practice: This is the first evaluation of stakeholder motivations related to the development of degree apprenticeships within the allied health professions. The results and recommendations for practice will inform the imminent implementation of degree apprenticeships for the three radiography related professions, facilitating a smooth transition to apprenticeships for clinical and education departments.

Keywords

Degree apprenticeships
Professional recognition
Higher education
Diagnostic radiography

Therapeutic radiography
Sonography

Introduction

Degree apprenticeships are a relatively new concept in health related professions internationally, and are an opportunity to develop employer led higher education in contrast to the traditional university based education. Both routes can lead to eligibility to apply for professional registration in England, however there are distinct differences. Apprentices are paid employees during the 'on the job' training, course fees are funded and there is no expectation of student loans. In contrast, traditional university based students are typically allocated a placement site by the university and self fund their course fees. Apprenticeships offer young people a new route into healthcare, and they are potentially a more attractive option for mature students, contributing to the widening participation agendas. This therefore, broadens the pool of potential applicants into training. Apprenticeships have been shown within other disciplines to be a successful route to meet employer skills needs, increase staff recruitment and retention and improve social mobility [1].

Undoubtedly, interest in degree apprenticeships for health professions in England has gained momentum since the introduction of the Government Levy in 2017 [2, 3, 4;] a Government 'tax' on all employers of a defined size (salary costs of over £5 million). Larger employers (such as the National Health Service) pay more into the Levy and monies can only be drawn back from the Levy to pay for apprenticeship training. Additionally, the changes in funding streams for training [5, 6] as a result of the Department of Health bursary reforms means that health profession students training fees are no longer Government funded, making the prospect of being paid to train (through apprenticeship routes) more attractive. However, experience in other subject areas (for example, management, digital and engineering) has demonstrated that apprenticeships are not without their challenges [1]. The commitment required from the employer to deliver and support the education of apprentices is far greater, with greater input required in the key areas of skill development, the employer-driven pedagogic approach and the mentoring role of managers [7]. In addition employers recount financial challenges related to apprentice and mentor pay. This has resulted in variable stakeholder engagement and raises concerns around professional acceptance and the viability of the associated programmes for Higher Education Institutes (HEIs) [4, 7].

Degree apprenticeship training must be aligned to and assessed by a nationally approved occupational standard and end point assessment [8]. Both of these are developed by employer led Trailblazer groups, typically consisting of a minimum of 10 employers, 2 HEIs and professional body representatives. This development stage and the challenges associated with it has not previously been explored within healthcare education; of the few studies undertaken in other disciplines, employer engagement in developing the programme was highlighted as challenging [9]. Many employers feel uncomfortable leading curriculum design when working with individuals they class as experienced academics [10] and they raise concerns related

to the vocational nature of apprenticeships creating a 'less rigorous' route than traditional academic study [11] .
Managing stakeholder expectations effectively is therefore key to the success of degree apprenticeships. This research begins this process by exploring the expectations, motivations and perceptions of those most closely engaged with the three radiography related (diagnostic, therapeutic and sonography) trailblazer groups. The project aimed to identify any opportunities or issues to be addressed prior to the next phase of apprenticeship development and implementation.

Methods

Degree apprenticeships in health are still in their infancy and therefore an exploratory qualitative research approach was selected to enable an in depth investigation of the degree apprenticeship developmental stage.

A multiple case study design following the pragmatic constructivist approach first described by Merriam [12] was utilised. Each of the three radiography related trailblazer groups formed an individual case study providing a rich insight [9] that illuminates our understanding of the phenomena [12]. This enabled an in-depth exploration of the patterns and themes emerging within the individual trailblazer groups and comparison across the three cases to identify if they are replicated elsewhere or are unique to the individual group.

Ethical implications

Ethical approval was gained from Sheffield Hallam University (ER7701385), and 'gatekeeper' approval was granted from the trailblazer chair persons to access the participants in each trailblazer group by email.

Initial contact with the participants (members of the trailblazer groups) was by email inviting them to participate and providing them with the participant information sheet. This detailed the aims of study, information on consent and confidentiality and gave expectations about the data collection methods and how the information would be used and stored.

Data collection

Attempting to gain a spread of views from different perspectives, qualitative data collection via semi-structured interviews was utilised in this multiple case study approach [13].

