

LEARNING CULTURES FOR APPRENTICESHIPS: A COMPARISON OF GERMANY AND AUSTRALIA

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Vocational education and training (VET) is closely allied to economic directions of countries and is therefore often perceived, and employed, as a tool for reform. Some believe that Australian VET reforms have been heavily borrowed from Germany. Others, however, contend that reforms are so context-specific that transplantation can only be fraught with difficulty and danger. The German VET system is often used as a contrast with other countries, including sometimes Australia. There are contentions that the positive experience with German apprenticeship may assist in the design of similar policies in other countries. Conversely, some authors maintain that Australian concepts and experiences can serve as pilot projects for Germany. They conclude that, in these two countries, many of the problems are similar but policies adopted are somewhat different. The claim could be made that, despite attempts for greater transparency, reforms have made both systems often more confusing and complex. This paper, therefore, contributes to the on-going analysis of these two reforming VET systems, specifically focusing on the learning cultures for apprenticeships.

1 Apprenticeships as cultural experience

Vocational education and training (VET) is closely allied to economic directions of countries and is therefore often perceived, and employed, as a tool for reform. As a result, VET systems are particularly subject to policy intervention and particularly susceptible to pressures for change driven by both national and global factors. Arguably, nowhere is this more apparent than in the case of apprenticeships.

Apprenticeship is a cultural experience. It is not simply the picking up of skills and knowledge of a trade. It involves the assimilation of the whole way of life of that trade – its skills and knowledge, but also its cultural mores, values, ways of interacting, ways of doing, ethics, standards, expectations. Apprenticeship involves learning by immersion, for the apprentice has made a definite commitment, signed a contract for a number of years, to work, learn and live (if no longer ‘live-in’ as they used to do!) as an apprentice to a particular employer and, apart from perhaps some time (in Australia, amounting to about a fifth) attending an off-the-job training provider, to do so almost exclusively to that employer in the workplace itself.

Following Lave & Wenger (1991), it is clear that the workplace as a site of learning is of value to the apprentice since, “[i]n contrast with learning as internalization, learning as increasing participation in communities of practice concerns the whole person acting in the world” (p.49). One of the outcomes of this participation is that apprentices do not just acquire particular knowledge; as individuals they develop an identity, a sense of who they are and also how others perceive them. But this can only be done in a social setting, not on a one-on-one basis (Wenger 1998, p.3). They are part of a network of social communities and communities of practice (Wenger 1998).

Underlying these ideas is the assumption that a great deal of learning happens incidentally and informally during work (Marsick & Watkins 2001; Wenger 1998; Garrick 1998; Harris, Willis, Simons & Underwood 1998; Billett 1997). The potential of work-based learning to bring about cultural as well as structural change is significant. Writers in this field share a belief that working, learning and innovating are closely related forms of human activity often artificially separated in conventional thinking (Brown & Duguid 1991; Boud & Garrick 1999), and see communities of practice as prime agents for learning, work, acculturation and change.

Given the importance of this cultural experience in the identity development of apprentices, what is of interest here are the differences in the cultural working context between countries – in this case, between Germany and Australia. This paper contributes to the on-going analysis of these two reforming VET systems. It specifically focuses on the learning cultures for apprenticeships, and in so doing, highlights some of the contrasts in learning concepts, policies and assumptions in both countries, and draws some issues for VET policy and research.

2 Background

Some writers believe that Australian VET reforms have been heavily borrowed from Germany (Newbould 2002). Others, however, contend that reforms are so context-specific that transplantation can only be fraught with difficulty and danger. One anecdotal justification for this view is the contrasting vocational learning cultures in both of these countries.

The German VET system is often used as a contrast with numerous other countries (e.g. Deissinger 1996, 2001a and 2002 on the legal aspect and on qualifications and certification frameworks; KRIVET 2002 on qualifications, financing and partnerships; Keating et al. 2002 on trends and issues; Coffey & Rhodes 2002 on trends and drivers for change). These contrasts sometimes include Australia (e.g. Sweet 2002 on youth pathways; Reuling 2002 on lifelong learning; NCVET 2001 on size and scope; Burke & Reuling 2000 on similarities and differences). Similarly, there are major discrepancies between the Anglo-Saxon model of VET, as realised in the British CBT approach, and Germany with its long-standing apprenticeship tradition (Deissinger 2002).

