Apprenticeship pedagogies in a Tasmanian Registered Training Organisation: What do Teachers say?

Rod Mason, Skills Institute, Hobart, Tasmania, Australia

Abstract

The apprenticeship model is a time honoured way of training people, particularly in the United Kingdom where it has existed since medieval times. However, there has been little research published in the Vocational Education and Training (VET) literature on the specific pedagogies used by trainers of traditional trade apprentices currently. This paper reports on part of an exploratory study that has recently been completed to investigate the teaching strategies used by trainers of traditional trade apprentices in a Tasmanian Registered Training Organisation (TRTO). Two questions were posed: What teaching strategies are used by apprentice trainers? Why are these strategies favoured by these trainers? The research employed a mixed methods design whereby both quantitative and qualitative data were collected across 11 Industry Skills Groups (ISGs) using an on-line survey, and semi-structured interviews with one participant from each ISG. The study found that trainers continue to use the more traditional forms of teaching, although in some cases more innovative strategies are also being used. A number of key findings emerged from this research including the identification of two factors that are likely to influence the strategies that teachers ultimately use. The research data also provoked new questions in relation to 'lock-step' approaches to teaching and the use of self-paced workbooks. It is hoped that this paper will provide a basis for further studies that will lead to the prescription of new pedagogies to enhance pedagogical practice in the TRTO and, other providers of apprenticeship training.

Introduction

The apprenticeship model is a time-honoured approach to training (Choy et al. 2008), and a combination of off- and on-the-job training is the most common methodology used to train apprentices in the traditional trades (Misko 2008). Traditional trades relate to occupations such as engineering, building and construction, plumbing, automotive mechanics, commercial cookery and hairdressing (Misko 2006). This paper draws on an exploratory research study that was recently completed in partial fulfilment of the requirements for the degree of Master of Professional Education and Training (Workplace and Vocational Education and Training) at Deakin University. The purpose of the research was to investigate the approaches to apprentice teaching and learning in a Tasmanian Registered Training Organisation (TRTO). Specifically, answers were sought to the following two questions: What teaching strategies are used by apprentice trainers? Why are these strategies favoured by these trainers? Notably, the TRTO is the largest provider of apprenticeship training in Tasmania. It delivers trade training across 12 Industry Skill Groups (ISGs): allied trades, automotive, bakery, butchery, cookery, construction, electrical, hair dressing, metals/manufacturing, mining, motor body and natural resources. 'Allied trades' is the term used in the TRTO to group other construction-related trades such as wall and floor tiling, painting and decorating, plastering, glazing and plumbing.

Literature review

According to Kemmis, Sutcliffe and Ahern (2009, pp. 4-55), the term 'pedagogy' is 'multidimensional and different studies have highlighted different dimensions' which at

times can make discussions of pedagogy 'very blurry'. For the purposes of the literature review, pedagogy is taken to be the various teaching and learning strategies used by apprentice trainers in both off- and on-the-job learning contexts.

Off-the-job

Traditional entry-level trade apprentices are likely to spend approximately 20% of their time participating in off-the-job training (Choy et al. 2008). Off-the-job training has commonly involved attending an educational institution such as a TAFE College for one day per week, or in accordance with block release arrangements which might comprise '2-3 week blocks at a number of specified times throughout the year' (Misko 2006, p. 17). In her study of the pedagogical needs of carpentry apprentices in the Building and Construction Industry Training Organisation (BCITO), Gilbert (2008, p. 8) also identified that one option for apprentices to complete their theory units is through an 'evening class'. Nonetheless, according to Smith and Sadler-Smith (2006, p. 115) the two most common forms of pedagogy used in off-the-job training are 'didactic' and 'participative' methods. Didactic approaches have long been associated with the traditional model of pedagogy (Chappell 2003). They primarily take the form of a lecture where the teacher instructs the learner (Smith & Sadler-Smith 2006). The interaction takes the form of an 'exposition of facts, concepts, principles, examples and so forth' (p. 115). Smith and Sadler-Smith also highlight that opportunities are normally provided for learners to answer questions, be asked questions and participate in various exercises. Participative methods on the other hand may take the form of discussions, demonstration and practical activities (Smith & Sadler-Smith 2006).

