

# Revisiting the role of the 'expert other' in learners' acquisition of workplace competence

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## Abstract

Skills development policies in South Africa and further afield consider learning in and from the workplace as critical to the training of artisans at intermediate level, bringing together theoretical learning undertaken in formal institutions and practical, on-the-job training for the purpose of achieving occupational competence, demonstrated ultimately in the prescribed trade test. Ellstrom (2001) asserts that "in spite of a widespread belief in the importance of integrating learning and work, little is known about the conditions that promote such integration" (p.421). While apprenticeship training has a long history in South Africa, and historical anecdotal accounts exist of the workplace experiences of trainee artisans, there are only a few recent local empirical studies that have advanced our understanding of this domain. This research thus sought to investigate learning in the workplace from the perspective of the candidates: the methodologies, practices, and affordances for learning which they perceived to be available to them, and employed a qualitative approach for exploring how candidates in engineering trades experienced the 'real world environment' of learning and engagement in the workplace. The juxtaposition of complementary theories that lent themselves to explaining workplace learning phenomena, in particular the works of Engeström (1987); Vygotsky (1978); and Lave and Wenger (1991), formed a richly informative system for the data which showed that candidates experienced diverse learning modalities and affordances in their workplace settings. However, the central role of the expert artisan as a quintessential didactic practitioner in moving candidates towards competence was a significant finding, pointing ultimately to the need for collective effort in harnessing the teaching potential of this 'expert other'.

## Introduction

During the 1970s the South African government's industrial decentralisation policies encouraged employers to train more black<sup>1</sup> workers though they were still prohibited from being accepted into formal apprenticeships (Department of Education (DoE), 2001). Only in 1981, with the promulgation of the Manpower Training Act, were blacks formally accepted into the apprenticeship system and could progress from being simply 'tool boys' and 'artisan aides', to becoming qualified artisans (Potgieter, 2003). Apprenticeship entailed signing a contract with an employer for a period of between three to four years and was trade-specific. But a consequence of the National Training Board's (NTB's) lack of resources and training 'know-how' led in many instances to training in the workplace that was unsupervised, uncoordinated and to a large extent unstructured, characterised by the pejorative term 'sit-by-Nellie',<sup>2</sup> referring to learning through observation of the expert. Employers often used apprentices as cheap labour without developing their overall competence (Human Sciences Research Council (HSRC)(1984).

The 1998 Skills Development Act required that learnerships<sup>3</sup> link formal theoretical learning at an accredited TVET provider to learning in the workplace, and that both institutional formal learning and on-the-job training lead to a registered qualification on the NQF. The Act also stated that both the formal and informal training components should be structured and goal-directed (Department of Labour (DoL), 1997), and that learnerships should result in the acquisition of occupational competence. However, theory and practice in the apprenticeship system were often unrelated, to the extent that theory learned in the college was seldom if ever applied in the workplace. Similarly, while workplace learning is seen as an important aspect of the learnership today, simply combining workplace experience and formal college

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<sup>1</sup> Apartheid's racial classification terms are employed here simply for explanatory purposes and in no way implies acceptance of such categories.

<sup>2</sup> Also referred to as 'sitting-with-Nellie', this expression derives from the UK and was commonly used to refer to a teaching approach where the apprentice was required only to observe the expert and implement later on the basis of his/her observation.

<sup>3</sup> Learnerships were intended to replace Apprenticeships but this proved difficult to effect, as is explained later herein.

learning does not guarantee the integration of theoretical knowledge and practical experiences (Hardy & Menard, 2004).

Despite contestations, research has shown that theory and practical integration are key to raising competency levels (Bereiter and Scardamalia, 1993; Martinez and Badeaux, 1994). While it is posited that strengthening the knowledge-practice relationship through learning in the workplace (Vygotsky, 1978 and Engeström, 1994) might lead to the kind of en-skilling required in a post-Fordist economy, how does this learning take place, indeed, how should this take place? The study reported herein was therefore concerned with the opportunities for learning afforded to apprentices in the workplace, the nature of the situated learning process, and the modalities (visual, auditory, kinaesthetic, tactile) by which learning occurred. First, a brief sketch of the context of artisan training in South Africa is provided, followed by some perspectives on learning in the workplace. The bulk of the article then proceeds to deal with the research conducted, its methodology, significant findings, and conclusions that can be drawn to inform future approaches to learning in and from work.

## Artisan development in South Africa

The National Skills Development Strategy (NSDS) III, argues that artisanal skills are not keeping pace with the skills required to remain competitive in an increasingly knowledge-based economy, and that workplace learning is an important component of formal learning at TVET colleges, hence the need for integration of knowledge and skills. The apprenticeship system historically had a weak linkage between theoretical training and work experience, with each site of delivery (theory and practice) having minimal interaction between them. Theoretical training was often unrelated to the practical training of the apprentice, and little supervision or structured induction into skilled work at the apprentices' place of employment was undertaken. In the National Development Plan 2030 a stated goal is a workforce of at least 30,000 artisans per year, whilst the New Growth Path sets an ambitious target of 50,000 trained artisans by 2015. Ironically, the decline in the numbers of new artisans over the last decade exists alongside a significant expansion of TVET college enrolments in engineering at the National Certificate levels N1, N2 and N3 (levels offered in TVET colleges).