Clark & Fahr (2002), in fact, contend that the positive experience with German apprenticeship training may assist in the design of similar policies in other countries. Conversely, Reuling (2002) states that Australian concepts and experiences can serve as pilot projects for Germany. Burke & Reuling (2000) conclude that, in these two countries, many of the problems are similar but policies adopted are somewhat different. In fact, the claim could be made that, despite attempts for greater transparency, reforms have made both systems often more confusing and complex (e.g. Idress 2002).

3 Key differences in learning cultures between Germany and Australia

3.1 Strength of, and respect for, vocational education

The German apprenticeship system, the Dual System, is the ‘centrepiece of vocational education and training in the Federal Republic’ (Raggatt 1988, p.166). Apprenticeships are culturally strong and avail of a long-standing tradition of craft training dating back to the Middle Ages (NCVER 2001) while the genesis of the modern vocational training system has been the result of substantial state activities to revitalise the ancient craft system. Although, in the process of industrialisation, guild privileges had been seen as obstacles to economic prosperity, there was a most significant change in policy when the Craft Regulation Act passed in 1897 (Schlüter & Stratmann 1985, pp.210ff.) provided for craft chambers as institutions of public law authorised to hold examinations for journeymen and masters. The notion of the skilled craftsman, and with it apprenticeships, thus became rooted within a framework of self-government. The 1897 Act also confined the technical qualification required for the training of apprentices to skilled journeymen. Indentures became general practice in the craft sector as well as the three-year training period. By reviving the apprenticeship tradition of the pre-industrial age, in 1908, the right to train apprentices was even restricted to craft masters (Stratmann 1982).

The system actually became a “dual” training system during the first two decades of the 20th century when the vocational part-time schools replaced the continuation schools (although compulsion was only enforced in 1938) to accompany apprenticeships and to give young people education “through the vocation”. From the mid-twenties, the chambers of industry and commerce began holding examinations for industrial workers, which were based on training recommendations and had until then been the exclusive right of craft chambers (Muth 1985; Schütte 1992, pp.79ff.). Despite its more systematic character industrial training adopted a similar corporatist framework as well as the occupational orientation of the training process, which has remained the pivotal trait of apprenticeship in Germany up to the present day (Deissinger 1998) opening up respected pathways for the majority of school leavers. Both the extension of full-time vocational schools and the critical educational movement during the sixties and seventies of the 20th century (Zabeck 1975; Deissinger 1998, pp.25ff.) failed to really put the Dual System at stake.

In contrast, the strength of and respect for vocational education is relatively weak in Anglo-Saxon countries, including Australia. The expectation of parents is strongly towards their children going to university, getting an academic education, because it is more highly respected. VET pathways are not so well known. What Hermann, Richardson and Woodburne claimed in 1976 remains just as valid today:

... education in occupational skills for those whose skills are mainly manual has traditionally been seen as outside the main stream of education; indeed, many educators have seen it as not being true education at all but merely instruction. This attitude, combined with that which sees the tradesmen [sic] as comparatively low in occupational status ... has affected the attitude of the public ... the public tends to be unaware of the growth of technician education (p.33)

The strength of immigration, particularly in recent decades from Asia where university education is strongly revered, has tended to reinforce this expectation.

The history of apprenticeship in Australia has predominantly been one of industrial relations issues. If the social/community value of apprenticeships was articulated, it was in relation to assistance they proffered to poor people to avoid dead-end jobs and achieve some status in the community. Ray (2001, p.19) supports this perspective in

quoting two examples from the Beattie Report of 1968 – the 1921 Engineers’ Case and the 1948 Plumbers and Gasfitters Apprentices’ Case – in which the discourse related, respectively, to dissuading “poor parents” from putting “the lads when they leave school into some dead-end labouring occupation” and “placing their boys in dead-end occupations”. One could assume, too, that the lower status afforded apprenticeships was reinforced when some of its disciplines left the realms of apprenticeship to enter those of higher education, such as pharmacy and surveying in the 1950s and nursing in the 1980s. In fact, from World War II to the Kangan Report of 1974, there were a spate of Federal inquiries to intervene in a significant way to improve all levels of education, especially advanced and higher education, but none into technical education, and it was not until immigration levels declined and concern increased about possible skills shortages that the complacency about apprenticeship was eventually broken (Ray 1999, pp.12-13). It was a time, too, when debates about the relative value of general education and technical education resulted in the discontinuation of technical education (and domestic science) in high schools in favour of general education (Ray 2001, p.22). All of these examples illustrate the relatively lower status of vocational education and training in Australia vis-à-vis other forms of education.