The literature review informed the interview schedule (appendix 1) and minor amendments were made following two pilot interviews with academics from the host institution who had experience of trailblazer groups. Initial semi structured interviews were conducted with the chairs of the trailblazer groups (all employer representatives), followed by semi-structured interviews with other stakeholders including employers, education institute representatives and representatives of

professional organisations. These were conducted either in person or by telephone for the convenience of the participants. Both investigators who conducted the interviews were radiography academics with experience in qualitative research. The interviews were transcribed verbatim. Triangulation, reflexivity and constant comparison methods were utilised to ensure consistency and increase credibility.

Data Analysis

The interview data was coded (1st author) to identify any recurring themes and patterns and then examined for replication across the participants from within the same case (trailblazer group), and across the three cases. This allowed both original and recurring themes to emerge and had been successfully used in apprenticeship research previously [6]. A secondary review of emerging themes was then undertaken (2nd author) and any discrepancies reviewed.

Results and discussion

18 participants were interviewed and saturation was reached with no new data emerging [14]. The sample size is typical of a qualitative study of this nature [14, 15].

The results and discussion are presented together to add context and reference to relevant literature is made where appropriate. Participant direct quotations are included to further contextualise the results. To maintain anonymity and confidentiality, each trailblazer group is identified (S = Sonography, DR = Diagnostic Radiography, TR = Therapeutic Radiography) but the participants' roles are not attributed to the quotations.

Three main themes were identified which were common to all three case studies (trailblazer groups). Within these main themes both positive and negative sub themes emerged as illustrated in figure 1.

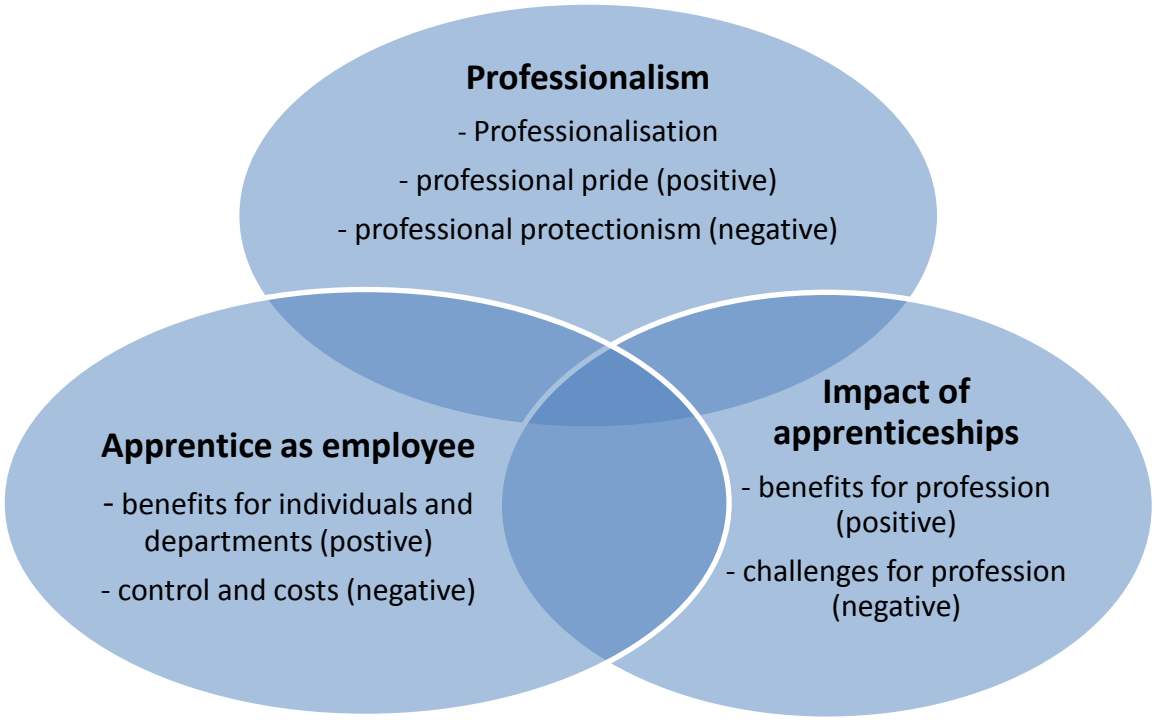

Figure 1 'Primary themes common to all trailblazer groups

Professionalism

Professionalisation featured strongly as a core theme in the sonography and therapeutic radiography groups but was notably weaker in the diagnostic radiography group. In order to understand this difference further, the data from each of the case studies was analysed separately using common criteria for professionalisation according to published literature [16, 17, 18, 19, 20].

