

Mix or match? New Apprentices' learning styles and trainers' preferences for training in workplaces

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and do not necessarily reflect the views of the Australian Government,
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Key messages

This qualitative study examines the learning styles and preferences of a group of New Apprentices (apprentices and trainees) and the training preferences of their workplace trainers in three industry sectors—manufacturing, retail and community services. An understanding of learning preferences offers a useful starting point for trainers, enabling them to recognise how they can best ‘connect’ with New Apprentices and therefore design effective learning environments.

- ✧ This study showed that the workplace features preferred by trainers and New Apprentices in manufacturing were different from those in retail and community services. The nature of the work and the industry culture are clearly important in this context.
- ✧ The practicalities of workplaces mean that learning preferences cannot always be accommodated, and hence the expectations of both trainers and New Apprentices need to be discussed and clarified early in their working relationship.
- ✧ Interpersonal relationships are an important influence on workplace learning environments. Trainers and employers need to take time to talk with their New Apprentices about their jobs. Similarly, New Apprentices need to talk to their trainers and employers about opportunities to learn and practise skills learnt off the job.
- ✧ Promoting quality learning environments in the workplace relies upon the recognition that mismatches do occur between trainers’ and New Apprentices’ preferred learning environments. Trainers need to implement strategies—for example, ensuring that workplace trainers build and maintain effective communication with New Apprentices to support learning in the workplace—in order to manage these differences effectively.
- ✧ The stereotype of the kind of person in the workplace who gravitates (either through volunteering or being encouraged) into helping others learn is challenged by the findings of this study. Although it makes no pretence of being representative of the entire workplace trainer workforce, the study found that over half the sample of workplace trainers were not the specific personality types which relevant research usually associates with people in similar roles.

Executive summary

Context

The vocational education and training (VET) sector is committed to promoting a learner-centred and responsive approach in the pursuit of quality teaching and learning. This goal has been complemented by policies which promote the workplace as an authentic learning environment. Policy directions such as these have required shifts in thinking about approaches to facilitating learning, including how people who work with learners might be best prepared and assisted to carry out their role. This is particularly relevant for those for whom the training function is only one part of their work.

The concept of learning styles has been promoted as one way of providing deeper understanding of the diversity among VET learners, and as a means for enabling teachers and trainers to make more informed choices vis-à-vis their responses to this diversity. However, what has not been explored in previous research is the relationship between what a trainer might do to support learning in the workplace and how this fits with learners' preferred ways of learning.

Purpose and scope

This study aimed to examine the learning preferences of a group of New Apprentices (both apprentices and trainees) and the training preferences of their workplace trainers, and to explore the ways in which trainers take all these preferences into account when supporting learning in the workplace. It was designed to be exploratory in nature. Data on personality type and preferred and perceived learning/training environments were gathered from New Apprentices and trainers.

Interviews were held with 36 New Apprentices and 30 trainers drawn from three industry areas—community services, manufacturing and retail—in South Australia, New South Wales and the Australian Capital Territory. Nineteen New Apprentices were male and 17 female, and almost two-thirds were 25 years or younger. Thirteen were employed in manufacturing, 12 in community services and 11 in the retail industry. The mean length of time they had been employed in a contract of training was 13 months; as a component of their training, 17 undertook training with private training providers (including group training companies) and nine attended technical and further education (TAFE) institutes.

The workplace trainers were also a diverse group. Sixteen were male and 14 female, and two-thirds of the trainers were aged between 36 and 55 years. The mean length of time of employment in industry was 17 years, while the mean length of time they had been working with their current New Apprentice was 15 months.

Key themes and findings

Re-thinking may be required about the nature of workplace trainers

Workplace trainers in this study did not show the expected spread of personality types when compared with the literature on personality type by occupation. Research databases indicated that teachers tend to be sensing–thinking–judging (STJ) types. The workplace trainers in this study were located in a rather narrow band of preferences across approximately one-half of the Myers-Briggs Type Indicator (Myers & McCaulley 1985) personality types. Two preferences, both of which cover intuitive–feeling–perceiving types (ENFP and INFP¹), account for 59% of the sample. (The New Apprentices displayed a far wider spread of personality type.)

While the findings cannot be generalised, and the interviewees self-selected for participation in this study, the results from the study challenge the stereotype of the kind of person who gravitates to a training role in workplaces. It may well be that those who find themselves in roles where they volunteer or where they are asked to assist others learn in the workplace, do so from motivations little related to their ‘suitability’ (as predicted by type theory) for the job. Other motivations (for example, to ‘give back to the occupation’, or being pressed into the role because of seniority) might be at work here. If this finding is more generally applicable, it may be that those who become workplace trainers are likely to have a wide range of personality types. Therefore, the recruitment, selection and training processes for this role may need to accommodate this diverse group’s range of motivations, expectations and capabilities. A consideration of how they might best be supported to fulfil this role would also be timely.

Industry context matters

New Apprentices and their trainers shared relatively consistent views on their preferred work environment. Moreover, there was a close match between these preferences and the predicted preferences based on personality type. The data showed a strong preference for work environments characterised by *people* holding specific personal characteristics, rather than by specific features of the *workplace* itself. However, industry context appears to play a significant role in mediating New Apprentices’ and trainers’ perspectives on their preferred environments. New Apprentices from the manufacturing industry ranked features highlighting the workplace as efficient, supportive and providing opportunities to solve problems more highly than New Apprentices in the other two industries. Trainers in the manufacturing industry indicated very similar preferences for their work environments as their New Apprentices, with a strong focus on place rather than people. In describing their preferred workplace environment, New Apprentices from retail and community services placed greater emphasis on the attributes of people, such as being pleasant, committed, conscientious, cooperative and focused on helping others. This finding strongly points to the importance of workplace and industry cultures in shaping work environments, and that understanding these cultures and characteristics can make a significant contribution to establishing and sustaining effective learning environments within particular industries.

New Apprentices and trainers have different perspectives on their preferred learning/ training environments

New Apprentices’ ratings on a number of features of the workplace-learning environment indicate a substantial emphasis on the quality of the relationship with their workplace trainer. Apprentices also indicated a strong preference for an environment that provides correction, feedback and encouragement, and where their status as learners is acknowledged. While trainers also indicated preferences for similar environments, they particularly preferred an environment where they could influence work processes and so facilitate New Apprentices’ learning. Examples of such influence

¹ For an explanation of these types see table 1 on page 18 of this report.

include organising tasks to match New Apprentice abilities, arranging tasks in ways that facilitate their being learned by New Apprentices, and allocating time to enable New Apprentices to interact with other workers.

Matches and mismatches in New Apprentices' and trainers' preferences by personality type (and by implication, learning style) were also noted in this study. This is not unexpected and illustrates how frameworks such as the Myers-Briggs (personalities) Type Indicator can be used to develop a fuller appreciation of differences in personality, and of the potential impacts these can have on workplace relations and on the construction of effective learning environments.

However, any model of learning styles can only contribute a partial explanation of what might be needed by New Apprentices to support their learning. Preferences for particular learning environments are also informed and shaped by New Apprentices' status as learners (as well as workers), and the quality of the relationships with their workplace trainers. Workplace trainers, however, appear to take a different stance, preferring to concentrate on manipulating particular aspects of the structure, flow and type of work available to New Apprentices—for example, determining in what order tasks might be undertaken or making decisions about the pace at which a task might need to be completed. In this way, trainers can support New Apprentices' learning.

New Apprentices and trainers have different perspectives on their perceived learning/ training environments

New Apprentices indicated that the most desirable features of their learning environment were: opportunities to practise skills learned in off-job settings; encouragement to tackle more difficult and complex tasks over time; and talking with their trainers about their job. New Apprentices noted that these features were only occurring some of the time in their workplace training.

For trainers, there was a large gap between their stated preference and actual workplace practice. Their preferences included: talking with external providers; working out learning goals with New Apprentices; negotiating access to learning resources; going to work-related events with their New Apprentices; and talking about differences between what New Apprentices might be experiencing at work and what they are learning at the off-site training environment.

Workplace realities influence what is possible in creating preferred learning/ training environments

In relation to both New Apprentices and trainers, there was evidence of their preferences being weakened by the realities of their workplaces. Trainers perceived that the incidence of the preferred features (such as manipulating the structure and flow of work) was less frequent than considered desirable in their workplaces. Even where there was a strong match in the preferences of the New Apprentices and trainers, it seems that the nature of the workplace plays a key mediating influence. Given the primacy of work over educational matters, the gaps between trainers' preferences and perceptions of occurrence tend to reflect the realities and practicalities of the workplace. Furthermore, what New Apprentices might reasonably expect in workplaces to accommodate their status as learners appears to be mismatched with the realities of the workplaces and what they might reasonably expect of trainers in those environments.

Conclusion

Promoting quality learning environments in the workplace relies upon understanding the likelihood of mismatches between trainers' and New Apprentices' preferred learning environments, and thus ensuring the implementation of strategies to manage these differences (for example, ensuring that trainers communicate effectively with New Apprentices). Notwithstanding these mismatches, the research revealed the following key issues in relation to New Apprentices' and trainers' learning preferences, preferences which could be usefully considered in future policy development.

- ✧ Learning preferences offer a useful starting point for considering how those engaged in supporting New Apprentices' learning in the workplace might approach their role. However, understanding how the nature of work shapes learning and training activity in any given context must be taken into account. The role of interpersonal relationships in the workplace learning environment is also substantial and influential.
- ✧ Important features of New Apprentices' preferred learning environments are the quality of relationships with trainers and acknowledgement of their status as learners.
- ✧ Attention needs to be paid to training and support which specifically addresses the capacity of trainers to manage the flow, structure and shape of work as a key part of their role in supporting learning of New Apprentices at work.

Background to the research

Purpose of the research

Learning styles provide a potential avenue for deeper understanding of the different ways in which people engage in the process of learning and their preferences in relation to the learning environment and instruction. However, the commitment to quality learning environments takes on particular significance with the growth in importance of the *workplace* as a significant site for learning. Previous research has shown that there are a range of ‘trainer actions’ (Harris, Simons & Bone 2000) which are important to the role of workplace trainer. Research has also highlighted the importance of these actions for assisting trainees and New Apprentices to learn, and the significance of the presence or absence of these actions in workplaces (Strickland et al. 2001).

To date, this research has not been extended to demonstrate how such trainer actions link with instructional preferences held by those engaged in learning in the workplace—for example, New Apprentices (apprentices and trainees)—in order to examine which actions can be effectively applied to particular preferences. Nor has previous research examined the perceptions of workplace trainers in terms of their preferred ways of facilitating learning and the extent to which their actions take into account various preferences held by their learners.

The following questions were developed to guide the research process in this study:

- ✧ What are the workplace training preferences of a selected group of New Apprentices?
- ✧ What workplace trainer actions best fit with these preferences?
- ✧ What are the preferred approaches to facilitating learning held by workplace trainers working with this selected group of New Apprentices?
- ✧ How closely do workplace training preferences and preferred trainer actions (desired by New Apprentices) match the preferred approaches to facilitating learning adopted by the workplace trainers?
- ✧ What implications do these findings have for furthering our understanding of how to promote effective learning in the workplace?

As such, this study is *exploratory* in nature. It takes as its starting point the assumption that, just as particular instructional preferences can be identified for more formalised learning environments (for example, classrooms), so might training preferences (that is, the way workplace trainers actually train) also be identified.

The findings of the study have the potential to inform discussions on the ways in which learning in the workplace might be more effectively facilitated, with particular focus on how trainers understand the impact of their actions on certain groups of learners.

Issues in the literature

The literature on learning styles is noted for its lack of conceptual clarity leading to considerable diversity in the claims (and counter-claims) made by theorists about the nature and scope of learning behaviour that can be predicted by learning styles (Curry 1983, p.1). There are many different ways of classifying learning styles in the literature.

Curry's (1983) 'onion ring' model has as its key organising constructs the ease with which each individual difference can be observed and its 'stability'. At the 'core' of the onion is an individual's cognitive personality style. This characteristic is viewed as relatively stable and is concerned with the ways in which an individual takes in and uses information. This characteristic is viewed as relatively independent of environment. The Myer-Briggs Type Indicator (Myers & McCaulley 1985) is an example of an approach which addresses this individual difference as part of the broader examination of personality. The middle segments of the onion model represent an individual's information processing style; that is, the cognitive approach taken by an individual when assimilating information. This characteristic is perceived to be relatively stable but capable of being modified. Kolb's (1985) work on learning styles is an example of an approach that addresses this characteristic. The outer segment of the onion represents an individual's instructional preferences—the choices an individual might make about the type of learning environment in which they prefer to learn. This construct is viewed as being the least stable and most amenable to change.

