NCVER

Review of employment-based training models

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INTRODUCTION

Employment-based training (EBT) is training for paid employees which is integrated within a work setting, related to their role, and provided or supported by employers. It can be nationally recognised or non-nationally recognised. It can be structured, or unstructured. For many employers, the crucial aspect of EBT is whether the training helps with productivity and profitability.

In Australia, apprenticeships and traineeships are widely recognised forms of EBT. As their role, format and delivery are already well researched and understood — as is their value — they are not examined in this report. Instead, this review, which is supplemented by insights from interviews with employers in the healthcare and social assistance, construction, and information technology industries, explores alternative approaches to EBT; for example, cadetships and internships, higher apprenticeships, and on-the-job structured training such as mentoring. While these approaches are not necessarily new, their application often has implications for vocational education and training (VET) content and delivery. The interest in these forms of EBT are attributable to their fit-for-purpose designs.

This review complements recent NCVER work by Osborne et al. (2020), which explored the benefits and challenges of including a work component in VET programs (excluding apprenticeships and traineeships), and Osborne (forthcoming), which focuses on whether programs containing workplace-based delivery led to better outcomes for students, compared with those programs without the workplace-based component.

HIGHLIGHTS

- Employers look for training that is agile and responsive to their specific needs, is affordable, and minimises workers' time away from their jobs. Whether the training is nationally recognised or not is generally not employers' foremost concern.
- Employment-based training approaches such as cadetships, internships and higher apprenticeships are well suited for meeting the needs of employers. VET providers' experience in delivering staged training to match work experience progression, as occurs in apprenticeships and traineeships, offer them the opportunity to negotiate with employers to develop and deliver the bespoke employment-based training programs required by employers.

BACKGROUND

While new workforce entrants commonly have skills gaps, experienced workers may also need continuing training to develop existing skills, to learn new processes, or to meet compliance regulations (Carson & Kerr 2010; Evans 2016; Productivity Commission 2017; Tan 2014; The Smith Family 2014; Western Australia Department of Training and Workforce Development 2010). Employers may provide employment-based training (EBT) to their workers as one way of meeting skills needs. As training is an investment for employers, they may be inclined to select the training approach that most efficiently (in terms of impact on profit and productivity) meets their specific skilling needs. This could mean that the training of choice is nationally recognised; it could equally mean that an employer's training of choice is non-nationally recognised[1].

Although apprenticeships and traineeships offer a well-established and highly structured form of nationally recognised EBT, recently a trend has emerged whereby employers are seeking shorter-form and more flexible alternatives (Australian Department of the Prime Minister and Cabinet 2019). The training required may or may not be nationally recognised but this has signalled a need for VET to consider the role it can play in other approaches to EBT.

In Australia, the proportion of the workforce who undertook work-related training is reported to have declined from 59.1% in 2005 to 46.1% in 2016—17 (ABS 2017). Nationally recognised training represents just a small portion of that employer-initiated training activity: in 2019, only 19.9% provided nationally recognised training (that was not part of an apprenticeship or traineeship) to employees (NCVER 2019a). One reason for this may be the difficulty that employers in Australia — and in many other countries — report in navigating the VET system to locate or identify available training (CEDEFOP 2015b; Mewer & Jackson 2004, in Cully 2005; Smith et al. 2019). In Europe, the main reasons employers chose not to provide EBT were:

- they saw no need for training because their staff were already fully skilled
- they preferred to recruit to obtain the skills they needed
- they found the high costs of training prohibitive (CEDEFOP 2019a; Wiseman & Parry 2017).

Australian research, on the other hand, has identified the following factors as impacting on some employers' decisions to use EBT:

- difficulty in accommodating training around work demands
- insufficient government funding incentives
- lack of flexibility in the training system
- relevant training unavailable (Smith et al. 2019).

The material in this report is based on international and Australian literature and is supplemented by interviews undertaken in late 2020 and early 2021 with employers in the healthcare and social assistance, construction, and information technology (IT) industries and two organisations piloting EBT approaches. Their views of, and experiences with, models of EBT are woven throughout this report. Further information about the methodological approach used to undertake the literature review and employer interviews, including the interview schedule, can be found in appendices A and B.

The literature review and the interviews focused on the benefits and disadvantages of various EBT models, as well as their relevance to the Australian VET system. While recognising the importance of EBT for workers, especially young or new workers, this review, in large part, is directed more toward employers.

1 Nationally recognised training (NRT), leads to vocational qualifications and credentials that are, as suggested, recognised across Australia. To provide nationally recognised training, registered training organisations (RTOs), such as TAFE (technical and further education) institutes, private providers, enterprise RTOs and community RTOs, are required to meet government quality standards. Non-NRT includes locally developed programs and skill sets and does not lead to nationally recognised certification. Structured NRT and non-NRT have specified content or a predetermined plan and are aimed at developing employment-related skills and competencies. Unstructured/informal/ad hoc training does not result in any form of qualification, does not have a set plan and tends to be done fully on the job (Naidu, Stanwick & Frazer 2020).

DEFINITIONS AND SCOPE

For the purpose of this research, EBT is defined as: training for paid employees that is integrated into a work setting, related to their role and provided or supported by employers.

The research focuses on the EBT subset of work-based education, itself defined as all formal or structured programs that incorporate learning through work and which often lead to a qualification. Work-based education programs might involve apprenticeships or internships, work placements and/or simulated workplace training. These programs provide students with work-based learning, which Atkinson (2016, p.2) broadly defined as 'learning in a work environment through participation in work practice and process. It is integral to vocational education and training'.

The original aim of the research was to examine EBT that involved nationally recognised training; however, after discovering that international definitions of EBT generally do not stipulate nationally recognised training as a requirement, the scope of the investigation was expanded to explore non-nationally recognised approaches as well.

In the review of the literature, it became apparent there was no single definition of EBT or work-based continuing VET (CVET), the latter term often used across European countries. The variety of terms used to refer to EBT added to the difficulty of identifying information (see table A1 in appendix A for the terms used in the literature search). Cedefop (2015a) notes that understanding of the concept varies even within countries. Table 1, sourced from Cedefop (2015a), shows that the importance of the various components of work-based CVET varies across countries.

Table 1 Major defining elements of EBT or work-based CVET according to observation of country practices

Countries	Major defining elements
BG, FR, DE, IT, SE, UK,	The training is integrated in work processes/takes place at the workplace.
DE, FR, IT, SE, UK	The training conducted is based on the needs and interests of the employer/ relevant for the work of the participants.
BG, DE, SE	The training is financed by the employer.
DE	The training takes place during working hours.
IT	The employer and the provider coordinate to develop learning plans. The training uses 'unconventional' learning modes.