Requirements to achieve professionalisation (drawn from literature)	**Sonography group findings**	**Therapeutic Radiography findings**	**Diagnostic Radiography findings**
A well defined skills set underpinned by knowledge [16] which is subject to regulatory and professional controls [20].	Needing a defined scope of practice aligned to a career structure Importance of having a Regulatory body for patient safety	Importance of maintaining continued professional development (CPD), and currency through regulatory body controls for patient safety.	Maintaining standards of the profession for patient safety
Being educated rather than trained [16, 18, 19, 21].	Importance of academic (educated) versus vocational	Importance of being educated versus trained. Continued	Reference to previous education models

	(trained) Recognition that change in training needed	development to maintain currency Reference to previous work based learning routes	(Diploma of the College of Radiographers (DCR)) and desire to 'go back'
Having a code of practice, professional and regulatory bodies [16, 17, 18].	Concern over the lack of a regulatory body and lack of professional identity	Concern over the lack of professional recognition and credibility	
Being autonomous, accountable and freedom to act	Concern over the lack of professional identity and recognition Current training focusses on academic rather than interpersonal skills	Concern over the lack of professional identity, recognition and credibility Desire to feel valued Concerns over current training being technical rather than professional	

Table 1 Evidence for professionalisation

1. **A well defined skills set subject to regulatory and professional controls.**

All three groups related the importance of defined skills associated with professional regulation to ensure patient safety. In the sonography group the focus was around the potential for sonographers to be employed without professional regulation

traditionally as healthcare professionals we've always trusted in our registration and know that is a sign to the public that we are safe practitioners. We're competent, we're maintaining our CPD. So I think from that point of view we all feel a little bit nervous about having sonographers who are unregulated which is happening now. (S)

In the diagnostic and therapeutic groups there was more focus on continued professional development and maintaining professional standards:

I think professionalism is to make sure that the standards that we adhere to and the safety of that patient are maintained. (DR)

to make sure that it represented my profession and maintained the standards of that profession. (TR)

This is not surprising given the two radiography groups already have well established professional and regulatory bodies and at present sonography has neither [22].

2. **Being educated rather than trained.**

In all three case study groups participants raised issues around being educated or trained. Interestingly in the sonography group these concerns related to 'dumbing down' of the role in terms of the training offered.

we've also got a very established group of sonographers who are worried that it's going to be dumbed down. You know the arguments, it's going to be dumbed down, it's going to be a lower band and the skills of ultrasound aren't going to be recognised. (S)

I think there is the opinion in some quarters that we're trying to dumb down the profession (S)

However, in the diagnostic and therapeutic groups the participants described the apprenticeship agenda as an opportunity to revert back to the 'old DCR' with less academic and more vocational training. Several participants saw this potentially retrograde step as a positive one for the profession, placing greater emphasis on the practical elements of training rather than the underpinning education. The radiography profession is not alone in criticising educational programmes; employers across a wide range of sectors have consistently reported dissatisfaction with the quality of university graduates entering the workplace [23]. This is one of the driving forces behind recent government employer-led agendas including degree apprenticeships [24.]

They're great theoretical radiographers but they're not all great practical radiographers and I really do think this will give us what we need again for the profession. (DR)

some people [in the trailblazer group] have suggested it's like going back to the old DCR days and way of working. (DR)

I think the apprenticeship will give us the opportunity perhaps to recruit people who are more vocational, which is what you had with the old DCR. (TR)

I don't think people are necessarily seeing a degree as being all that [attractive] nowadays. I think a lot of people are seeing apprenticeships as a way of coming into the workforce but still earning and learning. (TR)

the BSc students are at a little bit of a disadvantage because they don't get as much clinical placement time and they're not living and breathing it in the same way. It's almost like the old DCR route again. (TR)

In sonography this tension around being 'educated' or 'trained' and concerns for 'dumbing down' can be attributed to the current training models being academic level 7, with the proposed introduction of level 6 educational programmes. However, for radiography (diagnostic and therapeutic) the educational level remains the same with degree apprenticeships continuing to be delivered at level 6. This highlights an urgent need to increase awareness and understanding of the degree apprenticeship routes, as apprentice graduates cannot be 'less academic' as the academic level to be achieved remains unchanged. Confusion over academic levels associated with degree apprenticeships is not unique to radiography [21]; Mulkeen et al identified significant levels of confusion between higher and degree apprenticeships in multi-professional stakeholders [10.]