3.2 Knowledge and understanding of vocational pathways

In Germany the vocational pathway is well established and well known. The Dual System with its 350 “recognised skilled occupations” still takes up more than half of all 16-19 year olds. The number of training places offered by employers over the last decades has always ranged between some 600,000 and 700,000 p.a., depending on economic conditions. Unlike in most other European countries, with the exception of Austria and Switzerland, apprenticeships in Germany exist in nearly all branches of the economy including the professions and parts of the civil service. Small and medium-sized companies are significant contributors to training opportunities (Deissinger, 2001b). However, in 2002, the task of providing all applicants with a training place was associated with major challenges. At 572,227, the number of new training contracts was down 42,000 on the previous year and had thus sunk to an unexpected level. The reasons for this decline may be seen in the following factors: the weak economy; insecurities about the future demand for skilled employees; lack of training maturity among school leavers; regional and occupational imbalances on the training market, above all with respect to East Germany. Therefore, both the number of students entering Higher Education and the influx into vocational full-time schools have increased and are likely to rise in the forthcoming years (for all figures see Federal Training Report 2003 on www.bmbf.de).

Despite all this, apprentices still come from different educational backgrounds although most have an intermediate or lower secondary school certificate. In recent years, the number of grammar school leavers taking up DTS training has remained more or less stable at around 15%, a phenomenon which puts Germany down in terms of the academic drift of young people as against other countries. Quite unambiguously, the present federal government has underlined its will to increase the number of school leavers going on to Higher Education. This policy, clearly in the wake of assessment studies such as PISA (Programme for International Student Assessment), could lead to a gradual undermining of trust in and contentment with the Dual System.

In Australia, vocational pathways are, generally, poorly understood, except in those families where there has already been an apprenticeship experience. The introduction of

traineeships from 1985, introduced to encourage early school-leavers to enter the workforce and obtain skills training, and then of New Apprenticeships from 1998 in the interests of flexibility, has tended to make understandings of apprenticeship even less clear. Roe (1997, pp.8-9) wrote that “there is such a confusion of ‘demand’ and ‘supply’, of ‘users’ and ‘suppliers’, and such a diversity of market conditions”. A few years later, Ray (2001) could still claim:

The fact that employers had a poor understanding of traineeships was not surprising. From the advent of ‘training reform’ in the early 1990s, the whole training environment had been constantly changing and becoming more and more complicated. By 1995/96, the training system had become almost incomprehensible to anyone outside the training community (p.35).

The New Apprenticeship arrangements introduced further elements such as training packages and user choice, and covered school-based and part-time apprenticeships and traineeships and formal training that was wholly on-the-job or off-the-job at a VET training provider (Harris 2001). Further, they were made available to existing employees. All of these changes made understanding of vocational pathways really complicated and problematic.

3.3 Financing of vocational education and training

The training market in Germany “has the character of a suppliers’ market” (Greinert 1994, p.80). Once a training contract has been signed this means the principal financial responsibility of companies for the training process including, besides training allowances, all direct and indirect costs such as training personnel, machinery, training administration and social insurance contributions. The fact that the “system is financed principally by employers” (NCVER 2001, p.38) reflects the principle of self-government which was re-affirmed by law in the late 19th century. Therefore, companies provide training opportunities on a totally voluntary basis. While the overall training quota in Germany is just about 30% in the old and 27% in the new federal states (2001), at 91% big companies train to a very large extent. As already mentioned, craft sector training has a particularly strong tradition and some 570,000 young people out of the present total of 1.7 million trained in the Dual System are receiving their training in a craft company under the supervision of a master craftsman (although with a decreasing tendency).

