



Advanced entry adult apprenticeship training scheme: a case study

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Abstract

Purpose – The purpose of this paper is to evaluate an innovative way to train adult apprentices for the construction industry.

Design/methodology/approach – The paper emphasizes that, in order to address skills shortages for international construction, training methods must be improved. It looks at the example of an adult apprenticeship scheme in Australia from the perspectives of the apprentice, the training provider and the employer.

Findings – The paper suggests that trained adult apprentices with previous experience can be more productive and loyal, and that this scheme has implications for the training of apprentices generally.

Research limitations/implications – To date, the scheme has enjoyed success in Australia and for the provision of tradespeople in the international construction industry.

Originality/value – The paper illustrates how a training partnership has sought to provide necessary and increasingly scarce skills for an international construction organization through an original apprenticeship scheme.

Keywords Apprenticeships, Construction industry, Adult education, Australia, Skills, Training

Paper type Case study

Introduction

Every industry needs to maintain and improve its core competencies by continuously training the next generation of skilled workers, and this has historically been achieved through youth apprenticeship schemes. The construction industry in Australia and in many other parts of the world is suffering from a skills shortage which has seriously depleted the availability of qualified tradespeople, particularly in the electrotechnology trade, and this shortage continues to restrict the creation and maintenance of project based skilled workforces. Demand for skills is often frustrated by supply. For example, Grant Thornton (2007) suggest that in 2007, 60 percent of all Australian businesses listed skills shortages as the single largest constraint. Christopher Banks, Chairman of the Learning Skills Council in the UK (Learning Skills Council, 2005), emphasizes the importance of skills to the economy and that, as the pace of change accelerates, skills must keep pace or international competitiveness will suffer as a result. This paper explores the trend towards a later entry age for more modern apprenticeships and the way in which this approach might address the needs of the construction industry.



Examples and a case study are given from the Advanced Entry Adult Apprenticeship Scheme (AEAAS), developed by Thiess Kentz in partnership with East Coast Apprenticeships to contribute to increasing requirements for highly skilled workers for projects undertaken around Australia. Thiess Kentz is a leading electrical engineering, instrumentation, control and fire construction services provider focussed primarily on the hydrocarbons and heavy industrial sectors.

This paper introduces the AEAAS as an exciting new model for apprenticeship and explores its benefits and challenges from the perspectives of the apprentice, the training provider and the employer.

Background

Know all men that I, Thomas Millard, with the Consent of Henry Wolcott of Windsor unto whose custody and care at whose charge I was brought over out of England into New England, doe bynd myself as an apprentice for eight yeeres to serve William Pynchon of Springfield, his heirs and assigns in all manner of lawful employmt unto the full ext of eight yeeres beginninge the 29 day of Sept 1640. And the said William doth condition to find the said Thomas meat drinke & clothing fitting such an apprentice & at the end of this tyme one new sute of apparell and forty shillings in mony: subscribed this 28 October 1640 (Thomas Millard, 22 May 1648, available at: www.lni.wa.gov/TradesLicensing/Apprenticeship/About/History/default.asp (accessed 19 December 2009).

The above quote from Thomas Millard's seventeenth century indenture document demonstrates the long-standing, traditional and "tried and tested" model of the apprenticeship. The word "apprentice" derives from the French for "learn" and is defined as "a learner of a craft, bound to serve, and entitled to instruction from the employer for a specified term" (Sykes, 1976: 46). While some aspects of the modern day apprenticeship have changed, some fundamental features have not. What has changed includes older aged entrants into apprenticeships, demands for higher levels of formal education, reduced dependence on the employer to provide basic living requirements like accommodation and meals; and the length of the training cycle. There are greater modern demands for the employer to provide a safe workplace, appropriate scope of work to support training and even pastoral care. What have not changed are the fundamental obligations, rights and responsibilities in terms of an indenture for both the apprentice and the employer. Another feature that has not changed is the effect of time to gain the appropriate skills of the trade and differing perceptions of what an appropriate term of apprenticeship might be. Perhaps the most significant change is the increasing age for entry and the effect this has on a range of features of the modern day apprenticeship. In less than a generation, the age of entry has changed from 14-16 years to a standard profile of a 17-20 year old with higher levels of formal education and experience. There seems to be no evidence that this upward trend will stop and it is forecast that by 2018 adult apprenticeships will become the norm in Australia. A second significant influence on apprenticeships is the increased need for mobility within the skilled workforce. Workers must be prepared to move to support expanding economies, in particular the resource industry and other new infrastructure needs. A unique feature of a mobile workforce is the issue of sustainability where "poaching" can compromise the integrity of a workforce.