There is evidence to show that didactic and participatory methods are being delivered in a 'lock-step' manner whereby apprentices 'start and finish in unison' (Trood 2007, p. 11). A weakness of this approach is that it does not acknowledge the diversity that exists between the apprentice learners. For example, Trood (2007, p. 11) points out that, in order to keep everyone at the same pace, 'the advanced apprentices are often required to do the same thing again and again while others struggle to keep up'. Flexible delivery (or blended learning) is another approach that is being used in apprentice training. This strategy embraces a range of resources and teaching methods to better cater for the learners' needs and preferences (Smith & Sadler-Smith 2006, p. 175). Typically, self-study resources including workbooks, on-line materials and CD-ROMs would fall into this group. Flexible delivery however, requires a self-managed component to learning on the part of the apprentice compared to the traditional teacher-led/facilitated strategy (Schofield 2000b cited in Kilpatrick, Hamilton & Falk 2001, p. 8).

On-the-job

Traditional entry level trade apprentices are likely to spend approximately 80% of their time participating in on-the-job training (Choy et al. 2008). On-the-job learning typically involves what Smith and Sadler-Smith (2006, p. 109) refer to as coaching and mentoring, which are particularly important in a socio-cultural context such as a workplace where the learning occurs in-situ. Smith and Sadler-Smith point out that 'coaching in the workplace is based on the assumption that people are able to learn effectively by watching others complete a task'. Moreover, Misko (p. 34) highlights the point that 'successful coaching programs are very much reliant on the development of trust, confidentiality and respect'. Although learning in the traditional trades typically involves a combination of off- and on-the-job training, it must be acknowledged that, in some cases, training takes place entirely on-the-job (Misko 2006).

The 'Learning Bay Model' used in two German Daimler plants is one such example of automotive apprentices being trained entirely on-the-job (Dehmbostel & Molzberger 2006 cited in Misko 2008, p. 18). Here, apprentices are assigned to 'learning bays' or 'spaces' which are positioned in the midst of production. Moreover, the bays provide for an on-the-job production component, learning facilities and a trainer(s) who acts as a facilitator.

Pedagogical preferences in VET

Mitchell et al. (2005, p. 10), through their review of the literature, found that apprentices, in particular, 'are generally thought to prefer learning in a structured environment that provides opportunity for direct social interaction with their fellow learners and their instructors'. However, a number of factors can influence the pedagogies that teachers ultimately adopt. For example, Smith (2005 cited in Mitchell et al. 2005) has observed that VET teachers 'typically develop their own theories of learning style' (p. 7) based on what could be considered their 'personal preference'. Smith asserts that these preferences tend to emerge, either 'without reference to established theories' or, they are 'simply based on a theory that is personally appealing' (p. 7). In relation to less experienced teachers, Smith and Dalton (2005, p. 20) found that in certain trade areas, there was a tendency for some teachers to adopt teaching strategies that are akin to their own learning style. Finally, a third dimension in relation to personal preference concerns the adoption of the didactic approach to teaching (Smith & Sadler-Smith 2006, p. 145). According to Berg (2001 cited in Smith & Sadler-Smith 2006, p. 145), teachers that have a preference for 'traditional instructor-led training-room contexts' may find it difficult to move away from this form of teaching. Moreover, Smith's (2001b cited in Smith & Sadler-Smith p. 145) research identified this problem as not so much an unwillingness to change and try different things, but rather, 'a problem of not knowing how to do it'.

