Cogent Skills
for science and technology

A SKILLS MANIFESTO FOR SCIENCE AND TECHNOLOGY

Five priorities for technical education and workplace learning

INTRODUCTION

The science sector is a key contributor to the economy, driving prosperity through high-skilled and high-paid jobs across all regions of the UK.

As well as supporting economic success, the UK science sector has significant social and environmental impacts. It's at the cutting edge of developing solutions to some of the world's most pressing challenges, such as climate change and global health. So it's not surprising the Government has made it a priority to strengthen the UK's position as a "global science and technology superpower".

Skills policy is among the most important tools a government has for stimulating long-term economic growth and it's essential to developing a skilled, adaptable workforce which meets the needs of individuals, businesses and the wider economy.

To the individual, acquiring the right knowledge, skills and behaviours is critical to opening up opportunities to gain a well-paid and rewarding career. It supports progression and is fundamental to a better quality of life. At a national level, a skilled workforce is the backbone of economic growth, essential for reducing unemployment and strengthening global competitiveness. It also helps achieve social objectives around reducing inequality and promoting social mobility.

For skills policy to be effective, it must respond to the needs of employers and give businesses access to the relevant, high-quality skills and qualifications needed to support growth and innovation.

For several decades the UK's skills system has become more employer-led. In particular, the Richard Review called for greater employer involvement in the design and delivery of vocational education and training. Meanwhile, the Apprenticeship Levy is intended to give employers more control over training and developing their workforce, with access to a wide range of standards designed by industry-led trailblazer groups.

Despite substantial reform to the skills system, the UK continues to suffer from a persistent shortage of technical skills – which means it is significantly less productive than many comparable countries, including France, Germany and the United States.

The Department for Science, Innovation & Technology's 'UK Science and Technology Framework' speaks of an "agile and responsive skills system, which delivers the skills needed to support a world-class workforce in STEM sectors and drive economic growth." Being responsive to employer needs means recognising certain sectors put unique demands on the skills system - a 'one size fits all' approach to skills doesn't acknowledge the distinct sector-specific requirements which are so crucial for success.

We're concerned some critical aspects of the current skills system do not adequately address the needs of science employers or encourage engagement. In some instances, reforms are actively working against the interests of the sector. For example, employers value and support using qualifications in apprenticeships as they help ensure knowledge is taught to the required levels. However, recent changes are making it harder to mandate qualifications, and mandatory qualifications have already been removed from several popular apprenticeship standards.

This manifesto highlights the key challenges facing UK science and technology employers around skills. Its insights are a product of direct engagement with industry and our extensive experience and understanding of the UK skills system. Our goal is to offer a comprehensive guide which illuminates the complexities of the skills landscape and proposes recommendations for the future.

About Cogent Skills

We are a specialist in skills for science and technology, and a charity that's committed to making a difference on the availability and quality of skills in our sector. We actively support collaborative employer-led action on skills across the science, nuclear and low-carbon sectors, working hard to improve the skills landscape for all. To find out more about our work visit www.cogentskills.com.

OVERVIEW OF OBJECTIVES

Overarching Strategic Issues

- Empower sector-led determination of skills needs in alignment with LSIP spatial agenda.
- Promote stability and continuity in the skills system to boost engagement and maintain employer confidence.
- Enhance transparency of large-scale public infrastructure investments to facilitate skills planning.
- Promote understanding and effective use of post-Brexit immigration routes to unlock their full potential for industry.
- Facilitate UK-wide coordination of devolved administrations' skills systems.

Apprenticeships

- Stimulate workplace learning by expanding the Apprenticeship Levy.
- Enhance support and incentives for SMEs to boost engagement in apprenticeship programmes.
- Protect the use of qualifications in apprenticeships.
- Ensure degree apprenticeships continue to offer the same breadth and depth of knowledge as equivalent options.
- Foster true competence by tailoring apprenticeship approaches to individual sector needs.
- Ensure funding band formulas and evidence requirements meet the true cost of apprenticeship delivery.
- Boost achievement rates through greater incentives to complete apprenticeships.
- Stimulate apprenticeship activity at lower levels to enhance opportunities for learners from deprived areas.

