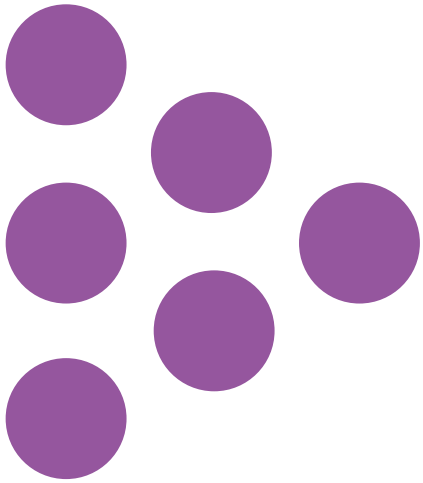
NFER
National Foundation for Educational Research

Report

2019 review of the value of vocational qualifications

National Foundation for Educational Research (NFER)

This document is a confidential draft



2019 review of the value of vocational qualifications

Andrew Pember
Chris Bolton
David Sims
Suzanne Straw
Amanda Taylor

Published in April 2019

By the National Foundation for Educational Research,

The Mere, Upton Park, Slough, Berkshire SL1 2DQ

www.nfer.ac.uk

ISBN:

Contents

Executive Summary

In March/April 2019, the National Foundation for Educational Research (NFER), with support from Carina Consulting, carried out a small-scale rapid evidence assessment and literature review of the value of vocational qualifications offered in the UK by the Joint Council for Qualifications (JCQ) members.

The review is intended to be an update to a previous research review carried out by NFER in 2015 for JCQ on the value of vocational qualifications. The current review sought to answer the following questions:

- How is the value of vocational qualifications defined?
- What is the reported value of vocational qualifications (e.g. benefits for the individual learner, business, and the economy)?
- Are there gaps in the research on the value of Level 3 vocational qualifications, and if so, what further information would be useful to have for policy and practice?

The review is evidence-based so will be helpful for the JCQ in informing discussions with Government, regulatory bodies and funding agencies about future investment in vocational qualifications. However, there are some limitations to the conclusions that can be drawn from a small-scale review.

Review methods

Parameters were agreed with JCQ members and the literature review included texts published in English with a focus on young people aged 14-25, from the year 2015 onwards. A range of bibliographic databases were searched for relevant literature, as were the websites of key organisations and institutions. Overall, 54 texts were sourced during searches. Each text was scrutinised in order for the research team to make an independent 'best evidence' selection of 16 documents to be reviewed, based on relevance to the research questions and the quality of the evidence. Note that if certain qualifications or awarding bodies are mentioned more than others, it is because they have featured more in the shortlisted literature.

Overview of the studies included in the review

Many of the 16 shortlisted texts reported the value of vocational and technical qualifications (VTQs) for learners' future employment (nine) or earnings (eight). Seven summarised the value in terms of progression to higher qualifications. Fewer studies explored the impact of vocational qualifications on wider returns (including on students' health and well-being and participation in higher education) or on the value for the Exchequer in terms of public budget returns. Most studies provided 'strong' evidence, often based on robust secondary analysis of large-scale datasets or included large surveys and literature reviews which summarised evidence from robust studies.

Key findings

The studies assessed in the literature review broadly support the findings of the 2015 NFER review in that benefits continue to be consistently reported by all stakeholders for young people taking vocational qualifications. Further detailed are presented below.

Benefits for learners

In the 16 papers that were reviewed in depth, the benefits for learners were most clearly evidenced in likelihood of securing employment, earnings-related returns, widening participation generally and through increased access / progression to higher education. One paper also found positive mental health benefits for learners moving into further education (FE).

Employment

- The successful completion of VTQs is seen by learners and employers alike as positive in terms of skills acquisition and the development of workforce behaviours.
- VTQs are used extensively as a benchmark for recruitment at both managerial/supervisory and skilled/professional levels.
- There is a positive correlation between successful completion of a VTQ and the likelihood of employment. The likelihood of employment generally increases with the highest level of vocational qualification achieved.

Earnings

- The evidence reviewed shows that there is a positive correlation between achievement of a VTQ and subsequent wage returns.
- The wage return also generally increases by level attained, although in line with the findings of the previous NFER literature review, this impact is delayed at Level 3 - the assumption being that this is due to the large number of Level 3 learners progressing to higher education prior to entering the workforce (see below).
- The wage return is also longer lasting at higher levels of attainment.
- The return from Apprenticeships was found to be higher than standalone VTQs.
- There is evidence to suggest that for some VTQs there is a greater financial return for men than women.
- Whilst returns are generally positive for younger learners, there is an ‘age cap’ on the earnings potential of VTQs - returns drop off significantly and can lead to a wage penalty at age 25 for Level 2, at age 30 for Level 3 and at age 45 for Level 4 and higher.

Widening participation in education

- There is evidence to show that the use of VTQs (e.g. BTECs) may increase the likelihood of participation in higher education for those from disadvantaged areas.

- There is an increasing use of qualifications other than A Levels to gain access to higher education (HE). This may suggest that higher education institutions (HEIs) are widening the qualifications they accept for entry.
- There is evidence to suggest that when learners go to university with 'other qualifications' and study the same subject at undergraduate level, the outcomes are as good as those for learners entering with only academic qualifications (i.e. A Levels).
- There is evidence that the mental health of young people moving to a post-16 vocational environment (i.e. FE college or workplace/apprenticeship) improves compared to learners staying on at school post-16.

Benefits for business

- VTQs are broadly valued by employers in terms of the skills learners bring and in workplace behaviours.
- Apprenticeships which contain a VTQ are valued more highly than standalone qualifications.
- There is evidence to suggest that VTQs are widely used in the recruitment process at all levels, which underlines their value as a benchmark of skills and knowledge and suggests that there is a good understanding of VTQs in the market.

Benefits for the economy

- Increasing the number of learners qualified at Level 3 in line with the levels seen in Germany would bring substantial returns to wages and therefore tax revenues.
- There is some evidence to suggest that VTQs increase business productivity.

Conclusions and recommendations

This literature review into the value of vocational qualifications has confirmed the previous findings, i.e. there is evidence of value for all stakeholders when young people complete vocational qualifications, regardless of the level of study.

The most compelling evidence relates to the positive impact of attainment on the earnings potential for learners - in short, it pays to take a VTQ at the highest level you can, and up to Level 3 the financial benefit is equivalent to the academic alternative (i.e. A Levels).

In some of the studies it was found that Apprenticeships outperformed standalone VTQs in terms of financial return, probably reflecting the employed status of apprentices.

Unsurprisingly, there is a similar picture when it comes to employment. People holding vocational qualifications are more likely to be employed than the 16 - 65 population generally, and VTQs are recognised by employers as being valuable. The higher level you achieve, the better chance you have to be employed.

VTQs are also growing in importance as a route into higher education. The use of qualifications like BTECs and Cambridge Technicals - either as a standalone or in combination with A Levels - is proving to be a popular preparation for university. This seems to apply particularly to those from disadvantaged backgrounds and from geographic areas of low participation in higher education.

None of the papers reviewed were able to robustly determine underlying causal factors, but it is clear that vocational qualifications play an important role for those learners in accessing university education.

Looking to the future, it is worth noting that the new T Levels are intended to be the 'main' technical stream in England, and that they are a full time two-year programme. If learners were to be 'forced' to choose between the academic and technical routes at 16 (i.e. take either A Levels *or* a T Level), there would be no opportunity for them to combine academic and technical study (e.g. A Levels *and* BTEC) in the way that many do now. Introduction of T Levels could therefore impact an increasingly important progression pathway, and although 'bridging' provision is anticipated, this has yet to be specified or defined.

Two additional wider benefits have been revealed in the post-2015 literature, though in both cases these related to vocational content / environment, rather than to specified VTQs. The first of these was the identification of a positive impact on the numeracy of the adult population relating to the proportion of vocational education delivered by countries at upper secondary level. The second was the observation that mental health improves when some learners transfer to a vocational learning environment (i.e. FE college) or work environment (including Apprenticeships) at 16, compared to those that stay on in school / sixth form. We recommend further research on the latter because, in addition to the environment, it might be that there is a link between qualification design and this mental health outcome, meaning recent and forthcoming changes to VTQ design could impact wellbeing.

In summary, the selected studies paint a positive picture of the value of VTQs to learners and business. It is important therefore that in the advice and guidance learners receive at school, vocational qualifications are presented as a good choice, both for those wishing to leave education at 18 and enter the workforce and also for those who wish to go on to higher education, particularly when the qualification is aligned to their intended university subject.

Our recommendations for future research which would strengthen the evidence-base are:

- Quantitative research into which VTQ 'subjects' are seen as better preparation for higher education study.
- Quantitative and qualitative research into the benefits of taking a standalone VTQ (as opposed to those taken as part of an Apprenticeship).
- Quantitative and qualitative research into the impact of the removal of qualifications from Apprenticeships. This could include changes to employability and earnings potential and also review of learner and employer perceptions around job preparation and the portability of Apprenticeships.
- Further quantitative research into the role of standalone VTQs and their impact on social mobility, recruitment and employment at all levels in order to determine the impact of recent qualification reforms (e.g. T Levels and new Apprenticeships)
- Qualitative research into the potential impact of the new T Levels, specifically:

- the reduction in qualification combinations currently available for HE progression (e.g. BTEC/A Level) and the impact on social mobility.
- geographical variations and availability.
- understanding and use by employers.
- Further research into the mental health impact of vocational study, including clarification of the underlying reasons for the observed mental health benefits offered by the vocational environment, and the implications of this for the future design of VTQs.

1 Introduction

In the last five years there has been an unprecedented level of policy-led change to education and training in England.

In November 2015 the then Minister of State for Skills, Nick Boles, established an independent panel on technical education, chaired by Lord Sainsbury. It was tasked with "advising ministers on actions to improve the quality of technical education in England and, in particular, to simplify the currently over-complex system and ensure the new system provides the skills most needed for the 21st century". The panel included representatives from business, higher and further education and Professor Alison Wolf, who had carried out a review for Government on technical education in 2011. The panel considered the 14-19 age group although 16-18 technical education was its primary concern. The panel reported in April 2016 and recommended the establishment of two coherent and complementary pathways - employment-based (through an Apprenticeship) and college-based (through a two-year study programme), with 'bridging' provision to allow for movement into and between the pathways. The bridging provision has yet to be specified by Government. In total the panel made 34 recommendations covering Levels 2/3 and Levels 4/5. The Government accepted the Sainsbury review in full and published the Post-16 Skills Plan in July 2016 with employers at the heart of the reform.

The employment-based or Apprenticeship element was outlined in the Government's English Apprenticeships: Our 2020 Vision which was published in December 2015 and detailed the changes to standards, structure, assessment and funding arrangements. This led to the establishment of the Institute for Apprenticeships and the implementation of new Apprenticeship programmes.

The full-time college-based element resulted in the proposal for the development of 15 Level 3 technical education routes, known as 'T Levels', which cover a broad range of industry sectors. T Levels (DfE, 2018a) will be phased in over a number of years with the first three (Digital, Construction and Education and Childcare) programmed for first delivery from September 2020. In January 2019, the Institute for Apprenticeships' (IfA) remit was extended to cover this technical route and was renamed the Institute for Apprenticeships and Technical Education (IfATE). The standards for the new qualifications will be based on the new Apprenticeships and there will be one Awarding Organisation (AO) approved to offer the qualification for each route. NCFE has been awarded the contract to be the AO for the Education and Childcare T Level, and Pearson has been awarded contracts to be the AO for T Levels in Design, Surveying and Planning as well Digital Production, Design and Development. In April 2019 The House of Commons Library published a briefing paper which gives a comprehensive overview of the reform.