Note: BG = Belgium; FR = France; DE = Germany; IT = Italy; SE = Sweden; UK = United Kingdom.
Source: Cedefop (2015a, p.15).

Most of the interviewees for this research defined EBT as training that occurs in the workplace ('on the job' or 'on site'), with the majority either explicitly stating or intimating that such training is paid for by the employer. Some interviewees restricted their definition of EBT to apply to nationally recognised training, such as apprenticeships, while others broadened their definition to include both nationally recognised and non-nationally recognised forms of training. One of the interviewees from the healthcare and social assistance industry indicated that they have only recently considered offering nationally recognised training to relevant staff, in the form of a Certificate IV in Government Procurement. All other training provided by this employer is non-nationally recognised, since the current nationally recognised training is not considered suitable for their needs.

For the interviewees who did use EBT, the key reasons were:

- to develop skills that apply to specific staff roles, a critical requirement since already skilled workers are not always available
- to provide additional, or supplementary, training to nationally recognised training.

As noted, since the format and processes associated with apprenticeships and traineeships in delivering EBT are already well researched, as is their value, this category of EBT was not included in the scope of this review. The Joyce review (Australian Department of the Prime Minister and Cabinet 2019) recommended extending work-based VET into less traditional areas, especially those experiencing technological change, for example, non-trades and paraprofessional work. Consequently, alternative variants of apprenticeships and traineeships, such as higher apprenticeships, were in scope.

EMPLOYMENT-BASED TRAINING APPROACHES

Billett et al. (2015) proposed four broad models[2] of continuing VET as the basis of an effective national training system. Three of the four models include EBT, while the fourth model does not:

- work-based with educational interventions, for example, cadetships and internships, and higher apprenticeships
- work-based with direct guidance (formal or informal), for example, structured on-the-job training
- wholly work-based (in-house), for example, unstructured on-the-job training
- wholly education institution-based, that is, no EBT.

This review focuses on two of these EBT approaches, which are described next, starting with those in the 'work-based with educational interventions model', exemplified by cadetships, internships and higher apprenticeships. We then address approaches that fit in the 'work-based with direct guidance (formal or informal) model', exemplified by structured on-the-job training. Case studies, based on the interviews with employers, are presented throughout.

This review does not focus on the third category of a 'wholly work-based (in-house)' approach to EBT. We acknowledge that unstructured on-the-job training is an expedient and adaptable solution in contexts where skills of a relatively low complexity are required and that experiential learning is appropriate in instances where employees can learn quickly while performing job tasks with co-workers (Kolb & Kolb 2017; Reddy undated; Twyford, Alagaraja & Shuck 2016). However, the success of this approach can be limited by co-workers' communication skills, competencies, willingness to share their knowledge, and free time to spend on training (Kapadia 2014; van Pamel 2013). Research has also found increased error rates, lower productivity and decreased training efficiency arising from unstructured on-the-job training compared with its structured equivalent (Ahadi & Jacobs 2017; van Pamel 2013). Due to the informal manner of delivery and the deliberate lack of performance assessment, this form of EBT has little application in VET.

A key observation is that each EBT approach — cadetships and internships, higher apprenticeships, structured on-the-job training — is highly adaptable, demonstrating different features in each application to suit the occupation, industry, employer/s and students concerned. This aspect of EBT makes it both valuable and challenging in a VET context. The interviews with the employers revealed some of the key benefits of using EBT approaches:

- hiring skilled workers isn't necessary — anyone with the right attitude can be trained
- staff skills currency is maintained
- staff learn from other staff — learning the organisation's way of doing things
- it is a less disruptive way of training
- it results in better-quality training due to the immediate real-world application.

The resources required to develop and implement successful EBT programs however can act as a deterrent to employers without sufficient resources, for example, small to medium enterprises (SMEs). Given that employers already report that navigating the VET system is complex (Smith et al. 2019), developing bespoke programs with multiple stakeholders only adds to that burden. Some of the greatest challenges to using EBT approaches for the employers interviewed for this review were:

- staff and/or decision-makers not realising the value of EBT and not supporting it
- the need to make time to step away from daily tasks
- the cost associated with funding the training, as well as the cost of having unproductive staff while they are learning on the job.

Indeed, some of the employers interviewed for this review were not currently using EBT, citing a lack of resources to make it work well, while others expressed concern about the uncontextualised content of nationally recognised training or uncertainty about the best type of training certification to use (micro-credentials vs digital badges vs other).

2 Note that the term 'model' is also often used interchangeably with 'method', 'tool', 'approach', 'program' or 'type of training' in the literature.

The employers interviewed for this review also identified the key factors making EBT effective, which were:

- the training is relevant to the role, and training is only provided for skills that are lacking; that is, undertaking a skills gap assessment at the outset
- the training provider is able to customise training to suit the organisational context
- ensuring that dedicated internal training systems and resources are available
- the training is of short duration, thereby minimising time away from work.

Given the challenges and concerns noted above, particularly relating to resourcing issues, most of the examples of EBT provided in this review are from large enterprises with human resources (HR) departments and training budgets, enabling them to spend time exploring options, working with training providers and setting up the internal structures and the one-on-one supports that ensure success. Additional real-world examples of EBT already at work in Australia or internationally, in either the VET or higher education context, are presented in appendix C.

Cadetships and internships

Cadetships and internships are more commonly associated with graduates — VET or higher education — and can be a means to help ease the transition from being a student to becoming an employee. In general, internships and cadetships tend to be two years or shorter in length, although some may be of three years duration (Wibrow & Jackson 2016).

Previous research by Wibrow and Jackson (2016) highlighted that information about cadetships and internships specifically for VET graduates — for example, the types of programs, their availability — was not easy to locate, possibly reflecting the suitability of such programs for VET graduates in Australia. The well-established role of apprenticeships and traineeships may be one reason for the lack of availability. However, as Wibrow and Jackson argued, with far more VET graduates than apprentices and trainees completing their training each year, and with many of these VET graduates not employed in their intended jobs within six months after completion, cadetship and internship programs could be one way to better assist VET graduates to move into their working careers.

Cadetships

In the Australian context, cadetships combine formal training at post-secondary level, generally at the Australian Qualifications Framework (AQF) diploma level or higher, with practical work experience that includes some form of paid employment. Cadetships usually result in a permanent or longer-term position with the company or industry.