Qualifications

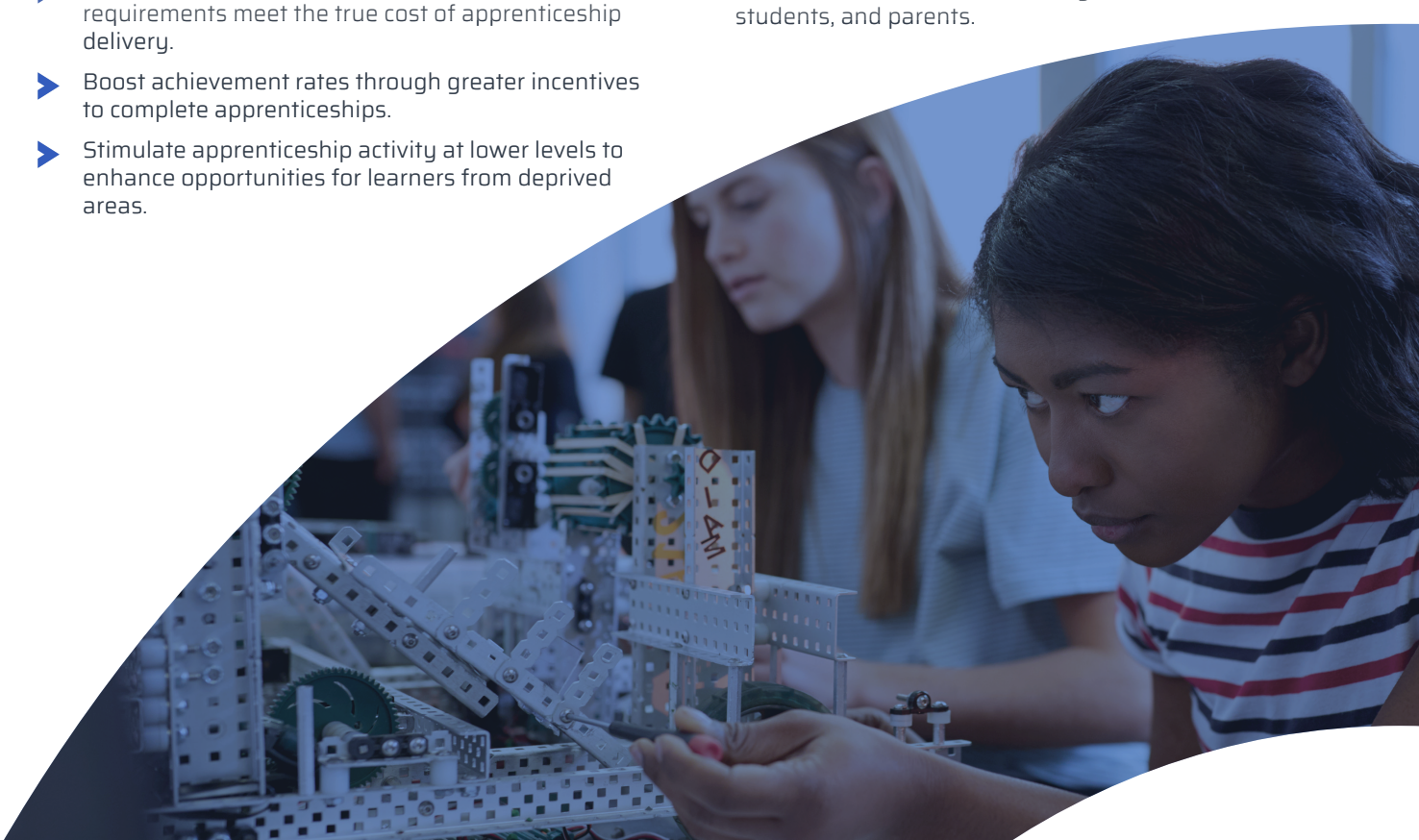
- Encourage the development and use of qualifications that encompass a blend of specialised and transferable skills.
- Enhance funding options for employers with specialist high-level skills needs.

T Levels

- Protect funding for alternative programmes to facilitate smooth T Levels integration.
- Expedite the development of clear progression opportunities for T Level achievers.
- Re-evaluate T Level placement models to increase participation.

Education and Careers

- Boost the quality of education and training by raising investment levels in the FE sector.
- Enhance the effectiveness of career guidance by improving teachers' knowledge of the evolving job market.
- Modernise the curriculum to better prepare students for diverse science careers and educational pathways.
- Facilitate clearer communication of policy changes and initiatives within the skills system to teachers, students, and parents.



1 OVERARCHING STRATEGIC ISSUES

Objective: Empower sector-led determination of skills needs in alignment with LSIP spatial agenda.

Local Skills Improvement Plans (LSIPs) have fundamentally shifted the way skills needs are identified and addressed in the UK. Introduced in the Government's 'Skills for Jobs' white paper, LSIPs aim to bring together local employers, providers and stakeholders to identify and respond to local skills needs. They form part of a broader agenda focused on improving access to education and training and ensuring the availability of relevant skills in local areas.

While this localised approach is designed to respond more effectively to regional disparities in skills and employment opportunities, it also presents certain challenges. One is that LSIPs, while well-intentioned, may not fully capture the complexities and specificities of certain sectors, particularly those on a national or international scale (such as science and technology).

These sectors' skills requirements are often better identified internally, given employers have the best understanding of their own needs, the technical complexities of the roles and future trends likely to impact skills demands. Additionally, the rapid evolution within these sectors means skills needs can change quickly and staying ahead of them requires sector-specific knowledge and foresight.

Ultimately, relying on spatially oriented plans like the LSIPs to determine skills needs may not capture the scope of requirements in certain sectors. Instead, sector-led approaches could offer a more targeted and effective solution to the complex and evolving skills needs in each industry.