3. **Having a code of practice, professional and regulatory bodies.**

In the sonography group there was a clear sense that the lack of regulation and dedicated professional body was related to the perceived lack of recognition and professional identity [25, 26]. Interestingly, however participants in the therapeutic group who do have a regulatory and professional body, also recounted this lack of recognition and professional identity.

they are working out there without regulation, and if something happens to a patient it's going to be a problem (S)

if you ask a member of the public what a sonographer is they probably couldn't tell you (S)

people don't realise it's therapeutic radiographers that deliver their radiotherapy treatment, and I think patients don't realise. And so it's been like it for decades. (TR)

We struggle with our professional profile because people genuinely don't know what we do. We get confused with diagnostic radiographers when we're not being confused as being nurses (TR)

No participants within the diagnostic radiography group highlighted this as an issue. One potential explanation could be that the therapeutic and diagnostic radiographers share a professional body with the therapeutic radiographers representing a much smaller proportion of the membership and workforce [27, 28].

4. **Being autonomous, accountable and freedom to act**

All three groups reported some aspect relating to this category but with slightly different focusses. For example, within the sonography group, the importance of being recognised as a professional in their own right featured more prominently.

it's probably to do with the professional identity altogether because I think the public are well aware of GMC and the NMC, they know nurses and doctors have to be registered and midwives. But I think because we don't have a stronger profile in the public domain as nurses and doctors do. And I think one of the problems about that

is because we're not recognised as a profession in our own right and I think that really adds to the lack of understanding. (S)

The most recent outcome from the Professional Standards Authority (PSA) rejecting the application for sonography to become a regulated profession will undoubtedly compound this situation and perception further [22].

Within the diagnostic radiography group the focus was centred around maintaining standards and being accountable for their own actions.

we want to maintain the standard that we have and the accountability and the, what's the word, professional governance we maintain within our profession. (DR)

Within the therapeutic group the emphasis related to being an autonomous practitioner with freedom to act.

Because we can have great technical staff, we can have staff who can manipulate equipment, they understand the academic but if they can't talk to a patient and empathise or understand what the patient's going through, and understand that something which may seem minor to them like a five-minute delay actually can be catastrophic to a patient. (TR)

In addition to the sub category of professionalisation, participants recounted positive and negative aspects of professionalism which were categorised as professional pride and professional protectionism (Table 2).

Positives **Professional Pride**	**Negatives** **Professional Protectionism**
Making a difference	Being in control
Leading the way and managing change	Resistance to change
Influence the future, having a say	Managing change
Team working for a shared goal	Professional acceptance
Frustration with lack of progress	

Table 2 Positives and negative themes of Professionalism

The professional pride sub-category demonstrated a desire of the trailblazer membership to develop the profession by leading from the front and influencing the future. The protectionism sub-category, by contrast, demonstrated resistance to change and a desire to retain control over educational developments.

in any walk of life you try and introduce something different or change, you will always get people resistant to it from my experience. (DR)

it's about professionalism, you know, you've got to change (DR)

These findings are not surprising in periods of rapid change (for example, the apprenticeship developments) and professional protectionism becomes evident as resistance to change [25, 26]. In particular, for sonography, the introduction of a degree apprenticeship route will align to a complete career restructure [29].

However, also within the sonography group, participants reported seeing opportunities for alternative educational models and training which aligned to the professional pride sub category.

by opening up the lower end, the entry routes, it creates more opportunities in the higher levels. (S)

I don't think some of the [current] training that they've been given has been relevant to some of the roles and responsibilities that you take on as a band 7 (S)

This was also a common theme in the therapeutic group with participants drawing on previous experience of different educational models to envisage how a new educational model could be successful. One reason for this could be the 'earn and learn' schemes previously utilised in radiotherapy.