At the same time, the Government is consulting on current provision at Level 4/5 and at Level 3 and below. The former has resulted in the publication of an interim evidence review (DfE, 2018b) with a further report due in early 2019. The latter is the subject of a consultation which was launched in March 2019 with the aim of "streamlining qualifications for students post-16, ensuring that we only fund those that are high quality, have a distinct purpose, are truly necessary and support progression to successful outcomes".

In this context, during March/April 2019, the National Foundation for Educational Research (NFER), supported by Carina Consulting, carried out a small-scale rapid evidence assessment and literature review of the value of vocational qualifications offered in the UK by the Joint Council for Qualifications (JCQ) members. This review reports on relevant material covering all levels of vocational qualifications, ensuring prominence of findings at Level 3 where this is possible. It is evidence-based so will be helpful to the JCQ in informing discussions with Government, regulatory bodies and funding agencies about future investment in vocational qualifications. However, there are some limitations to the conclusions that can be drawn from a small-scale review.

1.1 Aims of the review

In 2015, NFER undertook a previous literature review of the value of vocational qualifications. This 2019 report aims to provide an independent, systematic update to that work, giving prominence to Level 3 vocational qualifications where possible.

The following research questions framed the review:

- How is the value of vocational qualifications defined and by whom?
  - To what extent is the value of vocational qualifications defined numerically (e.g. increased wage premia) or qualitatively (e.g. enhanced job satisfaction)?
  - To what extent do Government policy makers, businesses, awarding bodies, teachers, parents, academics or individuals taking vocational qualifications contribute to defining their value? What is the reported value of vocational qualifications (e.g. benefits for the individual learner, business, and the economy)?
  - What benefits are there for the learner in relation to, for example, future employment, earnings and progression?
  - What benefits are there for employers and business, for instance in upskilling the workforce and for productivity?

  Are there gaps in the research on the value of vocational qualifications and, if so, what further information would be useful to inform policy and practice?

1.2 Review methods

The authors adopted a systematic approach to reviewing the evidence. A review protocol was agreed with the JCQ members, and the general inclusion criteria were:

- texts published in English, from June 2015 to April 2019, relating to vocational qualifications in the UK.
- texts which explore the value of vocational qualifications, and specifically Level 3 where possible, for people aged 14-25.

The search strategy (see Appendix A) used three search source types to ensure thorough coverage of the evidence base:

- key education bibliographic databases.

- websites of key organisations and institutions.
- JCQ members' recommendations.

A total of around 750 documents were found during the searches. These were screened for relevance on the basis of title and abstract, leaving a full list of 54 texts (see Appendix B for a bibliography). Each text was scrutinised in order to make a 'best evidence' selection of 16 to be fully reviewed, based on relevance to the research questions and the quality of the evidence (for example, a quantitative analysis of a large-scale national dataset will have taken precedence over a small-scale qualitative study or consultation).

The shortlist of 16 studies was agreed with JCQ members (see Appendix B for a bibliography). The items were then reviewed, information about the source was logged and then the findings were summarised in relation to the research questions.

1.3 Report structure

The report is structured as follows:

- Section 2 presents an overview of the literature included in the review (in terms of the value of vocational qualifications it defines and for whom), and comments on the strength of evidence.
- Section 3 summarises the value of vocational qualifications for learners covering value for employment, future earnings and future achievement of higher qualifications.
- Section 4 presents the evidence of the value for employers and public budgets.
- Section 5 summarises the benefits for widening participating in education.

The final section of the report presents the conclusions from the review of the value of vocational qualifications. Recommendations for future research on this topic, which would be useful to inform policy and practice, are also presented.

2 Overview of the studies reviewed

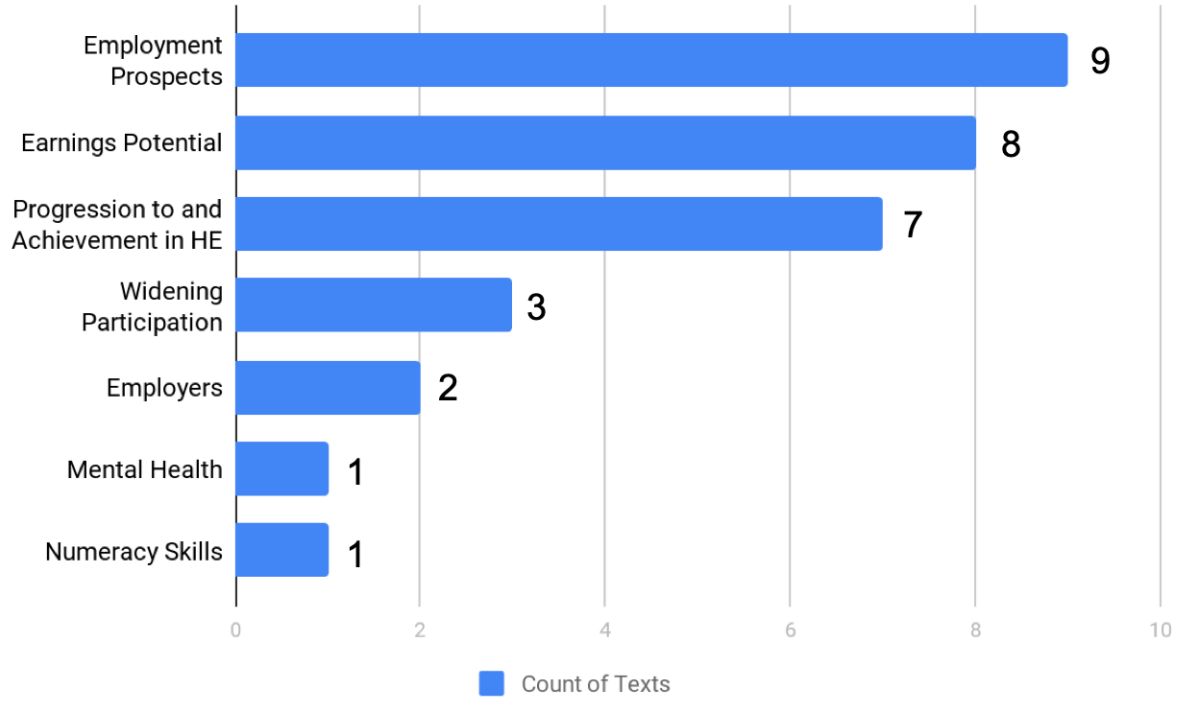
In this section, we give an overview of the 16 shortlisted texts in terms of what value of VTQs they have defined and the strength of the evidence they provide.

2.1 What is the value of vocational qualifications and for whom?

As Figure 1 shows, the majority of the 16 shortlisted texts reported the value of vocational qualifications for learners' future prospects, either in terms of employment (nine), earnings (eight) or progression to and achievement in higher education (seven).

A much smaller number of studies explored the impact of vocational qualifications on, widening participation in education, employers, the benefits to mental health and development of numeracy skills.

Figure 1: Coverage of shortlisted texts



It should be noted that some texts refer generically to 'vocational qualifications'. Others refer to specific named qualifications, such as BTECs, NVQs, TechBac and RSA Diploma. In some cases, the awarding body is mentioned such as City and Guilds (TechBac), Pearson (BTEC) and RSA (now part of OCR).

In two studies, the papers did not refer to vocational qualifications *per se* but instead referenced vocational / skills study more broadly within UK schools and post 16 institutions. Given that the vast majority of vocational study in schools and colleges in the UK occurs through the delivery of vocational qualifications, we have made the assumption that the findings of these studies can be considered alongside those from studies detailing specific qualification types.

Clarification is given throughout the report if it is available in the text that was reviewed. The authors of this report have been careful to use the same language as that used in the texts reviewed. Note that in some cases qualifications are not differentiated from awarding bodies. For example, NVQ qualifications are sometimes compared with 'City and Guilds' which is an awarding body that offers NVQs, so there is the potential for overlap/double counting.

It is also important to note that certain brands of qualification - for example the BTEC suite - cover a relatively broad range of qualification sub-types, levels and sizes. These specific sub-types are generally not referenced within the texts, and so care must be taken in interpretation. This is a particularly important consideration currently, because the vocational qualification market is in transition and the qualification specifications and assessment models used vary considerably within and across qualification brands and ranges.

Note also that if certain qualifications or awarding bodies are mentioned more than others in this report, it is because they have featured more in the shortlisted literature. This report can only be as balanced at representing the whole market of qualifications as the texts reviewed.

2.2 What is the strength of the evidence reviewed?

A rating system was used to generate the shortlist, combining the relevance of the text to the research questions with the strength/quality of data used in each case.

The overwhelming majority of texts reviewed were found to be 'strong' in terms of source data. In general, these papers used large scale and / or longitudinal data sets, including: English National Cohort Study; full cohort funding data from Education and Skills Funding Agency (ESFA); Program for the International Assessment of Adult Competencies data collated by the Organisation for Economic Co-operation and Development (OECD); the Labour Force Survey (LFS) and various DfE official statistics. Other 'strong' evidence included large surveys (for example, the Ofqual Qualifications Perceptions Survey) and literature reviews which summarised evidence from robust studies.

However, one of the texts was rated as having 'limited' strength of evidence because the sample size was small (n<50). This was an early study of learner and tutor opinions of a new qualification type, and the authors had carefully caveated their findings accordingly. We note this limitation in the relevant section of this report.

It is also important to note that the large data sets used by researchers were sometimes historic (2015 or earlier). This means that the impact of recent qualification reform (e.g. Apprenticeship changes and the implementation of new specifications and assessment strategies in 2016 for BTECs and Cambridge Technicals) will not have been included in their work.

3 The value of vocational qualifications for learners

In this section we summarise the evidence of the value of vocational qualifications for learners in relation to outcomes such as future employment, earnings and achievement of higher qualifications. Where possible, we group the evidence by the value of different qualification levels, types, and the location of learning. Note that the messages across the 16 texts are largely positive, particularly in relation to the value of vocational qualifications on employment and earnings. The evidence is more limited or mixed in relation to the wider benefits (including health and well-being and progression to – and achievement in – higher education).

3.1 Value for future employment

Perhaps the fundamental reason for the development and study of VTQs at any level is to prepare an individual for employment within a given sector or occupation. The value for successful learners lies in their increased employability, and for employers it is in knowing that a learner has gained the required knowledge, skills and behaviours that are necessary in the workplace. While further in-house training may well be required, it is generally expected that any newly 'qualified' employee will be able to contribute, to some degree, immediately to the business.

It is evident from this research and a wide range of previous reviews / studies that vocational or technical education is generally valued by employers and learners, although there remains a question over the number, variety and quality of qualifications in the market.

3.1.1 Employment value, by qualification type and level

In line with the NFER's previous review (2015), there is consistent evidence in the shortlisted texts that successful completion of a vocational or technical qualification has a positive impact on the likelihood of employment.