Another classification system by Vermunt (cited in Coffield et al. 2004, p.18) divides models of learning styles into those examining different learning processes that are seen as relatively stable (mental learning models and learning orientations) and those that are more contextually determined (for example, processing strategies). Coffield et al. (2004) developed another typology which is essentially a continuum, with the main organising construct being the degree to which the authors of various models of learning styles believe that learning styles are fixed, generic characteristics (Coffield et al. 2004, p.20). As one moves along the continuum, authors pay greater attention to the 'dynamic interplay between self and experience', with those placed at one extreme claiming that learning styles are largely immutable and can only be 'worked with', and those at the other claiming that learning styles are the product of a range of factors, such as motivation and environment (Coffield et al. 2004, p.20). These various typologies have implications for the ways in which different concepts (learning preferences, cognitive styles and so on) might be observed and measured (Sadler-Smith 1996, p.186).

Attempts to develop different models of learning styles are often accompanied by inventories which attempt to determine preferences. Over 70 models have been identified in the literature (Coffield et al. 2004). Some of the more common models used in adult and vocational education in Australia include the Myers-Briggs Type Indicator (Myers & McCaulley 1985), Kolb (1985), Honey-Mumford (1986), McCarthy's (1990) 4MAT system, and Gardner's (1993) 'multiple intelligences'.

Issues relating to the notion of learning styles

There is also ongoing debate about the notion of learning styles providing adequate explanation of individual differences in learning. No one theory or model is seen as providing a complete picture. There is an overarching concern that each fails to take into consideration important factors, including socio-cultural factors such as race, ethnicity and nationality. Studies on the impact of these factors on learning styles have led to conflicting conclusions (Boulton-Lewis & Wilss 2001; Champagne & Walter 2000; Drago-Severson et al. 2001; Knott 1991; S Smith 2001). What is strongly reinforced through these studies, however, is the importance of within-group variability. Lack of attention to this factor can lead to stereotyping and labelling of certain groups of learners, with concomitant negative outcomes for learners.

Other factors that might influence learning styles include level of education (Drago-Severson et al. 2001), particular teaching and assessment methods (Boyle, Duffy & Dunleavy 2003) and a complex

mixture of factors, including motivation, attitude, learning preferences, valuing others' learning styles and educational activities (Gardner & Korth 1998).

Concerns about reliability, validity and stability

Some of the learning style inventories have been criticised for lack of reliability and validity (Allinson & Hayes 1990). One critical factor seems to be that external factors, such as the learning environment, can have an influence on learning style. Meta-analyses or systematic reviews of various models of learning styles have also been conducted, where they have been critiqued in terms of their validity and reliability (Curry 1983; Coffield et al. 2004). Coffield and his colleagues (2004) examined over 70 models, identifying 13 as 'major' in terms of their theoretical importance to the field, and noting the prevalence of their use and influence (Coffield et al. 2004, p.1). Of these 13 models, only three were able to meet criteria relating to internal consistency and test-retest reliability, construct and predictive validity, while a further three met two of these criteria. Coffield et al. argue that practitioners need to critically appraise current research evidence relating to learning styles, since much of the literature does not make realistic claims for efficacy based on robust empirical studies.

Learning styles research in vocational education and training

Early work in applying learning style theory to vocational education in the United States was summarised by Knaak (1983). He noted that there was little recognition of the importance of learning style theory among educational practitioners, but concluded that 'the future of learning style research and application [in vocational education] is clearly promising' (Knaak 1983, p.27).

Misko (1994) subsequently provided a valuable summary of learning style research that had taken place up to 1994, particularly in Australia. Research by Smith and Lindner (cited in Misko 1994) found significant differences between males and females when examining technical and further education (TAFE) and university students. Heikkinen, Pettigrew and Zakrajsek (1985) also found similar results in an American study on university teacher trainees. Males were found to prefer working with numbers, logic, building and designing, while females favoured words, language, interacting with people and reading. Differences were also found between apprentices and university students. In particular, apprentices had a lower preference for organised coursework, explicit details on assignments and using listening as a learning mode. They had a higher preference for working with other apprentices and preferred learning by viewing illustrations, pictures or graphs. Misko questions the value of some of these findings as they 'depend on the accuracy of student perceptions of their own preferences ... and on how well the teachers know the students' (Misko 1994, p.32). She concludes that '[t]here is clearly a strong need to conduct more learning style research in the context of vocational education' (Misko 1994, p.39).

Concerns over the application of learning styles in teaching and learning

Research in the United Kingdom suggests that an approach which both identifies and addresses individual learning styles can improve achievement and motivation, as well as alter teacher perceptions. Other research, particularly in the United States, shows that under-achievers, drop-outs and at-risk students tend to have less adaptable learning styles and are more frequently 'mismatched' to conventional teaching environments (Klein & Swabey 2001, p.1).

Garner (2000) warns that, although learning styles are important, they are not the only, and indeed may not be the most significant, variable for the quality of learning that takes place. Learning style is only one of a number of important factors in vocational education. He suggests that, when a learner's other complementary abilities are taken into consideration, they may account for a greater part of their learning capacity than the dominant style alone (Garner 2000, p.1). This echoes the findings of

Cronbach and Snow (1977) in their research on field-dependence and field-independence which showed that cognitive preferences cannot be isolated from ability.

Further, there is debate about matching teaching style with learning or cognitive style. While in some cases this might be helpful, it may not be practical and need not necessarily be in every learner's long-term interest (Hansen 1997). Indeed, Hayes and Allinson (1997, p.3) have argued that 'exposing learners to learning activities that are mismatched with their preferred learning style will help them to develop the competencies necessary to cope with situations involving a range of different learning requirements'.

However instructive research on learning styles in the vocational education and training (VET) sector might be, to date much of it has been focused on classroom-based instruction, as distinct from workplace-based learning. This study assumes that the workplace as a learning environment is significantly different from the classroom and this causes a different set of factors to impact on learner behaviours.

Learning in the workplace

One of the major differences between learning in the classroom and the workplace is the degree of control the facilitator has over learning activities, and indeed the content of the learning (Anderson 2000). Chitty (2002) proposes that it is necessary to consider occupational culture, career, context and cognitive style when deconstructing learning in the workplace. For example, in many workplaces formalised training programs are offered as part of career structures, whereas in others, although learning is going on, it is not formalised nor perceived as learning. Boud and Solomon interviewed workplace learners and found that some individuals did not see learning as separate from work (Boud & Solomon 2001, p.329).

Much has been made of flexible delivery, which is aimed at facilitating work-based training (Kenyon & Hase 2001; McLoughlin 1999). However, Smith (PJ Smith 2001, p.611) states that '[r]esearch focusing on learner preferences and styles ... provides considerable evidence that vocational learners are not well equipped for flexible delivery'. Smith, Wakefield and Robertson (2002) found that organisations generally did not consider it feasible to account for individual differences in learning styles and instructional preferences when developing employees more broadly, or framing individual training plans (Smith, Wakefield & Robertson 2002, p.48). Where acknowledgement of learning preferences was taken into account, this was most likely to take the form of making a range of activities available for learners.

Warner, Christie and Choy (1998) and Smith (PJ Smith 2000, 2001) have undertaken empirical research on the learning preferences of Australian vocational learners. These learners were found to be not well disposed to self-directed learning, with New Apprentices favouring structured learning environments and learning through direct interaction with other learners and their instructors. Smith (PJ Smith 2001) also found a preference among vocational learners for instructor-controlled, structured learning that allowed collaboration with peers; these learners also expressed an aversion to verbal presentation. These preferences, however, stand in contrast to views emphasising that learning in the VET sector should be more project-based, whereby learning rather than teaching is highlighted, and be more work-centred, learner-centred and attribute-focused (Meyer 2003).

Chappell (2003) claims that, in contemporary workplace learning, the focus is shifting from developing skills to developing people. Thus the learner becomes a key player in determining learning strategy, and this choice is likely to be determined, at least in part, by preferred learning style. But as Chappell (2003, p.7) asserts, 'work is often not organised in ways that make learning conducive'. Consequently, learning strategies are likely to be constrained by what is possible rather than what would be ideal. So, although the workplace learner is likely to be more the subject of learning than the object of training, he/she is still constrained by what is considered valid knowledge and what is

accepted as appropriate learning activity in the workplace environment. Chappell (2003) suggests that, although this shift in emphasis in VET from skills development to people development has resulted in some changes in the pattern of workplace training, vocational educators and workplace trainers have yet to change their practices sufficiently to accommodate these changes. While the workplace environment is not necessarily conducive to learning, the learning that nevertheless occurs in this environment is not typical of mainstream, classroom-based vocational education. In the workplace, learners are becoming more responsible for what and how they learn. Consequently, a workplace learner's learning style is likely to depend on factors related to the workplace as a learning environment as well as to factors internal to the learner.

A full literature review is presented in appendix A in the support document which can be found at the NCVET website <<http://www.ncver.edu.au>>. Appendices B and C can also be found in this support document.

Design of the study

Research instruments

The goal of this research was to capture the learning preferences of a group of New Apprentices (both apprentices and trainees), the training preferences of their workplace trainers and then to explore the ways in which these preferences are linked to the reported trainer actions. This goal was best addressed through empirical methods which allowed collection of data on specific constructs (in this case, learning preferences). The main data collection tool was a structured interview using protocols specifically designed for this study. A structured interview offered the advantage of a uniform approach to collecting the data, with the concomitant ease of data coding and analysis.

One protocol was designed for New Apprentices and the other for their workplace trainers. The interview protocol for the New Apprentices was designed using a series of 'fixed alternative' items. One type of question asked respondents to choose between one of two items (along the four dimensions in the Myer-Briggs personality types). It was from participants' responses to the items in this question that their personality types were derived (question 5, appendix B in the support material). A second type of question asked respondents to select a response using a four-point scale to record preferences for particular characteristics of a work environment (question 6) and learning environment (question 7). A four-point scale was again used to ascertain New Apprentices' perceptions of the frequency of these preferences actually happening in their own workplaces (question 7). The protocols included questions on background information on the participants and their training context (questions 1–4 and 9–10). Respondents were also invited to provide open-ended answers to items asking what learning in the workplace meant to them, how they best learnt in the workplace and what training strategies they preferred their trainer to adopt at work (question 8).

The interview protocol for the workplace trainers followed a similar format to that for the New Apprentices, with the exception of one question (question 8) that focused on ways trainers preferred to help others learn (rather than a focus on ways of learning as in the New Apprentices' protocol).

These interview protocols were developed by drawing on two main sources:

- ✧ *Literature on the Myers-Briggs Type Indicator*: to explore preferences in relation to workplace environments and learning styles. Framing the protocols around this indicator was considered the most appropriate because, while it cannot claim to be comprehensive nor 'a panacea for the ills of education', it is 'a very powerful and useful instrument', is better normed than most instruments of its kind and is more sophisticated and complex than most learning style assessments (Jensen 1987, pp.181, 202). It also lies at the core of Curry's (1983, p.7) 'onion ring' model, being rather more stable than other characteristics and having a focus on how individuals take on and use information. In particular for this study, the mental habits instrument in *People types and tiger stripes*

(Lawrence 1982, pp.2–4) was used because it was short, written in simple language, could therefore be completed relatively quickly by busy people in workplaces who would not necessarily have been accustomed to completing personality instruments and, most importantly, accessible and able to be reproduced (Lawrence 1982, p.5) without complication.

- ✧ *The authors' previous research*: which explored the workplace learning of New Apprentices (Strickland et al. 2001) and trainer actions used in workplaces (Harris, Simons & Boue 2000).

The protocols were piloted with a small sample of respondents. These interviews resulted in some minor rewording of the open-ended questions at the end of the interview process. The final version of the protocols can be found in appendix B in the support document.

Research participants

A purposive sampling strategy was used for the study. A sample of New Apprentices and their workplace trainers was progressively recruited for this study. These people were drawn from three industry areas—community services/health, manufacturing/engineering and wholesale/retail—in New South Wales, the Australian Capital Territory and South Australia. To be included in the research, New Apprentices needed to be working in one of the three designated industries, and also have the person from their workplace nominated as their workplace trainer willing to be interviewed.

Participants in the study were largely recruited from group training schemes (which have responsibility for administering New Apprenticeships in a wide range of industries). Group training schemes were approached and asked if they would be willing to assist the researchers to recruit participants for the study. Once permission had been granted, individual enterprises were then approached for permission to contact their staff. Subsequent to that, individual New Apprentices and workplace trainers within each enterprise were sought for participation in the interviews.

Interviews were conducted with 36 New Apprentices and 30 trainers from the retail, community services and manufacturing industries. What had been intended was a neat matching of one trainer with one New Apprentice, and this did occur in the majority of cases ($n=20$). However, in the realised sample, there were two instances where the one New Apprentice had two trainers, five instances where the one trainer had two New Apprentices, one instance where one trainer had three New Apprentices, and one instance where the New Apprentice was not matched at all with a trainer. While this did not cause difficulty in the analyses of the discrete groups, replications have had to be included where matching is discussed in order to form pairings (in the case of the New Apprentice without a trainer, data were excluded in any analysis pairs); this is indicated in the analysis where it occurs.