Recommendations

- Government should foster an environment which supports industry investment in skills development and strategic planning. This involves establishing robust feedback mechanisms to ensure the evolving needs of the industry are accurately reflected in policies and programmes.
- Focus should be put on high-growth sectors, such as technology, life sciences and nuclear, in which the rate of technological advancement and the need for specialised skills are notably high.

Objective: Promote stability and continuity in the skills system to boost engagement and maintain employer confidence.

The skills system has recently undergone a period of significant change and uncertainty. Changes from central government all come with different agendas, resulting in seemingly constant policy reviews and/or reversals. Indicative of this is the fact the UK has had ten different Secretaries of State for Education in the past 12 years. This constant change has made it challenging for employers and training providers to plan for the future and has hurt confidence in the system.

IfATE also holds regular reviews of apprenticeship design and funding policy, leading to continual changes in key areas such as the transition to occupational standards, qualifications policy and degree apprenticeship policy. The result is a fragmented system which can confuse employers, training providers and apprentices, making it difficult to know where to focus efforts.

There is a growing perception among employers that the skills system is not truly employer-led. Despite the rhetoric of employer engagement, many feel their views are not heard or valued in discussions about key policies. This lack of transparency and consultation can lead to decisions which may not serve the best interests of specific sectors or the wider economy.

Recommendations

- Promote stability in the skills system by ensuring policy changes are carefully considered, communicated clearly and implemented with sufficient lead time. This will help employers and training providers to adapt and plan effectively.
- Ensure that employers remain at the centre of apprenticeship standard and qualifications design. Their first-hand knowledge of industry needs is vital to creating relevant and effective training programmes.
- Consider the long-term implications of policy changes. While short-term needs are important, decisions should also support the development of a skilled, adaptable workforce for the future.
- Promote transparency with improved outcome/destination data for all vocational education and training routes.

OVERARCHING STRATEGIC ISSUES

Objective: Enhance transparency of large-scale public infrastructure investments to facilitate skills planning.

Long-term planning by the government is often limited, affecting the ability of employers to plan their workforce and skills needs for large-scale projects.

Uncertainty and a lack of notice about public infrastructure investments can hinder companies' ability to invest in developing their workforce. This is especially challenging considering the long lead time for project approval and the lengthy duration of skills development initiatives, such as apprenticeships.

Historical examples of projects not progressing to construction can make contractors hesitant to invest in early development before contract awards. By the time contracts are awarded, there is insufficient time for apprenticeships to be used to fill demand, especially given the fixed-term requirement for these skills on individual projects.

Developing mechanisms which reduce the risk of recruiting apprentices and incentivise the update of recruitment ahead of actual demand can ensure the availability of skills for the project and reduce the risk of 'poaching' by other sectors. This approach is particularly relevant to the net zero agenda, where large capital investment in areas like hydrogen and carbon capture are planned.

Recommendations

- Enhance transparency and certainty of large-scale public infrastructure projects by publishing long-term investment plans well in advance. This will enable employers to anticipate skill requirements better and adjust their workforce planning accordingly.
- Engage with potential and confirmed contractors early in the planning process to identify the required skills for the workforce. Collaboratively develop strategies to meet these needs, including targeted apprenticeship programs or other skills development initiatives
- Provide public funding or other incentives to reduce the risk to employers associated with investing in skills development before contracts are awarded. This support can encourage early recruitment and training, ensuring the availability of skilled workers when projects commence.

Objective: Promote understanding and effective use of post-Brexit immigration routes to unlock their full potential for industry.

To become a true 'science superpower', it is critical the UK can attract and retain talent from across the world. This is particularly true in rapidly evolving fields – such as data and digital skills, biological and chemical sciences, and engineering - which are crucial to the future growth in science and technology.

Post-Brexit immigration policy has opened new avenues for international talent, but there remains a gap in awareness and understanding of these routes within industry. Alongside this, ongoing problems with the existing Skilled Worker Visa - including its complexity, prohibitive costs and lengthy processing times - can deter potential applicants and make it harder for businesses to attract talent.

Industry stakeholders need clearer information about the available immigration routes and how to navigate them. This is particularly important for smaller businesses, which may lack the resources and expertise to manage complex immigration processes.

Recommendations

- Develop comprehensive guidance materials explaining the benefits and processes associated with different immigration routes. This should include case studies, FAQs, and step-by-step guides that businesses can easily understand and apply.
- Advocate for improvements to the Skilled Worker Visa to make it more accessible and user-friendly. This could include simplifying the application process, reducing fees, and speeding up processing times.

OVERARCHING STRATEGIC ISSUES

Objective: Facilitate UK-wide coordination of devolved administrations' skills systems.

The devolution of powers to Scotland, Wales and Northern Ireland means each nation has tailored its skills system to its unique needs. However, this has also resulted in disparate qualifications, standards, funding models and policies, creating a lack of consistency across the UK. This can confuse employers operating across nations, particularly when apprenticeship standards or qualifications don't align.

A lack of coordination can lead to inefficiencies and duplication, with each nation developing its own qualifications and standards. There's a risk that disparities in skills and opportunities might widen, particularly in sectors crucial to the UK's overall economic performance. Hence, while devolution has benefits, there is a clear need for improved coordination and consistency across the UK to ensure an efficient, effective and equitable skills system.