When teachers join a teaching area (e.g. automotive, construction, engineering) they are likely to become members of a 'sub culture' within the enterprise where established practices and ways of doing things are likely to inform much of their pedagogical practice. The effect of established practices is also highlighted by Ford et al. (2002 cited in Becker 2005 p. 6) who suggest that resistance to change 'is not necessarily resistance to the change itself, but is more to do with the background conversations within the culture'. Within any field of activity, policy that can influence practice can have multiple dimensions (Blackmore & Lauder 2009, p. 97). For example, Blackmore and Lauder point out that policy could be conceived of as a 'text, process, discourse, program and even an outcome'. While teaching strategies should be appropriate for the situation to ensure quality learning outcomes, my anecdotal evidence suggests that there are political factors also at play that can influence the pedagogies that teachers ultimately adopt. For example, employers may have a preference such as requiring their apprentices to be trained entirely on-the-job.

Under Australia's National Training Framework, a Certificate IV level VET teaching qualification continues to be the minimum requirement (or entry level qualification) for teachers involved in the delivery of accredited training in VET (Hodge 2009, p. 6). However, the qualification has been challenged on the basis of whether 'appropriate teacher skills can be realised through completion of the qualification' (Smith et al. 2009, p. 22). Innovative approaches such as 'blended learning' (mentioned earlier) are more likely to be implemented when the teacher has further developed their pedagogical knowledge (Shulman 1987 cited in Robertson 2008, p. 8).

Research method

The study employed a Convergent Parallel Design (CPD) which is a popular approach to mixing quantitative and qualitative research methods (Creswell & Plano Clark 2011). It involved collecting and analysing both quantitative and qualitative data at about the same time and then 'merging the results of both into an overall interpretation' (p. 77). An internet-based survey (comprising 40 questions) was designed to collect quantitative information which was categorised according to five sections: demographics, qualifications and experience, off-the-job teaching, on-the-job teaching, and use of flexible approaches in teaching. Sampling strategies were not developed as it was possible to survey the entire population of trade teachers (*N*=204). A total of 49 out of a possible 204 responses were obtained. Semi-structured interviews were conducted with 11 teachers instead of the proposed 12. The intention was to interview one teacher from each ISG but, because no responses were received from one ISG, it was decided to exclude that ISG as there would be no quantitative data to compare with. An interview schedule was designed to assist in the collection of qualitative data (McMillan & Schumacher 2010). The schedule consisted of 13 key questions which sought information in relation to three categories: teaching strategies adopted when teaching and why; impact on teaching of having completed a Cert. IV qualification; and the teachers' experiences/reflections having themselves been a trade apprentice. Sampling procedures were considered important to the overall credibility of the research as I wanted to be able to justify, if asked, how teachers were chosen to be interviewed. To that end, a 'systematic sampling technique' was used (McMillan & Schumacher 2010, pp. 133-34).

Findings and discussion

Research question 1: What pedagogies are favoured by apprentice trainers?

With the exception of three trade areas surveyed, respondents indicated that the majority of apprentices are still required to spend a period of time on campus at the TRTO. In a small number of cases, apprentices are not required to attend campus at all. However, when apprentices do attend campus, this is more likely to be in accordance with block release arrangements comprising one or more weeks at any one time. Day release arrangements and, to a lesser extent, blocks of less than one week are also used. These approaches to training trade apprentices are consistent with those found by Choy et al. (2008), but this study also showed that, in some cases, a combination of approaches are being used, even within the same ISG. While Gilbert (2008) has suggested that night classes are not an uncommon approach, evidence of these was only evident in the electrical and construction ISGs. When apprentices attend campus, they usually spend a period of learning in a classroom environment and in the majority of cases, this learning is a precursor to their practical training that follows in the workshop/simulated workplace. This research shows that, generally, teachers are using a range of teaching strategies in the classroom; but their frequency of use can vary, particularly among teachers within the same ISG. For example, of the 11 teachers from the metals/manufacturing ISG who responded to the survey, every one indicated they use workbooks and DVDs. However, in relation to the other strategies used, there was considerable variation. For instance, only three use a PowerPoint Presentation (PPP). In nearly all cases, apprentices are required to use some kind of workbook while in the classroom. They might be used for example in a 'dependent way' (Smith 2001a cited in Smith & Sadler-Smith 2006, p. 95) in which the teacher controls the rate at which apprentices work through the book and associated tasks. Conversely, there was evidence to show that it is more common for workbooks to be used 'independently' (p. 95) where

apprentices work through them at their own pace, and only seek assistance when required. It is also not uncommon for a number of apprentices to be in the same classroom but all working on different things.