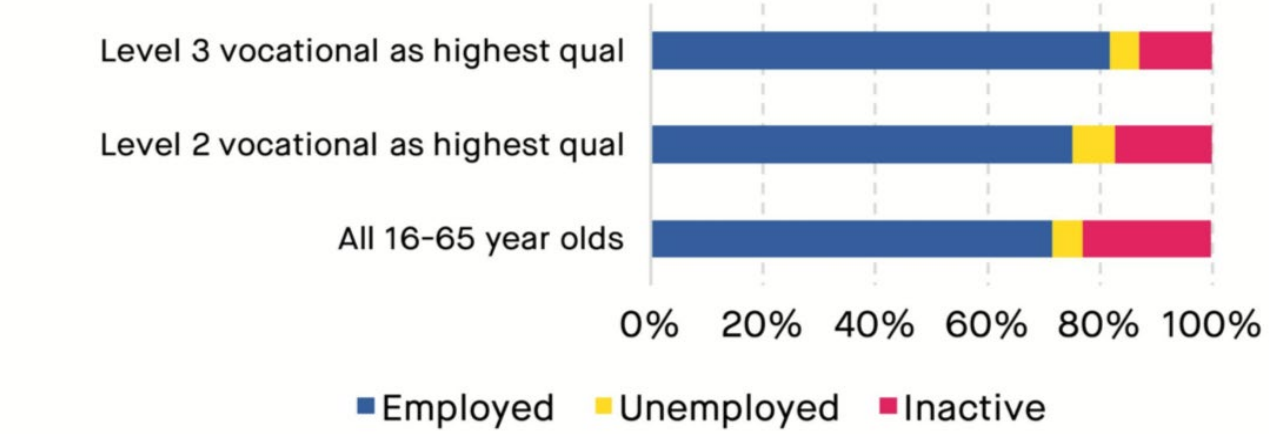
Ofqual, the qualifications regulator for England, commissioned Pye Tait Consulting to carry out a study into the perceptions of vocational and technical qualifications. The study, Pye Tait (2018), asked employers, learners and providers for their views on the new assessment regime for Apprenticeships, Functional Skills qualifications in Maths and English and other vocational and technical qualifications, including NVQs, BTECs and similar qualifications. The survey found that "Functional Skills and other Vocational and Technical Qualifications (VTQs) are predominantly viewed positively by employers, training providers and learners".

Pye Tait found that for learners, the most important reason for taking a VTQ was to "improve their skills" (53 per cent) with 46 per cent anticipating that achieving other VTQs would help their vocational and technical skills to improve and 47 per cent expecting this achievement would help them become more confident in using these skills. Of note is that only 16 per cent considered that it would help them get a job - this is probably the result of the learner segment being populated more by those already in full-time employment (55 per cent) and studying for an Apprenticeship where one element of it was a VTQ.

The Social Market Foundation (Mian *et al*. 2016) published a report into how vocational qualifications help young people in building their careers. The study looked at progression from Level 3 qualifications (BTECs) into higher education and onward to employment, as well as evaluating those going to directly into employment from Levels 2 and 3 without participating in HE. The report used data from the Quarterly Labour Force Survey to look at employment outcomes for those with vocational qualifications at Level 2 and 3 as their highest. The results from that analysis showed that there is a positive correlation in terms of likelihood of employment from both Level 2 and Level 3 vocational study.

The authors found that those with vocational Level 2 qualifications as their highest, and particularly those with vocational Level 3 qualifications as their highest, are more likely to be employed than the 16 - 65 population generally (see Figure 2 below). Having a vocational Level 2 qualification as one's highest, compared to a vocational Level 1 qualification, is associated with an eight per cent increase in the likelihood of being in employment, after controlling for other factors. Having a vocational Level 3 qualification as one's highest, compared to having a vocational Level 2 qualification as one's highest, is associated with a 15 per cent increase in the likelihood of being in employment. The effect is even stronger for women at 11 per cent for Level 2 and 17 per cent for Level 3.

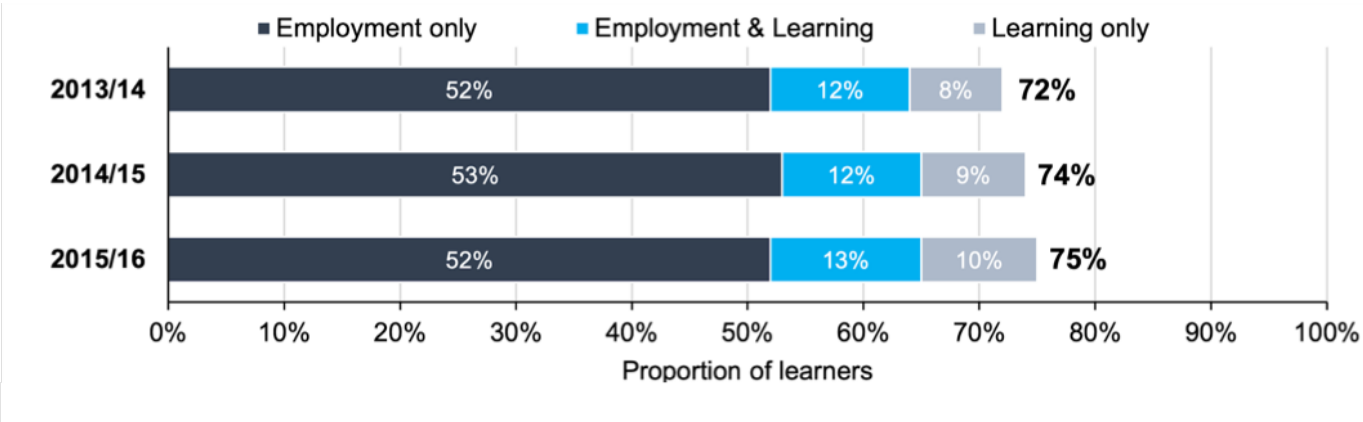
Figure 2: Employment status by type of vocational qualification (Mian *et al,* 2016)



Source: SMF analysis of Quarterly LFS 2011-2015

The Department for Education (DfE, 2018c) produced a statistical analysis of destinations for the 1.1 million 19+ learners completing an eligible learning aim - the data includes all 'types' of learning including Apprenticeships as well as other VTQs (e.g. BTECs, City and Guilds, OCR 'Cambridge Technicals') in the academic year 2015/16. This shows consistent sustained and positive destinations from three academic years to 2016. The data is presented in Figure 3:

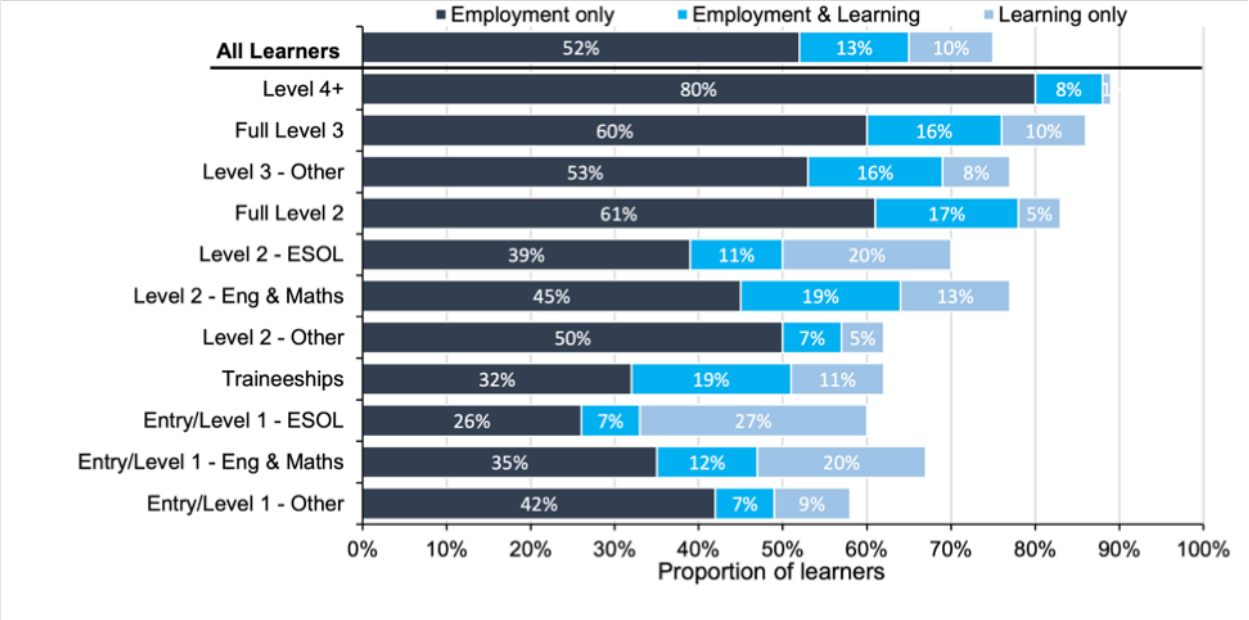
Figure 3: Sustained positive destination rates by academic year of completion



Source: Longitudinal Education Outcomes (LEO) Study

The data is further analysed into levels and is detailed in Figure 4 below:

Figure 4: Sustained destinations by level of learning, 2015/16



Source: Longitudinal Education Outcomes (LEO) Study

This again shows consistent employment destinations at all levels whether this is a 'full' (i.e. equivalent to five or more GCSEs at grade A* to C at Level 2, and to two or more A-levels at Level 3) or 'other' classification. It is also clear from this data that the likelihood of employment increases with the level attained.

In their evaluation of the City and Guilds 'TechBac', Emira *et al.* (2017) looked at the impact of this programme of study, first introduced in 2014, on skills and knowledge development and attitudes to learning, as well as the effectiveness of delivery and any improvements needed. The TechBac is a proprietary City & Guilds programme that comprises a VTQ, completion of a project and a work experience placement. Care must be taken in interpreting the findings of this study because, as noted by the authors, it was early stage and small scale (n<50). However, the development of skills and knowledge element of the research showed that all learners had progressed in relation to their knowledge and skills and a significant proportion (85 per cent) felt they had a better understanding of the 'behaviour' employers expect of them and, to a slightly lesser extent (80 per cent), of the 'skills' required in the workplace.

At a sector level, a study by the Construction and Industry Training Board (CITB) (2017) considered the value of vocational qualifications in the construction and built environment sector. In terms of learner and employer value, the research found qualification achievement significantly increases the probability of being employed, as shown in Figure 5 below:

Figure 5: Effect of achieved qualifications on employability probability compared to no achievement, by construction sector

Qualification	Effect on employment probability
Level 4 or above	6.3 percentage points ***
Level 3	6.3 pp***
Level 2	5.3 pp***
Below level 2	4.8 pp***
Trade apprenticeship	5.8 pp***

*Source: ONS LFS data; ICF regression analysis. Note: *** p<0.01, ** p<0.05, * p<0.1. The percentage point effects presented in this table are the average marginal effects of qualification achievement, calculated in Stata using the margins command.*

Source: CITB Value of vocational qualification in the Construction and Built Environment Sector, 2017

3.2 Value for future earnings

The evidence reviewed here demonstrates that there are positive financial returns associated with completion of vocational qualifications. Moreover, it pays to study at the highest level you can - the earnings were generally reported in our sample as being progressively higher at each level of attainment, and the impact of higher-level study was felt for longer. However, evidence from one of the studies in our sample demonstrated that this marginal effect has an age-related cap. In addition, it was reported in most studies that financial returns from Apprenticeships were larger than from attainment of standalone qualifications at the same level. It is also evident that there is a more positive impact on the pay of men than women for most (but not all) vocational qualification levels and types.