Apprentices

Nineteen (53%) of the New Apprentices were male and 17 (47%) female, and almost two-thirds were 25 years or younger (figure 1 in appendix C).

Thirty-six per cent ($n=13$) were in the manufacturing industry, 33% ($n=12$) in the community services industry and 31% ($n=11$) in the retail industry. Participants from community services were employed in aged care facilities homes, childcare centres and a nursing agency. The majority of New Apprentices in aged care facilities were completing their contracts of training as personal care workers; one was completing in hospitality and one in administration. Participants from manufacturing were employed in a diverse range of settings, including the engineering/materials fabrication, energy generation, mining and agriculture implement production. Participants in the retail/wholesale sector were also from a range of enterprises, including a number of department stores, multi-product shopping enterprises, a fast food chain, a pharmacy and a bakery outlet.

The mean length of time they had been a New Apprentice was 13 months (ranging from one to 48 months). Almost half ($n=17$, 49%) reported that they undertook training with private providers,

including group training companies, while just over one-quarter (n=9, 26%) went to a technical and further education (TAFE) institute (figure 2 in appendix C). The relatively high proportion being trained in group training companies probably reflects the recruiting process undertaken for this study.

Trainers

Of the 30 trainers interviewed, 16 (53%) were males and 14 (47%) females, the same proportions as the New Apprentices. By industry, 40% (n=12) were in community services, 33% (n=10) were in manufacturing and 27% (n=8) in retail, and employed in a diverse range of enterprises as discussed in the previous section. Almost two-thirds (n=19) were between 36 and 55 years, while one-tenth (n=3) were 25 years or younger (figure 3 in appendix C).

They worked in enterprises with a mean size of 89 employees (range: 5–270; mode: 80) and had been employed in their industry for 17 years (range: 1–37; mode: 15 and 20). Over that time, they had been training New Apprentices for an average of 8 years (range 1–26, mode: 3 and 5) and had worked with an average of 31 New Apprentices (range: 1–150; mode: 10). The mean length of time that their current New Apprentice in this study had been with them was 15 months (range: 2–54; mode: 12). The trainer sample was therefore a relatively experienced group, both in terms of length of service and in length of time training New Apprentices.

Limitations to the study

Given the paucity of research on learning styles in workplace settings, particularly in relation to New Apprentices, this study was designed to be exploratory. The results cannot be generalised from this small sample of New Apprentices and trainers, from two states and one territory, and from three industries. Nor can the findings, based only on one type of instrument—a very abbreviated version in the form of Lawrence’s mental habits exercise leading to types akin to those from the Myers-Briggs Type Indicator—be claimed to be authoritative on learning styles in the workplace. However, the findings do have resonance with existing research and, while they should be treated with caution, nonetheless do add to the body of knowledge about building effective workplace learning environments for New Apprentices.

Predicted learning/training environments

Personality preferences

The predicted learning/training environments of the New Apprentices and their trainers may be inferred from their (self-reported) personality preferences. From analysis of these preferences, and by reference to published literature on work and learning/training environments by type, a picture can be developed of the environment it could be expected that these participants would prefer.

According to type theory derived from the Myers-Briggs Type Indicator, there are a possible 16 personality types. These types can be displayed pictorially by means of a type table, constructed in order to highlight similarities and differences of the types by their placement (Myers & McCaulley 1985, p.30–2). Each type has three letters in common with any adjacent type. Introversion is in the top two rows and extroversion in the bottom two rows; sensing in the left two columns and intuition in the right two columns; thinking in the outer two columns and feeling in the inner two columns; and judging in the outside rows and perception in the inside rows.

The letters are derived from four pairs of psychological preferences (Martin 1997; Lawrence 1989), as follows (further characteristics are given in the literature review in appendix A):

- ✧ *Extroversion (E) – Introversion (I)*: this preference indicates where people put their attention and get their energy, whether in the outer world of people and things or the inner world of ideas and images.
- ✧ *Sensing (S) – Intuition (N)*: this preference indicates basic learning style differences, how people prefer to take in information.
- ✧ *Thinking (T) – Feeling (F)*: this preference indicates how people like to make decisions.
- ✧ *Judging (J) – Perception (P)*: this preference indicates how people like to live their outward life, their orientation to the outer world.

The characteristics commonly shown by each personality type are presented in table 1, along with the distribution across the table of the New Apprentices and trainers in this study.

Table 1: Type table showing characteristics frequently associated with each personality type, and the numbers of New Apprentices (a) and trainers (t) in this study in each type

ISTJ Serious, quiet, earn success by concentration and thoroughness. Practical, orderly, matter-of-fact, logical, realistic, and dependable. See to it that everything is well organised. Take responsibility. Make up their own minds as to what should be accomplished and work toward it steadily, regardless of protests or distractions.	ISFJ 2 (a) Quiet, friendly, responsible, and conscientious. Work devotedly to meet their obligations. Lend stability to any project or group. Thorough, painstaking, accurate. Their interests are usually not technical. Can be patient with necessary details. Loyal, considerate, perceptive, concerned with how other people feel.	INFJ 4 (a) Succeed by perseverance, originality, and desire to do whatever is needed or wanted. Put their best efforts into their work. Quietly forceful, conscientious, concerned for others. Respected for their firm principles. Likely to be honoured and followed for their clear convictions as to how best to serve the common good.	INTJ 2 (a) 1 (t) Usually have original minds and great drive for their own ideas and purposes. In fields that appeal to them, they have a fine power to organise a job and carry it through with or without help. Skeptical, critical, independent, determined, sometimes stubborn. Must learn to yield less important points in order to win the most important.
ISTP Cool onlookers—quiet, reserved, observing and analysing life with detached curiosity and unexpected flashes of original humour. Usually interested in cause and effect, how and why mechanical things work, and in organising facts using logical principles.	ISFP 2 (t) Retiring, quietly friendly, sensitive, kind, modest about their abilities. Shun disagreements, do not force their opinions or values on others. Usually do not care to lead but are often loyal followers. Often relaxed about getting things done, because they enjoy the present moment and do not want to spoil it by undue haste or exertion.	INFP 2 (a) 6 (t) Full of enthusiasms and loyalties, but seldom talk of these until they know you well. Care about learning, ideas, language, and independent projects of their own. Tend to undertake too much, then somehow get it done. Friendly, but often too absorbed in what they are doing to be sociable. Little concerned with possessions or physical surroundings.	INTP 2 (a) 2.5 (t) Quiet and reserved. Especially enjoy theoretical or scientific pursuits. Like solving problems with logic and analysis. Usually interested mainly in ideas, with little liking for parties or small talk. Tend to have sharply defined interests. Need careers where some strong interest can be used and useful.
ESTP 2 (a) Good at on-the-spot problem-solving. Do not worry, enjoy whatever comes along. Tend to like mechanical things and sports, with friends on the side. Adaptable, tolerant, generally conservative in values. Dislike long explanations. Are best with real things that can be worked, handled, taken apart, or put together.	ESFP 4 (a) Outgoing, easygoing, accepting, friendly, enjoy everything and make things more fun for others by their enjoyment. Like sports and making things happen. Know what's going on and join in eagerly. Find remembering facts easier than mastering theories. Are best in situations that need sound common sense and practical ability with people as well as with things.	ENFP 3 (a) 11 (t) Warmly enthusiastic, high-spirited, ingenious, imaginative. Able to do almost anything that interests them. Quick with a solution for any difficulty and ready to help anyone with a problem. Often rely on their ability to improvise instead of preparing in advance. Can usually find compelling reasons for whatever they want.	ENTP 4 (a) 3.5 (t) Quick, ingenious, good at many things. Stimulating company, alert and outspoken. May argue for fun on either side of a question. Resourceful in solving new and challenging problems, but may neglect routine assignments. Apt to turn to one new interest after another. Skillful in finding logical reasons for what they want
ESTJ 1 (a) 1 (t) Practical, realistic, matter-of-fact, with a natural head for business or mechanics. Not interested in subjects they see no use for, but can apply themselves when necessary. Like to organise and run activities. May make good administrators, especially if they remember to consider others' feelings and points of view.	ESFJ 3 (a) Warm-hearted, talkative, popular, conscientious, born cooperators, active committee members. Need harmony and may be good at creating it. Always doing something nice for someone. Work best with encouragement and praise. Main interest is in things that directly and visibly affect people's lives.	ENFJ 5 (a) Responsive and responsible. Generally feel real concern for what others think or want, and try to handle things with due regard for the other person's feelings. Can present a proposal or lead a group discussion with ease and tact. Sociable, popular, sympathetic. Responsive to praise and criticism.	ENTJ 2 (a) Hearty, frank, decisive, leaders in activities. Usually good in anything that requires reasoning and intelligent talk, such as public speaking. Are usually well informed and enjoy adding to their fund of knowledge. May sometimes appear more positive and confident than their experience in an area warrants.

The distribution of personality types in the sample of New Apprentices is shown graphically in figure 1. The New Apprentices were widely spread across 13 of the possible 16 types, with five (14%) being ENFJ and four (11%) each in the ESFP, INFP and ENTP types. There were no significant differences in personality type by industry or gender.

Figure 1: Distributions of personality types in the New Apprentice sample

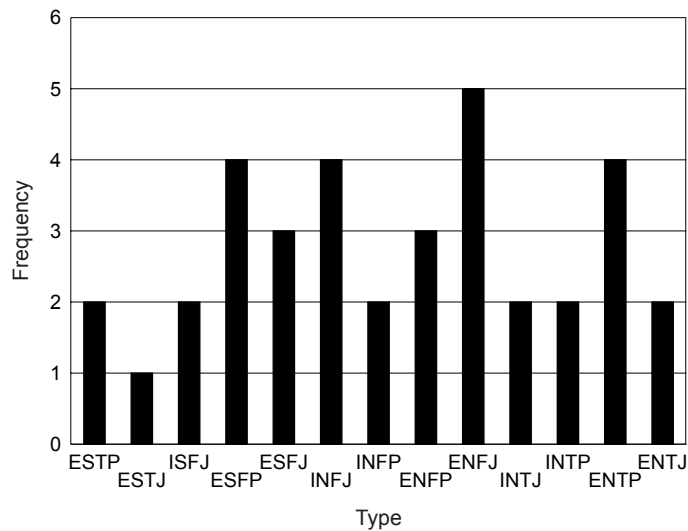
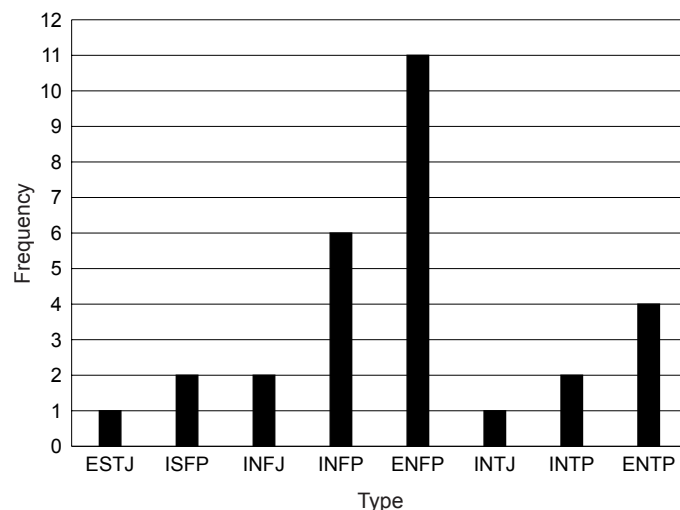


Figure 2 shows the personality types of the trainers, indicating a quite narrow band across only half of the possible types. Most (n=11, 38%) were ENFP, with smaller numbers being INFP (n=6, 21%) and ENTP (n=3.5, 12%). (One trainer ticked between the E and I boxes on one item, and so was scored as half-half.) Again, there were no significant differences in personality type by industry or gender.

Figure 2: Distributions of personality types in the trainer sample



Comparison of New Apprentices' and trainers' personality types

Table 2 compares the percentages of personality types in the two groups and reveals a far narrower spread of types in the trainer group compared with the New Apprentice group. The trainers, in fact, are concentrated heavily in two main types, ENFP and INFP, together accounting for 59% of the sample.

Such concentration of ENFP and INFP types appears rather surprising for the role of trainer. Lawrence (1982, p.21) reports that, in the databank of the Center for Applications of Psychological Type (CAPT) in Gainesville, Florida in the early 1980s, extroverts (E) and introverts (I) were about equally represented among teachers at all levels, the proportions of intuitives (N) increased as grade level increased, feeling types (F) predominated at school level, with thinking (T) types becoming more common in college education, and at all levels, judging (J) types outnumbering perceiving (P) types. In particular, the distributions among junior college level teachers, arguably perhaps the closest type and level of teacher to the trainers in this study, were: extroverts (E) 52%, intuitives (N) 60%, thinking (T) 55% and judging (J) 61%. This is noticeably quite different from the types in this study, where there are no ENTJ trainers at all.