While more traditional approaches to apprentice learning such as the lecture/formal presentation (Chappell 2003) continue to be commonly used across all ISGs, the results of the survey highlighted that, in many cases, it is being complemented through the use of other strategies such as DVD/VHS, models, charts and diagrams, overhead transparencies and PowerPoint Presentations (PPP). The use of PPP and formal instruction were both rated high, suggesting that when formal instruction occurs, it is very likely that a PPP will also be used. There was also evidence that 'lock-step' approaches to teaching in the classroom were being used. One teacher when interviewed indicated that his ISG had deliberately returned to this approach. Specifically, this teacher uses a 'chalk and talk' approach with PPPs and apprentices are expected to take notes off the screen or board. While Trood (2007, p. 11) has previously pointed out a weakness of this approach in that it does not acknowledge the diversity among learners, this teacher had found that apprentices simply did not learn when provided with a work book. Moreover, he suggested that apprentices expect their training to occur this way and so do their employers. Participative methods in the classroom are also one of the two most common forms of pedagogies used in training participant's off-the-job (Smith and Sadler-Smith 2006). According to Smith and Sadler-Smith, participation can be achieved through discussion, and this rated very high in the results of the survey across all ISGs. Moreover, use of group participation was also a common strategy mentioned during interviews. According to Fuller and Unwin (2004 cited in Misko 2008, p. 17), this kind of learning strategy is important in that it allows apprentices to gain access to knowledge and skills that may otherwise not be made available to them in their own workplaces.

Practical training off-the-job typically includes some form of participation in the workplace/simulated workplace. Smith and Sadler-Smith (2006, p. 116) point out that participative methods are likely to encompass strategies such as demonstrations, discussions and practical activities. The results of the survey painted a similar picture. Teaching which involved some form of exposition followed by a demonstration and hands-on practise was evident across almost all ISGs. It was also clear from the survey results that many ISGs support their teaching using visual aids such as charts/diagrams and models. Apprentices are generally required to either work on their own and/or in groups that may comprise as few as two. Collaborative learning, however, appears to depend on at least two factors. First, it can relate to the task being performed. For example, some tasks require more students when working on certain aspects of construction such as wall framing or pitching a roof. Second, the way the workshop/simulated workplace is set-up can also be a determinant of group size. For example, in the motor body trade, the physical size of the spray booth and prep bays limits the number of students participating at any one time to approximately six.

To gain an idea as to whether 'lock-step' approaches to teaching in the workplace/simulated workplace are being used, teachers were asked in the survey to indicate whether their apprentices were able to complete practical tasks at their own pace, or within a set time. The results of the survey indicated that 'lock-step' approaches to teaching are less likely to be observed in the workshop/simulated workplace. For example, there are times in the electrical, automotive and metals/manufacturing trades when a number of apprentices could each be working on different tasks at their own pace.

As well as off-the-job training, apprentices are likely to spend at least 80% of their time participating in on-the-job training (Choy et al. 2008, p. 29). In some cases, 'all or almost all of their learning' can be undertaken in the workplace (Misko 2008, p. 17). The majority of