The papermaking industry, along with other sectors, faces a distinct challenge in the context of devolved skills systems across the UK. Given the industry's specialised nature and the relatively low number of learners in each devolved nation, maintaining separate qualifications and courses specific to each region becomes unviable.

The current model, which supports distinct skills systems customised to the unique requirements of each devolved nation, does not adequately accommodate industries with small learner cohorts. Developing and maintaining bespoke qualifications for each nation becomes impractical when the number of learners is insufficient to justify extensive differentiation.

Recommendations

- Collaboratively design and publish a detailed plan involving all governments, which outlines how to coordinate different skills systems and policies across the UK. This plan should be transparent, clearly defining the roles and responsibilities of each nation and setting out a process for ongoing collaboration.
- Develop a UK-wide framework for qualifications in industries with small learner cohorts. This would involve creating common qualifications recognised across the UK, reducing complexity for learners and employers, and increasing the feasibility of training provision

APPRENTICESHIPS

2

Objective: Stimulate workplace learning by expanding the Apprenticeship Levy.

The Apprenticeship Levy was introduced to "create long-term sustainable funding for apprenticeships and to give employers more control to provide their staff with a range of training opportunities." [1]

While levy payers are technically entitled to recover the full value of their liabilities, the government, when designing the system, expected employers to only access up to around half of the funds in their accounts (on average).[2] This expectation is supported by data showing that approximately 49% of all levy funds generated between April 2019 and March 2020 were unused by contributing employers. The remaining unused or expired levy funds are then used to support the government's 95% 'co-investment' contribution, meaning that the money raised by the levy effectively has to pay for all apprenticeship training.

It has now been more than seven years since the levy's introduction, and not only have the number of apprenticeship starts decreased significantly, but there has also been a substantial decline in total employer investment in workplace training.[3]

The current system means many levy payers would need to train an unfeasible number of apprentices on a regular basis to allow them to recover anything close to their full liabilities. As a result, they continually lose access to significant amounts of potential funding while the levy remains restricted to apprenticeship use.

This underutilisation signals a clear need for reform to ensure the levy serves its intended purpose of facilitating workplace learning and skills development more effectively.

Recommendations

- Expand the Levy to include short courses and alternative qualifications. This would support a more diverse and highly-skilled workforce by allowing employers to use their funds for high-quality alternative training opportunities.
- Relax off-the-job requirements for existing employees to encourage greater use of apprenticeships as an internal development tool, while maintaining organisational productivity.

Objective: Enhance support and incentives for SMEs to boost engagement in apprenticeship programmes.

SMEs play a critical role in the economy, offering employment opportunities and fostering innovation. However, recent trends indicate a significant disengagement of SMEs from apprenticeship schemes, particularly in the science sector.

Between 2015/16 and 2020/21, apprenticeship starts at SMEs across all industries fell by 50%. In the science sector, the number declined by nearly 72%, thereby significantly constraining growth opportunities for individuals and businesses alike. At the same time, the number of science sector SMEs registering apprentices fell by approximately 40%, indicating a diminished interest or capacity to engage with the apprenticeship system. As a result, the proportion of science industry SMEs training apprentices fell from 9% to less than 5%.

As such, the current apprenticeship system is failing SMEs and that action is needed to reverse the decline and support renewed engagement.

A fall in the number of apprentices being trained at science sector SMEs harms the talent pipeline for all employers by weakening an important entry point to a career in the science industry, resulting in fewer individuals with the necessary training and experience.

Recommendations

- Establish a dedicated sector-specific SME support service to provide businesses with access to the subject matter expertise, helping them re-engage with the apprenticeship system and maximise its benefits.
- Abolish the 5% co-investment contribution completely to help level the playing field and ensure there is no two-tiered approach to the apprenticeship offer.

1. https://www.gov.uk/government/news/key-facts-you-should-know-about-the-apprenticeship-levy. Date accessed: 27/10/2022.
2. National Audit Office: The apprenticeships programme, 2019
3. Learning and Work Institute: Raising the bar, Increasing employer investment in skills, 2022

APPRENTICESHIPS

Objective: Protect the use of qualifications in apprenticeships.

Employers value the use of qualifications in apprenticeships as they help ensure that knowledge is taught to the expected levels. However, some popular apprenticeships have recently had their mandatory qualifications removed from the standard. The impact is that the underpinning science knowledge is now only stipulated in one knowledge statement, assessed via 'interview or professional discussion'. This raises concerns around the depth, breadth and quality of future progression opportunities for learners when there are no standardised and quality-assured knowledge requirements.

Ensuring the right level and depth of knowledge is critical for maintaining parity of esteem with traditional academic routes and advancing social mobility. This helps ensure learners benefit from their training and can progress in the future.

The English system is the only apprenticeship system in the UK which doesn't mandate a qualification. If qualifications continue to be removed from apprenticeships, awarding bodies will be impacted and will be unable to commit to the upkeep and ongoing development, which could force qualifications to close and result in a reduction of choice for learners. This could have a marked impact on the devolved nations due to the use of qualifications within their apprenticeship frameworks.