The importance of retaining a workforce to the end of a project to complete commissioning and hand over can sometimes be jeopardized when staff move off to other jobs prematurely. Surprisingly, often the only guaranteed element of a workforce is the apprentice. Under an “indenture” the apprentice must go where told and remain there until the employer agrees to a move. The growing importance of having a mobile work force that can be positioned when and where needed, can be the answer to some of the challenges of current skill shortages in the construction industry. An adult apprentice can better accommodate this need for mobility both because they are more stable and generally more experienced with service on remote sites and travel demands. Today’s apprentices demand more flexible learning/training options. In particular, an adult apprentice is less passive and tends to drive the training and a demand for alternate learning. The very provision of new styles of flexible learning is a further challenge to the traditional framework of existing training providers and there must be radical change in most training institutes to complement the demands of the new-age apprentice.

In summary, changes in the nature of an apprenticeship and to the workplace are forcing a departure from historical and traditional apprenticeship frameworks. The movement is away from more junior apprentices to older adult apprentices and this demands a change not only in training practices but also in other aspects of industrial relations like wages and conditions. The need for greater workforce mobility demands flexibility and maturity from the modern apprentice. For the purpose of this article, an “adult” apprentice is defined as one over 21 years of entry.

Learning and age

In an increasingly complex world, people need to continually learn in order to adapt to life’s circumstances and the environment (Galbraith and Fouch, 2007). There are fundamental differences between learning and teaching in adults (andragogy) and in children (pedagogy). Rogers (1996) suggests that the traditional model for teaching children is passive, while adults learn most effectively through active methods. The contrast between the traditional input and modern action models is shown at Table I.

Knowles (1984) proposes that adult learners demonstrate the following characteristics:

- self-directed and autonomous – need to be facilitated not taught;
- goal oriented – consistent with learners’ goals;
- need for relevance and immediacy – can apply principles to practice;

Traditional/input	Modern/action
Passive	Active
Receipt	Search
Fill a hole	Seek for satisfaction
Imposed by others	Initiated by inner drive
“Give”, “impart”	“Discover”, “create”
Transfer of knowledge and skills	Problem solving
Need for teacher	Self-learning

Source: Rogers, 1996, p. 78

Table I.
Contrasting two models
of learning

- practical – can understand reasoning; and
- respected by facilitators and treated as mature adults.

This implies that older learners can be more independent than younger ones and need to be more involved in the pace and content of learning processes. Galbraith and Fouch (2007) suggest that training schemes for professionals should utilize as many adult learning principles as possible, and their study reports that safety violations can decrease as a result. It is clear that older learners need to be treated differently compared to younger learners and this has implications for later-entry apprenticeship schemes.

Traditional apprenticeships

A traditional apprenticeship in Australia is based on the achievement of selected competencies standardized through the Australian Quality Training Framework (AQTF). Generally, the apprenticeship would progress through four stages each of one year's duration, as shown in Figure 1. While the apprenticeship is competency based, a range of stakeholders maintain the traditional view that an apprenticeship must be four years in length.

In Queensland (Australia) a nominal term of 10.5 months has been encouraged for each stage, thereby reducing some apprenticeships to 3.5 years. This reduction in time does not enjoy total support by everyone because it reduces the time to consolidate training and confidence in the apprentice and reduces the productivity return to the employer from the commitment to the apprenticeship. A limiting feature of the traditional apprenticeship is the sequential delivery of training in accordance with a registered training plan. This creates a dependency on the availability of training in that sequence and limits the opportunity for acceleration or flexible delivery. Another feature of the traditional model is that training is best suited to group delivery and often the economic viability of the training provider dictates when and where this training can be delivered.

The Advanced Entry Adult Apprenticeship Scheme (AEAAS)

In 2006, Thiess Kentz, Australia in partnership with a group training organization, East Coast Apprenticeships and a public training provider, Skills Tech Australia developed and implemented a new adult apprenticeship programme. The Advanced Entry Adult Apprenticeship Training Scheme (AEAAS) supplemented the traditional four-staged, (four-year) apprenticeship programme with a dynamic two-staged pathway to trade qualification. To date, thirteen of Thiess Kentz Electrotechnology Systems fitter mechanic apprentices have graduated in an average of 20 months with a dual outcome of trade qualification and licence. This is much shorter than the traditional route.