Strengths

Research undertaken by Dawkins, Hurley and Lloyd (2020) identified the strengths of cadetships. They:

- can be applied to a broad range of occupations and industries
- are suitable for areas of future growth, higher-level occupations, jobs with fewer pathways and jobs with few regulatory and licensing requirements
- offer flexible delivery modes that may consist of shorter courses, such as micro-credentials or graduate certificates
- permit customisation in the ratio of work to formal education and training; for example, the ratio could be as per a typical apprenticeship, with an 80% work time and 20% formal education and training split, or as varied as a 50—50 split, depending on the nature of the work and the required education and training (p.6)
- are of shorter duration compared with apprenticeships (six—12 months vs four years for apprenticeships)
- indirectly reduce welfare costs of supporting those not in employment, education or training. Dawkins, Hurley and Lloyd (2020) propose a 'National Job Cadet Program', specifically targeting young people not in the labour market[3].

3 The proposed program has two streams: one aimed at unqualified or low-skilled young job seekers and resembling an apprenticeship/traineeship in length (one to four years in duration) and suggests an 80–20 split between the work time and education and training components. The other stream would target young job seekers who already have a diploma or higher-level qualification or those who are close to completing such a qualification. The proposed length of training is much shorter (six months to one year); the types of training include micro credentials, graduate certificates and other shorter-form courses. For both streams, wage subsidies to incentivise employers to take on cadets are suggested (Dawkins, Hurley & Lloyd 2020, p.7).

Skelton (2015) suggested that cadetships have the capacity to enhance and broaden the traditional cooperative experience and relationship between higher education and industry, a concept that applies equally well to the VET system. By establishing cadetships, vocational training institutes could attract enrolments.

Limitations and risks

The following limitations and risks were highlighted in the research:

- substitution (cadets used in lieu of fully qualified workers) and deadweight loss (a cadet hired without a wage subsidy) (Dawkins, Hurley & Lloyd 2020)
- lack of employer awareness of cadetships (Davis et al. 2020)
- cadetships organised for young people (post-secondary school) before their reliability and aptitude is known, posing a risk to employers (Skelton 2015).

An example of a cadetship program supported by The Smith Family and the Business Council of Australia is described in Box 1.

Box 1 Cadetships for young people

A joint initiative of The Smith Family and the Business Council of Australia (BCA), the Cadetship to Career program aims to help young people to gain employment. The program links tertiary (vocational and higher education) students who are being supported by The Smith Family with member companies of the BCA, such as Australia Post, Officeworks, Kmart and Qantas. Established in 2019, the program has supported 116 cadetships with 24 companies. Successful candidates are placed into an eight-week, full-time paid cadetship with a BCA member company for each year of their studies. The students receive financial support for living and educational expenses, and ongoing support to ease their transition from school to tertiary study. Their formal studies are complemented by short courses, for example, Delivering Dynamic Presentations, to help develop their employability skills and confidence (The Smith Family 2020).

Challenges with the cadetship program raised in the interviews with representatives of The Smith Family included the difficulty finding employers in some sectors willing to offer cadetships, for example, teaching, nursing and social work. The COVID-19 pandemic brought further challenges with several cadetships cancelled due to sector-specific issues such as a 'working from home' mandate to all staff. Employers have variable expectations of the cadets, with some unrealistic about the contribution they anticipate the learner will make. While no formal assessment of this cadetship program has been undertaken, anecdotal feedback reveals that the success of the cadetship often comes down to the commitment of the employer. If the employer puts in the time and makes resources available, the cadets will do well. Those interviewed from The Smith Family flagged that greater understanding of how to support those from disadvantaged backgrounds would be valuable in increasing this cohort's access to the program.

Internships

Internships are designed to provide workplace experience for students as they reach the end of their formal training. Typically of shorter duration than cadetships (generally three to six months), they contain a specifically designed training or learning program that includes observation, reflection, evaluation and assessment (True 2018).

Strengths

True's research (2018) identified the following benefits of internships to employers:

- flexible, cost-effective, highly motivated pre-professionals, with the potential to bring new perspectives to persistent issues
- long-term employer commitment not necessary
- wider recognition of their organisation by trainers and communities
- the release of other staff to pursue different projects
- proven, cost-effective way to recruit and evaluate potential employees.

Limitations and risks

In Australia, unpaid internships are becoming more common, prompting growing concern about the attendant labour law and job satisfaction ramifications (Grant-Smith & McDonald 2018; Rogers et al. 2021; Stewart et al. 2018). In the United Kingdom, data have revealed that internships are more often taken up by middle-class students who can afford the opportunity cost of working without pay. Additionally, internships in some industries are typically not advertised and applicants rely upon being 'in the network' to be offered the opportunity to intern (Cullinane & Montacute 2018). This recruitment pattern presents equity challenges for the internship approach.

Internships may encourage a trend towards less investment in training, as employers may be more inclined to provide opportunities for higher-skilled students nearing the end of their studies rather than invest in a cadetship or apprenticeship-like experience, in which the employer invests in a student over a longer period of time (Skelton 2015).

Effectiveness

A study of German university graduates who completed a company internship found a lower risk of unemployment during the first year of their careers and higher earnings, of about 6% on average (Margaryan et al. 2019). British university graduates who completed an internship had higher salaries regardless of their socioeconomic background (Cullinane & Montacute 2018).

In the context of Australian higher education, Jackson and Bridgstock (2020) identified that internships organised as an extracurricular activity were rated better for enhancing employability by university graduates than those delivered as work-integrated learning. One of the employers in the IT industry interviewed for this research noted that they were approached by the education provider Navitas, which was seeking to place tertiary graduates from its internship program. This particular employer took on the intern, who attended work for 11 weeks, three days per week, with their salary paid by Navitas. This employer explained that, without the salary relief provided by Navitas, they would be unlikely to take on interns, but they found the experience valuable and were likely to keep this intern on staff at the end of the internship.

Higher apprenticeships

NCVER (2019b, p.16) defines higher apprenticeships as an integrated program of structured training and paid work, leading to a VET or higher education qualification at the AQF diploma level or above; they may or may not be undertaken with a contract of training.

Countries with higher apprenticeships or similar programs include Germany, Australia, the United Kingdom, the Netherlands, Italy, Denmark and New Zealand (NCVER 2019b; Zimmerman 2017). Higher apprenticeships are popular in G20 policy development, including in Australia. The 2017 International Labour Organization (ILO) survey[4] of 18 G20 countries found that just over 70% plan to introduce higher apprenticeships, and just over 10% already have them in place (Smith & Tuck 2018).