In an employer-led and paid-for skills system, it should be an employer's choice to adopt and use a qualification. Ensuring qualifications are retained allows UK apprentices to join global talent pathways and aids the portability of skills and the international movement of talent.

Recommendations

- Government needs to evaluate the impact of removing qualifications with respect to the global economy, transferability and progression amongst science employers and learners and include them in levy-fundable activity.

Objective: Ensure degree apprenticeships continue to offer the same breadth and depth of knowledge as equivalent options.

The introduction of occupational degrees, where funding is tied directly to delivering narrowly defined knowledge, skills and behaviours (KSBs), threatens the breadth and depth of learning traditionally associated with degree apprenticeships. The limited scope for curriculum innovation due to these funding constraints could inadvertently stifle the creativity and dynamism that are hallmarks of higher education. This shift might also lead to an unduly prescriptive and rigid curriculum, which does not reflect the evolving needs of the workplace and fails to provide learners with a comprehensive educational experience.

Moreover, there is a risk occupational degrees might not be perceived as equivalent to traditional degree programmes internationally. The UK's workforce is known for its global applicability and transferability due in large part to the robust and comprehensive education system. If occupational degrees are not held in the same esteem outside the UK it could limit the opportunities for graduates and apprentices globally.

Recommendations

- Adopt a risk-based approach during the design or redesign of degree-level apprenticeships. This is to help identify and address potential challenges and ensure the finished product is robust and beneficial to both employers and apprentices. This could include consideration of factors such as international recognition, industry relevance, flexibility in curriculum design and the evolving needs of the workforce.

APPRENTICESHIPS

Objective: Foster true competence by tailoring apprenticeship approaches to individual sector needs.

Historically, different sectors had their own version of apprenticeships, ensuring learners were assessed against sector-specific criteria. For the science industries, this includes the substantial safety-critical nature of the businesses, which is not generic 'health and safety' but significant and specific knowledge. However, in recent years apprenticeship frameworks - which were job and sector-specific – have been replaced by occupational standards.

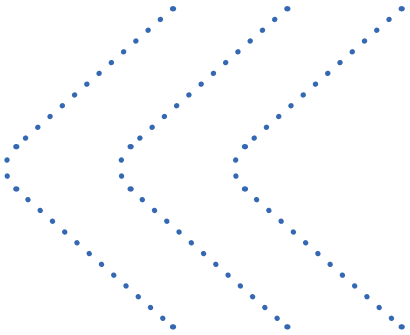
There is growing concern within the sector that vital industry-specific learning could be lost if knowledge, skills and behaviour (KSB) statements must accommodate a range of sectors and industries. An illustrative example is the Science Industry Maintenance Technician (SIMT) standard.

Limiting funding to occupational-specific content could also impact the quality and availability of training delivery. Apprentices will be trained but not qualified due to the removal of qualifications, which are the foundation of secure industry knowledge. This could limit their career progression and potential to move beyond their trained occupation.

Explicit knowledge should be at the forefront of occupational standard structure so learners develop the critical understanding to achieve genuine competence within their relevant sectors.

Recommendations

- IfATE should review its standards design and qualification policy to allow sector-specific qualifications and content into standards to ensure true competence is met and industry-specific. This is vital for high-hazard industries where competence is essential.
- Apprenticeship standard design must ensure high-quality knowledge statements are preserved to maintain the rigour of teaching requirements.



Objective: Ensure funding band formulas and evidence requirements meet the true cost of apprenticeship delivery.

Some of the sector's most popular standards (such as Level 3 Science Manufacturing Technician and Level 6 Laboratory Scientist) are currently undergoing revisions that include recalculating their funding band limits.

There is concern that the funding band limits, which are already feeling the squeeze of inflationary pressures, may be lowered further due to these revisions. This could result in employers having to cover the difference if training costs exceed the maximum allowed. This will discourage employer engagement and may result in cuts to programmes, making it more difficult to deliver training to the required standard. All of this raises concerns around the future quality and availability of training, its impact on learner outcomes and satisfaction levels.

A pragmatic approach to funding should be taken when training providers map content into training plans. Many providers remain committed to including qualifications in apprenticeship programmes, and they need an open approach during audits to reduce the risk of funding clawbacks.

There also needs to be a fair funding amount allocated to assessment costs incurred during an apprenticeship programme from the provider to understand the progress being made and where skills gaps remain.

Recommendations

- Review and refine funding band formulas to better reflect the true cost of apprenticeship delivery, ensuring they are responsive to sector-specific needs and market changes and value the need for ongoing assessment throughout the apprenticeship.
- Establish fair funding for apprenticeship standards to ensure high-quality delivery. Apprenticeships must be fully funded to maintain a high-quality experience for all involved. This includes adopting a transparent and supportive audit approach that reduces the risk of funding clawbacks.
- Incentivise providers to deliver programmes for high-value-added roles where participant numbers may be too low to ensure financial viability within established funding bands.

APPRENTICESHIPS

Objective: Boost achievement rates through greater incentives to complete apprenticeships.