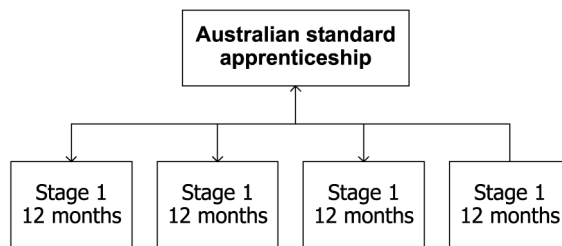


Figure 1.
Standard Australian four
stage, four year
apprenticeship

The AEAAS recruits from the existing workforce and general population into an accelerated apprenticeship. A unique selection process incorporates a recognition of prior learning (RPL) that establishes previous experiences and skill levels equivalent to a pre-determined portion of the apprenticeship, as shown in Figure 2. RPL is conducted by an accredited training provider.

The scheme conducts an independent testing and selection programme (ITP) to confirm the suitability of the candidate for the full training. Apprentices are then employed on project sites, where their attitudes, aptitudes and suitability are assessed. At the completion of this initial deployment, suitable apprentices will attend an accelerated block of training with the training provider. At the conclusion of the training block, successful apprentices are available for further deployment to Thiess Kentz project sites around Australia. The remaining off-the-job training is normally scheduled for completion within 12 months of indenture. The scheme offers an opportunity for the selected apprentices to complete their trade training in less than the nominal period, as shown in Table II.

The on-the-job training is supervised by carefully selected trade mentors. These mentors are existing trade qualified and experienced employees of Thiess Kentz, who are selected for their ability to provide the highest levels of trade supervision while supporting and nurturing the apprentices in their accelerated training. The provision of “pastoral care” offered as a unique feature of group training is also provided by the mentor for those deployment periods when the apprentice is not under the direct support of the group training organization.

In summary, the unique features of the AEASS are:

- (1) recruitment and selection;
- (2) profile for selection;
- (3) recognition of prior learning;
- (4) independent test programme;
- (5) initial deployment to site; and
- (6) completion.

These six features are further discussed later.

Recruitment and selection

The AEAAS offers a unique opportunity for adults to complete an accelerated apprenticeship often after missing out on an apprenticeship by circumstance earlier in their lives. Careful selection of the most suitable candidates for this training scheme is

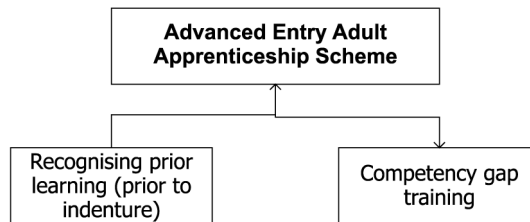


Figure 2.
Advanced entry adult
apprenticeship, two stages
self paced

	Traditional apprentice	Advanced entry adult apprentice	Remarks
Entry age	14-21 years	21-55 years	Experience and maturity
Available skills	Gradual after significant training	Immediate	Actual skill sets can be defined for recruitment
Experienced on remote sites	Unlikely	More likely	
Required supervision	Very high	Very low	
Productivity	Very low initially	Very high immediately	
Time to complete trade training	48 months	Potentially 20-22 months	
Enhanced skills	Not normally	Most likely	For example: elevated platform; other trades; WHS qualifications
Previous induction processes	Not normally	Likely	For example: coal board medicals; mine site inductions
Living wages	Apprentice wage	Adult wages	
Training/experienced hours on-the-job	38 hours	≈52 hours	For example: 36 percent more hours training per week
Training motivation	Normal	Self-driven	
Accelerated training	No	Yes	
Flexible training delivery model	Maybe	Yes	
WHS risk mitigation	Low	High	

Table II.
Comparing traditional and adult apprenticeships

critical. Only the best applicants with the appropriate levels of formal education, industry experience, attitude and aptitude for employment on project sites should be considered. Applicants must also have the ability to capitalize on the accelerated training regime. In the first pilot programmes, over 900 applicants were screened down to approximately 50 offered placements. The significant response from adults seeking this training indicates the untapped source of candidates for adult apprenticeship programmes. It should be noted that the probationary period is used to confirm in the workplace the suitability of the apprentices for accelerated training and a role with Thiess Kentz. All preliminaries, initial site deployment, and first college training sessions are completed before the expiry of probation with successful apprentices retained in the training scheme and move up to permanent deployment status.