In terms of the financial burden, companies shoulder the lion’s share of training cost: in 2000, companies invested nearly 28 billion Euros into the Dual System. The average training outlay per apprentice is currently rated at 16,435 Euros p.a. (Beicht & Walden 2002). Due to that, the cost argument can be found among the most important reasons which companies report for not entering training. A recent panel survey published by the German Labour Office Research Unit sees the financial aspect of training at nearly 38%, 28.6% of companies say that training is too burdensome and complicated for them, while 12.5% complain about applicants’ educational background or social skills.

Currently, public funding of VET in general is becoming increasingly important due to the critical situation on the labour and training markets. For the year 2000 estimates point to some 8 billion Euros of budget items, including roughly 5.6 billion for VET in schools. Among these funds, activities to promote either external training options or give incentives to employers are paramount (Berger & Walden 2002). This tendency could lead to a creeping “pluralisation” of the Dual System and certainly shows its dependency on sound economic framework conditions.

In Australia, there is a strong welfare tradition, initiated as a result of and reinforced by large spaces, small populations and protected markets, where the expectation is for government assistance. This was strengthened by Federal and State institutions, such as the railways and public utilities, being often the largest employers which felt obliged to support apprenticeships (Gospel 1994, p.513). While undoubtedly there is a community role in apprenticeships providing a supply of skilled people to furnish quality goods and services (Ray 2001, p.16), it is also the case that employers now look to government to subsidise their taking on of an apprentice.

Until 1973, apprenticeship had been characterised by its 'industry-driven' nature, with ownership resting almost exclusively with industrial parties (Ray 1999, p.20). In that year, the Commonwealth Government provided inducements to employers to take on apprentices (under the National Apprenticeship Assistance Scheme, NAAS) and living away from home allowances for those from country areas. This was the first time the Government had injected significant funding into apprentice training (except for technical education costs and supervision of apprentices by the States), and the NAAS was "a landmark program in the history of apprenticeship in Australia" (Ray 2001, p.26). Between 1973/74 and 1975/76, funding under NAAS increased from \$6.5 million to \$34.9 million. Apprentice numbers had grown slowly to reach 100,000 by the end of the 1960s, but grew sharply to over 130,000 in 1974 and to 150,000 in 1982 "in response to the establishment of the first universal government subsidy scheme to encourage employers to take on more apprentices" (NCVER 2001, p.xvi). In 1977, CRAFT replaced NAAS, essentially providing employers with rebates to offset the cost of wages lost when apprentices attended approved off-the-job training. By 1984/85, Commonwealth subsidies were costing \$122 million.

Notwithstanding cycles of economic upturn and downturn, one might speculate from these figures, therefore, a generally weaker altruistic commitment on the part of employers to training the next generation unless there is government assistance. This could be assumed to be the case especially when around 90% of Australian companies are small to micro and thus not in a strong financial position to take on apprentices, and by the lack of a training culture in many industries and occupations. It is somewhat ironic that until 1973, "apprenticeship in Australia had been characterised by the way it had been 'industry-driven' with ownership resting almost exclusively with the industrial parties" (Ray 1999, p.20), and yet from the mid-90s, all parties have desperately been striving to make the system more 'industry-driven'!

3.4 Prime focus of apprenticeships

The German apprenticeship system is well characterised by the NCVER in that the "system is viewed primarily as a system of training rather than a system of employment... The wages of apprentices reflect this emphasis on training, with German apprentices typically paid wages that are far lower than adult rates and apprentice rates in Australia" (NCVER, 2001, p.39). Training allowances are the result of collective bargaining but keep attached to the purpose of giving young people a basic start into their working lives without putting too much burden on employers. As the apprenticeship system is seen to be neither part of the school or education system nor a normal sphere of work the "system reference" is clearly training and recruitment for skilled work. The consequences of such a clear separation of pathways or subsystems of course implies that lots of expectations rest on the Dual System and frictions on the

training market can hardly be compensated without additional activities on the side of both state and federal governments.