teachers surveyed indicated that they visit their apprentices in the workplace. The main reason given for these visits was to check the progress of their apprentices. There were also other pedagogical reasons given. For example, in some cases, teachers use this opportunity to help their apprentices work through learning material such as workbooks. They might also spend a period of time teaching theory, particularly when apprentices are trained entirely on-the-job. In some instances, teachers may also get involved in coaching their apprentices as they work on the production site. However, such coaching is more likely to be observed in the automotive, cookery, construction, metals/manufacturing, mining and natural resources ISGs. Practical training in the workplace is generally provided by expert co-workers. But it still requires teachers to make decisions around suitable persons to provide guidance and support to the apprentices (Billett 2001). According to Billett (p. 140), the kind of guidance and direction provided to apprentices in their workplace by more expert co-workers is a critical factor in determining the quality of learning. To that end, when surveyed, teachers were asked to indicate whether they were involved to some degree in the selection of their apprentice's expert co-workers. Only a small number of teachers indicated that they were, while others, when interviewed, indicated that this decision is often predetermined by the employer.

The term 'flexible delivery' implies that 'learning can be provided in a number of ways and using a range of different resources and teaching methods' (Smith & Sadler-Smith 2006, p. 176). Training that is delivered entirely on-the-job can be one such example. According to Wood (2004 cited in Mitchell et al. 2005, p. 9), training that occurs entirely on-the-job affords the apprentice a more 'flexible, relevant and customised learning experience'. Moreover, Wood has found that learners and training organisations see learning that is provided in this way as beneficial. For example, Wood finds that providing learners are afforded appropriate support, the advantages of fully on-the-job training 'include learning that encompasses real work experiences which is relevant to the individual and the enterprise' (p. 9). Although not implemented widely within the TRTO, this study found that it was possible for all apprentices to complete the majority, if not all, of their training entirely on-the-job. In some cases, the equipment needed for apprentices to work on can be so specialised or relatively new that not even the TRTO is adequately resourced to deliver the training. In these situations, other training options are sourced such as a brief relocation of an apprentice into another workplace.

The results of the survey revealed that in some ISGs, learning resources can be disseminated in a variety of forms including CD-ROM, online and self-directed workbooks. The use of self-directed workbooks appears to be the main strategy used across the TRTO. In general, apprentices are required to work through a series of self-directed workbooks and there is an expectation that this will be done on their own, either in the workplace, or in their own time. However, independent learning requires apprentices to have the ability to be self-managing (Schofield 2000b cited in Kilpatrick, Hamilton & Falk 2001, p. 8) which at times has presented challenges for teaching staff. For example, when interviewed, nearly all teachers mentioned that they experienced problems in getting their apprentices to do the required coursework.

In their review of the literature, Mitchell et al. (2005, p. 21) suggest that, when a variety of teaching and learning strategies are being used, teaching practices are likely to be more innovative in nature. Smith & Sadler-Smith (2006, p. 176) point out that 'the term blended learning also conveys the idea that the learning experience will comprise a number of different teaching methods and a number of different resource formats'. This study identified a number of strategies being used to support the learning process of apprentices including online learning (e.g. WebCT), computer-based games and interactive technologies (e.g. DVD). These strategies, which could be conceived as innovative approaches to teaching

were not, however, evident in all ISGs. For example, computer-based games were only used in three of the eleven ISGs.

Research question 2: Why are these pedagogies favoured by these trainers?

When teachers were asked to indicate why they use particular teaching strategies, a variety of reasons were given. However, the results of the survey showed that what had worked well in the past rated highest in the present and, in many cases, this reason was also found to be closely aligned with a teacher's personal preference. The majority of teachers clearly had a personal preference for the strategies they mostly use. It is possible that these preferences have emerged 'without reference to established theories' (Smith 2005 cited in Mitchell et al. 2005, p. 7) or, 'they are simply based on a theory that is personally appealing to the particular teacher' (p. 7). However, it was evident in some cases that the impact of a teacher's own personal experience as an apprentice was a strong contributing factor to their pedagogical preference from two perspectives. First, some teachers continue to use the same strategies that their own teachers used. As Smith (cited in Mitchell et al. 2005, p. 7) has already pointed out, such strategies can often be used simply because they are personally appealing. Second, this study also found that some teachers will deliberately avoid strategies or approaches to teaching that they did not find to be personally effective for them during their own apprentice training.