Profile for selection

Candidates for this unique adult apprentice scheme are selected from the following profile:

- adults (21 years and older);
- completed pre-determined levels of formal education;
- industry experience the equivalent of 25 percent + in trade competency standards (normally minimum of 3-5 years);

- motivated and committed to a trade career;
- strong family support; and
- willing to be deployed to remote project sites nationally.

Recognition of prior learning – RPL

The AEAAS is predicated on candidates having previous industry experience that equates to competencies for the apprenticeship. This experience may be drawn from:

- overseas qualifications;
- prevocational training;
- part-completed apprenticeships;
- on-the-job experience as a trades assistant;
- ex-member of the defence force with appropriate aligned training; and
- other relevant trade training, for example, radio communications or restricted electrical licensing.

As a preliminary stage before final selection processes including a full one day assessment centre, the designated training provider assesses candidates through RPL processes and provides formal accreditation for competencies in the apprenticeship. The requirement to provide acceptable evidence of such competencies rests with the candidate. Delays in producing such evidence may deny candidates placements. The training provider will on provision of adequate evidence, issue a statement of achievement as evidence of competency allowing the candidate to proceed to selection.

Independent test programme

Once the statement of achievement is provided by the training provider, the candidate will be scheduled for independent selection testing. This testing programme will validate the competency of the candidate and assess suitability for entry into the training scheme. Testing will include psychological assessment to determine suitability for an accelerated training scheme and deployment to project sites. Recommendations from the assessors will be reviewed by a selection panel who will confirm an offer.

Initial deployment to project site

After selection and indenturing, apprentices deploy to a Thiess Kentz project site. The objectives of this deployment are to confirm the suitability in both attitude and aptitude to site work. It permits the apprentices to gain an insight into the rights, responsibilities and obligations on a work site and to blend into the workforce. Acceptance by their fellow workers is an important component of this experiential activity. In particular, apprentices must be accepted by the project manager who is in overall charge of the job. One project manager remarked:

These guys are mature, know what they want (a trade qualification), are familiar with construction site safety requirements, and work very productively with little supervision. In fact they out perform a lot of my other tradespeople.

Fulfilling their obligations and accepting the responsibilities of a worker in the workplace allows Thiess Kentz, East Coast Apprenticeships and the apprentices to

identify commitment to the apprenticeship. It also establishes and encourages the mentoring” role for the trade supervisors involved in their training. For existing workers seeking an apprenticeship, this experience would be already demonstrated and they can be recruited after achieving RPL straight into the block training phase.

The AEAAS defines the term “accelerated training” to be an integrated training philosophy, and this is dependent on a number of factors:

- participation by highly motivated apprentices dedicated to accelerated progress;
- flexible training schedules accommodating accelerated progression;
- streamlined administrative procedures to facilitate accelerated progression;
- cooperative arrangements between the training provider and Thiess Kentz to ensure the exploitation of training opportunities;
- induction programme that launches the apprentice’s training into an accelerated start;
- registered training plan that creates opportunities for the apprentice to gain accelerated access to training; and
- off-the-job training is in accordance with individual registered training plans that promote accelerated progression.

Completion

On completion, apprentices on the AEAAS may be offered further employment by Thiess Kentz. However, Thiess Kentz is under no obligation to do so and on completion of the apprenticeship; the tradesperson may choose his/her own career path. An option, again at the sole discretion of Thiess Kentz, would be to consider cadetships for outstanding performance to encourage a graduated apprentice to pursue further studies.

The realities of the AEAAS are subsequently discussed from three difference perspectives:

- (1) the apprentice’s story;
- (2) the training provider’s insight; and
- (3) the employer’s perspective.

The apprentice’s story: P

P is 38 years old and a graduate of the advanced entry adult apprenticeship scheme. P spent 13 years in the Royal Australian Navy working in electronics first on submarines and later on aircraft. After leaving the Navy, P worked for Boeing in aircraft maintenance in non-destructive processes when he read an advertisement calling for participants in the Thiess Kentz Adult Apprenticeship Programme.

P’s ambitions were to gain his electrical licence and he had experienced difficulty gaining recognition for his past training and lacked the opportunity to achieve full trade qualifications. The Thiess Kentz programme appeared to offer him an answer.