Combining university studies with a vocational qualification and employment-based learning ('dual study programs') has worked successfully in Germany for many years. Sitting at the interface of VET and higher education, these programs have the main features of apprenticeships, in that they are employment-based and combine on-the-job and off-the-job training (NCVER 2019b). Dual-study programs in Germany are offered in areas associated with high-skilled jobs such as economics, engineering, computer sciences and healthcare and attract individuals with higher education entrance qualifications who want hands-on, salaried, academic training with good graduate employment prospects (Graf 2017, in NCVER 2019b).

In the United Kingdom, higher apprenticeships (equivalent to a higher education certificate or diploma, or foundation degree and above) have been available since around 2010. Degree apprenticeships (bachelor and master's level) have been available since 2015, although currently they are only offered in England and Wales. The range of industries offering higher and/or degree apprenticeships have expanded beyond those traditionally associated with apprenticeships, such as manufacturing, engineering, construction and hospitality, to industries such as healthcare,

4 Smith & Tuck (2018) note that the wording for the question on higher apprenticeships in the ILO survey was confusing for some respondents, so results are indicative only.

nursing and dentistry, education and training, social work, financial services, performing arts, broadcast and media, legal services, sports and leisure, and publishing and journalism (Ai Group 2018a).

Examples of higher apprenticeship-like qualifications can be found in a number of European countries, including in the Netherlands, where in 2007 a two-year associate degree was introduced to enable transition for workers, job seekers and VET students into higher education as an alternative to direct entry to a traditional degree. Completion of the associate degree gives the learner the opportunity to complete a bachelor's degree in a related area immediately or at a later date. Irrespective of whether further higher education studies are pursued, it is still an independent and work-ready recognised qualification (NCVER 2019b).

Italy provides another example from Europe: here higher apprenticeships are categorised as a 'higher education and research apprenticeship (Type 3)' and are offered in all higher technical institute programs and tertiary education level programs leading to a diploma and above. They are of between six months and three years duration (Cedefop 2018). The Type 3 apprenticeships were originally established in 2003 and re-formed in 2015, with the expansion to include apprenticeships for research and higher-level apprenticeships for regulated professions such as law and accountancy. As with other apprenticeship programs, there is a contractual arrangement between the apprentice and employer, with on-the-job training accounting for between 20 and 50% of the total hours of the apprenticeship duration (Cedefop 2019b).

In 2016, the Australian Government announced the funding of two higher apprenticeship pilots to focus on high-level technical skills (diploma and above) in industries where apprenticeships have not been traditionally used, for example, financial services/commerce, and IT. The overarching aims of these pilots were to:

- increase industry validation and take-up of alternative training arrangements
- understand more about the opportunities and barriers to increased industry usage, acceptance and validation of alternative apprenticeship approaches
- contribute to an evidence base informing future policy development and funding settings (Ai Group 2018b).

In the first pilot, the Australian Industry Group (Ai Group), Siemens Ltd and Swinburne University of Technology partnered to develop the Industry 4.0 Higher Apprenticeships Project, which, upon completion, resulted in the Diploma/Associate Degree in Applied Technologies (Ai Group 2018b). This pilot was first implemented in Victoria in 2017 but has since been offered in South Australia, Queensland, New South Wales and Western Australia. In all of the Industry 4.0 higher apprenticeship pilots the emphasis has been on upskilling current employees.[5] The second was the PricewaterhouseCoopers Higher Apprenticeships and Traineeships Pilot, which offered participants the opportunity to undertake VET diploma qualifications in the areas of business, IT and professional services. The first group of participants in this pilot graduated in 2018 with a Diploma of Business. Following on from this pilot, PricewaterhouseCoopers now offers a two-year higher apprenticeship program, leading to a diploma in IT.[6]

Box 2 describes a case study of a recently introduced higher apprenticeship model for the disability and aged care sector in Victoria.

Box 2 Higher apprenticeship pilot program for the social service sector

RMIT University, in collaboration with the Future Social Service Institute and industry partners in Victoria, is running a higher apprenticeship pilot. Commencing in April 2020, the 18-month program initially involved 25 staff from seven organisations in the disability and aged care sectors. The selected staff were on track for leadership roles and are studying an Advanced Diploma of Community Sector Management while continuing their employment. RMIT offers the students two days per month in a virtual classroom, while the organisation provides three days per month for study.

5 In February 2021, the pilot implemented in South Australia, in partnership with SA Power Networks, broadened the intake to include school leavers; see <https://blog.aigroup.com.au/higher-apprenticeships-in-digital-technologies-taking-off-in-south-australia/>.

6 See <https://www.pwc.com.au/careers/students/higher-apprenticeship.html>.

Representatives from RMIT highlighted in the interviews that a feature of the program is the use of dedicated support officers, who mentor the students and liaise with the organisation to set up opportunities for the students to reinforce their learnings in their workplaces.

The program has a development-evaluation process, which seeks feedback from the students, the organisation and teaching teams on their satisfaction with content, delivery and assessment. A co-design development process will be used to adapt the delivery of existing programs, based on the feedback received, enabling the program to evolve and improve. At the time of interviewing, the retention rate had been excellent, with 24 of the original 25 students continuing, despite the disruption of 2020. The adaptation to online delivery during the COVID-19 pandemic was rapid, the only issue encountered being the students' lack of time; however, teaching staff are accustomed to full-time workers being time-poor. While English language, literacy, numeracy and digital skills needs were not identified, students did need support with study skills and academic literacy, some never having studied above a certificate III level before or not having studied for years.

Adjustments that will or have been made, based on feedback, include extra peer support and peer learning added to the teaching model and trialling a 'flipped classroom'[7] model for some units. Student feedback indicated a preference for retaining some face-to-face learning, although the virtual classroom is appreciated because it avoids commuting. Feedback from employers reflected their various perspectives and their need for the customisation of training. In some cases, tension arose between qualification content and what the employers wanted staff to learn, reflecting broader system feedback about training package relevance. Students were able to use their own workplaces as case studies to make the learning relevant to them. Employers indicated that they would like more competency-based assessment and a more formalised recognition of prior learning (RPL) framework for those who already had leadership experience.