The Apprentice as employee

More challenges related to employing an apprentice were identified in the therapeutic radiography group and the least in sonography. One potential explanation could be that the current sonographer training is a similar model to apprenticeship training albeit at postgraduate level as trainees are employed and paid during work based training. The challenges are presented in table 3 below with many relating to salary costs for apprentices, developing training resources and clinical mentor capacity. Several participants expressed concern about their ability (or feasibility) to develop a competent body of work-based mentors who could take on additional responsibilities required within an apprenticeship framework. This was also identified as a major concern by employers in a multi-professional study [10] which highlighted the increased emphasis on the training of mentors and the joint management of work-based learning. Mulkeen et al highlighted in their multi-professional study the 'hidden' costs of a degree apprenticeship [10]; participants in our study also recognised a number of costs that they had thought initially would be included in the 'Levy' payments. These unexpected costs included apprentice pay, accommodation and travel to attend university, and 'backfill' for clinical staff to undertake potentially onerous mentoring duties.

Positive **Benefits for individuals and departments**	**Negative** **Control and cost**
Cost savings and cheaper training	Employer has more say on training

Smooth transition of apprentice graduates into practice and therefore shorter preceptorship period.	Onus on employers for costs for apprentices pay, travel and accommodation
Paid employment, no student loans Having a career pathway	Discrepancies in apprenticeship pay and banding
Widening participation, potential new pool of applicants, Upskilling existing staff	Cost of developing the training and clinical mentors for employers
'Growing your own'	Recruiting apprentices with the right attributes

Table 3 Positives and negatives of the apprentice as employee

Positive aspects of this theme featured strongest in the therapeutic radiography group and least strong in the sonography group. In relation to widening participation and upskilling existing staff, one reason for this could be that typically sonography already recruits from the existing staff base. However, it would be remiss not to also raise that this could be as a result of limited professional acceptance of the route.

While the concept of degree apprenticeships was introduced to offer an alternative pathway for young people to access graduate careers and 'earn while they learn' [1], in the radiography trailblazer groups mature students were the focus of their future apprenticeship plans. Participants overwhelmingly discussed 'growing your own' from within; trusted and loyal assistant practitioners or health care assistants were their focus for apprenticeships. Their rationale was that it rewards and retains loyal employees, provides a career pathway, and ensures local recruitment (potentially influencing workforce retention figures). However the danger with this approach is that it is not sustainable for the education institutions, with declining numbers as the pool of experienced assistants is exhausted.

there is always that worry in the back of people's minds……how much longevity is there in it (RT)

making sure that it is sustainable and getting that buy-in from the employers. (RT)

from a long-term strategical point of view,….one of the concerns I have as to how sustainable it would be. (DR)

Impact of apprenticeships

Participants from all groups outlined potential positive impacts of apprentices (table 4) relating to the increased length of training (sonography) and increased clinical time (diagnostic and therapeutic) facilitating the development of better clinical skills.

we are expecting that it'll be much more gradual their learning (S)

Positives Benefits for the profession	Negatives Challenges for the profession
Gradual training and more clinical time to develop better clinical and transferable skills	Apprentices being less academic and autonomous and having less transferable skills and development opportunities.
Introduction of apprentices would facilitate a clear career pathway (sonographer group)	Longevity of the programmes, once upskilled existing workforce
Local recruitment to increase staff loyalty and retention	Clinical mentor and placement capacity
	Potential conflict between the two different student groups

Table 4 Positives and negatives of apprentice's impact on the profession

All three groups anticipated that the local recruitment would increase staff loyalty and ultimately staff retention. However, there were concerns around placement capacity and the support and development of clinical mentors. Health Education England (HEE) indicated at a recent conference that they are currently exploring opportunities to increase placement capacity which may well include support for clinical mentors [30].

Unique to the sonographer group emerged a strong theme that the introduction of apprenticeships would facilitate a clear career pathway. This is not surprising since the career framework is well established for therapeutic and diagnostic radiography and recent work commissioned by HEE has led to the development of a new proposed career framework for sonography [29].

Conclusion and recommendations

Eighteen participants from three trailblazer groups provided an in-depth insight into the perceptions of stakeholders towards degree apprenticeships, as well as their motivations for involvement in this developmental stage. A recognised limitation is that the participants were not equally spread across all trailblazer groups, or across all sub-groups (employers, educators and professional organisations). However the researchers reviewed all themes and quotations carefully to ensure appropriate representation and balanced arguments from all groups. This involved analysis with cross checking across the groups and utilising reflexivity throughout the study [25].