P answered the request, found out more and this made him even keener to join the programme. He underwent all the preliminaries including the recognising prior learning assessments and the full day of independent assessments. He was delighted when selected to join the programme and was indentured in November 2006. Nineteen

months later P graduated as a fully qualified electrical fitter mechanic gaining his electrical licence. P was offered ongoing employment with Thiess Kentz as a tradesman. He remarked, "I found the selection process to be very thorough and was quite exhausted after the full day at the assessment centre.

P worked on two major Thiess Kentz coal infrastructure projects in Central Queensland as well as attending blocks of college.

"I was very keen to stay in employment with Thiess Kentz who had given me this opportunity to complete my trade training in an accelerated programme.", said P. "The programme left me feeling very comfortable with the level of competencies of my trade training and I feel I have much to offer Thiess Kentz."

P's previous experiences helped him settle quickly into the life on projects. His Navy background helped him to be a strong team player. "While separation from my family was particularly hard at times, I was able to cope well and remain focused."

P is a good example of how this unique scheme can offer trade qualifications in an accelerated time frame drawing on the previous experiences and "gap training" the shortfalls.

"I feel considerable loyalty to Thiess Kentz for what they have given me and hope that I can stay with them", said P.

Training provider's insight

In late 2006, SkillsTech Australia, through an approach by East Coast Apprenticeships agreed to design and develop a pilot programme for a new teaching and assessment strategy specifically catering for the Thiess Kentz's Advanced Entry Adult Apprentices Scheme (Electrical) within the heavy industrial sector. The programme involved detailed profiling and screening of applicants with a view of identifying candidates who would be eligible for approximately 25 percent recognition of a conventional apprenticeship with gap-training then provided by SkillsTech Australia. When screening candidates, it was noted that other potentially valuable employees were present in the candidate list and it was agreed that a small number of candidates were allowed to progress without meeting the 25 percent benchmark. SkillsTech Australia established a flexible rate of progression programme and facility (with stakeholder support including Thiess Kentz, the Electrical Safety Office and Queensland Utilities and Services Industry Training Advisory Board (QUSITAB). Initial delivery commenced on 16 April 2007 to service the training requirements of the first of two intakes of apprentices. The initial delivery of training was provided from the electrical resource development team members with additional innovation research and development staff support. The team developed new resources to match the subject based development approach and then "case managed" students through the various learning programmes that were established. From Skills Tech Australia's point of view, the programme allowed research and delivery staff to test new delivery and assessment methodologies and detail test a cognitive curriculum design model to allow candidates a range of options and pathways to undertake the required learning and assessment. This in turn allowed Skills Tech Australia to roll out elements of this training model in other delivery areas and to design an educational training model for apprenticeship and skills development programmes that was based both on educational skill progression as well as competency progression.

The employer perspective

Attracting and retaining committed and competent employees is challenging for organizations in any industry, particularly during a long period of sustained economic growth world wide.

In the construction sector, in which Thiess Kentz operates, this challenge is amplified by:

- a finite supply of people with heavy construction industry experience – an electrician trained in domestic or commercial work does not always ensure a good construction electrician;
- inconsistency of project workload – retaining employees in employment is not sustainable over a long duration unless you have a consistent stream of projects into the future; and
- low levels of company loyalty – employment “churn” due to inconsistent project workload leads to an erosion of company loyalty, with people becoming somewhat mercenary and concerned with looking after themselves only – and who could blame them!

The scheme addresses some of these issues, but also provide its own challenges, and these benefits and challenges are discussed.

What are the benefits to employees and apprentices?

The AEAAS offers tangible benefits for most stakeholders. For organizations adopting this training model, the benefits include:

- provides immediate skills to a project site;
- creates and maintains a guaranteed element of the skilled workforce;
- improves the risk mitigation for workplace health and safety;
- affects bottom-line productivity gains;
- enables accelerated acquisition of full trade qualifications, for example 55 weeks for welders/boilermakers, 17-22 months for electrical fitter mechanics;
- capitalizes and encourages a loyalty factor for existing workers offered the programme;
- identifies and positions a new generation of supervisors; and
- supports the mobility of an essential work force where they are needed.

For the apprentices selected to join this programme, the benefits include:

- recognized value of existing skills and experiences;
- increased self-worth;
- the gaining of formal qualifications quickly;
- access to high pay and conditions while completing training;
- secure working career relationships with industry enterprise; and
- makes possible a career pathway to supervisor roles.

What are the challenges?