Strengths

The NCVER (2019b) report notes that higher apprenticeships can:

- improve negative perceptions about apprenticeships in general by giving them more regard or status
- be used to facilitate progression pathways into higher education, as occurs in the United Kingdom
- provide an alternative to an academic degree
- enable employers to develop their workforce.

The Ai Group (2018a) suggested that higher apprenticeships might address the falling rate of participation in apprenticeships in Australia. They could also be used in industries that have not traditionally used apprenticeships or traineeships; namely, the services sector. NCVER's (2019b) report on higher apprenticeships highlighted that activity in this area is already occurring in Australia but acknowledged the difficulty involved in defining a standard design for these apprenticeships due to the need to develop programs appropriate for the industry and business context in which the specific apprenticeship takes place.

Limitations and risks

NCVER's (2019b) consultations with key stakeholders revealed:

- an uneven awareness about the status and provision of higher apprenticeships
- different understandings and confusion over the meaning of the term
- the negative images attached to apprenticeships; that is, that they are low-paid, have anti-social hours and poor work-life balance, could affect the take-up of higher apprenticeships, especially amongst the target group of students with high levels of aptitude and ability
- the availability of higher-level skill development (diploma, advanced diploma) not attached to a contract of training, which could deter individuals from taking up higher apprenticeships.

7 The 'flipped classroom' is a pedagogical model in which students engage with interactive content, focusing on key concepts prior to class. This allows face-to-face time for collaborative activities rather than a traditional lecture. See Hamdan et al. (2013) for more information on this model of teaching.

Loveder (2017) noted two other factors that can potentially limit the expansion of the higher apprenticeship model in Australia:

- Australia's innovation system and culture lags behind other countries. Increasing innovation pushes demand for higher skills development, including the demand for higher apprenticeships. A stagnant innovation culture can stifle this need for higher skills. Australia currently ranks 23rd, well behind most other high-income countries, and has held this rank for several years (Global Innovation Index 2020).
- National funding for nurturing innovation, including innovative approaches to training, is mostly aimed at the higher education sector, even though the VET sector has innovation potential.

Effectiveness

The German form of higher apprenticeships — the dual-study program, briefly described earlier — is more evolved and not directly comparable with the Australian concept of higher apprenticeships. However, a number of aspects of the German program or indicators of its effectiveness could be applied in the Australian context to encourage and support the expansion of higher apprenticeships here. It has:

- good social status and middle-range incomes amongst graduates (Pilz 2009, in Wiemann & Fuchs 2018)
- low rates of movement from the companies that provide the employment-based training component of the dual study program (Wiemann & Fuchs 2018)
- interest from other countries which are developing similar programs (Zimmerman 2017).

Gessler (2017) reports on a case study of 'transplanting' the German dual system of training to the United States. The resultant product represented a transformation rather than an imitation or adaptation, with the transformation process itself leading to innovative solutions. However, Gessler cautioned that these findings may not be valid for all transfers.

In the United Kingdom, an additional element to higher apprenticeships was the establishment of the Degree Apprenticeships Development Fund,[8] which funds all, if not the majority, of the degree apprenticeship and allows students to complete their degree apprenticeship with no, or minimal, debt, in contrast to university graduates (Kuczera & Field 2018). An evaluation of the fund found that, between 2016 and 2018, almost £9 million from the fund had supported 103 further and higher education providers and resulted in just under 4500 degree apprenticeship commencements, primarily in the areas of construction, health and science, business and administration, all of which were industry areas with known skills shortages (Siora, Ledger & Jarvis 2019).

On-the-job training

On-the-job-training is training undertaken in the workplace, as part of the productive work of the learner. It is distinct from on-site training, which is training conducted at the worksite but not on-the-job, for example, in a training room. Off-the-job training takes place away from a person's job activity (for example, in a special training area) or off the premises such as at a training institution (Naidu, Stanwick & Frazer 2020).

Structured on-the-job training (planned, systematic and organised) employs methodologies such as job shadowing, job rotation and mentoring (Twyford, Alagaraja & Shuck 2016). Unstructured on-the-job training (unplanned, ad hoc and reactive) refers to training provided as required by a co-worker (who may not be fully qualified or prepared to be a trainer) in the form of learning by trial and error (Jacobs 2019) or 'observation and repeat' (Ahadi & Jacobs 2017; Smith et al. 2019; Twyford, Alagaraja & Shuck 2016).

Strengths

Given the variation in types of structured on-the-job training, its strengths are also varied and include the following:

- structured on-the-job training has been found to be four times more efficient than unstructured on-the-job training (Ahadi & Jacobs 2017)
- mentoring provides psycho-social support, long-term career facilitation benefits to mentees; increased confidence and self-esteem, revitalised interest in work and increased leadership skills to mentors; and for

8 Funds are from an apprenticeship levy imposed on employers with an annual pay bill (employee salaries etc.) of more than £3 million. Employers can subsequently apply for funds generated from this levy to pay for training provision (Siora, Ledger & Jarvis 2019).

employers mentoring is cost-effective, promotes staff retention and increased work performance (Leck & Wood 2013)

- job shadowing is low-cost, generates employee interest and engagement, allows trainees to perform job-related tasks and enables existing employees to demonstrate their competency (Jaworski et al. 2018)
- if effectively designed and conducted, structured on-the-job training results in fewer production errors, higher trainee competency and lower overall costs by comparison with unstructured training (Ahadi & Jacobs 2017)
- structured on-the-job training has been found to be as effective as classroom training for promoting product and process innovation (Dostie 2017).

Limitations and risks

- on-the-job training, by its very nature, may limit the benefits of training by exposing students only to worksite-specific ideas and methods, providing a narrow view of the sector or further entrenching any existing poor practices
- mismatched student-mentor pairs may affect the quality of training, while the burden of mentoring can cause burn out (Leck & Wood 2013)
- job-shadowing can reduce the quality of training, as both the employee and trainee are engaged in the task of getting work done, limiting the time to impart contextual knowledge or build relationships (Grant, Sheridan & Webb 2017).

Effectiveness

Overall, the literature concludes that structured on-the-job-training is more effective and provides better outcomes in the long term than unstructured on-the-job training.