In this study, trainers of the intuitive-feeling (NF) combination represent two-thirds (19 out of 29) of the sample—a very high proportion. Myers and McCaulley (1985, pp.257–9) reported that the percentages of the intuitive-feeling combination in a range of similar occupational categories in the Centre for Application of Psychological Type databank were between eight and 44%. None of these occupations had anywhere near two-thirds of their employees as intuitive-feeling (see table 1 in appendix C). Keirsey and Bates (1984, pp.60, 155) claimed that the intuitive-feeling combination made up 36% of school personnel in California, although it comprised only 12% of the general population. Nor does the breakdown of this study's sample of trainers by industry shed light on this proportion, as 70% in human services had this intuitive-feeling combination, 66% of those in manufacturing and 57% of those in retail.

Table 2: Comparison of the distribution of New Apprentice and trainer personality types

Type	Apprentices		Trainers	
	Frequency	%	Frequency	%
ISTJ				
ISTP				
ESTP	2	6		
ESTJ	1	3	1	3
ISFJ	2	6		
ISFP			2	7
ESFP	4	11		
ESFJ	3	8		
INFJ	4	11	2	7
INFP	2	6	6	21
ENFP	3	8	11	38
ENFJ	5	14		
INTJ	2	6	1	3
INTP	2	6	2.5*	9
ENTP	4	11	3.5*	12
ENTJ	2	6		
Totals:	36	100	29	100

Note: * One trainer ticked between the E and I boxes on one item, and so was scored as half-half.

According to Hirsh and Kummerow (1987, p.11), 'Isabel Myers considered the preferences used for attending (SN) and the preferences used for deciding (TF) the most important factors by which to group the preferences'. Preference groupings by these four functions (ST, SF, NF, NT) correspond to the columns in the type table. They confirm the strong concentration in the intuition/feeling (NF) column, with 14 of the New Apprentices and 19 of the trainers in this study.

Table 3, based on items asking how they prefer to do things, sums all responses for both groups of participants on each of the personality dimensions. It shows how, in these samples, the collective preference for the *New Apprentices* is *ENFJ* (with strong preferences for ENF and a slight preference for J) and for *trainers* it is *ENFP* (with a slight preference for E and strong preferences for NFP). Both groups, therefore, strongly prefer intuition-feeling (NF).

Table 3: Responses to items relating to 'how you prefer to do things'*

Participants	Extrovert (E)	Introvert (I)	Sensing (S)	Intuitive (N)	Thinking (T)	Feeling (F)	Judging (J)**	Perceiving (P)**
Apprentices	119	61	77	104	74	106	96	90
Trainers	96	84	50	129	64	114	69	106

Notes: *Includes duplicates (n=36); **J and P were scaled down to make them equivalent to the other dimensions.

From this profile, a 'predicted' work and learning/training environment would be likely to incorporate, according to type theory, the following characteristics.

For both New Apprentices and trainers

The intuitive-feeling (NF) combination indicates people who are likely to (from Myers & McCauley 1985, p.35; Hirsh & Kummerow 1987, p.11):

Prefer:	intuition and feeling
Focus their attention on:	possibilities
And handle these with:	personal warmth
Thus they tend to become:	enthusiastic and insightful
And tend to become adept in:	understanding the aspirations of people
Find scope for their abilities in:	understanding and communicating with people
And solve problems by:	a personal view of possibilities in an insightful process, considering the value of the outcome

The intuitive-feeling preference is one of the four temperaments written about in other literature: Epimethean (SJ), Dionysian (SP), Promethean (NT) and Apollonian (NF) (Hirsch & Kummerow 1987). Temperament is based primarily on observable, extroverted behaviours, describes differences in people noticed and documented through history by the Greeks, Romans and other cultures, and has four combinations rather than sixteen types. The Apollonian (NF) temperament has been depicted as having the following features (Hirsh & Kummerow 1987, p.13):

Leadership style:	catalyst, spokesperson, energiser
Work style:	works by interacting with people about values and inspirations
Learning style:	learns for self-awareness through personalised and imaginative ways
Acknowledged for contributing:	something personal or a special vision of possibilities

The training style of the intuitive-feeling combination is characterised (Keirse & Bates 1984, pp.163–4) by commitment to learners. Trainers with this style tend to relate to their learners on an individual basis and often try to individualise instruction. This style would fit well with the situation in workplaces where training is often one-to-one and individualised. Such trainers encourage learner-to-learner interaction and do not see themselves as the source of all wisdom. They usually allow learners to experiment and like to provide encouragement when needed. They tend to be in close touch with their instructional climate, relate well to others, be empathetic and caring, and amenable to altering training if learners appear to require other experiences at any given time. They tend to be enthusiastic about their career and enjoy training, to be interested in anything that is innovative and new, and to enjoy opportunities to participate in in-service experiences if relevant to their interests. This last characteristic may account for their willing participation as interviewees in this study.

The training and learning preferences of the intuitive-feeling combination (covering 14 of the New Apprentices and 19 of the trainers in this study) are summarised below, constructed from Otto Kroeger Associates (1998):

- ✧ have high commitment to learners, can mobilise talent
- ✧ prefer interactional exercises to lecturing
- ✧ are in touch with learning climate, create harmony
- ✧ relate individually to each learner
- ✧ accept learners/colleagues easier than superiors
- ✧ prefer small group to large group
- ✧ need acceptance, caring, support
- ✧ enjoy group interaction
- ✧ prefer cooperation over competition
- ✧ focus more on people than on the abstract
- ✧ learn best in face-to-face dialogue.

Intuitive-feeling (NF) individuals are likely to emphasise the search for self, the search for meaning and the future for people. They tend to be good communicators, and like to pursue harmony, integrity and honesty (Latimore 1992, p.150).

For New Apprentices

The extrovert-intuitive (EN) combination (14 New Apprentices in this sample) indicates those who are likely to be the action-oriented innovators and combine extroversion with intuition. They are change agents: they see possibilities as challenges to make something happen. They have wide-ranging interests and like to see new patterns and relationships (Myers & McCaulley 1985, p.37).

The extrovert-feeling (EF) combination (14 New Apprentices in this sample) indicates those who are likely to be the action-oriented cooperators, combining extroversion with feeling. They are sociable, friendly and sympathetic. They like to make things happen for the pleasure or welfare of others (Myers & McCaulley 1985, p.38).

For trainers

The intuitive-perceiving (NP) combination (23 trainers in this sample) reflects those who are likely to be the adaptable innovators. Their outward behaviour focuses on possibilities for the future (N – intuitive) and their inner world uses a judgement function (T – thinking or F – feeling). They

constantly seek the challenge of the new, adapt to new possibilities as they arise, and are unconventional, independent spirits who do not like to be fenced in (Myers & McCaulley 1985, p.36).

The feeling-perceiving (FP) combination (19 trainers in this sample) reflects those likely to be the gentle types, who use their perceptive function (S – sensing or N – intuitive) in outer behaviour, but focus in their inner world on subjective values (F – feeling). They are adaptable, affiliative harmony-seekers who are concerned with the human aspects of problems (Myers & McCaulley 1985, p.37).

Apprentices and trainers matched

In the sample of 36 matched pairs, there was a considerable degree of commonality between the personality types of the New Apprentices and those of their trainers (see table 2 in appendix C). Although there were only three cases where the personality type of the New Apprentice and that of the trainer exactly matched (INFP, INTP and ENFP), there were 15 cases where three dimensions matched and 12 cases where two dimensions matched. Presumably in such pairings according to type theory, there was a considerable similarity in personality in order for the pairs to get along together and to find common ground for training and learning purposes. There were, in fact, remarkably few instances where little commonality existed between the personality factors of the New Apprentice and the trainer—only five cases where one dimension matched and one case where there was no match at all. The overwhelmingly common dimensions were intuition (N), feeling (F) and perception (P), with extroversion (E) less so.

From these comparisons of New Apprentice types with trainer types, the two areas of training in the workplace where there might be predicted to be potential difficulties are:

- ✧ introverted (I) trainers needing to be aware of strongly extroverted (E) preferences of New Apprentices—this occurred in this sample in nine cases
- ✧ strongly perceptive (P) trainers needing to be aware of judging (J) New Apprentices—this occurred in 16 cases.

In both these instances, the trainers would need to be aware of the different preferences of their learners in terms of training and assessment processes.

Preferred learning/training environments

Workplace features preferred by New Apprentices and trainers

The preferred work environments of New Apprentices and trainers in this study may be constructed from items asked directly in the interviews. Table 4 presents those features of the workplace ranked in the top 20 preferences by *both* New Apprentices and trainers (table 3 in appendix C presents data on all 65 items).

Table 4: Workplace features included by both New Apprentices and trainers in their top 20 preferences

Item no.	Item	Apprentices		Trainers	
		Score	Rank	Score	Rank
26	Is efficient	125	1	104	10
3	Encourages and supports autonomy	123	2	102	14
49	People are conscientious, cooperative and focused on helping others	123	2	106	9
62	There is a focus on providing service	121	4	107	7
31	Is supportive	120	6	107	7
11	Includes people who are adaptable	119	7	109	4
57	People are pleasant and committed	119	7	104	10
39	Values ideas	118	9	108	5
41	Co-workers are courteous	116	11	103	13
7	Has people who are compatible	114	14	99	19
46	I have some flexibility in the way I do the job	114	14	102	14
22	Is people oriented	111	20	101	16

There is some similarity in the preferred work environments of both New Apprentices and trainers. In the top 20 elements preferred by both groups, there are 12 features in common (albeit in slightly different rank order). The participants clearly emphasise a work environment characterised by:

- ✧ people being conscientious, cooperative, adaptable, pleasant, committed, courteous and compatible
- ✧ the workplace being efficient, encouraging of autonomy, supportive, flexible and people-oriented
- ✧ a focus on providing service and helping others, as well as valuing ideas.

Table 5 includes those features in the workplace ranked in the top 20 by New Apprentices but not their trainers (and indicates the trainers' rankings for comparison). Apprentices clearly prefer workplace environments characterised by the following features:

- ✧ environments that are change-oriented, provide security while fostering their independence, and are structured

- ✧ environments where work colleagues are sensitive, appreciative, cooperative, hard-working and enjoy their work
- ✧ environments focused on changing things for the good of others and on ideals/values that are concerned with making a difference to people.

In summary, the New Apprentices' preferred workplace is primarily a people place in a context that allows them space and flexibility as well as security, and which focuses on appreciating and supporting its workforce.

Table 5: Workplace features included by New Apprentices in their top 20 preferences, but not by their trainers

Item no.	Item	Apprentices		Trainers
		Score	Rank	Rank
16	Is change-oriented	121	4	40
45	I have security	118	9	46
8	Has people who are sensitive	115	12	54
54	People are hard-working and focused on facts and results	115	12	36
53	People are focused on changing things for the good of others	114	14	29
4	Fosters my independence	112	17	21
24	Is structured	112	17	51
50	People are cooperative and quietly enjoy their work	112	17	26
12	Includes people who are appreciative	111	20	32
58	People are strongly focused on ideals/values that are about making a difference to people	111	20	29

Table 6 completes the picture of the preferred workplace environment for the trainers and indicates those features in their top 20 characteristics that were not ranked in the top 20 by their New Apprentices (but includes the New Apprentices' rankings for comparison).

Table 6: Workplace features included by trainers in their top 20 preferences, but not by their New Apprentices

Item no.	Item	Trainers		Apprentices
		Score	Rank	Rank
6	Has efficient systems and people	110	1	30
9	Includes competent people	110	1	44
10	Includes effective and productive people	110	1	44
19	Is friendly	108	5	53
33	Offers variety and challenge	104	10	30
34	Provides me with opportunities to solve new problems	100	17	24
64	Is some time for fun	100	17	24
20	Is harmonious	99	19	57

The notable contrast here is the very high ranking (equal first) by trainers to such attributes in the workplace as: efficient systems and people; competent people; and effective and productive people, compared with the far lower rankings by New Apprentices (30, and equal 44 for the other two). These are clearly business attributes recognised as being imperatives in the workplace environment by these experienced trainers. Again, the trainers value far more highly than do New Apprentices, a friendly and harmonious work environment where there is still time for fun—attributes characteristic

of their strong ENFP personality types. Trainers also value workplaces that offer variety and challenge and allow for the solving of new problems.

Thus, while there seems much in common between the New Apprentices and their trainers in that they both prize people-orientation, commitment, efficiency, cooperation, adaptability and pleasantness, New Apprentices appear more concerned about security, structure and sensitivity, while trainers emphasise competence, challenge and problem-solving. Furthermore, New Apprentices look for appreciation and the fostering of independence, while trainers seek harmony and productivity.