Besides, it needs to be said that the fact that the German apprenticeship system is a Dual System also means that the learning and knowledge aspect are dealt with in a specific way that is both institutional and educational. Whereas in other European countries, such as Britain, on-the-job-training – even under the new Modern Apprenticeship Scheme (Ryan 2001) – is complemented by off-the-job-training on a more or less voluntary basis, in Germany it is mandatory. The State Education Acts provide the legal framework and make sure that school-leavers who have found employment or entered a course of training are kept within the educational system. Everybody under the age of eighteen not in Higher or Further Education is compelled to attend the local part-time vocational school (Berufsschule) on a sandwich or day-release basis. Everybody commencing an apprenticeship is required to stay on at school until the end of the training period. For each “recognised skilled occupation” the state education ministries, in line with training regulations under the federal law, work out syllabuses for the vocational and general subjects within a given occupation taught at the part-time vocational schools (Greinert 1994; Münch 1994).

In Australia, the historical purpose of apprenticeship has been to train artisans, and it has been the main approach to training for both the traditional crafts and the more contemporary trade occupations (Ray 1999, p.2). A reflection of this industrial purpose is the long history of industrial relations issues that have always been integral to any discussion on apprenticeships. This was particularly reinforced by the NSW Industrial Disputes Act 1908, which as the Beattie Report of 1968 noted, gave powers to a board to fix numbers of apprentices and improvers and the lowest rates payable to them (cited in Ray 2001, p.18). The traditional importance accorded the contract of employment and training, which until recently retained its old English term of ‘indenture’, was a reflection of this industrial relations emphasis. The 1954 Wright Report strongly affirmed the apprenticeship system, but included in its recommendations to improve it the statement: “Apprentices should be regarded primarily as training or educational units and not as industrial units” (p.32). However, as Ray (2001, p.22) reports, this notion was “quite provocative” and was “unacceptable to the States”. It is perhaps only recently that this key role of apprenticeships has been challenged and the training role has come more to the fore, as evidenced by the fact that often now the system is administered within government portfolios of education and training rather than industrial relations.

3.5 *Quality assurance of in-company training*

In Germany apprentices enter a special training contract which is subject to the 1969 Vocational Training Act (Deissinger 1996). The company is obliged to impart the competences laid down in the training regulation or ordinance. The Vocational Training Act may be viewed as the final stage of a post-war public debate on the degree to which the Dual System as a whole should be submitted to state influence. As a compromise, the Act did not install a new training system including the vocational school, but mainly “consolidated much previous practice under one Act” (Raggatt 1988, p.175). The Vocational Training Act is essentially a specified labour law since its central object is the indenture between the apprentice and the training company. However, there are elements which submit apprenticeships to educational principles.

The Vocational Training Act therefore covers both the private and the public sphere of vocational training. Whereas in the private sphere apprenticeship appears as a specified employment, the public sphere, extending the scope of the Act to the “organisation of vocational training”, makes it an issue of general interest and social importance. The contribution of the Vocational Training Act to systematising and standardising the course of training can be seen in three areas where legislation “protects” vocational training against the market forces: The first one touches the indenture which all alone makes this Act “the most comprehensive and detailed regulatory system for apprenticeship training in the Western world” (Raggatt 1988, p.175). The second aspect brings into focus the degree to which skill requirements of trainers have become formalised. The third one refers to the question of how an apprentice in the Dual System has to be instructed and what knowledge and skills have to be imparted to prepare a young person efficiently for a skilled occupation.

The Act not only stipulates the rights and duties of trainees and training companies, but also prescribes the personal and technical skills of training personnel. For this purpose, a distinction is made between the trainer and the person or firm taking on apprentices. The “personal aptitude” means that a person must not have contravened the law. These preconditions are basically deemed sufficient for hiring an apprentice. However, a person engaging in apprenticeships also has to prove the competence for instructing the apprentice at the training site, called the “technical aptitude”, unless there is a training officer having the necessary personal and technical qualifications to provide the training. Therefore the trainer, besides “personal aptitude”, must avail of technical (i.e. occupational) and pedagogical abilities and knowledge, which means that he/she has to be an expert in the occupation as well as in educational and psychological skills, including the application of appropriate teaching and instruction methods. Since 1972, trainer courses, normally offered by the chambers as the “competent authorities” (Weber 1985, pp.60-64), follow a uniform pattern based on the Vocational Training Act. This regulation is currently at stake as the federal government desperately seeks to liberalise the Dual System and attract more companies to take on apprentices.