As a training provider, Kapadia (2014) has observed that organisations that use on-the-job training effectively are those that commit to it and make it a core value. Limited research has investigated on-the-job training in the small business context (Twyford, Alagaraja & Shuck 2016). Australian statistics demonstrate that only 8.1% of workers in businesses with fewer than 20 employees received on-the-job training from existing staff members by comparison with 18.4% of workers in businesses with 20—99 employees (ABS 2017). The international literature revealed that SMEs are more likely to use unstructured on-the-job training because they are unaware of other types of training, have difficulty finding training that is specific to their business or are unaware of government supports (Cedefop 2019a; Messina 2017; Smith et al. 2019). In the United Kingdom researchers observed that employers struggle to differentiate between what is 'on-the-job training' and what is simply 'doing the job' (UK Commission for Employment and Skills 2011). Surveys measuring training activities might not capture some on-the-job training since the activities resemble workers' daily work and would not be considered 'training', either by the worker themselves, their managers or their HR structure.

The effectiveness of on-the-job training is informed by the suitability of the approach taken to the skills needed, the student/employee and the existing workforce and worksite. In examining the impact of workplace development opportunities on workers' employability in Italian workplaces in the agriculture, commerce, services, and building and construction industries, Martini and Cavenago (2017) found mentoring and job rotation to be among the main predictors of career success.

Mentoring was the most common form of on-the-job training mentioned by employers interviewed for this research. Some mentoring arrangements were established in a formal way when the new recruit joined the organisation, while other mentoring approaches tended to be ad hoc, as needs arose to train staff internally. Only one employer (IT industry) who participated in the interviews noted that mentor training was provided to senior staff as part of their professional development.

The research indicated that the effectiveness of mentoring depends largely on the behaviours, qualities and characteristics of mentors (Leck & Wood 2013). For this category of EBT to operate successfully, mentors and mentees must have shared expectations about what they will achieve, which may evolve over time (Sanyal 2017).

Job shadowing, when done well, is another effective form of on-the-job training, enabling employees to gain new perspectives of roles within a business and to observe how existing competent workers perform in their roles. In the hospitality industry context, Jaworski et al. (2018) found that, for part-time employees, job shadowing offers the highest level of satisfaction of six training methods.

E-learning and employment-based training

E-learning, or online learning, is training undertaken online through a computer or any other digital device (Lawless 2018). It can be delivered through tools such as games-based training, virtual reality, simulation and MOOCs (Massive Open Online Courses) and could be employed as part of internships, cadetships, higher apprenticeships or structured on-the-job training. E-learning has been used as an EBT delivery method for some time and is anticipated to grow as the COVID-19 pandemic continues and subsequently. However, its usage is likely to vary by industry due to differing workplace contexts and the expense of implementation. One of the employers in the healthcare and social assistance industry interviewed for this research explained that mandatory training in first aid was delivered online as the materials had been developed centrally, which created efficiency.

Digital training solutions work best when personally relevant and situated within an authentic context, making e-learning particularly suited to EBT. Understanding the characteristics and needs of the participants in the e-learning is important; for example, one study found that older workers in Germany need more support to use e-learning (Beinicke & Kyndt 2020). However, a study of Australian rail workers (an industry where over half of the workforce is aged over 45 years) reported that age was not a significant factor impacting on either future use intentions or satisfaction with e-learning; rather, it was the user-friendliness of the e-learning tool and the amount of technical support available (Fleming, Becker & Newton 2017).

New training technology can harm outcomes if participants have poor attitudes towards using technology. Landers and Armstrong (2017) compared outcomes from game-based training with training delivered through PowerPoint slides. They observed that, for learners with low levels of digital experience and less positive attitudes towards game-based training, PowerPoint was more effective. Conversely, for learners with high levels of digital experience and a positive attitude towards game-based training better outcomes were achieved with this type of training. Larson (2020) found that further benefits of game-based training included enhanced workforce recruitment and retention, increased program adoption and improved work performance. However, poor implementation and design in the past, and concerns about data security and employee confidentiality have persuaded some companies not to adopt gamification techniques for the delivery of EBT. De Vin, Jacobsson and Odhe (2018) reported that shop floor workers can have difficulties seeing analogies between desktop games and their work environment.

Eckert and Mower (2020) compared the effectiveness of three learning modalities — classroom, e-learning via online tutorials and virtual reality — to deliver a course on inclusive leadership to a group of new managers employed by a major US employer providing audit, quality assurance, consulting and tax services. The participants were allowed to undertake the training in only one of the three modalities. Eckert and Mower found that the virtual reality learners were 40% more confident than classroom learners and 35% more confident than e-learners, and learning completed through virtual reality was four times faster than classroom training. Those who undertook the training through the virtual reality mode were also found to be less distracted and more task-focused than both the e-learning and classroom learners.

In Australia, large employers and registered training organisations (RTOs) have greater resources and more mature systems and processes to support e-learning. However, they may be reluctant to introduce e-learning if substantial investments have already been made in their traditional delivery infrastructure (Guiney 2015). With ongoing digital technological advances, e-learning tools are likely to become more widely used across a broader range of industries and employee roles.

Examples of e-learning in tandem with EBT in VET contexts in Australia and internationally include:

- Fantastic Furniture in NSW, using e-learning to deliver the Certificate III in Retail as part of a blended delivery with in-store coaching and workplace practice (Australian Training Awards 2020)
- McDonald's restaurants worldwide, using game-based training for new employees, who work in a digital restaurant with virtual customers (Conta 2016)

- the game 'Pulse', which teaches American nurses, paramedics and other first responders to identify each patient's problem, give priority to the most serious cases and apply the appropriate measures (Gamelearn 2019)
- MOOCs in energy-efficient and sustainable building in Finland (Drake & Rajaorko 2017)
- virtual reality training for car dashboard assembly in the Slovakian automotive industry (Davidekova, Mjartan & Greguš 2017)
- virtual reality safety training in the American precast/prestressed concrete industry (Joshi et al. 2021).

WHAT MAKES EMPLOYMENT-BASED TRAINING WORK WELL?

From the literature review and the interviews with employers for this research, we know that EBT approaches work best when the aims of all the stakeholders are aligned and they inform the training and employment arrangements. That is to say, the training is customised to suit the organisational context, resulting in training that is up-to-date, agile and relevant to a specific role or roles.

While cadetships, internships and higher apprenticeships demand input similar to formal apprenticeships and traineeships, they are more flexible in the ratio of training to work performance. In each example of EBT approaches cited in this paper, and borne out in the interviews with employers, the employer in some way takes on the role of training supervisor and mentor to the 'student' employee as they progress through a structured program of work and study within a predetermined timeline. In many cases, external training providers are sought to deliver the training that employers cannot — as RTOs do for apprenticeships and traineeships.