Whilst the statistical significance of the impact of attainment at Level 2 in some of the studies in our sample was reported as marginal, on balance the positive impact of attainment on earnings was reported at all levels of vocational qualifications.

3.2.1 Earnings value, by qualification level

In their review: Labour Market Returns to Vocational Qualifications in the Labour Force Survey (2016), the Centre for Vocational Education Research (CVER) analysed data from the UK Labour Force Survey (in the period 1997-2015) and found that higher ranked qualifications have higher average returns than lower ranked qualifications of the same qualification type. For example, after controlling for other qualifications held by people in the sample it was found that individuals holding an HNC/D as their highest earn 13 per cent more than those who do not, and they earn 58 per cent more than individuals with no qualifications at all. At Level 3, the estimated returns are smaller than at Level 4 but still positive - the highest returns came from the BTEC Level 3 qualification where those holding it earn on average seven per cent more than those whose highest attainment is at Level 2. Even when people are successfully on the academic track (i.e. having already achieved two or more A Levels), the analysis showed that acquiring a vocational qualification at a higher level is associated with higher wages.

The DfE review, *Further Education: Outcome Based Success Measures, Academic Years 2010/11 to 2015/16* (2018c), reports the average earnings growth for people attaining vocational qualifications and Apprenticeships at various levels for the five years following completion. It tracked learners completing in 2011 and found that mean earnings at Level 2 started at £16,200 and rose to £18,200 after five years. This compares to £15,500 and £18,200 respectively for Level 3. Whilst it might be expected that Level 3 qualifications should lead to higher median salaries, the similarity with Level 2 earnings can be explained by the fact that many learners attaining Level 3 vocational qualifications progress to further and higher-level education rather than work - a feature that was observed in NFER's previous literature review (2015). At Level 4 an average starting salary of £19,400 rose to £26,700 after five years. It was found that Apprenticeships delivered even higher returns at Levels 3 and 4, but slightly lower returns and growth at Level 2.

The New Economy study (2016, revised 2017) looked at the value gained from qualifications in terms of return on investment (ROI). It found, of the qualifications analysed, that whilst absolute returns are largest for a bachelor's degree (consistent with the general pattern that higher level qualifications tend to lead to higher financial gains), Return on investment (ROI) is actually higher from vocational qualifications than from degrees: For every £1 invested in delivery of the qualification (in total, by the Government and the learner), the return is £10.54 at Level 2 and £15.53 at Level 3 respectively for vocational qualifications. This compares with an ROI of £5.15 for men and £8.45 for women from a bachelor's degree. In absolute terms they found that the Net Present Value (NPV)[1] for a Level 2 vocational qualification was £35,885 and for a Level 3 vocational qualification was £53,506 - the latter being similar to their estimate of NPV from undertaking A-levels of approximately £58,100.

Though focused on one sector (albeit a large one), the CITB report (2017) paints a similar picture across all roles in the construction industries. The marginal impact of achievement of vocational qualifications is 15 per cent at Level 4, decreasing to 5 per cent at Level 3, 4 per cent at Level 2 and 8 per cent below Level 2 in this sector.

3.2.2 Earnings value, by qualification type

The Pye Tait Perceptions survey (2018) found that 25 per cent of employers (n=672) say that achievement of standalone vocational qualifications leads to a pay increase for employees 'all or most of the time', and a further 35 per cent of employers said it leads to an increase 'some of the time'. When qualification(s) were taken as part of an Apprenticeship (as opposed to standalone), the likelihood of a pay rise increases significantly, with 37 per cent of employers saying this occurs 'all or most of the time' and 25 per cent 'some of the time'.

CVER's Labour Market Returns Survey (2016) quantified the average returns[2] associated with various qualification types. They found that returns to BTEC qualifications are higher than the returns to other qualification types at the same level. For example, "the Level 3 qualification with the highest return is the BTEC ONC/OND (6.9 %)", which was similar to the returns earned by

[1] Net Present Value is calculated by subtracting the lifetime financial costs from the lifetime financial benefits
[2] 'Return' in this study is defined as the additional salary (in percentage terms) that holders of a particular qualification have compared to people that do not (holding all other qualifications constant)

"studying for two years for academic qualifications at Level 3 (the return to A Levels being 8.6%)". BTEC also had strong returns at the lower levels.

The explanation given was that BTECs typically have a longer duration than the other types of qualifications and provide "a more general college based programme". It is important to note here that BTEC is only one brand of full-time college-based vocational qualification, and a number of JCQ members and other awarding organisations offer equivalent provision to which similar benefits might accrue (albeit these were not analysed in the study, and other factors such as brand recognition and sectoral differences could also impact their value).

3.2.3 Earning value, by age

The New Economy study (2016, revised 2017) found there is an age at which qualifications 'stop paying', and that this age depends on the level of qualification attained. They found that there is a 'tipping point' when income gains drop and in fact can lead to a wage penalty – this occurs at about age 30 for Level 3 vocational qualifications and at about the age of 25 for Level 2. This contrasts with higher-level qualifications (i.e. all skills qualifications at Level 4 and above) where this tipping point occurs much later - on average at approximately age 45. No explanation was offered by the authors, but this pattern might be expected because at a younger age, attainment of a qualification is more likely to be associated with entry to, or promotion within, the workplace.

3.2.4 Earning value, by subject and sector

CVER's Labour Market Returns Survey (2016) calculated wage premia associated with achievement of various vocational qualifications across the different occupational sectors. In the case of BTEC Level 3 they found the highest premium (up to 30 per cent) came from attainment in Engineering, Construction, Management and Business. At the other end of the scale, returns to BTEC were negligible in areas such as Caring, Childcare and Catering, despite the qualification being 'well regarded' in those sectors. A similar pattern was found with the other vocational qualifications at Level 3 recorded in the survey data, which included identified RSA (OCR) and City & Guilds qualifications as well as NVQs and GNVQs at all levels for which the awarding organisation was not identified.

They also found differences at Level 2, where Management, Secretarial and Business attainment were all associated with healthy marginal returns of around ten per cent, whereas in other sectors at Level 2 returns were negligible or even negative, (a feature which the authors postulated may be due to unobserved differences within those populations).

These findings are consistent with the DfE FE Outcomes survey (2018c). This survey reported sectoral differences for Advanced (Level 3) Apprenticeships (which contain qualifications), rather than for standalone qualifications. However, the sector variation showed a similar pattern with median annualised earnings after one year in Engineering and Manufacturing Technology being approximately double those seen in sectors like Childcare, Service Enterprises and Learning Support.

Explanations for these sectoral differences in earnings for vocational learners include underlying differences in pay conditions in the labour market (probably the major factor), the relative

proportion of part-time workers in certain roles and some categories of income not being recorded (for example, income declared through self-assessment, which was not part of the data set).

3.2.5 Earning value, by geographic location

Of the texts shortlisted for this survey, only CVER's Labour Market Returns Survey (2016) analysed regional differences in return on vocational qualifications.

Overall, they found no strong pattern of difference - i.e. no region or country consistently saw significantly higher or lower returns to any vocational qualification levels, types or brands. There were slightly lower returns in South-West England to some qualifications, such as BTECs, Apprenticeships and City and Guilds Craft (Level 2) but that data was generally not statistically significant and so should not be relied on.

Therefore, it would appear that learners taking vocational qualifications do not face a returns disadvantage on the basis of where they choose to live and work in the UK.

3.2.6 Earning value, by gender

The CVER Labour Market Returns Survey (2016) also reported on differences in return on vocational qualifications for men and women. They found that there are consistent differences between the genders, and also that these vary by qualification type. The estimated returns to BTEC qualifications were found to be higher for men than for women at all levels (e.g. compared to men and women whose highest level was Level 3, attainment of the BTEC HNC/HND was associated with 15 per cent higher wages for men but only nine per cent higher wages for women). In the case of Apprenticeships and higher-level City and Guilds qualifications, only men seem to earn a positive wage premium. Conversely, only women were found to gain positive and significant returns from RSA (OCR) qualifications. Only for NVQ qualifications did there seem to be little difference between the genders. The most likely explanation for these observed gender differences is that certain qualification brands and types tend to feed into specific sectors that have different market pay rates, and which are dominated by one gender or the other.

The New Economy study (2016, revised 2017) included an analysis of the extent to which various factors impact hourly pay, including age of study, location and ethnicity. It reported the level of pay benefit/penalty for each of these factors compared to a control group (white men from London/SE England who obtained highest qualification at under 25 years of age) and found a consistent pay penalty for women at all levels: Level 4 (-18 per cent); Level 3 (-18 per cent); Level 2 (-eight per cent).

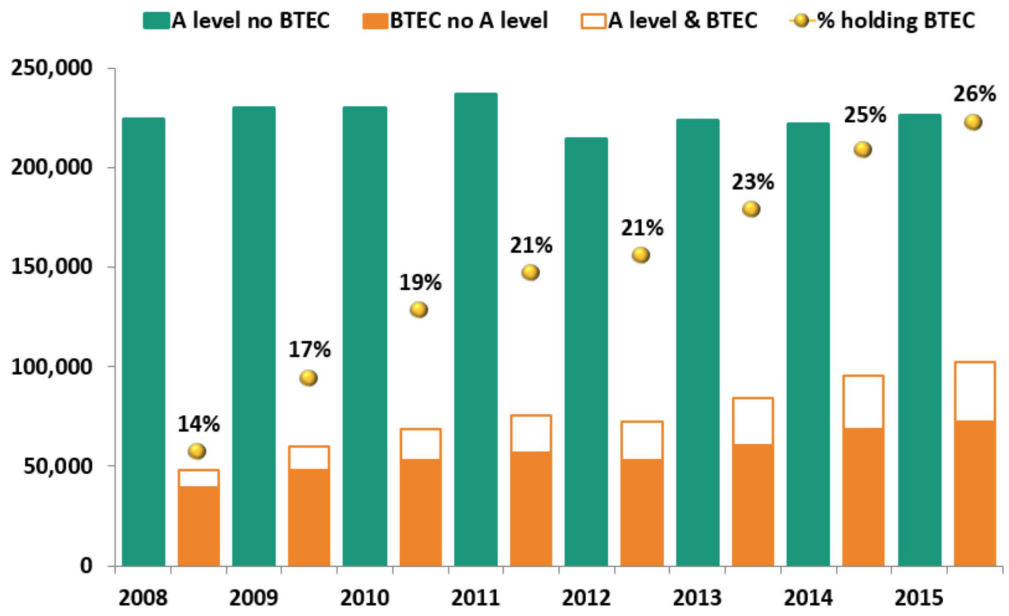
3.3 Value for future achievement of higher qualifications

The traditional A Level route to university or HE continues to be the most common way for learners to access higher education. However, the number of learners taking other qualifications has increased significantly in the last ten years. According to the UCAS End of Cycle report of 2018, the increasing acceptance rates and application numbers for students with alternative qualification profiles may indicate a diversification of the qualifications that HE providers will accept. BTECs form the majority of these alternative qualifications but there is increasing use of Cambridge

Technical and Pre-University qualifications, Scottish Qualifications and the International Baccalaureate (IB), among others.