Teaching strategies were also found to be strongly influenced by established practices within teaching teams and, according to the survey results, this rated second highest. As the teachers are members of sub cultures within the TRTO, it is not surprising that their established practices and 'background conversations' (Ford et al. 2002 cited in Becker 2005 p. 6) are likely to inform their pedagogical practice. Moreover, established practices were also found to be influenced by factors external to the TRTO? For example, one of the interesting factors to arise during this study was the perceived need for teachers to be more responsive to the demands of industry. This appears in some cases to have impacted significantly on pedagogical practice and, as a consequence, has illuminated a 'political dimension' (Blackmore & Lauder 2009, p. 97) that teachers are now expected to manage. For example, one teacher claimed that things had evolved to the point that all theory has to be delivered using self-paced workbooks. He stated that, if an employer puts on an apprentice today, it is expected they will commence their training almost immediately. As a consequence, teachers now grapple with having to manage multiple apprentices who are all at different stages of training.

The perceived impact on the teachers of having completed a Cert. IV VET qualification was varied. While 46 teachers who responded to this survey question indicated they hold a Cert. IV qualification, only slightly more than half found the qualification to be helpful to varying degrees. The results of the interview provided some explanation as to why this might be the case. Approximately half of the interview participants indicated they received their qualification through Recognition of Prior Learning (RPL) and, as a consequence, did not attend a learning program. In contrast with those who did attend a Cert. IV learning program, these teachers claimed that the strategies promoted during the program were akin to instruction and classroom-based delivery and not necessarily useful in the practical context. This instructivist approach to teaching was something that Hodge (2009, p. 10) also found to be a dominant feature of the Cert. IV program. Only 16 of the 46 teachers reported that they held a teaching qualification beyond Cert. IV level. Moreover, these teachers found their qualification helpful in varying degrees with half indicating they found it to be 'very helpful' to their teaching practices. However, the findings were not as clear cut as anticipated in relation to their ability to implement more innovative teaching practices. For

example, according to Robertson (2008, p. 16) innovative approaches to teaching are more likely to be realised when the teacher has extended their knowledge beyond that acquired through completion of a Cert. IV qualification. While completing such a qualification is one way to extend one's knowledge, undertaking professional development programs or 'non-formal learning' (Misko 2008, p. 10) is another. Although completion of professional development programs rated slightly higher in the survey than completion of a qualification beyond Cert. IV level, there was no clear indication that either had impacted significantly on the teachers' use of innovative approaches to teaching. Rather, the results of the survey suggest that established teaching practices within a team are more likely to be the precursor to innovative teaching strategies being used. A possible explanation for this may be that some teachers have simply acquired sufficient pedagogical knowledge through a variety of means to be able to introduce and set up new innovations, while others have simply followed the lead.

Conclusion

This study was exploratory in nature. Answers were sought to two research questions. In relation to question *one*, 'what teaching strategies are used by apprentice trainers?', this research found that a combination of off- and on-the-job training is still the main approach by which traditional trade apprentices are trained within the TRTO. When apprentices attend campus, this is likely to be in accordance with block or day release arrangements (or a combination of both) and, to a lesser extent, night classes. It is usual for training on campus to commence with a period of learning in the classroom, which may involve apprentices working with one or more others in a socio constructive construct. Classroom learning is often a precursor to their practical training that follows in the workshop/simulated workplace. Traditional teaching in the classroom generally involves didactic (trainer-led instruction, questioning) and participative methods (discussion). Didactic approaches can be supported by a range of strategies including use of workbooks, PPP, overhead transparencies, charts/diagrams, models, VHS and DVDs. Teaching in the workshop/simulated workplace is also likely to include didactic strategies (e.g. expositions and questioning) and participative strategies (e.g. demonstrations, opportunities for practice and use of visual displays) as well as coaching and supervision by the teacher as apprentices go about their work.