VET providers' experience in delivering staged training to match work experience progression, as occurs in apprenticeships and traineeships, means that they are well placed to negotiate with employers to participate in the development and delivery of the bespoke programs of learning demanded by internships, cadetships and higher apprenticeships. The 'best' EBT approach for training individuals for an occupation can only be determined by reference to the specific skills demands and the industrial and employment context.

The features of successful cadetships, internships and higher apprenticeships mirror those of apprenticeships and traineeships:

- training content that is relevant to current or upcoming job tasks
- dedicated mentors and support resources in the workplace, including from experienced workers
- time and space to undertake training and practise skills in context before moving on
- experienced supervisors supported by a clear company-wide structure.

Structured on-the-job training, such as mentoring or job-shadowing programs, represent another approach to EBT that is obviously context-specific and responsive to employee needs. The use of mentoring programs in particular was common among the employers interviewed for this research. The effectiveness of structured on-the-job training approaches such as mentoring however is largely dependent upon the competencies, behaviours, qualities and characteristics of the mentors (Leck & Wood 2013).

OPPORTUNITIES FOR VET

As highlighted in the literature and interviews for this research, employers need training that is agile, flexible and responsive to industry needs, is affordable, and minimises workers' time away from work. Given employers' needs and the challenges they face in the provision of training, consideration should be given to transforming existing nationally recognised training content into shorter units. The increasing use of skill sets and single units of competency demonstrates that the VET sector can provide training in this format. Indeed, Palmer (2021) reports that subjects not part of a nationally recognised program form the bulk of enrolments in VET: in 2019 around 2.6 million students were enrolled in this form of activity.

The VET sector's experience in providing training for formal apprenticeships and traineeships can be redirected to the shorter timeframes of cadetships, internships and higher apprenticeships. There is also scope to add new training to existing training packages, based on demand for non-nationally recognised training with no nationally recognised equivalent.

For nationally recognised training in particular to be considered a viable and attractive option when employers look to implement EBT approaches, a number of factors relating to the benefits of nationally recognised training and accessibility and affordability of training options must be considered and addressed, namely:

- the VET system offers high-quality industry-informed and relevant training standards that are linked to current and emerging occupations
- training providers need to have the bandwidth and resources to enable flexibility in delivery approaches and program design, especially with regard to e-learning development and implementation
- the VET system needs to look at making it straightforward for employers and individuals to understand and access VET funding
- employers and individuals need to have a better understanding of the benefits of VET certification.

APPENDICES

Appendix A: Method

Literature review

A difficulty in undertaking the literature review for this research concerned the wide range of terms and the inconsistent use of terms related to 'employment-based training'. Table A1 shows terms used interchangeably in the international literature. These terms were used for searching VOCEDplus (<https://www.voced.edu.au/>) and Google Scholar (<https://scholar.google.com/>) for relevant research spanning the last decade.

Table A1 Terms used interchangeably with 'employment-based training' in the international literature

Employment-based training	Workforce development	Industry training	Workplace learning
Establishment training	Enterprise training	In-company training	Learning in the process of work (Germany)
Continuing vocational training	Employer-driven training	Employee training and development	Employer-sponsored training
Workplace training	Paid training	Training workers	Employer-provided continuing training
Training within industry	Workplace education and training	Work-based learning	Employer-provided training
Incumbent worker training			

Further searching of publications from key bodies such as Cedefop, the Organisation for Economic Co-operation and Development (OECD) and the ILO; other databases including EBSCO, Emerald Insight, Scopus, and Web of Science, as well as forward and backward citations of key references, was also undertaken. These literature search processes identified 438 references, of which 270 were subsequently removed because they:

- discussed work-based education or work-based learning more broadly
- did not meet the definition of employment-based training (for example, many focused on preparing unemployed workers or students to enter employment)
- focused on solely government-funded programs
- did not provide more detailed breakdowns of models used beyond 'formal' or 'informal'
- focused on apprenticeships other than higher apprenticeships.

Employer interviews

Interviews were conducted with employers from the healthcare and social assistance, construction, and information technology industries. These industries were selected as case study industries based on:

- suggestions from the project advisory committee
- outcomes from the literature review
- industries with skills shortages, as identified by the National Skills Commission
- recent industry growth rates.

Approximately 200 businesses were randomly selected from the online yellow pages, Google searches and other lists. The CEOs, general managers or training and development managers of these businesses were contacted via email or LinkedIn and then by telephone follow-up. This strategy yielded 10 interviews:

- four with employers in the healthcare and social assistance industry:
  - a national peak body for aged care, which is also an RTO, with 35 employees and several hundred members

  - a large health service (including a hospital) with more than 10 000 employees
  - a child healthcare provider in Victoria with 90 employees
  - a large healthcare centre (also an RTO) in Queensland with 6000 employees
- four with employers in construction:
  - three of the employers located in Western Australia
  - the size of businesses ranged from 100 to more than 700 employees.
- two with employers in the information technology industry; the number of employees in their businesses ranged from 14 to 76.

Semi-structured interviews were conducted either via video-link or telephone. See appendix B for the interview schedule.

Interviews were also conducted with representatives from The Smith Family and the Future Social Service Institute at RMIT University. These organisations are piloting higher apprenticeship and cadetship programs.

Appendix B: Interview schedule

Preamble: 'Thank you for assisting us with this research. It will be used to inform training providers, state training authorities, the Commonwealth Government and workers about additional ways to provide employment-based training and how VET can support them'.

Before we begin, do you consent to this interview being recorded for reference purposes? **(If NO - just take notes).**

Demographic details

- How long has this business been operating?
- Location (state, city)
- How many employees do you have?
- % FT/PT/casual?
- Who/what is your main market?
- Roughly what proportion of your workforce would have VET qualifications (Certificate 3 or 4 or Advanced Diploma)?

Main questions

1. Had you ever heard the term 'employment-based training' before we contacted you?
   1.1. What do you interpret it [employment-based training] to mean?

Project definition - The most well-known forms of employment-based training are apprenticeships and traineeships. This research is looking for ***other types*** *of EBT, where workers are supported by their employers to gain accredited training and/or a qualification as part of their work (i.e. in the workplace).*

2. Do you use any form of employment-based training in your business/industry, apart from apprenticeships and traineeships? (clarify if nationally recognised and non-nationally recognised, and also note any non-nationally recognised training)

If no employment-based training -

N1. Is there a need for employment-based training in this industry? (why/ why not?)

N2. What do you need to do to facilitate employment-based training in your industry/company/organisation?