Respondents' preferred work environments therefore appear to closely resemble the 'expected' work environments derived by inference from their self-reported personality types. This conclusion was tested in the following way. Each of the workplace statements may be typecast as a typical feature likely to be preferred by one or more personality types (see Hirsh & Kummerow 1987). The top 20 features for each group were selected (as before) and personality factors summed for those items. The New Apprentices' and trainers' preferred workplace environments, as indicated by these aggregated figures, is as shown in table 7.

Table 7: Apprentices' and trainers' preferred work environments as reflected in their top ranked 20 workplace features

Apprentices				Trainers			
Extroversion (E)	17	Introversion (I)	19	Extroversion (E)	16	Introversion (I)	11
Sensing (S)	21	Intuition (N)	15	Sensing (S)	13	Intuition (N)	14
Thinking (T)	13	Feeling (F)	23	Thinking (T)	9	Feeling (F)	18
Judging (J)	21	Perception (P)	15	Judging (J)	12	Perception (P)	15
Preferred work environment: ISFJ				Preferred work environment: ENFP			

The collective work environment for *New Apprentices* was *ISFJ* (with a strong preference for F, and weaker preferences for S and P). In the case of the *trainers*, it was *ENFP* (also with a strong preference for F, and a weaker preference for E).

These profiles of personality preferences based on their reported preferences for workplace features are generally what we might predict from the analysis of their personality types—although not exactly. While table 3 on 'predicted' type indicated collectively ENFJ for the New Apprentices, here in table 7 the 'preferred' type is ISFJ. The difference between their scores on extroversion and introversion is negligible, but the New Apprentices appear to have chosen workplace features that reflect more a sensing than intuitive personality type. This perhaps reflects their acknowledgement of the realities of the workplace environment requiring more sensing features, such as focus on the more immediate, practical, factual and experiential. For trainers, the types for 'expected' and 'preferred' were both shown as ENFP.

To some extent it is not surprising, given the personality types of these particular participants, that they should favour a workplace that has characteristics embedded in it similar to those they themselves exhibit and would presumably value—extroversion, intuition and feeling, in particular. In short, their strong preference is for the right kind of *people* rather than the right kind of *place*.

Does this picture differ by industry? Although numbers of participants are small in each of the three industry groups, appendix C (tables 4 and 5) provides interesting differences between the industries regarding the preferences for work environments by New Apprentices and trainers.

In the case of New Apprentices, while the two top-ranked features for those in manufacturing are about the workplace being 'efficient' and 'supportive', the top two for the other industries are focused on people: that they are 'pleasant and committed', 'conscientious, cooperative and focused on helping others' and 'adaptable'. In fact, all first five preferences for the manufacturing New Apprentices were concerned with place rather than people, and in their top 20, features specifically

referring to people are mentioned only five times (compared with 11 for each of the community services and retail industries).

With the trainers, the first three features for the manufacturing industry were the same as given by the New Apprentices—that the workplace is efficient, supportive and provides opportunities for solving new problems—and the top six were again about place rather than people. Like their manufacturing New Apprentices, the trainers ranked features involving people only five times in their top 20 (compared with 13 times by community services trainers and 11 times by those in retail). Trainers saw the preferred workplace features for manufacturing to be structure, variety and challenge, and allowing flexibility in the ways trainers carried out their jobs (these features were not ranked in the top 20 at all by the other two industries).

In community services and retail, features such as people being adaptable, pleasant and committed were ranked first by both New Apprentices and trainers, but not at all by respondents in manufacturing. The community services and retail ranked-responses were similar in many ways. However, community services did rank a harmonious workplace and the provision of stability and predictability, whereas the other industries did not, and retail trainers valued fostering their independence (not ranked by the others) and ranked security (first) far higher than the other two industries.

From these rankings, we can conclude that the preferred workplace environment for both New Apprentices and trainers for the manufacturing industry is quite clearly different from that preferred in community services and retail. And while the latter two industries have many workplace features in common, there are even several notable differences between them (as discussed).

What is remarkable is the similarity in these preferred workplace pictures between the rankings of the New Apprentices and those of the trainers within industries. For example, examining together the New Apprentices' and trainers' rankings in each industry, there are seven of the first ten workplace features in common in manufacturing, eight in community services and eight in retail. Therefore the most highly ranked preferences of New Apprentices and their trainers for particular work environments seem to be strongly influenced by the nature of their work.

Apprentices' preferences regarding learning environment at work

Twelve learning environment aspects were rated by the New Apprentices with a mean of 3.50 or higher (maximum possible of 4), 13 were rated with a mean between 3.00 and 3.49, and only one rated less than 3.00 (see table 6 in appendix C). The top two, ranked equally (mean 3.81), are worth highlighting in terms of an effective learning environment focusing strongly on the competence of and relationship with their trainer: the trainers are well trained and have a good relationship with the people who are training them in the workplace. Another major feature of the top responses is the emphasis on feedback and monitoring of New Apprentice performance. These items rated highly— that their trainers/employers: correct their mistakes (3.75); provide feedback and encouragement (3.58); and encourage them to take on more difficult and complex tasks over time (3.54).

The third feature in these preferences is the value that New Apprentices place on trainers'/ employers' attitudes towards them as learners—that they: recognise the New Apprentice is there to learn as well as work (3.67); take time to talk to the learners about their job (3.58); take time to listen to learners' concerns and difficulties (3.58); are willing to talk about what the learner would like to learn (3.53); help to solve problems (3.47); and are interested in the learner's future (3.47).

In short, strongly acknowledged by these New Apprentices are the perspectives of trainers/employers towards them as learners. Together, these findings highlight what is considered to be the preferred learning environment by New Apprentices in this study.

Cross-tabulations by industry and gender revealed several statistically significant differences that reflect variations in the nature of work in the three industries (for details, see table 7 in appendix C). Differences in preferences by industry related to opportunities for New Apprentices to talk to their trainer about what they would like to learn; opportunities to learn about why things are the way they are, as well as how things work or are done in their workplace; and clear understanding of what is required of them when they are formally assessed at work. In all three cases, New Apprentices in the community services industry reported significantly higher preferences than did their counterparts in the other two industries. Male and female New Apprentices in nearly every instance thought similarly about preferred workplace environments. There was only one significant difference, where females expressed a stronger preference for wanting to know about assessment requirements at work.

This portrayal of the ‘preferred’ learning environment of the New Apprentices is reinforced by their responses to open-ended questions. The following pen sketches are summarised by industry, with examples to illustrate key aspects.

Community services/health

Apprentices in community services emphasised the on-the-job nature of learning in the workplace, highlighting its practical focus and the way in which it allows the learner to develop competence through hands-on involvement in the work and direct exposure to real-life experience. In this situation, learning by trial and error and learning through experience play key roles. Some learners pointed out that learning in the workplace is strongly linked to developing skills and knowledge to enable them to perform their jobs in a more effective and efficient manner. They reported that learning in the workplace enabled them to develop a clearer insight into what their specific job entails and the employer’s expectations of them in that role. By engaging in daily work processes, trainees were able to put theory into action, and over time they had a chance to learn the customs, habits and attitudes valued in their particular workplace.

In this environment, New Apprentices in community services claimed they learnt best when they had the opportunity to become involved in work processes and gain hands-on experience: ‘on the job training, a lot of hands-on jobs ... I prefer not to sit down and be told things over and over again’ (female, ENTP). Several learners mentioned the importance of being able to learn by trial and error, where they have the chance to practise doing a task a number of times, making mistakes on occasions and then taking steps to rectify them: when ‘I get a lot of experience and trial and error—just doing it. I can’t concentrate when people tell me the same things over and over again’ (female, ENTP). For others, learning by example is the best way to learn: when ‘people around me know what they are doing and I can learn from them, pick up knowledge; when people teach me the best way to do things. Learning for me is by example’ (female, INFP). Not surprisingly, they reported that this process is facilitated when a learner is surrounded by staff who are both knowledgeable and competent.

A number highlighted the significant role of the trainer in helping them to learn in the workplace. Apprentices indicated that learning is assisted when the trainer is competent and experienced, and where ‘I have time and respect for the person I’m working with and I like what I’m seeing’ (female, ENFJ). The need for trainers to have a positive attitude towards their learners was also noted. This involves showing an interest in the New Apprentice and their learning, and providing regular feedback.

Finally, several learners thought it was important to be able to work at their own pace in a relaxed environment—where ‘every one is hassle-free and happy’ (female, ISFJ), and ‘I’m not being hassled and do things at my own pace’ (female, ESTJ) and ‘when [I’m] not thrown in the deep end ... not way over my head, not anxious about the situation’ (female, ENFJ).

Retail

Learning in the workplace for retail New Apprentices was seen as ongoing learning, mostly hands-on in nature, with the learning emerging from work as particular tasks are completed. In many instances, this involves working with others, sharing knowledge and information and seeking the opinion of others on various matters. An important part of learning in this environment is also ‘finding out how a workplace works and what it takes to work in that sort of environment’ (male, ENFP). For others, learning in the workplace means being ‘allowed’ to make mistakes and to learn from them, and the workplace presenting the New Apprentice with a range of varied learning experiences which add depth and interest to the learning process:

... learning from my experience, making mistakes and learning from it. And going out to warehouses where we stock all our products, getting a handle on how it all works, and not just sitting in the office and the people I’m talking to in the warehouse are not really knowing what’s going on. It’s getting a feel for all types of people who work for us, not just saying stuff on the phone which I don’t really know what I’m saying. (male, ISFJ)

Overall, New Apprentices in retail considered that they learn best in the workplace when they are directly involved in doing the work. The process they most favoured is being shown first and then being given the opportunity to tackle the task themselves. An integral part of this is being able to learn from mistakes rather than being penalised for them.

Some learners indicated that environmental factors were important. They learnt best when the workplace offered a ‘relaxed environment ... not too much pressure’ (female, ESFP), where there were adequate staff, and trainees felt ‘comfortable with the people around me’ (male, ISFJ). Other important aspects were being able to work at their own pace with ‘time to think’ (female, ESFP), and being ‘supported and encouraged with help from more experienced people’ (female, ENFJ).

Manufacturing

For New Apprentices in this industry, the workplace provides an opportunity to learn while being involved in the job, and to learn while doing as distinct from simply reading about it: ‘I find that a lot more is learnt by doing rather than going through a bunch of books at speed’ (male, INTJ). The skills learnt are seen to be useful in the sense that they are transferable and are believed to enhance employability. According to one New Apprentice, learning in the workplace gives learners access to a wider range of opportunities to learn and allows them to develop not only technical skills and product knowledge but also to gain an understanding of the work ethic and how to relate to customers and co-workers (male, INFJ).

For some New Apprentices, learning in the workplace is related to skills, both the acquisition of new skills and the improvement of existing skills. A key component of learning in the workplace identified by many New Apprentices involved in this industry, where they are often using a great deal of heavy machinery and high-tech equipment, was the focus on not only how to do a particular job but how to do it in a safe manner, and ‘what to do properly—the correct procedure’ (male, ENTJ).

Apprentices in this field indicated that they learn best in the workplace when they have the opportunity to be hands-on and are able to complete a task independently after it has first been demonstrated. This preference was especially strong with learners in this industry, with typical comments being [when]:

I have been showed [sic] how to do something and then I do it for myself. (male, ENTJ)

I’m on my own and left to do things by myself, because then you tend to remember things. If you do it with your hands you remember it more, rather than if they show it to you.

(male, ENTJ)

I am left to do the work on my own but am able to ask questions of someone when needed.
(male, INFJ)

Other trainees considered it important to be given responsibility and some degree of challenge in their daily work. At the same time, this needed to be balanced with having sufficient time to work at their own pace so that the job can be completed to their satisfaction—‘not rushed all the time—that helps a lot’ (male, INFP) and ‘not pressured, ... when I get time to think it through (my pace)’ (male, INTJ).

Some trainees mentioned that specific trainer actions helped them to learn. These included being given thorough explanations of tasks, using demonstration methods and having a relaxed attitude to training. One learner particularly noted the value in being able to ask questions and seek advice from qualified tradesmen in the workplace (male, INFJ). In his view, this approach helped New Apprentices to learn quicker ways of undertaking tasks and to discover specific techniques which best suit the particular workplace.