Apprenticeships play a crucial role in the UK's skills system, providing vocational training that equips individuals with the skills and qualifications needed to thrive in the workforce. However, there is a growing concern about the completion rates of apprenticeships, which can have significant implications for both the individuals involved and the wider economy.

According to data from the Department for Education, the overall achievement rate for apprenticeship standards in 2021/22 was just 51.4%. This means that nearly half of all apprentices do not complete their training, which not only represents a wasted investment but potentially leaves these individuals without the full range of skills and qualifications they need to progress in their careers.

There are a variety of reasons why apprentices may not complete their training. These can include personal circumstances, dissatisfaction with the quality or relevance of the training, or the lure of job opportunities that become available before the apprenticeship is completed. In some cases, once an apprentice has gained a particular qualification or reached a certain level of competency, the incentive to complete the remaining components of the apprenticeship can diminish.

Financial barriers can also play a role. While apprentices are paid a wage, this is often at a lower rate than other employees, and the costs of training materials and travel can add up. For some apprentices, the financial strain of continuing with their training can outweigh the perceived benefits of completing the apprenticeship.

Given these challenges, there is a clear need for strategies to boost apprenticeship completion rates. Greater incentives to complete apprenticeships can address some of these issues, motivating apprentices to complete their training until they have gained the full range of skills and qualifications.

Recommendations

- Introduce a system of incentives for apprentices to complete their full apprenticeship. This could include financial incentives, such as a completion bonus, or career advancement incentives, such as preferential consideration for promotions or further training opportunities.
- Review the functional skills policy for apprenticeships to ensure minimum requirements for English and Maths are not creating an unnecessary barrier to both starts and achievements.

Objective: Stimulate apprenticeship activity at lower levels to enhance opportunities for learners from deprived areas.

Apprenticeships have long been recognised as an important tool for promoting social mobility. By providing people with workplace knowledge, skills and behaviours they enhance employability and increase future earning potential.

However, recent data shows a concerning trend. Since 2015/16 the number of apprenticeships (all industries) going to learners from the most deprived 20% of areas in England has declined by 44%, from 127,770 to 71,840. In comparison, the number of apprenticeships going to learners from the least deprived 20% of areas fell by only about 11%, from 69,180 to 61,610.

This difference can be attributed to a significant decrease in lower-level apprenticeship starts and a surge in higher-level apprenticeships. This creates a challenge regarding the sector's social mobility ambitions, as the data shows that learners from deprived areas are much less likely to attain an apprenticeship at these higher levels. This limits the number of opportunities available for learners in regions that should otherwise be targeted for action to support the levelling up agenda.

At the same time, the role of employers in promoting access to apprenticeships across economically deprived areas should not be overlooked. Employers should be encouraged to ensure their apprenticeship programmes support social mobility and foster workforce diversity.

Recommendations

- Investment should be targeted to incentivise activity at lower levels, enhancing opportunities across the country in line with the levelling up agenda. Consistent access to a broad range of apprenticeship standards is necessary to provide opportunities for learners of all backgrounds and abilities to build successful careers in the sector.
- Enhance career-led activity in schools and colleges to promote the value of apprenticeships, showcasing career opportunities through work-based learning. Consider a coordinated outreach programme to disadvantaged communities, highlighting the potential of apprenticeships as a path to career advancement and social mobility.

QUALIFICATIONS

3

Objective: Encourage the development and use of qualifications that encompass a blend of specialised and transferable skills.

In the fast-paced and rapidly changing world of work, the ability to adapt and transfer skills across sectors and occupations has become increasingly important. This is particularly true in industries such as technology and engineering, where the boundaries between sectors are becoming increasingly blurred.

The shift towards occupation-specific qualifications, while effective in cultivating a workforce with specialised skills, may inadvertently limit the flexibility and adaptability of the workforce. Occupation-specific qualifications often focus on narrow skill sets that are relevant to a particular role or industry. This approach can benefit individuals following a specific career path but may restrict their ability to transfer these skills to different sectors or roles.

Moreover, the trend towards automation and digitalisation in the workplace is changing the nature of work, with a growing demand for transferable skills such as problem-solving, critical thinking and digital literacy. Occupation-specific qualifications often fail to fully address these broader skill sets, limiting the ability of individuals to adapt to the changing work environment.

This creates a challenge for employers who need a workforce that combines both specialised, occupation-specific skills and broader, transferable skills. They require employees who possess the specific skills necessary to perform their roles effectively, but also those who can adapt to change, innovate and apply their skills in new contexts.

Recommendations

- Provide funding for the 'topping up' of qualifications to foster transferability via pre-employment programmes. This would allow individuals to build upon their existing qualifications, adding transferable skills and thus increasing their adaptability.
- Promote lifelong learning and continuous professional development to ensure that employees can continually update and expand their skill sets in response to changes in the workplace.

Objective: Enhance funding options for employers with specialist high-level skills needs.