N3. Have you heard of any other companies in this industry using employment-based training?

N4. ***If providing structured but non-nationally recognised training in workplace -*** *why not use NR training?*

N5. Who provides this NNR training? What is the duration and purpose of the NNR training?

N6. Are there any advantages to using NNR training rather than NR?

N7. Are there are any unmet industry or business needs or opportunities that new or other models of employment-based training could meet or capitalise on?

N8. How would you compare the effectiveness of employment-based training to (a) unaccredited training and (b) institution-only training (i.e. without an on-the-job component) in meeting business needs?

3. Do you use any other type of training for workers in your business?
4. Why do you use employment-based training rather than other forms of training such as the traditional apprenticeship/traineeship model or self-paced online training?
5. How long have you been using employment-based training?
6. Have there been any changes to the type of employment-based training used in this business over the last 5 –10 years? Why?
7. How did you hear about this particular form of employment-based training?

8. Why did you use this particular type of employment-based training?
    8.1. Did you consider any other types?
9. How did you set up the employment-based training you use? Did you consider partnering with any other employers?
10. Is your employment-based training nationally recognised (i.e. accredited and provided by an RTO?)
11. Do you/ employers prefer training in the form of short intensive courses (also known as microcredentials), specific units of competency, skill sets, or full qualifications? (why?)
12. Does the type of employment-based training you use involve simulations or practice of scenarios/processes?
    12.1. Does it involve training and practice using real equipment?'
    12.2. How does simulated workplace delivery complement or enhance training?
13. Does your employment-based training model specifically recognise soft skills?
14. Do you account for prior learning in your employment-based training?
15. Do any employment conditions apply/are necessary for workers to have employment-based training in your business/organisation? (if so, what are they?)
16. Who provides the training?
    16.1. Was it tailored to this organisation?
    16.2. Did you need to provide any specific facilities for X to run the training in your workplace?
17. Have you reviewed your employment-based training model and made any adjustments or adaptations? If so, what type of adjustments and why?
18. What has the industry/ company/organisation learned or gained from using employment-based training so far?
19. Do you plan to change how you provide training to your workers in the future? If so, how and why?
20. What do you see as the biggest challenges of employment-based training?
21. What are the main benefits or advantages of employment-based training compared with other types of training for workers?
    21.1. What are the main disadvantages?
22. How would you compare the effectiveness of employment-based training to (a) unaccredited training and (b) institution-only training (i.e. without an on-the-job component) in meeting business needs?
23. What are the key factors in high-quality employment-based training?
24. Are there are any unmet industry or business needs or opportunities that new or other models of employment-based training could meet or capitalise on?

Appendix C: Case studies of employment-based training

This section presents brief case studies of real-world examples of EBT already at work in Australia and overseas in either the VET or higher education context. These examples exemplify the diversity of each EBT approach upon implementation and reinforce the key takeaway, that solutions must be developed in context. Table C1 presents a summary of the features of each example.

Table C1 Features of Australian and international employment-based training examples

	Organisation/ industry	Certification/s	EBT model	EBT approach
Australia	Virgin Australia pilots	VET accredited qualifications Industry certifications	Work-based with educational interventions	Cadetship
	Construction industry	Higher education degrees	Work-based with educational interventions	Cadetship
	Mirvac	Higher education degrees	Work-based with educational interventions	Internships
International	Prysmian Group, worldwide	Credit towards secondary school certificates VET-equivalent certifications Higher education degrees	Work-based with educational interventions	Various e.g. apprenticeships in France, internships in Italy summer, high school credit in Spain
	Mercedes Benz, USA	None initially, then moving to a VET-equivalent certification	Work-based with direct guidance (formal or informal), moving to work-based with educational interventions	Apprenticeship

Australia

Virgin Australia pilot cadetship

Virgin Australia runs a 54-week residential pilot cadetship program at Parafield Airport, South Australia. Candidates must have completed Year 12 science, advanced maths and English, or an equivalent bridging course. The program combines flying experience, simulator training and ground theory training, such that students complete the program with four Civil Aviation Safety Authority (CASA) qualifications and three VET qualifications: Diploma of Aviation (Commercial Pilot Licence), Diploma of Aviation (Instrument Rating), and Advanced Diploma of Aviation (Pilot in Command). Each cadet is assigned a Pilot Mentor to guide their progress. Cadets are paid and have access to Virgin Australia staff benefits. Those who successfully complete the program will be offered employment with Virgin Australia group (Virgin Australia 2020).

Construction industry cadetship

BuildCorp offers a three-year cadetship to students in their second year of a construction-related programs, for example, engineering, quantity surveying and building design. Students receive a range of practical on-the-job learning and formal training opportunities, including rotations between teams and areas of the business unit. Cadets receive a day of paid study leave per week, paid exam and study time, and a structured program to manage their progress (Buildcorp 2020)

Mirvac internships

Mirvac is an Australian property development group, offering 12-week, full-time, paid, summer internships to students in their penultimate or final year of study across a variety of occupational sectors. The study areas considered range from property development and business intelligence, to sales and marketing and internal audit. Students are offered in-house training sessions in professional and technical skills, networking with executives, lectures from the in-house management leadership team and support from a mentor and buddy. Students may be offered part-time and full-time roles after their internship review. This program applies to university studies but could easily be broadened to include diploma and higher-level VET students in the relevant occupations (Mirvac 2020).

International

Prysmian Group, worldwide

Prysmian Group is a multinational company offering EBT experiences customised to the local education system in multiple countries. For example, in Italy they offer internships in supply chain logistics, planning supply chains, and installations proposals, while in France they offer an apprenticeship program, and in the US and Spain they offer a secondary school placement program that enables students to gain credit towards their high school certificate (Prysmian Group 2018). The variety of EBT programs offered by Prysmian exemplifies the key takeaway of NCVER's higher apprenticeship research: that any EBT approach must be fit for its purpose and context and consequently is difficult to discuss in the abstract.

Mercedes Benz, US

Mercedes Benz in Alabama, US, is an example of an attempt to transport the German dual VET model to an entirely new context. Mercedes Benz established a new factory in the US in 1996 and initially sent 160 employees to the German production facility; these employees became the trainers of new recruits back in the US, along with 80 skilled workers sent from Germany to the US. As new production facilities opened in the US, the skilled workers were used again as leaders of small unskilled teams, who would learn on the job. Over time, the program evolved into a formal dual apprenticeship system, with a three-year EBT approach that led to the establishment of qualifications (Gessler 2017).

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