There are a number of challenges introducing and conducting this programme. Perhaps the primary challenge is resistance to change. One tradesman is reported to have said, “if you think that you can train apprentices in less than four years, you are wrong” (or words to that effect!). Two weeks later the same tradesman remarked, “I don’t know where you got these blokes, but we need more of them!” Reducing stages and apprenticeship duration is not intuitive, but is proving effective.

Another major challenge of this concept is the commitment and on-going support of all stakeholders. In particular, continuity of placements for on-the-job training is critical, as is the provision of flexible training through the training provider. These aspects need to be established and where possible confirmed early in the process. The industry enterprise should have the capacity to rotate the apprentices around work projects to allow the apprentices to be exposed to the full scope of work needed to cement the training.

The nature and profile of the adult apprentice should be further explored. The unique features of an adult such as maturity, industry experience, commitment, possibly increased safety awareness are valued traits and bring substantial benefit to a work force. There are other features of adults that can be less attractive. Some adult apprentices can be impatient with at times unrealistic expectations. They can be frustrated when operational needs stand in the way of their “relevant scope of training”. In the early stages being unfamiliar about apprenticeship training processes, they can also have unrealistic expectations of the levels of supervision that can be realistically dedicated to them. None of these factors are insurmountable, and most can be minimized with good communication and information exchange, particularly in the preliminary stages of the programme. This information must be given to potential apprentices and to site supervisors so that both have a better understanding of the features of this scheme.

Conclusion

It can be suggested that the AEASS can be of benefit in the following ways:

- *Skilled/productive labour.* The advanced entry and RPL encourage higher skills and earlier productivity than traditional apprenticeships.
- *Construction industry experience.* Apprentices are familiar with construction project issues (for example remote locations and periods away from home).
- *Supervision.* The increased maturity of adult apprentices requires less supervision.
- *Project retention.* Unlike other workers, adult apprentices are indentured and must remain on the project until moved elsewhere.
- *Loyalty.* Adult apprentices are playing an active part in their development and are sponsored and invested in by the organization.
- *Flexibility.* Unlike traditional apprenticeships, AEAAS learners in Australia may be placed with another host employer when there are gaps in project work. This maximizes the opportunity for apprenticeships to be completed and not terminated. They can re-join their main host once work levels recover. This flexibility comes through a group apprenticeship provider like ECA, and applies

to traditional as well as AEAAS apprenticeships. It may be true that such schemes are particularly effective in Australia.

- *Breadth.* Apprentices can be rotated to ensure training breadth. For example, apprentices cannot get domestic wiring, or motor re-wind experience on our construction projects. This may be achieved through a placement with another host for a period of time.

This simple but dynamic adult apprenticeship scheme has widespread application across all trades and is being recognized as a new pathway to qualification and potentially a major contributor to skill shortages across the world. The provision of adult apprentices to major projects can have bottom-line impact of increased productivity and profits. The success of this scheme was a product of the synergy of partnerships, with each partner contributing essential elements. Without the combined commitment of each partner, Thiess Kentz, the industry enterprise; East Coast Apprenticeships, the Group Training Organization; Skills Tech Australia, the Training Provider and of course highly motivated and rigorously selected apprentice candidates, this new pathway to provide skilled workers for major projects would not have been achieved.

This scheme has not been without its challenges. Key among these has been the ability of Thiess Kentz to offer continuity of employment over the full period required for the apprentice to complete their training. This may be an Australian centric issue due to the highly competitive construction sector producing “feast or famine” project workload.

New ideas and innovations that capitalize on these intrinsic changes are necessary. Thiess Kentz’s AEAAS is an example of a fundamental, but necessary shift. It has demonstrated a unique two-staged pathway to qualification that can be applied to many areas of skilled need. The first stage of recognising prior learning not only quantifies existing skills sets offering formal qualifications but the very act adds human value to the participant. When life experiences are recognized, they generate self-empowerment and motivation of the individual to complete a learning cycle. Following RPL, the residual gap training can be achieved through a self-paced programme in remarkable but not unreasonable times without compromise to the training competency and industry standards.

The increasing age for entry into apprenticeships is challenging the current framework for trade and other vocational training. In future, some students might leave school and “try out” an industry without then needing to commit themselves to a lengthy apprenticeship scheme. Having gained experience of life and a liking for the trade, they are well placed to join a scheme like the AEASS and help companies like Thiess Kentz to manage construction projects effectively and profitably. The evidence to date suggests that this scheme has the potential to accelerate the time for apprentice qualification, without affecting quality and to provide a richer pool of qualified and skilled workers to an ever- expanding construction industry.

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