Funding for learning and research at the highest levels is often driven by academic needs and interests. However, alongside this there is also the need for some specialist skills and knowledge at this level which are driven by industry requirements. Some progress has been made in fostering collaboration, like Centres for Doctoral Training, to address these dual requirements. However, these are often short-term and inconsistent over time.

There is a need for consistent industry-relevant, doctoral-level training programmes and significant potential for developing Level 8 apprenticeships.

Recommendations

- Safeguard public funding for specialist skills through doctoral and post-doctoral training.
- Allow the development of professional apprenticeships that link doctoral-level research and learning with industry needs (Level 8 apprenticeships).

T LEVELS

4

Objective: Protect funding for alternative programmes to facilitate smooth T Levels integration.

T Levels are a relatively new set of technical qualifications intended to provide students with a solid foundation of technical knowledge and practical skills needed for their careers or further studies. They are designed to be an alternative to A levels and other vocational qualifications, such as BTECs.

As part of the ongoing reforms, there are plans to phase out funding for alternative programmes, including BTECs, to encourage the uptake of T Levels. However, T Levels are still in the early stages of implementation, and their success in the skills system is yet to be fully assessed. Removing funding support for alternative programmes too soon may lead to gaps in provision, creating confusion and uncertainty for students and employers. It could narrow the range of educational pathways available to students, particularly those who may not find T Levels suitable for their needs or career aspirations.

It is essential to give T Levels enough time to establish themselves within the skills system, allowing students, educators, and employers to fully understand and adapt to the new qualifications before making significant changes to the funding of alternative programmes.

Recommendations

- Allow T Levels sufficient time to integrate into the skills system before phasing out the funding of alternative programmes, including BTECs.
- Create clear progression links and map out the relationship between T Levels and Apprenticeships. This will provide employers with assurance and consistency over content, supporting the effective utilisation of both programmes.
- Regularly evaluate the effectiveness of T Levels and their impact on students' skills development and employment prospects, using the findings to inform funding decisions and curriculum design.

Objective: Expedite the development of clear progression opportunities for T Level achievers.

There is a growing demand for more clarity on the progression opportunities available for T Level achievers.

Universities and higher education institutions (HEIs) have not generally been forthcoming in updating their websites and entry requirements to include T Level courses, causing anxiety for learners, parents and employers trying to understand future opportunities.

Progression into higher/degree apprenticeships has been discussed as an opportunity, but as yet, there is no clarity on funding opportunities for apprenticeships for learners who have undertaken a T level and their baseline entry levels into L4+ apprenticeship programmes.

Recommendations

- Encourage all HEIs to update websites and entry requirements to include T Levels.
- Publish increased guidance on progression pathways for apprenticeships to provide clarity for all stakeholders.

T LEVELS

Objective: Re-evaluate T Level placement models to increase participation.

T Levels are two-year technical programmes designed to provide young people with a clear path to skilled employment. A key component of these qualifications is the industry placement, with students expected to complete approximately 315 hours (45 days) of placement.

While the intention behind these extensive work placements is to give students substantial, practical exposure to their chosen industry, the requirement has proven to be a hurdle for some. For students in rural areas or those pursuing niche industries, finding suitable placements within their locality can be challenging. For employers, particularly smaller ones, providing placements can be a significant commitment of time and resources.

To tackle these issues, the government and awarding bodies could explore the idea of introducing more flexibility into the structure of industry placements. This might involve allowing students to split their placements into multiple blocks, across different employers, or even considering virtual placements. Furthermore, expanding the definition of what constitutes relevant work experience could help more students fulfil the placement requirements. This could include considering part-time industry-related work, volunteering, or relevant projects completed during other courses as part of the industry placement requirement.

There is also a need for enhanced transparency of data so that employers can support individuals who want to undertake T Levels and need placement opportunities.

Recommendations

- Reassess the placement requirement in T levels and replace it with work experience offers and industry support for virtual experiences.
- Enable greater flexibility in the structure of placements, thereby ensuring students can gain industry experience even in sectors where standard placements are challenging.
- Reform and enhance support mechanisms for T Level placements by establishing a centralised coordination system that both bolsters resources for educational institutions in facilitating student-employer connections and provides a transparent, accessible platform for employers to present and manage placement opportunities.

EDUCATION & CAREERS

5

Objective: Boost the quality of education and training by raising investment levels in the FE sector.

The further education (FE) sector plays a crucial role in the UK's skills system, providing vocational education and training that prepares individuals for work and helps address skills gaps in key industries. However, the sector has suffered from a sustained lack of investment over the years. Chronic underfunding has resulted in outdated facilities and resources, which hinder the sector's ability to deliver high-quality, relevant education.

One particular challenge is attracting teachers from industry who can bring valuable real-world experience and industry knowledge to the classroom. Despite the value they can add, there are often significant barriers to them transitioning to teaching, including lower pay, lack of job security and a perceived lack of prestige compared to university teaching or continuing in industry.

As industries evolve and new sectors emerge, the FE sector must deliver training programmes to equip the next generation of workers with the necessary skills. If providers are unable to attract teachers with up-to-date industry experience and expertise, it will be difficult to deliver training at the scale and quality that is needed to meet the potential workforce demand.