In summary, it was noticeable, across the industry, that sensing (S) New Apprentices frequently referred to learning by doing, ‘hands on’ (Female, ESFJ), by ‘experience ... do different things’ (male, ESTP), ‘from others’ experience’ (female, ESFP), being shown and having ‘hands-on training and support’ (female, ESFP) and being ‘able to put things into practice’ (female, ESFP). Where intuitive (N) New Apprentices mentioned being shown, these references specifically mentioned being shown ‘what to do properly—the correct procedure’ (male, ENTJ), ‘the best way to do things’ (male, INFJ), ‘problems [being] explained thoroughly’ (male, INTP) and ‘learning how to do new and different tasks, improving skills’ (male, INFJ). Another clear pattern was the number of references to people in the responses of feeling (F), and to a lesser extent extroverted (E) New Apprentices compared with those who are thinking and introverted; for example, ‘getting a feel for all types of people who work for us’ (male, ISFJ), ‘ask other people what they think’ (female, ESFP), ‘meet people, work with people and learn from their experience’ (female, ENFJ), ‘help from more experienced people’ (female, ENFJ), ‘learn best when I’m with other people’ (female, ENFJ), ‘when I get to know people I get more work done’ (male, ISFJ), and ‘people around me know what they are doing and I can learn from them, pick up knowledge’ (female, INFP). These patterns are in line with type theory.

Trainers’ preferences regarding training environment at work

Fourteen trainer preferences were rated 3.50 or higher, 12 were rated between 3.00 and 3.49, and only one rated below 3.00 (see table 8 in appendix C for details). Among those aspects highly preferred, ideas of correction and feedback and monitoring figured prominently: correcting mistakes (mean 3.86) and giving feedback (3.84) were the top two on their list, but they also liked to make time to help the New Apprentice learn (3.78) and monitor the work flow and quality of the New Apprentice’s performance (3.70).

Strategies used by trainers to assist New Apprentices in their learning also emerged as a strong preference. These included such features as asking other workers in the workplace to help the New Apprentice (3.78), making time to help the New Apprentice learn (3.78), talking with the New Apprentice to determine what they know and do not know (3.73), making judgements about how to balance the needs for the New Apprentice to learn and getting the job done (3.70). Also included were showing the New Apprentice how to do tasks (3.62), gradually getting the New Apprentice to increase the number and complexity of the tasks over time (3.60) and discussing learning experiences with the New Apprentice as they are working with them (3.51).

The most striking aspect of their preferred training environment, however, is the trainers’ capacity to influence the work environment in order to facilitate the New Apprentices’ learning. Such aspects include: organising tasks so that they match the New Apprentice’s ability and skill experience levels (3.76); organising the way tasks are done so that the New Apprentice is able to learn as they work

(3.76); organising tasks so that the New Apprentice can tackle those they can manage on their own (3.68); and organising time so that the New Apprentice can talk to, observe or interact with other workers (3.54). This is a really important feature, reinforcing the fact that work is the curriculum in the workplace. This was a key finding in earlier work by the authors (Harris et al. 2000) on workplace trainers in the information technology, construction and real estate industries where the trainers were also found to have a substantial influence on structuring and shaping work processes to accommodate employee learning (p.34), particularly in the building and construction industry where sub-contracting predominates (p.37).

There were three preferences in the workplace training environment that showed statistically significant differences by industry (see table 9 in appendix C). As with New Apprentices, trainers in community services in almost all cases reported significantly higher preferences than did their counterparts in the other two industries. These higher preferences included going to events with the New Apprentice, talking to the New Apprentice about the difference between what happens at work and what they might experience in a training program about their work, and negotiating access to learning resources for the New Apprentice.

In the case of gender, there were five preferences in workplace learning environment that showed statistically significant differences. In all these cases, females reported significantly higher preferences related to showing the New Apprentice how to do tasks, making judgements about how fast or slow the pace of work needs to be so that the New Apprentice is able to keep up, negotiating access to learning resources for the New Apprentice, going to events with the New Apprentice, and talking to the New Apprentice about the difference between what happens at work and what they might experience in a training program about their work.

The following summaries of trainers' responses by industry elaborate on the more quantitative rankings already discussed.

Community services/health

Among the trainers from community services, learning in the workplace had a range of meanings. Some comments related to the nature of learning that occurred in the workplace setting. It was generally seen as being hands-on, having a strong practical focus. As such, it enables the person to learn how to do a particular task in a way which complies with systems operating in that specific workplace. One trainer pointed out that learning in the workplace encompasses learning beyond the technical aspects of the job, by providing New Apprentices with an opportunity to learn how to manage themselves, their reactions and their emotions on the job:

It's not only the black and white that they learn how to do things, it's dealing with themselves, their reactions, their emotions, while they're actually learning'. (female, INTP)

This was believed to have particular significance for learners involved in the community services field, especially those engaged in providing care to individuals.

Other comments described how learning occurs within the workplace setting. Rather than being planned, learning emerges from the process of solving problems associated with the completion of specific tasks, working either alone or with others. In this way, there is an opportunity to share knowledge and learn from the skills and experience of others such that co-workers are utilised as a learning resource. To a large extent, the role of the trainer was seen as guiding and advising the New Apprentice until he/she is able to function effectively in an independent manner. This process shares similarities with the process of mentoring.

For other trainers, learning in the workplace means that the workplace provides an environment which supports learning and enables individuals to gain skills and knowledge on a continuing basis. One trainer highlighted the importance of the learner playing an active role in the learning process

and recognising their responsibility to ask questions continually so that they keep their knowledge up to date (female, ENFP).

Trainers from community services identified a range of factors associated with optimising learning for their New Apprentices. Overall, trainers believed that New Apprentices learn best when they are situated in the workplace and are directly involved in work, while receiving the support of more experienced workers. It was proposed that the practical, hands-on focus and the exposure to real-life situations which exists in this setting allow the learner to experience a variety of relevant and valuable learning opportunities. Some of the more specific strategies identified as being important in assisting the New Apprentice to learn at work included: allocating specific tasks for them to complete under supervision; having access to the knowledge and experience of co-workers within an environment that promotes the sharing of information; matching the assigned workload to the learner's current capabilities to ensure that they are sufficiently challenged but not overwhelmed; and tapping into issues which are currently relevant in the workplace and providing training specifically related to these areas.

A key factor raised by various trainers was the need for a supportive workplace environment which encourages New Apprentices to learn, and promotes the notion of learning as a journey. Central to this is the culture which exists in the workplace. Apprentices are more likely to thrive in a workplace where co-workers understand what it is to be a New Apprentice faced with the challenge of coping with work and learning at the same time, where information-sharing is promoted, and employees are encouraged to ask questions without fearing negative consequences. In addition, trainers described a supportive environment as one where learners are given tasks which provide them with the opportunity to put into practice what they have learnt at a theoretical level in off-site training. This enables them to develop a level of competence and become more comfortable in their job role. One trainer described it as learners being able to 'act out what they're learning' and 'use their knowledge on the floor' (female, ENFP). A high level of experienced staff within an enterprise was also seen as a key element contributing to a supportive environment.

Finally, some trainers highlighted the importance of New Apprentice attitudes in gaining the most from learning experiences. It was thought that learners who were motivated and had a willingness to learn were likely to achieve the best learning outcomes. According to these trainers, there is a clear need for New Apprentices to take responsibility for their own learning, actively engaging in the process by asking questions and seeking information, and using the resources provided by the enterprise to this end.

Retail

Trainers in the retail field viewed learning in the workplace as providing opportunities to learn a variety of new skills on an ongoing basis, along with the chance to develop an understanding of how the workplace operates. The learning that occurs was described as 'real learning' (female, ENFP), where New Apprentices developed skills through practical experience, actually undertaking tasks either alone or in conjunction with co-workers, listening to others and asking questions of co-workers. This enables them to gradually develop skills and knowledge relevant to the workplace.

Trainers in the retail industry supported the views of the other industry areas by indicating that New Apprentices learn best when they are on the job, gaining hands-on experience and learning by doing. In this setting, learners can be given a set task with clear instructions for completion, and have the added comfort of knowing that they can refer queries to a supervisor as and when necessary. Other trainers considered that a supportive environment is essential to help New Apprentices learn best. Features of the supportive environment were described as one in which learners feel comfortable and where they are encouraged to take risks and learn from their mistakes.

Other comments highlighted the significant role that the trainer plays in helping the New Apprentice to maximise the learning experience. Apprentices were considered to learn best when training was

tailored to suit them. The skill and experience level of the trainer has major implications in this area, as they need to understand the capabilities of the individual trainee and develop clear and achievable goals with them. In addition, the pace of training needs to suit the individual and allow adequate time for practice and feedback.

Manufacturing/engineering

For this group of trainers, the dominant view was that learning in the workplace is practical in nature, and occurs through the process of doing and completing specific work tasks. This was summed up by a trainer from a medium-sized enterprise who proposed that learning in the workplace provided an opportunity to develop skills in a variety of ways, utilising a range of approaches such as mentoring, demonstrating tasks, and giving responsibility for the completion of specific tasks (male, ENFP). Various trainers indicated that much learning occurs through an interactive process in which the learner talks with others, watches them perform tasks and asks questions to clarify issues. This highlights the importance of the ability to relate well with co-workers.

For some trainers, a key element of learning in the workplace is that it offers individuals the opportunity not only to develop technical skills, but also to gain an understanding of the system which operates within the workplace, and to learn how to get on with other people, both co-workers and clients. Supporting this, several trainers pointed out that the main focus of workplace learning revolves around improving work performance so that the individual can fulfil their job role and undertake tasks in the most effective and efficient manner in their particular workplace. Accordingly, all training must have relevance to the workplace and generate outcomes related to the successful completion of tasks.

According to these trainers, New Apprentices learn best on the job, where learning has a practical focus, and gradual exposure to new tasks and procedures can be ‘staged and planned’ so that the learner is not thrown ‘off the deep end’ (male, INFP). Most trainers reported that pairing with an appropriately experienced co-worker was an essential part of this process. In this relationship, the New Apprentice derives most benefit when they actually do the work, the objective being to complete a clearly assigned task independently, but in the knowledge that the co-worker will provide support where necessary. Some trainers believed that the learning experience could be further enhanced when the supporting co-worker had sufficient experience to make a judgement of the abilities of the trainee and was then able to plan the structure of work so that the trainee is sufficiently challenged and has a chance to develop confidence in their own abilities. A trainer from a large enterprise described it this way:

I used to say, ‘You do the work, I’ll read the newspaper’. Trainees laughed but said they learned the most because I let them do it. Gotta get them to use their initiative and you have to push them along a bit so they realise they have the skills. (male, E/INTP)

At the same time, trainers indicated that it is important that the New Apprentice ask questions and actively engage in the learning process. This was thought to occur more often when the learner had developed a sense of identity with the work team and believed they had a valued role to play in contributing to the team’s achievements. Another strategy identified as promoting a positive attitude to learning in New Apprentices was for trainers to provide regular feedback on progress, giving appropriate praise and acknowledgement of tasks well done.

Matching and mismatching New Apprentices’ and trainers’ preferences by type

Each New Apprentice’s open-ended response to ‘I prefer my workplace trainer to ...’ was analysed alongside their matching trainer’s response to ‘When I am helping them to learn, I believe that the

New Apprentice I work with prefers me to ...'. There were several close matches. An example in the area of building relationships was a pairing in community services where the New Apprentice preferred her trainer to 'have a good relationship, be efficient and organised' (female, ENFJ), and the trainer believed that the New Apprentice preferred her 'to be relaxed with them and comfortable in their environment, ... down to earth' and be 'really working with them and not over them, making them feel comfortable and relaxed' (female, ENFP). Another example in the area of allowing autonomy was a New Apprentice in manufacturing who preferred his trainer 'to arrange work that is suitable for me and give me the chance to go and do that work and tell me how I'm going' (male, ENTJ). For his part, the trainer believed the New Apprentice preferred him to 'let them do the work and support them, tell them anything they need to know, let them get stuck into it ... not to worry them, let them feel confident about themselves ... and not be too hasty if they are wrong the first time' (male, E/INTP). A third example of a trainer in manufacturing (male, ENTP)—even though a thinking rather than a feeling type—understanding his New Apprentice's need for appreciation was to:

... explain things to them and not be too hasty if they are wrong the first time. We all make mistakes—it's what we learn from mistakes that is important. Need to make them feel safe, secure, they need that support, they need to feel appreciated, to know they are appreciated.

One of the potential difficulties in terms of differing personalities, flagged earlier in this report, was the introvert (I) trainer handling the extrovert (E) New Apprentice. An instance of this is where the trainer believed that he needed to 'shut up and leave them alone; they prefer positive back-up, which is why you show them the method' (male, INFP) but the New Apprentice expressed preference for her trainer to 'help me in the beginning and tell me what I need to do ...' (female, ENFJ). Another is where the trainer responded that he believed he was to 'give them the opportunity to learn through exploration, to ask questions of me rather than being a teacher; let them tell me what they know, and interpret questions for them so they are able to interpret it for themselves' (male, INFP), while the New Apprentice preferred him to 'be helpful, give advice when I need it [and] be supportive' (male, ENTP). These two examples illustrate how the extroverted New Apprentices were expressing preference for more interaction and support than the introverted trainer believed was required.