Analysing UCAS data, the Social Market Foundation (SMF) report (Mian *et al*, 2016) found that "almost 100,000 students (one in four) entering university now have a BTEC qualification compared to just under 50,000 in 2008" and furthermore that "acceptance of those with BTECs and a combination of BTECs and A Levels is increasing rapidly and the proportion has almost doubled in the last eight years from 14% in 2008 to 26% in 2015". Figure 6 presents the details:

Figure 6: Acceptances of students into higher education holding A Levels and BTECs



Source: UCAS, Progression Pathways, Figure 8, (2016).

The UCAS End of Cycle Report (2018) (Chapter 6) reports on qualification applications and acceptances to higher education institutions (HEIs). It analyses applications by different qualifications including 'A' Levels only, 'A' Levels and BTECs, BTECs only, SQA qualifications, the IB and any others (e.g. Cambridge Technicals). A Level applications by 18-year olds only continue to be the most common qualification with 59.8 per cent of all applicants. The report shows there has been a slight fall in candidates holding BTECs (10.1 per cent, down one per cent) only or with a BTEC/A Level combination (7.2 per cent, down 0.5 per cent). Despite the small decrease this still equates to 17.2 per cent using BTECs solely or as part of their application to HEIs. The most common BTEC qualification used for application is the Level 3 Extended Diploma or its new equivalent, Level 3 National Extended Diploma. The report concludes that while the entry rate growth for A Level and BTEC students has "plateaued", the acceptance rates for BTEC and SQA students has continued to rise.

The UCAS report also analysed acceptance rates with lower A Level and BTEC grade profiles finding that there has been an increase in acceptance rates, which may be both indicative of the

increased competition to recruit among providers and better support being offered to BTEC students to make a successful transition to HE.

A further area reported on by the SMF is that BTEC or BTEC/A level students are far less likely to go to 'higher tariff' universities. They conclude that part of the reason for this is student subject choice at Key Stage 5 and subjects offered by HEIs.

The area of university and degree outcomes was considered by a study into preparing students for university study (Gill, 2016) which gave a statistical comparison of different post-16 qualifications. The purpose of the research was to compare students taking different qualifications in terms of their probability of achieving a good degree classification. The findings from the research 'suggest that some academic qualifications prepare students better for university than do some vocational qualifications'.

However, this needs to be considered in the context of purpose, as preparation for university study is not necessarily the main aim of vocational qualifications. The research also found that any advantage that A Level students had over those taking BTEC Diploma or OCR National Extended Diploma became non-significant when the subject taken was the same as the degree subject, suggesting that for specific subjects these vocational qualifications they are as good as A Levels for preparing students.

4 The value of vocational qualifications for employers and public budgets

4.1 The benefits for employers

As previously stated, the value of vocational or technical qualifications for employers lies in knowing that a learner has gained the required knowledge, skills and behaviours that are necessary in the workplace.

There continues to be limited research evidence of the value that employers place on vocational or technical qualifications and, where there is evidence, it does not differentiate between types of qualification nor to any great extent the level.

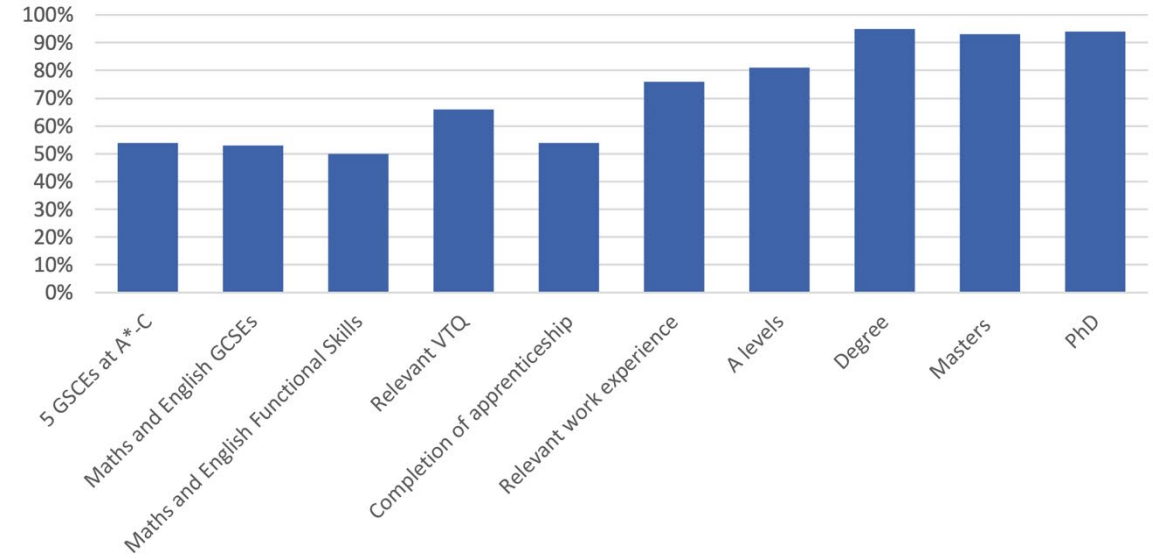
The Ofqual-commissioned survey into perceptions of vocational or technical qualifications by Pye Tait Consulting (2018) considered the value of 'other VTQs' (e.g. NVQs, BTECs) from an employer perspective. The survey asked over 2,000 employers of all sizes on their views of other VTQs with the following results:

- 91 per cent of employers value other VTQs
- 83 per cent of employers think other VTQs prepare learners well for the workplace
- 87 per cent of employers think the purpose of other VTQs are well-understood
- 82 per cent of employers think other VTQs equip learners with relevant technical skills
- 78 per cent of employers consider a relevant VTQ to be essential when recruiting for skilled and supervisory roles within their organisations.

The survey also found that large employers (with 249+ employees) were more likely to have positive perceptions than micro (ten or fewer employees) or small organisations (49 or under employees). There was also a significant increase in positive employer perception where the VTQ formed part of an Apprenticeship rather than a standalone qualification. It should be noted that new Apprenticeship programmes do not contain a VTQ as part of the assessment strategy.

In the survey, employers referred to City & Guilds and Pearson as their most commonly used VTQ brands and NVQs and BTECs the most commonly used type of other VTQ. The survey also found that other VTQs are used extensively in recruitment for both professional/managerial roles and skilled/supervisory roles, as shown in Figure 7 and Figure 8 below:

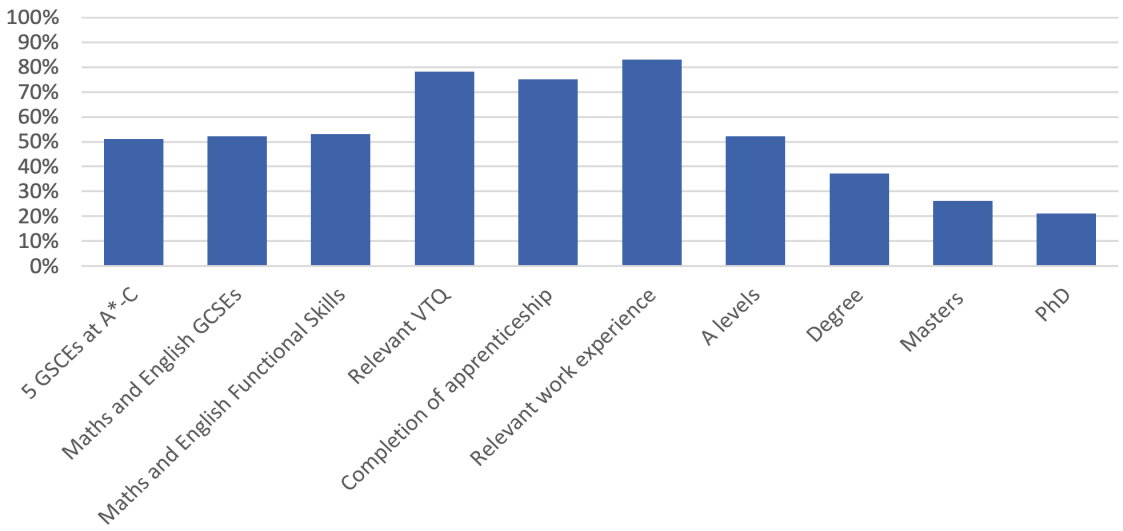
Figure 7: When recruiting new employees, are any of the following essential for professional and managerial roles?



Bases per option: 773, 793, 468, 770, 341, 1446, 581, 603, 182, 102

Source: Pye Tait, 2018

Figure 8: When recruiting new employees, are any of the following essential for skilled and supervisory roles?



Bases per option: 773, 793, 468, 770, 341, 1446, 581, 603, 182, 102

Source: Pye Tait, 2018

In the CITB report into the construction and the built environment (2017), vocational qualifications are considered by most construction and built environment employers to be effective in preparing individuals to work in the sector with higher levels providing more effective preparation than lower levels. The report also states that employers believe their business benefits from individuals completing vocational qualifications through improved productivity, efficiency and flexibility of workers, the ability to win more work, and increased employee retention. As a ROI proposition, the report states that employers will have a monetary benefit of between £8,000 and £17,000 in the five years after the qualification is completed, and between £18,000 and £34,000 in the ten years after the qualification is completed. The benefit to employers over ten years is: £34,000 at Level 4 and above; £19,000 at Level 3; £18,000 at Level 2; and £18,000 for an Apprenticeship.

4.2 The benefits for public budgets

The DfE's report, Labour market impact of progressing more learners to Level 3 (DfE, 2018d), used data from OECD, the Labour Force Survey (LFS) plus DfE official statistics and commissioned research to estimate the high-level impact of the UK matching German levels of attainment of skills at Level 3.

The authors used vocational qualifications earnings premium data from Bibby *et al*. (2014) and then calculated the number of people in England that would need to achieve a Level 3 qualification to match these Germany levels and also estimated (i) the additional earnings that would accrue for those already in employment and (ii) the number of people who would enter employment as a result of achieving a Level 3 qualification, plus their earnings.

They found that, in Germany, “an additional 22% of the population aged 25-64 is qualified to the equivalent of NVQ Level 3 or higher, relative to the UK”. This would equate to an additional 6.3 million people in England, and an increase to Level 3 attainment for this population “could mean an increase in annual wages for workers in England of £14.4bn”. Such an increase would obviously significantly benefit those workers, and would also generate substantial additional tax revenues for the UK Government.