In Australia, there is no doubt that a considerable amount of training in the workplace occurs. The Employer Training Expenditure and Practices Survey 2003 claims that in the year ending June 2002, 81% of employers provided some form of training, and of these, 41% provided structured training and 79% unstructured training, with the level of structured training increasing with employer size (cited in NCVET 2003, p.6).

At issue, however, is the quality of that training. Mitchell, Robertson & Shorten (1999, p.119) contend that, with the advent of training packages, “any quality assurance for program delivery and outcomes which might have been provided by the compulsory use of accredited curriculum has been removed” from the VET system. Smith, Oczkowski, Noble & Macklin (2002) have underscored the increasing decentralisation of the training function. They argue that much of the training is delivered by staff who are not trained to do so. Further indication of this concern about quality and the importance of the workplace in supporting training and learning has been its highlighting within national discussions immediately preceding the National VET Strategy for 2004-2010 (NCVER 2003, p.4).

There is no registration for teachers/trainers beyond high school level. It is only relatively recently that trainers in workplaces are expected to have the Certificate IV in assessment and workplace training. However, research findings and anecdotal evidence have suggested that the penetration of this credential in industry has not been extensive

nor its effectiveness particularly great (Gillis, S, Griffin, P, Falk, I & Catts, R 1998; Harris, Simons & Bone 2000). (This qualification is currently undergoing revision.) Other evidence on the extent to which workplaces are conducive learning environments for apprentices underscores variability and raises many issues needing attention (Strickland, A, Simons, M, Harris, R, Robertson, I & Harford, M 2001). Thus, serious concerns continue to linger about quality – in workplace training generally and in totally on-the-job apprenticeships specifically.

4 Conclusion

Leaving aside the temptation to jump to conclusions about the effects of these differing learning cultures on apprenticeship (as there is no space here to indulge in that), the above analysis does cast into the spotlight a number of intriguing issues for VET policy and research. Here are five that emerge from the discussion above:

- What should be the optimal balance between general education and vocational education in developing Western societies? Germany is debating whether to increase numbers in higher education – as this is a significant OECD performance indicator – but runs the risk of damaging the strengths of its VET system. What should be the desirable status for vocational education? Should Australia try to lift the status of VET, and if so, how, in order to attract more high quality students?
- How can governments increase system flexibility and yet not make vocational pathways too complicated to be understood? Some writers have critiqued the well-known and well-regarded Dual System for being too inflexible, while others have critiqued the flexible Australian VET system for being overly complex!
- What should be the predominant focus of apprenticeships – industrial or educational? As developing nations have moved from industrial and post-industrial societies into knowledge societies, is Germany better placed with its tradition of treating apprentices as *educational* units with broader off-job training than Australia with its tradition of treating apprentices as *industrial* units with only work-related training and its traditional preoccupation with industrial relations conditions?
- What should be the appropriate balance in who pays between governments, employers and apprentices/parents? With tightening economic resources in all Western countries: Can governments continue to fund to the extent they have in Australia? Can employers continue to fund to the extent they have in Germany? Should apprentices/parents pay more (as in Australian higher education)?
- In what ways can the quality of apprenticeship training, particularly in the workplace, be raised and made more uniform?

References

- Beicht, U & Walden, G 2002, 'Wirtschaftlichere Durchführung der Berufsausbildung – Untersuchungsergebnisse zu den Ausbildungskosten der Betriebe', *Berufsbildung in Wissenschaft und Praxis*, vol.31, no. 6, pp.38-43.
- Berger, K & Walden, G 2002, 'Trends in public funding for in-company training in Germany', in Burke, G & Reuling, J (eds.), *Vocational training and lifelong learning in Australia and Germany*, National Centre for Vocational Education Research, Adelaide, pp.135-149.