However, this difference in perception was very clearly highlighted, even in cases where there were similar dimensions of type. In one case where there were three dimensions in common, the New Apprentice reported she wanted 'more communication' (female, ENTP), while the trainer believed that she needed to 'give them direction then leave them to it; they call for help if needed' (female, ENFP). In another where there were two dimensions in common, the New Apprentice expressed a desire to 'have more regular one-on-one feedback sessions' (female, ISFJ), although the trainer believed that he was to 'help guide them at the start and gradually give them more autonomy' (male, INFP).

The other potential difficulty with this sample, flagged earlier in this report, related to the predominance of perceptive (P) trainers and judging (J) New Apprentices. An explicit instance was where the New Apprentice preferred the trainer to 'explain things clearly with demonstration rather than figure things out on my own' (female, ENFJ), while the trainer believed her New Apprentice desired her to 'give them direction then leave them to it, they call for help if needed' (female, ENFP). Another New Apprentice preferred her trainer to 'give me space and let me achieve what I've learnt' (female, ESTJ); however, the trainer thought that her New Apprentice preferred her to:

... use adult learning principles such as active learning, feedback, relevance, holistic, practical, reinforcing, reward, motivation, allowing time, respect, keep them involved, pitch material at their level, clear information, encourage them to take risks, make the material stimulating and interesting, answer questions, explain. (female, ENFP)

Both of these examples reinforce the belief of perceiving (P) trainers in the value of open-ended, exploratory approaches emphasising spontaneity, inquisitiveness and perception, and the need to be aware when they have judging (J) learners who may well have very different ways of structuring learning and their environment. The last example also illustrates, not only the potential difficulties between perceiving (P) and judging (J) personalities, but also the preferred approach of the intuitive-

feeling (NF) trainer which, while laudable per se, may be quite incompatible with the sensing-thinking (ST) approach. While there were a majority of intuitive-feeling types in this study, there were very few sensing-thinking examples with which to explore this difference further (there was only one other case, but the male New Apprentice did not provide a response to this item).

Perceived learning/training environments

New Apprentices' judgements on how often their learning preferences characterised their own workplaces

Table 10 in appendix C provides full details on how often New Apprentices perceived their preferences for a learning environment were actually intrinsic to their own workplace. Only ten preferences were judged to be occurring 'often' (a mean of 3.00 or more), while as many as 16 were judged to be occurring only 'sometimes' (a mean less than 3.00). It is notable that some of the highly preferred aspects relating to trainers'/employers' attitudes to them as learners do not receive a high mean. Not only is the mean for their occurrence low (below 3.00), the gap in the means between preference and occurrence is higher (above 0.62) than in most other instances. Despite the following features being rated highly (mean over 3.5) by the New Apprentices, four were reported by these New Apprentices as happening in their own workplaces less often than they would have preferred:

- ✧ the New Apprentice having opportunities to practise skills and ideas learned from off-job training (mean 2.73)
- ✧ the New Apprentice being given encouragement to take on more difficult and complex tasks over time (mean 2.80)
- ✧ the trainer/employer taking time to talk to the New Apprentice about their job (mean 2.86)
- ✧ the New Apprentice having opportunities to talk with the employer/trainer about what they would like to learn (mean 2.91).

All means for New Apprentices' preferences were consistently higher than means for their judgements on the frequency of the various aspects actually happening in their workplaces. In other words, they perceived the reality to be less than the desirable—that their preferred learning conditions were occurring less frequently than they would have liked within their own workplaces.

These results confirm the findings from an earlier study by the authors (Strickland et al. 2001) in which very similar items were asked in a national survey of New Apprentices in the Australian automotive and hospitality industries. In that study, as in this one, the top items rated as most important reflected some of the core components of a quality learning and assessment system. These included effective instructors, clearly articulated processes for assessment in the workplace, quality relationships between New Apprentices and their workplace colleagues, and the opportunity to undertake meaningful work to support learning (p.207). In both studies, the top-rating features in New Apprentices' learning environments were effective trainers and having a good relationship with them. However, the apprentices and trainees in the earlier study also believed that some of the conditions they rated as important were not particularly prevalent in their workplaces. Of note for apprentices were nine features, and for trainees, seven which, 'despite being rated as important ... were absent from approximately one-third to over one-half of all workplaces' (pp.207–9). In both studies, common features reported by New Apprentices as minimal in their workplaces were trainers talking to learners about their job, opportunities for trainers to talk with learners about what they

would like to learn and opportunities for New Apprentices to practise skills. Learners view these three features in particular as continuing to be problematic areas in workplaces.

Cross-tabulations by industry and gender revealed several statistically significant differences that reflect variations in the nature of work in the three industries (see tables 6 and 7 in appendix C).

By industry, the instances where there were significant differences in the New Apprentices' judgements about the degree to which preferred features were occurring were in opportunities to talk with their trainer about what they were learning in their off-job training and the availability of being formally assessed when they felt ready. In both cases, New Apprentices in the community services industry reported significantly more occurrences than did their counterparts in the other two industries. It is likely that these particular aspects of the workplace environment are more integral to the culture of the community services industry than the other industries. It may also be that the nature of work in community services and health can more readily accommodate the opportunities and afford the space for New Apprentices to negotiate with trainers/employers about what they would like to learn, about the 'why' and the 'how', about what is being learned off-job, and about formal assessment in the workplace.

As they did about their preferred workplace environments, male and female New Apprentices thought similarly about the degree to which various aspects were occurring in their workplaces. Only in one case was there a significant difference, where males believed there were more opportunities available for learning about the 'why' of particular practices and operations.

Trainers' judgements on how often their training preferences were occurring in their own workplaces

Table 11 in appendix C presents details on how often the trainers perceived their training preferences were actually occurring at their own workplaces. Only 14 were judged to be occurring 'often' (a mean of 3.00 or more), with 13 judged to be occurring only 'sometimes' (a mean less than 3.00). In many of these instances, there is a large gap between the preferred means and the occurring means, and disturbingly, these gaps occur for features which are often in key educational areas. This is particularly the case with: talking with external providers (gap = 1.06); working out learning goals with learners (.97); going to events with the New Apprentice (.92); negotiating access to learning resources for the New Apprentice (.91); talking to the New Apprentice about the difference between what happens at work and what they might experience in a training program about their work (.84); and talking to the New Apprentice about how tasks fit with what they might be learning in an off-job training program (.81).

Other large gaps were found in areas where the trainer might have hoped for some influence in the workplace, such as modifying what's happening at work so that it fits more closely with what is being taught in the New Apprentice's formal training program (.87); organising meetings so that New Apprentice is able to share what they are doing with others (.84); and making judgements about how fast or slow the pace of work needs to be so that the New Apprentice is able to keep up (.52).

It is notable that some of the highly preferred aspects relating to trainers'/employers' attitudes to New Apprentices as learners do not receive a high mean; for example, talking to the learner about their job, encouraging them to take on more difficult and complex tasks over time; providing opportunities to talk with the learner about what they would like to learn; and offering opportunities to practise skills and ideas learned from off-job training. Not only is the mean for their occurrence low (below 3.00), the gap in the means between preference and occurrence is higher (above 0.62) than in most other instances.

As with the New Apprentices, all mean scores on the trainers' training preferences were consistently higher than mean scores on their judgements on the frequency of various aspects happening in their workplaces. Thus, even though these trainers had responsibility for these actions, their preferred training actions were occurring less frequently in their own workplaces than they would have liked.

There were six cases where there were significant differences by industry in the trainers' judgements about the degree to which they were occurring (see table 9 in appendix C). As with the New Apprentices, trainers in community services in almost all cases reported significantly more occurrences than did their counterparts in the other two industries. These occurrences were in organising tasks to match the New Apprentice's ability, skill and experience levels; making judgements about how fast or slow the pace of work needs to be to enable the New Apprentice to keep up; talking to the New Apprentice about the difference between what happens at work and what they might experience in a training program; and negotiating access to learning resources for the New Apprentice.

In two cases, the trainers in the manufacturing industry reported more occurrences than those in the other two industries—in getting the New Apprentice to increase the number and complexity of the tasks they do over time, and making time to help the New Apprentice learn. These last two findings for the manufacturing industry may be the consequence of trainers working with 'traditional' New Apprentices where gradation of tasks is a long-established practice in the engineering trades, and where making time for helping learning is more possible within a longer contract of training than in the case of shorter traineeships.

There were two instances where judgements about the degree to which an aspect was actually occurring in their own workplaces showed statistically significant differences by gender. Female trainers reported significantly more talking to the New Apprentice about the difference between what happens at work and what they might experience in their training program. Males, however, considered there was significantly more discussion about learning experiences with the New Apprentice as they were working with them.

Comparison of New Apprentices' and trainers' perceived learning/training environments at work

The individual items asked of New Apprentices and trainers were not directly equivalent: one item set enquired about preferences for learning and the other about preferences for helping New Apprentices learn. However, in order to make comparison easier, each set of items was clustered into five broad categories, roughly mirror images of each other. The data clustered in these ways are presented in figure 4 for the New Apprentices and figure 5 for the trainers in appendix C. A comparative summary of the five categories for both New Apprentices and trainers is presented in table 8.

The data show that trainers report both a higher preference and more occurrences that do the New Apprentices in the category of influencing work to accommodate learning. They evidently feel they have control over shaping work processes (79%). Their learners, however, do not appear to recognise that this is in fact occurring to the same extent (58%).

Table 8: Comparison of New Apprentices' and trainers' preferences for learning/training environment at work and frequency of occurrence in their workplaces

Category	Apprentices		Trainers	
	Preferences (means)	Percentages perceiving clusters were happening 'all/most of the time' / 'often' (%)	Preferences (means)	Percentages perceiving clusters were happening 'all/most of the time' / 'often' (%)
Work processes that accommodate learning	3.31	58	3.66	79
Environment conducive to learning	3.61	72	3.56	69
Independence and self-direction in learning	3.36	57	3.48	62
Working and learning with co-learners	3.46	73	3.32	62
External learning experiences linked with work and learning within the workplace	3.18	53	3.25	42

On the other hand, New Apprentices reported a higher preference than trainers for working and learning with others, as well as more occurrences of this (73% cf. 62%). As learners, they obviously feel the need for support in the workplace. PJ Smith (2001) also found that New Apprentices favoured collaboration with peers. Furthermore, New Apprentices (53%) reported more frequent linkages with external learning experiences than did trainers (42%), perhaps because they were more aware of them, being the learners needing to move between learning sites and to integrate the 'messages' (Harris et al. 1998) between the various learning sites.

The trainer data can be compared with those obtained from workplace trainers in an earlier study (Harris et al. 2000, pp.35–6). In each of the categories, more trainers are reporting frequent occurrences than five years ago (see table 12 in appendix C). This is particularly the case with manipulating work processes (79% cf. 65%) and fostering a learning-conducive environment at work (69% cf. 59%), arguably a reflection of the greater recognition today of the workplace as an authentic learning site. There was also a far higher reporting of links with external learning experiences (42% cf. 25%), a clear indication of the increasing emphasis in the current climate on the desirability of closer relationships and partnerships between enterprises and training providers. To the extent that these findings have any validity in the wider arena, the higher reporting of all these categories in this study is a heartening indicator for the continued progress of training reform and the building of a training culture within Australian workplaces.

Conclusions and implications

This study is an exploratory study. It is one of the few studies undertaken on learning and training preferences in workplace settings, as distinct from studies undertaken on learning styles in classrooms, especially in schools. It is also a study that probes the preferences of both New Apprentices *and* their trainers. Studying both and being able to match learners with their trainers has thus extended our understanding of learning and training in workplaces by allowing comparison of their personality types, their preferences for learning and training behaviours, and their views on the occurrence of certain learning/training behaviours within their workplaces. This study has researched several significant lines of inquiry and raised a number of important issues about learning and the facilitation of learning in workplaces.

Who helps others to learn in workplaces?

The stereotype of the kind of person in the workplace who gravitates (either through volunteering or being encouraged) into helping others to learn is challenged by the findings of this study. While not making any pretence of being representative of the training workforce, this study found that the ENFP and INFP types accounted for 59% of the sample (from table 2). Yet these types are not normally considered to be so predominant in this role.

If it is assumed that the instrument used in this study (based on Lawrence 1982) is reasonably indicative of personality type, why then should there be such a dominance of ENFP/INFP types? Is it because the comparative data taken from the Center for Applications of Psychological Type databank (Myers & McCaulley 1985) are out of date and/or are American in nature and therefore different from the Australian scene? Or is it that the occupation of workplace trainer is so radically different from the occupations listed in that databank? Or is it that the industries chosen for this study are somehow producing this result? None of these reasons appears to explain adequately the predominance of ENFP/INFP types in this study.

The explanation for this type distribution may lie in the self-selection nature of the sample, where intuitive-feeling (NF) individuals might have more readily volunteered to be interviewed than other combinations. Keirsey and Bates (1984) have described intuitive-feeling types as having a teaching style marked by 'personal charisma and commitment to the students they teach ... genuinely concerned about all aspects of the welfare of their students, their social as well as their intellectual development' (p.163), as being focused on the development of the self and in the search for meaning (p.61), and as 'tending to see potential good in everyone and often devoting their lives to the cultivation of this potential' (p.62). Such an orientation may have led these individuals to volunteer more readily to participate in this exploratory research on learning and training preferences in the workplace.