Recommendations

- Increase investment in the FE sector to improve facilities, resources, and staffing levels, thereby improving the overall quality of education and training provided.
- Ensure that FE institutions offer a range of training programmes aligned with current and future workforce needs, with a focus on emerging industries and skills in high demand.
- Encourage partnerships between industry and educational institutions, allowing experienced professionals to work part-time in both sectors, ensuring they maintain industry-relevant skills while sharing their expertise with students.

Objective: Enhance the effectiveness of career guidance by improving teachers' knowledge of the evolving job market.

Career guidance is an essential part of the education process, helping students understand the full range of opportunities available to them and make informed decisions about their future. However, teachers - who often play a key role in providing this guidance - cannot be expected to have an in-depth understanding of every sector of the economy.

The rapidly changing nature of work, driven by factors such as technological advancement and globalisation, means the range of career opportunities available to students is broader and more diverse than ever. It is becoming increasingly difficult for teachers to stay up-to-date with these developments and provide accurate and comprehensive career advice. Research by STEM Learning suggests that around 82% of teachers lack the necessary knowledge to offer careers information to their students.[4]

The education sector and the labour market often operate in isolation, with limited interaction and information exchange between the two. This can result in a lack of understanding of the skills and qualifications that are in demand in the workplace and a disconnect between the career advice provided in schools and the realities of the job market.

Recommendations

- Develop career guidance materials for teachers and career advisors linked to the school curriculum. Materials should be designed to enhance teachers' and career advisors' understanding of key sectors - including their structure, the types of roles available, the skills and qualifications required, and future trends. They should also provide practical tips on how to integrate this information into classroom teaching and career guidance activities.
- Encourage and incentivise partnerships between schools and industry professionals to update teachers on current job market trends and in-demand skills. This could involve organising regular industry speaker sessions, offering job shadowing or secondment opportunities for teachers, and developing resources that provide up-to-date information about different industries and careers.

4. Enthuse Placements. STEM Learning, 2020

EDUCATION & CAREERS

Objective: Modernise the curriculum to better prepare students for diverse science careers and educational pathways.

The UK education system has long been criticised for not providing students with the necessary skills and knowledge to pursue careers in science and technology. In many cases, the curriculum focuses on theoretical knowledge rather than practical, hands-on learning. This not only hampers students' ability to make informed career choices but also leaves them ill-prepared for the realities of the workplace or the rigours of higher education.

At the same time, the existing curriculum may not cover all relevant scientific disciplines, leading to knowledge gaps that can impede students' progression into work, apprenticeships, or higher education. This is particularly true for emerging fields such as data science, artificial intelligence, and green technology, which are currently in high demand.

Recommendations

- Review the curriculum to ensure there is sufficient content across each science discipline to enable progression into work, an apprenticeship or higher education. It's crucial the maths and ICT/digital curriculum continues to evolve with the needs of the modern workforce.
- Implement innovative strategies to enrich the curriculum and increase hands-on learning experiences.

Objective: Facilitate clearer communication of policy changes and initiatives within the skills system to teachers, students, and parents.

In recent years, the skills system has undergone significant changes. Unfortunately, these policy shifts are not always effectively communicated, leading to potential misunderstandings and limiting the impact of new initiatives. One example is the awareness around T-levels among young people and their influencers, such as parents and teachers.

It is essential that both students and parents understand the full range of opportunities available to them, and teachers need up-to-date information to provide accurate guidance. The evolution of the job market, driven by technological advancements and globalisation, amplifies the need for clear, timely communication about changes in the skills system. This lack of clarity can lead to a disconnect between the advice provided in schools and the realities of the job market, thereby inhibiting students from making informed career choices.

Recommendations

- Develop a comprehensive, user-friendly platform to keep all stakeholders informed about policy changes and initiatives, including T-levels, which could impact students' career choices and pathways.

Objective: Inspire the next generation of STEM talent through the continued development of careers outreach activity that widens opportunities for all.

The UK needs vital STEM skills in order to raise productivity, improve economic growth and achieve wider goals, such as net zero and energy security. Engaging young people in STEM subjects at school helps create lasting impressions, raises career aspirations and inspires the pursuit of further education or training opportunities. Early engagement is key, with evidence showing that career aspirations are set early, as the top four sectoral preferences aged 7-8 are also three of the top four aged 17-18.[5] Careers outreach activity (such as the SIP Ambassador or STEM Ambassador programmes) are built around a community of relatable role models, volunteers who give their time and enthusiasm in order to bring STEM subjects to life. These programmes play a vital role in improving students Science Capital[6] whilst also supporting classroom activity and enabling schools to achieve Gatsby benchmarks.

Recommendations

- Continued industry investment into collaborative careers outreach programmes that promote the STEM sector and broaden participation.
- Increased awareness and engagement from industry to take part in ambassadorial activities to inspire the next generation.

5. Education and Employers: Disconnected - Career aspirations and jobs in the UK, 2020
6. https://www.stem.org.uk/sites/default/files/pages/downloads/Science-Capital-Made-Clear.pdf

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