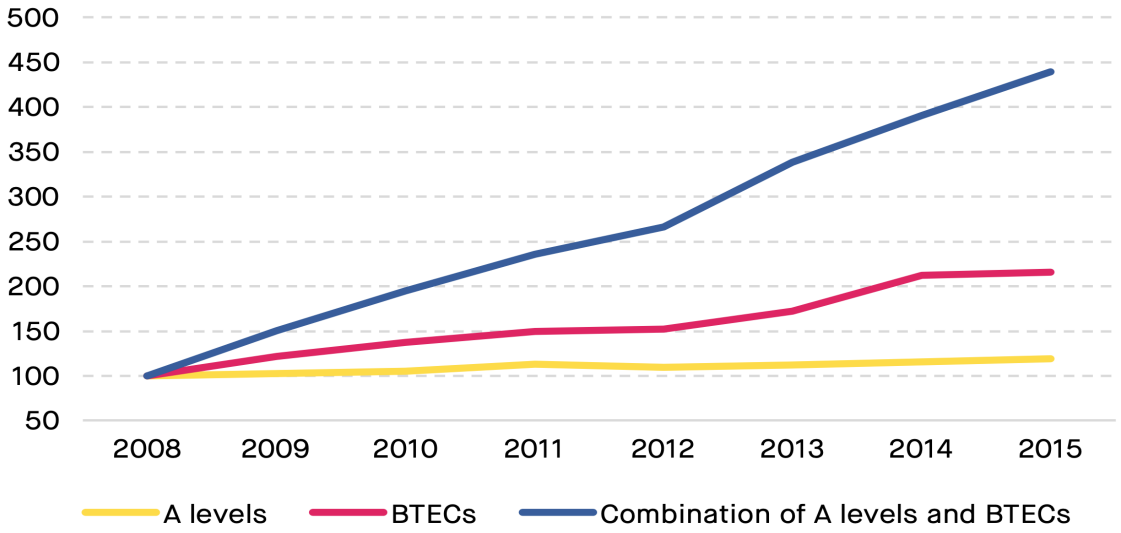
5 Wider benefits

5.1 Widening participation in education

Using UCAS end of cycle data for 2016, the SMF report Vocation Vocation Vocation (2018) reviewed the prevalence of successful university applicants holding at least one BTEC qualification (prior to application) and found that vocational qualifications were an important route across all measures of disadvantage. This was particularly true for geographical areas of low participation in HE and for learners from low socio-economic backgrounds. For example, in the cohort studied, 47 per cent of all successful students living in the most disadvantaged areas were BTEC holders, compared to only 19 per cent from high participation areas.

This finding is consistent with an earlier SMF study, Passports to Progress (Mian *et al*, 2016), which drew on data from 2008 to 2015 and noted an increasing trend for students with BTECs (and those with a combination of A Levels and BTECs) originating from disadvantaged areas. During this period, students from the most disadvantaged backgrounds with A Levels only increased by 19 per cent, whereas, those with BTECs increased by 116 per cent. “Those combining both A Levels and BTECs increased by 340%, albeit from a low base’’ noted in the report. Figure 9 presents the details:

Figure 9: HE entry rate of young people from the most disadvantaged POLAR3 area, by qualification type (2008 = 100)



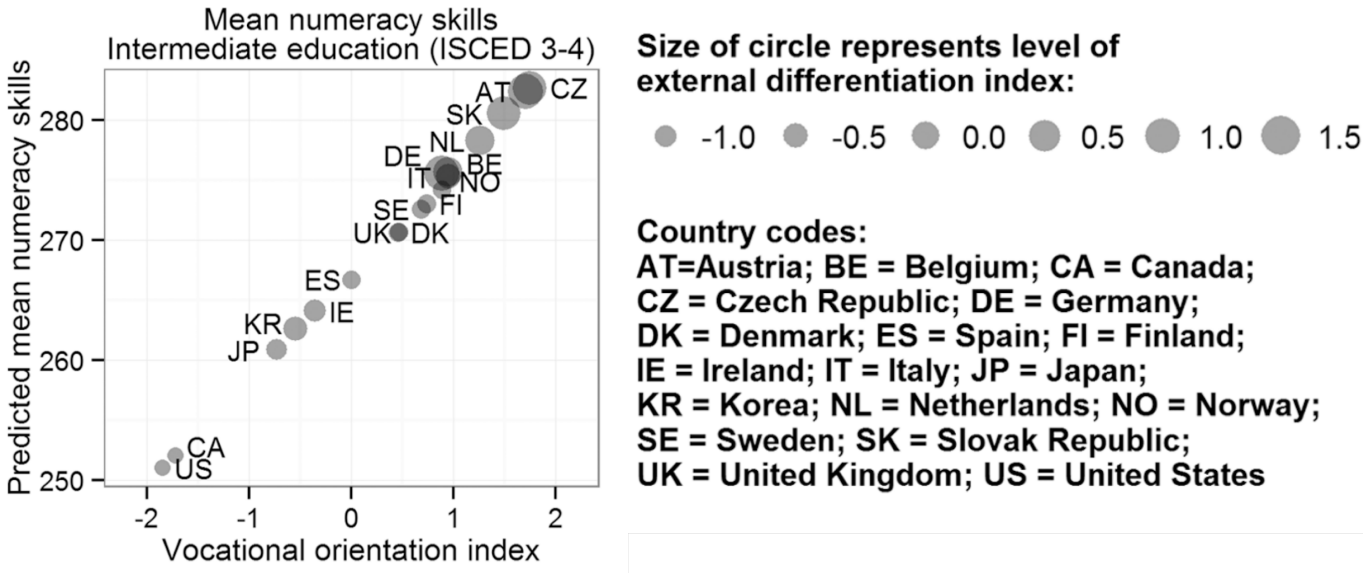
Source: SMF analysis of UCAS End of Cycle Report 2015, Figures 101, 102 and 103. English 18 year olds only.

5.2 Numeracy

Vocational study also appears to have a positive impact on the development of numeracy skills of learners. Heisig and Solga (2015) conducted a statistical analysis using OECD data on 30 to 44-year-olds in 18 countries (including the UK) from the 2011–12 round of the Program for the International Assessment of Adult Competencies. They examined the impact of external differentiation (the extent to which learning takes place in separate programmes or tracks - a feature of some international education systems, e.g. Germany) and vocational orientation (the extent to which programs at the upper-secondary level emphasize vocational as opposed to general skills).

Controlling for country level differences, the authors found that a very strong positive and linear relationship exists between Vocational Orientation and numeracy skills - i.e. the education systems delivering a higher proportion of vocational content at upper secondary level subsequently produced adults with proportionally higher numeracy levels. Figure 10 presents the findings:

Figure 10: Relationship between vocational orientation and predicted mean numeracy skills



Source: OECD Data from Program for the International Assessment of Adult Competencies, 2011-12

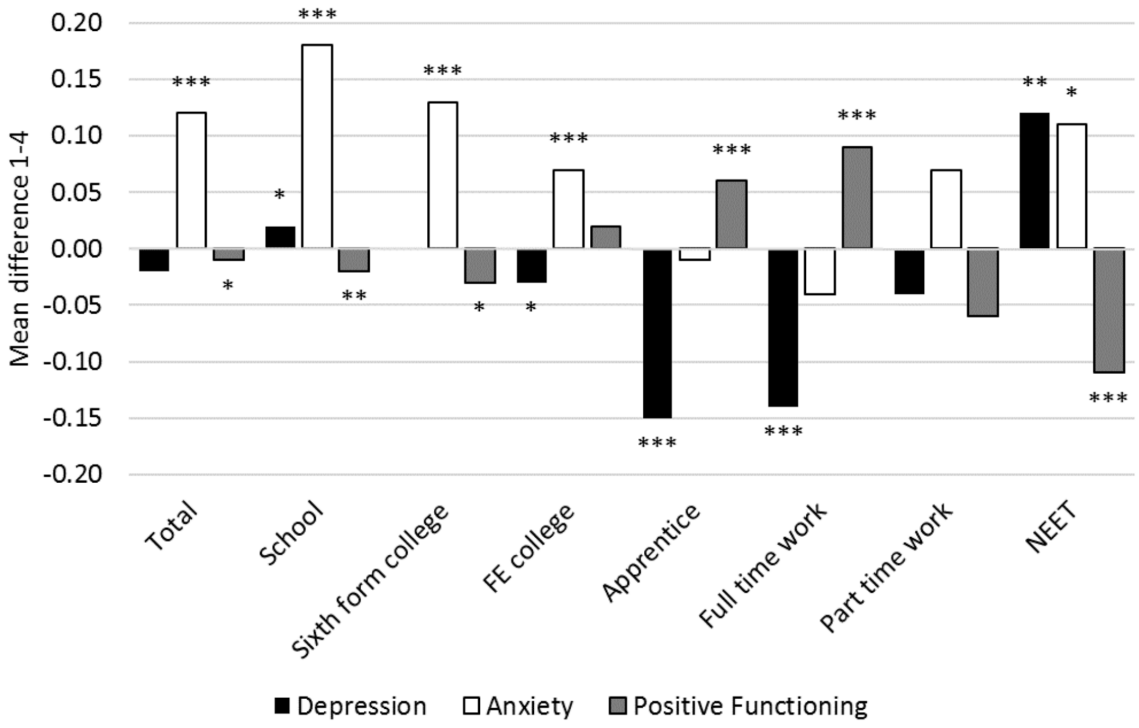
Furthermore, it was found that the biggest gains in numeracy were for the less well-educated people in the sample. Whilst the impact of specific UK vocational qualifications was not analysed, it would be reasonable to assume that engagement with vocational qualifications in upper secondary education in the UK is associated with this positive impact on numeracy.

5.3 Mental health

Using data from the English national cohort study Next Steps (N = 13,342), Symonds *et al.* (2016) studied the reported changes in adolescents' anxiety, depressive symptoms, and positive functioning at 16-years-of-age as they either stayed on at school, transferred from comprehensive school to further education, employment or training, or became NEET (not in education, employment or training). The details are presented in Figure 11 below.

Controlling for childhood achievement, socio-economic status, ethnicity and gender, the authors found that, on average, young people transferring to a vocational environment had positive gains in mental health compared to those staying on at school or entering sixth form college (the latter two groups experiencing increase in anxiety post-transition). Even more positive gains were seen in learners moving to an Apprenticeship or full-time work. Unsurprisingly, "adolescents who became NEET after transition exhibited the greatest declines in mental health", as stated in the report.

Figure 11: Mental health development at the school-to-work transition at 16 years



Notes: ***p <.001, **p <.01, *p <.05.

Source: Next Steps (Longitudinal Study of Young People in England) 2015 (Symonds *et al*, 2016)

There are a number of possible explanations for these mental health outcomes which the authors recommend will require further study to determine. In general, it is postulated that the improvement in mental health (lower anxiety or depression, and/or improvement in positive function) may relate to the better fit of environment / programme of study, leading to increased satisfaction and a better self-perception. Regardless of the explanation, this study has identified a statistically significant link between vocational study and the mental health of young people.

6 Conclusions and recommendations

6.1 Conclusions

The main aim of this study was to review recently published research in order to determine the extent to which vocational qualifications create value for the learners that take them, as well as their impact on a broader range of stakeholders. The research uncovered in this literature review broadly reinforces the findings of the previous NFER study (2015) - i.e. there is value for all stakeholders when young people complete vocational qualifications, regardless of the level of study.

The most compelling evidence relates to the positive impact of attainment on the earnings potential or learners - in short, it pays to take a VTQ at the highest level you can, and up to Level 3 the financial benefit is equivalent to the academic alternative (i.e. A Levels).

In some of the studies, it was found that Apprenticeships outperformed standalone VTQs in terms of financial return. The probable explanation for this is that, by definition, apprentices are already in employment and earning when starting their programme and will typically retain their job and see a significant uplift to earnings once they have successfully completed. However, it is important to note that Apprenticeships are changing and will no longer include qualifications, potentially impacting employer recognition, take up and portability - it will therefore be interesting to understand the impact of these changes on earnings over the next few years.

Unsurprisingly, there is a similar picture when it comes to employment. People holding vocational qualifications are more likely to be employed than the 16 - 65 population generally, and VTQs are recognised by employers as being valuable. The higher level you achieve, the better chance you have to be employed.