However, it may also be that our stereotypes are incorrect, being influenced too strongly by databanks that have shown teachers to be more the sensing-thinking-judging (STJ) types. It may well be that those who happen to find themselves helping/coaching others learning in workplaces—as a later-in-life occupation or as a secondary component of some other occupation—do, in fact, have a stronger calling for helping others to learn than has traditionally been believed or acknowledged. In this role,

they focus on helping learners develop to the self, search for meaning, value integrity and seek fun (all characteristics of the intuitive-feeling combination). If this is so, then we need to begin to re-conceptualise who these people are who ‘volunteer’ to be helpers of others learning in workplaces.

These findings on the predominance of intuitive-feeling (NF) personality types among trainers in industry hold implications for the selection of people to fulfil such roles in workplaces. The data imply that close attention needs to be paid to the characteristics of these people in particular industry settings. The findings may also have implications for the nature of their training, for example, through the Certificate IV in Training and Assessment. Lastly, the findings may point to the need for further research on personality types and workplace trainers to verify whether the type identified by this research is more prevalent than might be expected from electronic databanks.

What characteristics are preferred in workplace environments?

This study has revealed relatively consistent characteristics about learning and training in the workplace environment for these three industries (from tables 4–6). They both value people-orientation, commitment, efficiency, cooperation, adaptability and pleasantness. However, the New Apprentice’s preferred workplace is primarily a ‘people’ place in a context that allows him/her space and flexibility, as well as security, and which focuses on appreciating and supporting its workforce. In contrast, trainers value a friendly and harmonious work environment, and also prefer workplaces that offer variety and challenge and allow for the solving of new problems.

For both New Apprentices and trainers, what was found to be most important were specific characteristics of people rather than features of place. This reinforces one of the key findings in earlier research (Harris et al. 2000). The collective preference for the New Apprentices in this study was found to be ISFJ, while for trainers it was ENFP (from table 7). These characteristics are generally what are predicted from analysis of their personality types (from table 3). In the case of the trainers it was exactly the same (ENFP), while for the New Apprentices, there was some slight shift (from ENFJ), perhaps as acknowledgement of the practicalities of the workplace.

The most highly ranked preferences of the New Apprentices and their trainers for particular work environments seem to be strongly influenced by the nature of their work. Examination of New Apprentices’ and trainers’ rankings within each industry reveals that seven of the first ten workplace features are common in manufacturing, eight in community services and eight in retail (from tables 4 and 5 in appendix C). Whether this influence is stronger than that of their personality type or gender is difficult to gauge, and could be a fruitful line of inquiry for further research.

Comparison of rankings across industries, however, indicates that the preferences for particular work environments for New Apprentices in manufacturing are quite different from those in community services and retail. Top preferences for both New Apprentices and trainers in manufacturing were about place, whereas for the other two industries they were about people. Trainers in manufacturing saw the preferred workplace features to be structure, variety and challenge, and allowing flexibility in the ways trainers carried out their jobs (these features were not ranked in the top 20 at all by the other industries). The preferences for these types of industries are clearly what might be expected, given the nature of work and the orientation of the respective workplaces, and reflect that particular types of learners—whether instinctively or through career guidance, or a combination of both—gravitate towards occupations exhibiting characteristics that resonate with their personal attributes and abilities.

There was minimal difference between how males and females rated learning and training features in the workplace. In the few instances where there were significant differences, it was the females who rated the features more highly and believed them to be happening more frequently in their workplaces.

Is the prime focus in learning/training environments at work different for New Apprentices and trainers?

The prime focus in the learning/training environments of New Apprentices and trainers was found to be quite different. For the New Apprentices, the quality of the relationship with their trainer or employer was deemed to be highly significant, while for trainers, it was more their capacity to influence aspects of the work and workplace for the benefit of their learners. This underlines the importance of work as the curriculum in workplaces. Data in this study (from figure 5 in appendix C) clearly highlight the prevalence of the trainers' preferences for shaping work processes for the benefit of their learners. Yet for both groups of participants, there is evidence of preferences being diminished by the realities of their workplaces.

What preferred features are not occurring in workplaces?

This study has documented gaps between participants' preferences for a learning/training environment and their perception of what is actually happening (from tables 10 and 11 in appendix C). Factors potentially influencing these gaps between preference and perception are the learners themselves and the workplace environments. Given the considerable degree of comparability in the preferences of the New Apprentices and trainers in this study, it seems that the nature of the workplace environment is playing a key mediating influence. In the case of the trainers, these gaps appear to reflect the practicalities and pragmatism of industry workplaces, where preferences of workplace trainers (by comparison with teachers in classrooms where they are likely to be more in control over the learning environment) can not always be implemented, given the primacy of business imperatives over matters educational. This could be a line for further inquiry: the extent to which trainers in particular workplaces believe they have to bend natural inclinations and preferred ways of working in order to accommodate workplace exigencies and the extent to which learning style affects this ability to be flexible.

The finding that particular training behaviours are frequently not occurring in retail, manufacturing and community services workplaces, even though they are rated highly by New Apprentices and trainers, was also a key finding of Strickland et al. (2001). In that study, New Apprentices reported that several aspects were often not happening in one-quarter to one-third of workplaces in the real estate, building and construction and information technology industries.

Much of what does or does not happen in workplaces is dependent on the nature of the learning/training cultures existing within those organisations. Dawe (2003, p.39), for example, found that the first of ten key elements contributing to successful training in large Australian firms was 'having in place an organisational culture that supports learning', while other key elements were 'decentralising training within the organisation', 'increasing the diversity of training and learning approaches' and 'responding to the needs of the individual'. Given participants' strong preferences for such features within their learning/training environment, the data in the present study lend support to the validity of these features from Dawe's research.

The practical implication here is that workplace trainers should pay close attention to their learners' reported preferences, if not by use of instruments, at least by asking them directly, keenly observing their behaviours, and developing an understanding of learning styles theory and practice. Simons, Harris and Smith (2006, p.8), in analysing VET pedagogy within the Certificate IV in Assessment and Workplace Training, found that, while there was meagre evidence of practical strategies used to cater for student diversity, learning styles was the outstanding exception. This notion of learning of learning styles was common, although often used uncritically. Smith (2005) found that teachers in the VET sector tend to develop their own theories of learning style, either without reference to established theory or on a basis of a theory they were aware of and which appealed to them. Experienced teachers apparently develop an intrinsic understanding of student learning styles and

preferences through experience and observation, and these understandings ‘serve them well’ (Smith & Dalton 2005, p.7). However, those helping others learn in workplaces with less educational experience and in most cases without teacher training may arguably find it far more difficult to become familiar with such understanding without professional assistance.

The gaps indicated in the data in this research also hint at ways in which trainers might endeavour to make industry workplaces more learning-conducive. Data from this study and those reported in 2001 (Strickland et al. 2001) indicate that three aspects in particular continue to be problematic areas in workplaces—trainers talking to learners about their job, opportunities for trainers to talk with learners about what they would like to learn, and opportunities for New Apprentices to practise skills.

Is there evidence of matching between trainer and New Apprentice personality types?

There was considerable commonality in the matching of types between each New Apprentice and his or her trainer (from table 2 in appendix C). There were only three cases where there was perfect matching of type. However, in the other cases, there was sufficient commonality in personality types for the pairs presumably, according to type theory, to get along together and to find common ground for training and learning purposes. The overwhelmingly common dimensions were intuition (N), feeling (F), and perception (P), with extroversion (E) less so.

The implications here relate to debates over matching versus non-matching (Hansen 1997; Hayes & Allinson 1997; McLoughlin 1999). Matching can be helpful for compatibility between trainer and learner, for the learner feeling comfortable having their trainer using particular behaviours that resonate with their ideas on what a learning-conducive work environment should be like, and for trainers using their strengths so that they are likely to be the most effective.

However, in cases where there is little matching, this may not be unhelpful. Such mismatching is likely to assist the learner to learn outside their comfort zone and to provide a challenge for the learner in coping with the different approaches preferred by their trainer, who has a different personality type, and hence training style. Exposure to different personality types can help learners to develop in ways that they might not were they exposed to only one training style—which coincidentally matches their own learning style. Like Gardner and Korth (1998), we would support the desirability of trainers helping learners to learn how to expand their learning style repertoire. While there is no doubt that learners do have preferred learning styles, it would be unwise to underestimate the versatility of learners, or the importance of providing learners with opportunities to exercise a variety of learning styles. As McLoughlin (1999, p.6) concluded, teaching learners how to learn and how to manage their own learning styles, and to practise other learning styles may well enhance their chances of learning success.

An understanding of personality types can be very useful for trainers in recognising how they can ‘connect’ with their learners—to acknowledge and appreciate their preferences and their strengths—and designing effective training strategies and learning environments. Dawe (2003, pp.83, 89), for example, has analysed how BRL Hardy formally records and effectively uses data on personality types, learning/training preferences and preferred learning styles as a way of responding to individual needs and for fostering teamwork in the organisation. As Jensen (1987, p.203) concluded about the Myers-Briggs Type Indicator, such understanding can ‘help [trainers] to move past behaviours to cognitive processes, to better understand the thought processes of [learners] quite different from themselves’. However, the danger lies in typcasting. Thus trainers need to be careful to employ such information merely for deeper understanding, and to be ready to shift ground if initial indications prove to be incorrect. It needs to be recognised at all times that learning styles constitute only one factor in learning—whatever means are used, they can only be indicative and employed as heuristic tools for furthering understanding rather than as definitive tests. All groups display within-group variability and we should guard against the twin dangers of stereotyping and labelling.

Despite these caveats, the matching and/or mismatching of trainer preferences and New Apprentice learner styles and their influence on learning outcomes may be a useful avenue for further research. As we concluded in the literature review, although much of the critique of learning styles raises significant questions about application, these models have considerably advanced our understanding of how individuals approach learning, and how internal and external factors affect learning strategies and outcomes. In exploring workplace learning processes, learning style instruments are likely to have considerable potential as valuable tools. For trainers, they can indicate how learning experiences and materials might be more effectively designed. For learners, they can promote awareness of the need to develop the learning attributes necessary for the current environment and for taking control of their own learning.

It is true, as Sadler-Smith (1996) rightly claims, that in larger groups the matching of trainer and learner styles can become too difficult because of the spread of learning styles. In workplaces, by comparison with classrooms, however, there is usually far more one-with-one (or one-with-a few) interaction in training situations, and so the issue of type can assume far more practical significance. The ability to get along with one another in terms of personality is very important in such a context. This ability to 'get alongside' is a critical prerequisite in the educational process: 'You gotta to reach 'em to teach 'em' is a long-established educational aphorism (Jensen 1987, p.189). Apprentices in this study frequently used phrases like: 'respect them', 'relationship is all important', 'like what I see' and 'approachable'. Strickland et al. (2001) had also concluded that relationship is important. Getting alongside learners cannot be underestimated in a context characterised by considerable one-with-one work, everyday pressures and the stresses of work occurring simultaneously with learning and training processes, limited time and constrained space, and where those helping others to learn are unlikely to be qualified educationalists. In an approach such as this, where personalities are, to some extent, matched, we can begin to realise the 'learner-centred approach' to VET pedagogy advocated by the Centre Undertaking Research in Vocational Education and the University of Ballarat (2004, p.50) and the 'personalised services' discussed by Mitchell et al. (2005, pp.5–7).

In 1994, Misko (1994, p.39) concluded there was a strong need generally for more learning style research in vocational education. A decade later, Smith (2005, p.6) recommended further investigation in VET more specifically to determine the effectiveness of the notions of learning style held by teachers, and the forms of response to learning enhancement or learner experience. What this present exploratory study has endeavoured to do is to deepen understanding of learning styles in vocational education and training *in the workplace* through close examination of the perspectives of both New Apprentices and their trainers. In doing so, it has attempted to extend the body of knowledge that can inform policy and practice debates over the capacity of the VET sector to meet the diverse learning needs of its learners.

Research into learning styles, preferences and differences in Australian VET is still in its infancy. Much research remains to be undertaken. Emerging from this study are questions about the respective influences of personality types, of gender and of the nature of work on learning and training preferences. There are questions about the extent to which participants consider they have to bend natural inclinations to fit workplace realities, and about matching and/or mismatching trainer and New Apprentice learner styles, and the influence of these styles on workplace learning outcomes. Such lines of inquiry would continue to extend our knowledge of the processes that have potential for leading to satisfying learning for diverse groups of learners in workplaces. This knowledge would thereby contribute to the building of quality learning environments, a goal which takes on particular significance with the growth in importance of the *workplace* as a significant site for learning.

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