This research found that flexible approaches to teaching are also being used. For example, apprentices are able to complete the majority, if not all, of their training entirely in the workplace. However, this does require a self-management component on the part of the learner as they work through a series of self-paced workbooks. Teachers are required to visit apprentices in their workplaces at regular periods to check their progress, and there are often pedagogical reasons for these visits such as to help them work through learning material, and, in some cases, even deliver instruction. Teachers might also get involved in the provision of practical training at the worksite but this is not a common practice. Teachers may also find it necessary to relocate their apprentice(s) (even for a brief period) to another workplace where they can access specific equipment. Finally, more innovative approaches to teaching were evident in some ISGs. These included use of PBL, online learning (e.g. WebCT), computer-based games, and the use of interactive technologies (e.g. DVD).

In relation to question *two*, 'why are these strategies favoured by these trainers?', this research found that there are several factors that influence the strategies that teachers ultimately use. First, they were heavily influenced by their personal preference, which appeared to be strongly linked to what had worked well in the past, and also to their own experience as an apprentice. Some teachers continue to use the same strategies that their

own teachers used, while other teachers will deliberately avoid strategies or approaches to teaching that they did not find to be effective for them during their own apprentice training. Second, established practices within their teaching teams were a determining factor in choosing teaching strategies. These practices were found to be closely linked with political factors. Indeed, in some cases, teachers had modified their pedagogical practice to accommodate the perceived demands of industry. Third, while there is evidence of innovative approaches to teaching occurring in the TRTO, these may simply be the result of other teachers within the same teaching team having acquired sufficient pedagogical knowledge over time to be able to introduce and set-up new innovations which other teachers have simply followed.

A number of key outcomes emerged from this research. First, one of the striking findings is the extent of variation in teaching strategies being used by teachers within the same teaching team. Some use a range of strategies whereas others limit their strategies to just a few. Second, in nearly all cases, apprentices are required to use some kind of self-paced workbook. The workbooks might be used either in a directed or self-directed way, and it is also not uncommon for a number of apprentices in the same class to be working through different workbooks. Although not widespread, learning resources can be distributed in a variety of other forms including CD-ROM and on-line. Third, where apprentices are trained entirely on-the-job, teachers struggle to get them to complete their self-paced workbooks. Fourth, there was some evidence that 'lock-step' approaches to teaching are occurring. While this is more likely to be observed in classrooms, it may also occur in the workshop/simulated workplace. One teacher mentioned that his ISG had deliberately moved away from 'lock-step' teaching, but has subsequently returned to this practice in the classroom because it was found to be effective and it is well supported by apprentices and their employers. Fifth, although personal preference and established teaching practices were the main reasons given as to why teachers favour certain strategies, the latter was found to be closely linked with political factors. In some cases, teachers have modified their pedagogical practice to accommodate the demands of industry. Finally, while completion of a Cert. IV qualification was shown to have minimal effect on teaching practice, it did in some cases provide teachers who attended a learning program with their first insight into teaching, or reinforce that what they were doing was right. The research found that more than half of the interview participants achieved their Cert. IV qualification through RPL and, the majority indicated they learnt very little through undertaking it.

The research data could be viewed as 'illuminating two blind spots' (Wagner 1993, p. 16) as it has provoked new questions to be asked about 'lock-step' approaches to teaching in the classroom, and about the use of 'self-paced workbooks' where training is conducted entirely on-the-job. Of particular interest is the deliberate move back to lock-step teaching in the construction ISG. It would be interesting to understand this better and see if this return to traditional teaching methods is not more widespread across other ISGs. Of similar interest is the continued use of self-paced workbooks when training is conducted entirely on-the-job even though apprentices in many instances struggle to complete them. In conclusion, it is hoped that the research reported here will provide a basis for further studies that will lead to the development of new pedagogies to enhance traditional trade apprentice training in the TRTO and other providers of apprenticeship training.

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