- Billett, S 1997, 'Transfer and social practice', *Australia and New Zealand Journal of Vocational Education Research*, vol.5, no.1, May, pp.1-26.
- Boud, D & Garrick, J (eds.) 1999, *Understanding learning at work*, Routledge, London.
- Brown, J S & Duguid, P 1991, 'Organizational learning and communities-of-practice: toward a unified view of working, learning, and innovation', *Organization Science*, vol.2, no.1, February, pp.40-57.
- Burke, G & Reuling, J (eds.) 2000, *Vocational training and lifelong learning in Australia and Germany*, NCVET, Adelaide.
- Clark, D & Fahr, R 2002, 'The promise of workplace learning for non-college bound youth: theory and evidence from German apprenticeship', Discussion paper, Centre for Economic Performance, London School of Economics and Political Science, London.
- Coffey, M & Rhodes, C 2002, 'Structure and funding of vocational education and training in the United Kingdom, Ireland, France and Germany: an overview', Working paper, Research Centre for Vocational Education and Training, University of Technology, Sydney.
- Deissinger, T 1996, 'Germany's Vocational Training Act: its function as an instrument of quality control within a tradition-based vocational training system', *Oxford Review of Education*, vol.22, no.3, pp.317-336.
- Deissinger, T 1998, *Beruflichkeit als "organisierendes Prinzip" der deutschen Berufsausbildung*, Eusl Verlag, Markt Schwaben.
- Deissinger, T 2001a, 'Entwicklung didaktisch-curricularer Vorgaben für die Berufsbildung in Deutschland', in Bonz, B (ed.), *Didaktik der beruflichen Bildung*, Schneider Verlag, Baltmannsweiler, pp.71-87.
- Deissinger, T 2001b, 'Vocational training in small firms in Germany: the contribution of the craft sector', *Education and Training*, vol.43, no.8/9, pp.426-436.
- Deissinger, T 2002, 'Different approaches to lifelong learning in Britain and Germany: a comparative view with regard to qualifications and certification frameworks', in Harney, K, Heikkinen, A, Rahn, S & Schemmann, M (eds.), *Lifelong learning: one focus, different systems*, Peter Lang, Frankfurt, pp.183-194.
- Garrick, J 1998, *Informal learning in the workplace: unmasking human resource development*, Routledge, London.
- Gillis, S, Griffin, P, Falk, I & Catts, R 1998, 'A review of the competency standards for Assessment and Workplace Trainers', paper presented at the AVETRA National Conference, University of Technology, Sydney, 16-17 February.
- Gospel, H 1994, 'The survival of apprenticeship training: a British, American, Australian comparison', *British Journal of Industrial Relations*, vol.32, no.4, pp.505-522.
- Greinert, W D 1994, *"The German System" of Vocational Training. History, Organization, Prospects*, Nomos Verlag, Baden-Baden.
- Harris, R 2001, 'Training reform in Australia – implications of a shift from a supply to a demand-driven VET System', in Deissinger, T (ed.) *Berufliche Bildung zwischen nationaler Tradition und globaler Entwicklung*, Nomos Verlag, Baden-Baden, pp.231-254.
- Harris, R, Simons, M & Bone, J 2000, *More than meets the eye? Rethinking the role of workplace trainer*, NCVET, Adelaide.
- Harris, R, Willis, P, Simons, M & Underwood, F 1998, *Learning the job: juggling the messages in on- and off-the-job training*, NCVET, Adelaide.
- Hermann, G D, Richardson, E & Woodburne, G J 1976, *Trade and technician education: principles and issues*, Cassell Australia, Stanmore, NSW.