VTQs are also growing in importance as a route into higher education. The use of qualifications like Pearson's BTECs and OCR's Cambridge Technicals - either as a standalone two-year full-time qualification, or increasingly (in their smaller sizes) in combination with A Levels - is proving to be a popular preparation for university. This seems to apply particularly to those from disadvantaged backgrounds and from geographic areas of low participation in higher education. None of the papers reviewed were able to robustly determine underlying causal factors, but it is clear that vocational qualifications play an important role for those learners in accessing university education. Possible reasons cited include the influence of the school setting (e.g. qualification availability and messaging by staff about favourable routes to HE), and a belief by learners that taking a vocational qualification, or a mix of vocational and academic qualifications, will maximise their chances of achieving the required UCAS points for entry.

Looking to the future, it is worth noting that the new T Levels are intended to be the 'main' technical stream in England moving forward, and that they are a full-time two-year programme. If learners were to be 'forced' to choose between the academic and technical routes at 16 (i.e. take either A Levels *or* a T Level), there would be no opportunity for them to combine academic and technical study (e.g. A Levels *and* BTEC) in the way that many do now. Introduction of T Levels could therefore impact an increasingly important progression pathway, and although 'bridging' provision is anticipated, this has yet to be specified or defined. For this reason, T Level impact features in our recommendations for further research.

Two additional wider benefits have been revealed in the post-2015 literature, though in both cases these related to vocational content / environment, rather than to specified VTQs. The first of these was the identification of a positive impact on the numeracy of the adult population relating to the proportion of vocational education at upper secondary level. The second was the observation that mental health improves when learners transfer to a vocational learning environment (i.e. FE college) or work environment (including Apprenticeships) at 16, compared to those that stay on in school / sixth form. Again, we recommend further research on the latter, because it might be that

there is a link between qualification design and this mental health outcome, meaning recent and forthcoming changes to VTQ design could impact wellbeing.

In summary, the selected studies paint a positive picture of the value of VTQs to learners and business. It is important therefore that in the advice and guidance learners receive at school, vocational qualifications are presented as a good choice, both for those wishing to leave education at 18 and enter the workforce and also for those who wish to go on to higher education, particularly when the qualification is aligned to their intended university subject.

6.2 Recommendations for further research

The final aim of the research was to consider whether further information could be obtained for policy and practice, in order to fill any gaps in evidence. Our recommendations for future research which would strengthen the evidence-base are:

- Quantitative research into which VTQ 'subjects' are seen as better preparation for higher education study.
- Quantitative and qualitative research into the benefits of standalone VTQ (as opposed to those taken as part of an Apprenticeship).
- Quantitative and qualitative research into the impact of the removal of qualifications from Apprenticeships. This could include changes to employability and earnings potential and also review of learner and employer perceptions around job preparation and the portability of Apprenticeships.
- Further quantitative research into the role of standalone VTQs and their impact on social mobility, recruitment and employment at all levels in order to determine the impact of recent qualification reforms.
- Qualitative research into the potential impact of the new T Levels, specifically:
  - the reduction in qualification combinations currently available for HE progression (e.g. BTEC/A Level) and the impact on social mobility
  - geographical variations and availability
  - understanding and use by employers.
- Further research into the mental health impact of vocational study, including clarification of the underlying reasons for the observed mental health benefits offered by the vocational environment, and the implications of this for the future design of VTQs.

7 References

Bibby, D., Buscha, F., Cerqua, A., Thomson, D. and Urwin, P. (2014). *Further education: comparing labour market economic benefits from qualifications gained*. London: [online]. Available: https://www.gov.uk/government/publications/further-education-comparing-labour-market-economic-benefits-from-qualifications-gained [15th April 2019].

Department for Education. (2016). *The Post-16 Skills Plan*. London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536043/Post-16_Skills_Plan.pdf [15th April 2019].

Department for Education (2018a). *T Level Action Plan*. London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779002/T_Level_action_plan_2018.pdf [15th April 2019].

Department for Education (2018b). *Review of Level 4 and 5 Education - Interim Evidence Overview*. London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733696/Review_of_Level_4_and_5_Education-Interim_Evidence_Overview.pdf [15th April 2019].

Department for Education (2019). *Review of post-16 qualifications at level 3 and below in England – Government Consultation.* London: [online]. Available: https://consult.education.gov.uk/post-16-qualifications-review-team/post-16-level-3-and-below-qualifications-review/supporting_documents/Post%2016%20level%203%20and%20below%20qualifications%20review%20%20Consultation%20Document.pdf [15th April 2019].

Foster, D., Powell, A. (2019). *T Levels: Reforms to Technical Education*. London: House of Commons [online]. Available: https://researchbriefings.files.parliament.uk/documents/CBP-7951/CBP-7951.pdf [15th April 2019].

HM Government (2015). *English Apprenticeships: Our 2020 Vision*. London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/482754/BIS-15-604-english-apprenticeships-our-2020-vision.pdf [15th April 2019].

Lynch, S., Sims, D. and Wespieser, K. (2015). *A Literature Review of the Value of Vocational Qualifications*. Slough: NFER [online].
Available: https://www.nfer.ac.uk/media/1910/jcqr01.pdf [15th April 2019].

Richard, D (2012). *The Richard Review of Apprenticeships.* London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/34708/richard-review-full.pdf [15th April 2019].

Sainsbury (2016). *Report of the Independent Panel on Technical Education.* London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536046/Report_of_the_Independent_Panel_on_Technical_Education.pdf [15th April 2019].

Wolf, A. (2011). *Review of Vocational Education: the Wolf Report*. London: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf [15th April 2019].

Appendix A Review parameters and search strategy

A.1 Research Aim

The aim of the literature review was to explore the value of vocational qualifications

offered by the Joint Council for Qualifications (JCQ) members, and the literature review was conducted in order to answer the following research questions:

- How is the value of the specified vocational qualifications defined and by whom?
- What is the reported value of those vocational qualifications (to learners, business, teachers/tutors, higher education, economies)?
- Are there gaps in the research on the value of vocational qualifications, and if so, what further information would be useful to have, in particular in the context of the Level 3 and below review?

A.2 Inclusion Criteria

The general inclusion criteria for the review were as follows:

Publication date range:	June 2015 to March 2019
Geographical scope:	UK
Age range:	14 to 25
Language:	Literature published in the English language
	Study type: Empirical research and/or evaluation; published literature and policy documents.

A.3 Search Strategy

Four types of search source were included to ensure thorough coverage of the evidence base:

- bibliographic databases

- peer review journals
- websites of key organisations and institutions
- recommendations from JCQ member bodies

The precise search strategies used with each of the bibliographic databases (in terms of the keywords used and, in some cases, the combinations of keywords) are specified in detail below.

The search strategy for each database reflects the differences in database structure and vocabulary. Smaller sets of keywords were used in the more specialist databases.

Throughout, the abbreviation 'ft' denotes that a free-text search term was used i.e. a term not included in a databases' thesaurus or controlled vocabulary.

British Education Index (BEI)

BEI provides information on research, policy and practice in education and training in the UK. Sources include over 300 journals, mostly published in the UK, plus other material including reports and conference papers.

#1 Applied General (ft)

#2 Tech Level (ft)

#3 T Level

#4 Technical education

#5 National vocational qualifications

#6 Employee training

#7 Vocational education

#8 Vocational education research

#9 BTEC (ft)

#10 Business and technician education council (ft)

#11 Competency based education (ft)

#12 On the job training (ft)

#13 Vocational education and training (ft)

#14 Vocational qualifications (ft)

#15 #11 or #22....or #14

#16 United Kingdom (ft)

#17 UK (ft)

#18 England (ft)

#19 Wales (ft)

#20 Scotland (ft)

#21 Northern Ireland (ft)

#22 #16 or #17...or #21

#23 #15 and #22

Education Resources Information Center (ERIC)

ERIC is sponsored by the United States Department of Education and is the largest education database in the world. Coverage includes research documents, journal articles, technical reports, program description.

#1 Applied General (ft)

#2 Tech Level (ft)

#3 T level (ft)

#4 Technical education

#5 National vocational qualifications (ft)

#6 Vocational education (ft)

#7 BTEC (ft)

#8 Business and technician education council (ft)

#9 On the job training (ft)

#10 Vocational education and training (ft)

#11 Vocational qualifications

#12 #11 or #2....or #11

#13 United Kingdom (ft)

#14 UK (ft)

#15 England (ft)

#16 Wales (ft)

#17 Scotland (ft)

#18 Northern Ireland (ft)

#19 #13 or #14...or #18

#20 #12 and #19

VETNET

Papers presented at the annual European Conference on Educational Research by the European Research Network in Vocational Education and Training.

#1 Vocational qualifications (ft)

VOCEDPlus

VOCEDplus is an international research database for tertiary education, in relation to workforce needs, skills development and social inclusion. It encompasses vocational education and training (VET), higher education, adult and community education, informal learning, and VET in schools, and is produced by the National Centre for Vocational Education Research (NCVER).

#1 Vocational qualifications (ft)

Journals

We reviewed the table of contents for issues of the following peer-review journals in the date range:

Journal of Education and Work

Journal of Vocational Education and Training

Journal of Further and Higher Education

Websites

These websites were searched on main keywords and/or the publications/research/policy sections were browsed as appropriate.

Government
1. DfE
2. BEIS
3. Local Government Association
4. Ofqual
5. Ofsted

6. ESFA
7. Select Committees/Commissions: Education Public Accounts Social Mobility Commission
8. National Audit Office
9. Institute for Apprenticeships & Technical Education
10. Education Scotland
11. Department of Education (Northern Ireland)
12. Welsh Government – Education and Skills
Industry
13. CBI (skills)
14. Federation of Small Businesses
Education Charities
15. Edge Foundation
16. Nuffield Foundation
17. Sutton Trust
Think Tanks
18. Institute for Fiscal Studies
19. Adam Smith Institute
20. Centre for Social Justice
21. Demos
22. Institute for Public Policy Research
23. Policy Exchange
24. Reform
25. ResPublica
26. Social Market Foundation
Awarding Organisations
27. City & Guilds (C&G)
28. FAB
29. NCFE
30. OCR
31. Pearson
32. Range of smaller AOs

Sector Bodies
33. Federation for Industry Skills and Standards
34. SEMTA
35. Institute of the Motor Industry
36. Association of Employment and Learning Providers
37. Association of Colleges
Professional Bodies
38. Engineering Council
39. The Institution of Engineering and Technology
40. Institution of Mechanical Engineers
41. Chartered Management Institute

Appendix B Bibliographies

B1 Shortlisted studies

Construction Industry Training Board. (2017). *Value of vocational qualifications in the Construction and Built Environment Sector: Final Report.* Kings Lynn: [online]. Available https://www.citb.co.uk/documents/value%20of%20vq%20report%20citb%20template%20(2).pdf [15th April 2019].

Department for Education. (2018c) *Further Education: Outcome based success measures,*

academic years 2010/11 to 2015/16. London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748305/FE_learners__outcome_based_success_measures.pdf [15th April 2019].

Department for Education. (2018d). *Labour market impact of progressing more learners to Level 3*. London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762080/Labour_market_impact_of_progressing_more_learners_to_Level_3.pdf [15th April 2019].