The experience of being part of a national trailblazer group for the three radiography related professions was seen as a positive one by all participants. The participants were also generally positive about the proposal to introduce degree apprenticeship routes with the exception of some in the sonography group who had a degree of scepticism. This tended to relate to concerns over 'dumbing down' of the role and the current lack of professional regulation for sonographers in the UK. Sonography

trailblazer participants were generally more comfortable with the operational aspects of an apprenticeship route, as they currently operate a similar model at postgraduate level. Conversely, some participants in the diagnostic radiography and therapeutic radiography trailblazer groups, while supportive of apprenticeships in principle, were more uncomfortable with the realities of operationalising apprenticeships as this was unlike current training models. Of more concern were attitudes expressed in these two groups regarding the lack of appropriateness of current educational models for their needs, seeing the apprenticeship developments as an opportunity to re-visit some aspects of historical training routes. While reviewing past models to create a new strategy is not inappropriate, the many comments about the apprenticeship routes being 'less academic' demonstrate a misunderstanding of the aims of a degree apprenticeship.

Degree apprenticeships are a new concept for the allied health professions and it was clear from this research that additional interventions are required to address the concerns raised prior to implementation, and ensure the successful introduction of apprentices into the current imaging and radiotherapy workforces. Therefore, recommendations to support the implementation are -

- A national approach to apprentice pay and banding is required
- Employer and practitioner awareness of apprenticeships needs to be raised through 'myth busting' publications in national journals
- Increase professional recognition and promotion of the three radiography related professions within the UK, by continuing the targeted work of the Society and College of Radiographers (SCoR) and Strategic Interventions in Health Education Disciplines
- Explore the potential for existing successful mentorship models from other AHP and Nursing professions to be utilised to provide the enhanced requirements for clinical mentorship to support apprentices.
- To establish how apprentices and traditional student groups in a clinical placement can be successfully managed, as well as options to increase placement capacity at a national level.
- Ensuring ongoing scrutiny of apprenticeship programmes to ensure that the requirements for being a profession rather than an occupation are maintained in terms of educating rather than training, including promotion of the four pillars for advanced/consultant practice being introduced early in careers. This could be overseen by the SCoR.

Recommendations for further research include undertaking a national survey of imaging, ultrasound and radiotherapy managers exploring the knowledge, understanding, acceptability and readiness of clinical departments for the introduction of apprentices. Once implemented, stakeholder perceptions of apprenticeship experiences and outcomes will be essential.

4163 words

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Appendix

Appendix 1 Interview questions

Research question: What motivates key stakeholders (chairs, professional body representatives, employers and education providers) to actively engage in the radiography-related apprenticeship trailblazers?

Secondary research questions:

- What are stakeholder experiences of participating in the radiography-related trailblazers? (Q4)
- What challenges and barriers do stakeholders expect in the future design and delivery of radiography-related degree apprenticeships? (Q7, Q8, Q9, Q10)
- What opportunities and facilitators do stakeholders anticipate in the future design and delivery of radiography-related degree apprenticeships? (Q5, Q6, Q10)
- What recommendations can be made to facilitate the seamless integration of degree apprentices into the radiography and sonography workforce?

Q1. Can you tell me a little about your current role in the trailblazer group?
Q2. Can you tell me how you got involved in the trailblazer group?
Q3. Can you tell me why you got involved?
Q4. Can you tell me your thoughts on your experience as part of the trailblazer group please? How might your experience have been different?
Q5. What do you think are the benefits of developing an apprenticeship route for your department/institution/profession body?
Q6. What opportunities do you think developing an apprenticeship route presents?
Q7. Can you tell me what you think the barriers or challenges would be in developing an apprenticeship route?
Q8. What do you think would be the best way to incorporate apprenticeships into the current workforce? During training? Once qualified?
Q9. Do you think the introduction of apprenticeship graduates in sonography/diagnostic radiography/therapeutic radiography would impact in any way on the current workforce? In what way?
Q10. What do you think would need to change to facilitate employing an apprentice?
Q11. Do you perceive any differences in employing an apprentice in relation to a current graduate?