- Idress, C M 2002, 'Challenge and change in the German vocational system since 1990', *Oxford Review of Education*, vol.28. no.4, December, pp.473-490.
- Keating, J, Medrich, E, Volkoff, V & Perry, J 2002, *Comparative study of vocational education and training systems: national vocational education and training systems across three regions under pressure of change*, NCVER, Adelaide.
- KRIVET 2002, Country reports in the *Proceedings of the 2002 KRIVET International Conference on Vocational Education and Training*, Seoul, Korea.
- Lave, J & Wenger, E 1991, *Situated learning: legitimate peripheral participation*, Cambridge University Press, Cambridge.
- Marsick, V J. & Watkins, K E 2001, 'Informal and incidental learning' *New Directions for Adult and Continuing Education*, no.89, Spring, pp.25-34.
- Mitchell, R, Robertson, I & Shorten, A 1999, *Law and policy in vocational education and training: a contemporary survey*, NCVER, Adelaide.
- Münch, J 1994, *Das Berufsbildungssystem in der Bundesrepublik Deutschland*, Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften, Luxembourg.
- Muth, W 1985, 'Die historische Entwicklung der Lehrabschlussprüfungen bei den Industrie- und Handelskammern', *Wirtschaft und Berufserziehung*, vol.37, pp.328-336.
- National Centre for Vocational Education Research 2001, *Australian apprenticeships. facts, fiction and future*, NCVER, Adelaide.
- National Centre for Vocational Education Research 2003, *What makes for good workplace learning?' At a glance*, NCVER,
- Newbould, J 2002, 'The German experience', *Training Agenda*, vol.10, no.4, Summer, pp. 23-24.
- Raggatt, P 1988, 'Quality control in the Dual System of West Germany', *Oxford Review of Education*, vol.14, no.2, pp.163-186.
- Ray, J & Associates 1999, 'Apprenticeship in Australia: an historical snapshot', unpublished paper.
- Ray, J 2001, 'Apprenticeship in Australia: a concise history', in Smart, N (ed.), *Australian apprenticeships: research readings*, NCVER, Adelaide, pp.15-41.
- Roe, J 1997, 'Competition: a union perspective', *Training agenda*, vol.15, no.3, pp.8-9.
- Reuling, J 2002, 'Vocational training and lifelong learning in Australia and Germany: observations and conclusions from a German perspective', in Burke, G & Reuling, J (eds.), *Vocational training and lifelong learning in Australia and Germany*, NCVER, Adelaide, pp. 14-20.
- Ryan, P 2001, 'Apprenticeship in Britain – tradition and innovation', in Deissinger, T (ed.), *Berufliche Bildung zwischen nationaler Tradition und globaler Entwicklung*, Nomos Verlag, Baden-Baden, pp.133-157.
- Schlüter, A & Stratmann, K (eds.) 1985, *Quellen und Dokumente zur betrieblichen Berufsbildung, 1869-1918*, Böhlau Verlag, Köln.
- Schütte, F 1992, *Berufserziehung zwischen Revolution und Nationalsozialismus. Ein Beitrag zur Bildungs- und Sozialgeschichte der Weimarer Republik*, Deutscher Studien Verlag, Weinheim.
- Smith, A, Oczkowski, E, Noble, C & Macklin, R 2002, *New management practices and enterprise training*, NCVER, Adelaide.
- Stratmann, K 1982, 'Geschichte der beruflichen Bildung. Ihre Theorie und Legitimation seit Beginn der Industrialisierung', in Blankertz, H (ed.), *Enzyklopädie Erziehungswissenschaft, Bd. 9.1: Sekundarstufe II – Jugendbildung zwischen Schule und Beruf*, Klett-Cotta, Stuttgart, pp.173-202.

- Strickland, A, Simons, M, Harris, R, Robertson, I & Harford, M 2001, 'On- and off-job approaches to learning and assessment in apprenticeships and traineeships', in Smart, N (ed.), *Australian apprenticeships: research readings*, NCVET, Adelaide, pp.199-220.
- Sweet, R 2002, 'Youth pathways: comparing Australia and Germany', in Burke, G & Reuling, J (eds.), *Vocational training and lifelong learning in Australia and Germany*, NCVET, Adelaide, pp.220-228.
- Weber, R 1985, *Berufsbildungsgesetz und Berufsbildungsförderungsgesetz*, Heider Verlag, Bergisch-Gladbach.
- Welton, M 1991, *Towards development work: the workplace as a learning environment*, Deakin University, Geelong.
- Wenger, E 1998, *Communities of practice: learning, meaning, and identity*, Cambridge University Press, Cambridge.
- Zabeck, J (1975) 'Berufsbildungsreform in der Krise. Aufgaben einer funktionalen Politik', in Schlaffke, W & Zabeck, J., *Bildungsreform – Illusion und Wirklichkeit*, Köln, pp.89-161.