Emira, M. and Rahman, Z. (2017). Towards preparing young people for employment and further study: first evaluation of the City & Guilds TechBac*. Research in Post-Compulsory Education*. **22**, 1, 49-67.

Gicheva, N.and Petrie, K. (2018). *Vocation, Vocation, Vocation - The role of vocational routes into higher education*. London: [online]. Available http://www.smf.co.uk/wp-content/uploads/2018/01/SMF-Vocation-Vocation-Vocation.pdf [15th April 2019].

Gill, T. (2018). Preparing students for university study: a statistical comparison of different post-16 qualifications. *Research Papers in Education*, **33**, 3, 301-319.

Heisig, J. and Solga, H. (2015). *Secondary Education Systems and the General Skills of Less- and Intermediate-educated Adults: A Comparison of 18 Countries. Thousand Oaks:* [online]. Available

https://www.econstor.eu/bitstream/10419/190499/1/f-19210-full-text-Heisig-et_al-Education-v3.pdf [15th April 2019].

Joy, K. (2018). *The effectiveness of post-16 pathways for gaining employment associated with undergraduate degree study*. *Journal of Further and Higher Education*, **42**, 7, 953-968.

McIntosh, S. and Morris, D. (2016). *Labour Market Returns to Vocational Qualifications in the Labour Force Survey*. CVER: [online]. Available http://cver.lse.ac.uk/textonly/cver/pubs/cverdp002.pdf [15th April 2019].

Mian, E., Richards, B. and Broughton, N. (2016). *Passports to Progress How do vocational qualifications help young people in building their careers? Part Two.* London: [online]. Available http://www.smf.co.uk/wp-content/uploads/2016/08/Social-Market-Foundation-Publication-Passports-to-Progress-Part-2-FINAL.pdf [15th April 2019].

New Economy. (2016, revised 2017). *Investment in skills* Manchester: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/639258/Investment_in_Skills_July_2017_Final.pdf [15th April 2019].

Ofqual. (2019). *Perceptions of A levels, GCSEs and other qualifications: wave 17.* Coventry: [online]. Available

https://www.gov.uk/government/statistics/perceptions-of-a-levels-gcses-and-other-qualifications-wave-17 [15th April 2019].

Pye Tait Consulting. (2018). *Perceptions of Vocational and Technical Qualifications.* Harrogate: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/743401/Perceptions_Survey_2018_-_FINAL_-_26_September_2018.pdf [15th April 2019].

Shields, R. and Masardo, A. (2015). *Changing patterns in vocational entry qualifications, student support and outcomes in undergraduate degree programmes.* York: [online]. Available https://www.heacademy.ac.uk/system/files/resources/Changing%20Patterns%20in%20Vocational%20Entry%20Qualifications.pdf [15th April 2019].

Symonds, J., Dietrich, J., Chow, A. and Salmela-Aro, K. (2016). 'Mental health improves after transition from comprehensive school to vocational education or employment in England: A national cohort study', *Developmental Psychology* **52**, 4, 652-–665.

Universities and Colleges Admissions Service. (2018). *End of Cycle Report 2018.* Cheltenham: [online]. Available https://www.ucas.com/file/198496/download?token=aCOhfgUC [15th April 2019].

B2 Other studies found during searches

Education Journal (2017*)*. 'Less academic children set up to fail,' *Education Journal*, 304, 11..

Acquah, D. K. andMalpass, D. (2017). The technical baccalaureate: providing excellence in vocational education? *Assessment in Education: Principles, Policy & Practice*., **24**, 1, 96-117.

Allan, D. (2015). Mediated Disaffection and Reconfigured Subjectivities: The Impact of a Vocational Learning Environment on the Reengagement of 14-16-Year-Olds. *International Journal on School Disaffection*, **11**, 2, 45-65.

Allen, M. (2016). As the EBacc Education Beds Down, Pressures Grow for Vocational Alternatives. *FORUM: for promoting 3-19 comprehensive education*, **58**, 2, 233-236.

Avis, J., Orr, K. (2016). HE in FE: Vocationalism, Class and Social Justice*. Research in Post-Compulsory Education*, **21**, 1-2, 49-65.

Behle, H. (2017). Developing Vocational Competences during Secondary School? *European Journal of Training and Development*, **41**, 1, 39-49.

Bhutoria, A. (2016). *Economic Returns to Education in the United Kingdom*. London: [online]. Available

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/593895/Economic_Returns_To_Education_-_final.pdf [15th April 2019].

Centre for Vocational Education Research. (2018). *Settling the counterfactual debate: is there a preferable counterfactual when estimating the returns to vocational qualifications?* London: [online]. Available: http://cver.lse.ac.uk/textonly/cver/pubs/cverdp013.pdf [15th April 2019].

Confederation of British Industry. (2017). *Helping the UK thrive. CBI/Pearson Education and Skills Survey 2017.* London: [online]. Available http://www.cbi.org.uk/insight-and-analysis/helping-the-uk-thrive/ [15th April 2019].

Dear, D. V. (2017). Do student-centred learning activities improve learning outcomes on a BTEC Applied Science course in FE? *Journal of Further & Higher Education*, **41,** 5, 717-726.

Department for Education. (2016). *Employer skills survey 2017: UK findings*. London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746493/ESS_2017_UK_Report_Controlled_v06.00.pdf [15th April 2019].

Department for Business, Innovation and Skills. (2016). *Prior qualifications of adults undertaking classroom-based courses in further education 2013/14.* London: [online]. Available https://www.gov.uk/government/publications/prior-qualifications-of-adults-in-further-education-classroom-based-courses-2013-to-2014 [15th April 2019].

Department for Business, Innovation and Skills (2016). *Prior qualifications of adult apprentices 2013/2014.* London: [online]. Available https://www.gov.uk/government/publications/prior-qualifications-of-adult-apprentices-2013-to-2014 [15th April 2019].

Department for Education. (2017). *Assessing the vocational qualifications market in England*. London: [online]. Available: https://www.gov.uk/government/publications/vocational-qualifications-market-in-england [15th April 2019].

Department for Education. (2018). *FE learners and apprentices survey*. London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/757506/Learners_and_Apprentices_Survey_2018_-_Main_Report.pdf [15th April 2019].

Department for Education. (2018). *FE Choices learner satisfaction survey 2017 to 2018* London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731431/Learner_Satisfaction_National_Summary_Report_2017_to_2018.pdf [15th April 2019].

Department for Education and Education and Skills Funding Agency. (2018). *FE Choices employer satisfaction survey: 2017 to 2018*. London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/750618/Employer_Satisfaction_national_summary_report.pdf [15th April 2019].

Department for Education. (2019). *Review of the Level 4-5 qualification and provider market.* London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/782160/L4-5_market_study.pdf [15th April 2019].

Department for Education. (2019). *Post-16 institutions and providers omnibus: wave 6 survey.* London: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/783438/Post-16_institutions_omnibus_Wave_6_findings.pdf [15th April 2019].

Education Policy Institute. (2017). *Educating for our Economic Future*. London: [online]. Available https://epi.org.uk/publications-and-research/educating-economic-future/ [15th April 2019].

Esmond, B. (2018). They get a qualification at the end of it, I think': incidental workplace learning and technical education in England*. Journal of Vocational Education & Training.*, **70**, 2, 193-211.

Green, A. and Pensiero, N. (2016). The Effects of Upper-Secondary Education and Training Systems on Skills Inequality. A Quasi-Cohort Analysis Using PISA 2000 and the OECD Survey of Adult Skills. *British Educational Research Journal*, **42**, 5, 756-779.

Hadawi, A., Crabbe, M. and James, C. (2018). Developing a Mission for Further Education: Changing Culture Using Non-Financial and Intangible Value*. Research in Post-Compulsory Education*, **23**, 1, 118-137.

Harrison, N., James, D. and Last, K. (2015). Don't know what you've got 'til it's gone? Skills-led qualifications, secondary school attainment and policy choices*. Research Papers in Education*, **30**, 5, 585-608.

Higher Education Funding Council for England*. (2015). Young participation in higher education: A-levels and similar qualifications.* Bristol: [online]. Available: http://www.hefce.ac.uk/media/hefce/content/pubs/2015/201503/HEFE2015_03.pdf [15th April 2019].

Huddleston, P. and Laczik, A. (2018). 'In the driving seat', or reluctant passengers? Employer engagement in qualifications development: some evidence from two recent 14-19 qualification reforms in England. *Journal of Education & Work*, **31**, 3, 262-276.

Hupkau, C., McNally, S., Ruiz-Valenzuela, J. and Ventura, G. (2016). *Post-Compulsory Education in England: Choices and Implications.* London: [online]. Available http://cver.lse.ac.uk/textonly/cver/pubs/cverdp001.pdf [15th April 2019].

Kelly, S. (2017). *Reforming BTECs: Applied General Qualifications as a Route to Higher Education.* Oxford: [online]. Available: https://www.hepi.ac.uk/wp-content/uploads/2017/02/Hepi_Reforming-BTECs-Report-94-09_02_17-Web.pdf [15th April 2019].

Kirby, P. (2015). *Levels of Success: The Potential of UK Apprenticeships.* London: [online]. Available: https://www.suttontrust.com/wp-content/uploads/2015/10/Levels-of-Success.pdf [15th April 2019].

National Foundation for Educational Research. (2015). A review of technical education. *Education Journal.* **252**, 16-16.

National Foundation for Educational Research. (2017). Government needs to do more to help UTCs to thrive. *Education Journal*. **309,** 22-22.

Pye Tait Consulting. (2018). *Perceptions of Vocational and Technical Qualifications*. Harrogate: [online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/743401/Perceptions_Survey_2018_-_FINAL_-_26_September_2018.pdf [15th April 2019].

Pye Tait Consulting. (2017). *Employer Qualification Perceptions Survey.* Harrogate: [online]. Available https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628717/Employer_qualifications_perceptions_survey.pdf [15th April 2019].

Social Market Foundation. (2016). *Passports to progress: how do vocational qualifications help young people in building their careers?: part one.* London: [online]. Available: http://www.smf.co.uk/wp-content/uploads/2016/07/Social-Market-Foundation-Passports-to-Progress-Vocational-Qualifications-Embargoed-0001-070716.pdf [15th April 2019].

Spence, S. and MacNamara, A. (2018). The state of play: how commensurate are BTECs and A-levels in sport and physical education. *Research in Post-Compulsory Education*, **23**, 2, 231-248.

Webb, S., Bathmaker, A. and Gale, T. (2017). Higher Vocational Education and Social Mobility: Educational Participation in Australia and England. J*ournal of Vocational Education and Training*, **69**, 1, 147-167.

Conlon, G., Hedges, S., McIntosh, S., Morris, D., Patrignani, P. (2017). *The payoff to vocational qualifications: reconciling estimates from survey and administrative data.* London: [online]. Available: http://cver.lse.ac.uk/textonly/cver/pubs/cverdp009.pdf [15th April 2019].

White, C. and Laczik, A. (2016). Engaging Disaffected Learners in Key Stage 4 through Work-Related Learning in England. *Journal of Vocational Education and Training*, **68**, 1, 17-32.

Evidence for excellence in education

Confidential

The Mere, Upton Park, Slough, Berks SL1 2DQ
T: +44 (0)1753 574123 • **F:** +44 (0)1753 691632 • enquiries@nfer.ac.uk

www.nfer.ac.uk

NFER ref.

ISBN.