Theoretical training for most artisan trades consists of the official national curricula (NATED or 'N' courses) delivered by public and private accredited colleges, with the N2 certificate being the required level of theory for taking the trade test. Public colleges are deemed accredited to offer the theory component which has a prescribed syllabus and assessment regime, and these colleges do not undergo the formal accreditation process which private colleges are compelled to take. In the classroom, learners are taught various concepts and theory underpinning the use of, for example, hand tools, power tools or machine tools used in trades. Formal learning in colleges has been characterised as theory 'devoid of context' and divorced from practice, in situations where the skills acquired in learning institutions cannot be easily applied in the 'real world'. After completion of formal learning at the TVET College, the candidate moves into an authentic workplace environment and attempts then 'to find connections between prior experiences and the affordances and the constraints of new kinds of working environments' (Evans, 2004, p.10). Some perspectives on how these connections may be established are set out in the next section.

Learnership and apprenticeship candidates are subjected to a competency test and the passing of the level test and the final trade test deems them competent to practice, giving them recognition as artisans in the relevant trade. The standards-based system of training and competency based modular training (CBMT) as implemented in South Africa and elsewhere place critical emphasis on competent workplace performance and assessment thereof, however knowledge is seen as an important component in the development of skills (Gamble, 2003).

## Learning for competence

Meghnagi (2004) notes that competence may arise out of knowledge and skills acquired through practice and defines competence as, "...an undivided complex of knowledge, abilities, ideas and ways of doing things that make it possible to carry out an occupation" (p. 62). To expand on this, Billett (2009) suggests that the competence required for a particular occupational practice and in a specific workplace can be elaborated through categories of work activities and interactions, and that interactions in workplaces are premised on enhanced engagement with tools and artifacts, and with others, as follows:

. . . apprehending what constitutes workplace competence is not so easily undertaken. Rather than being uniform across an occupation or even nationally consistent, competence is shaped by situational factors, emerging technologies, specific occupational requirements, and the capacities of those who enact those requirements. Competence has many elements which are acquired through different ways (p.34).

The South African outcomes based approach to education and training has placed a huge emphasis on specifying as clearly as possible the outcomes required for competent performance. However vocational outcomes have tended to be located within observable performance, with knowledge being viewed as embedded in or supporting performance, rather than as a distinctive component of curriculum. This approach has been critiqued for its diminishing of the knowledge that underpins performance, resulting more recently in a renewed commitment to foundational knowledge and the integration of theory and practice in vocational education.

Standpoint theories in vocational scholarship have tended to polarise disciplinary learning and practical learning within categorisations such as formal/informal learning; institutional/workplace learning and so on. Billett (2001) argues that learning discourses uncritically privilege formal academic education and that learning needs to be understood as a participatory practice which is an engagement with the social world. Furthermore, Fuller and Unwin (2003) hold that 'expansive learning' may include learners participating in various workplace settings so that they reflect on differences and similarities in these situations. Developmental or expansive learning according to Jonsdottir (2007) "fosters innovative performance, changes, and even transformations at work" (p.6) or as Engeström (2004) explains, "expansive learning at work produces new forms of work activity".

Anecdotally, where workplaces have been secured by candidates for practical experience, they have been critiqued as falling short of an optimum learning environment for vocational students, but few empirical studies, particularly in South Africa, have attempted to understand the learning that takes place and how students experience the workplace as a learning environment. Everyday activities in the workplace expose learners to situations that support learning, assisting them to learn new work-related knowledge and strengthening that learning (Billett 1993, 1994a, 1994b, 1996; Harris and Volet 1997). Billett (2000) also holds that engagement in authentic workplace activities contributes significantly to the construction of new work related knowledge. Available empirical evidence shows that almost two thirds of all workplace

learning may be informal or incidental but is key to the acquisition of competencies for work (Leslie *et al.*, 1998).

Effective learning in contemporary apprenticeships can be fostered by enabling young people to work and learn in communities of practice, defined as a set of relationships among persons, activity and world (Lave and Wenger, 1991). The implication of Lave's research is that people's motivation to learn is triggered when a relationship is established between what they learn and its application. This is likely to occur when individuals participate, peripherally at first, but gradually more fully in their chosen occupational field. Empirical research on this (Lave and Wenger, 1991; Lave, 1990) provides convincing evidence of successful learning from doing and interacting with a range of more experienced others in communities of practice. While the primary location in which the community of practice of an apprenticeship is manifested is the workplace, the concept is not only defined geographically, but also by connections and relationships that are developed between members and the activity that brings them together. Initially newcomers join communities and learn at the periphery, but as they become more competent they become more involved in the main processes of the community, moving from legitimate peripheral participation into full participation (Lave and Wenger, 1991). Legitimate peripheral participation provides a way to speak about the relationship between newcomers and old-timers, about activities, identities, artifacts, and communities of knowledge and practice. In addition to being part of a community of practice, Vygotsky furthermore holds that an individual can achieve more when provided guidance and assistance in achieving objectives. His description of learning 'in the zone of proximal development' concerns itself with how learners relate concepts learned in everyday activities to scientific concepts in the formal curriculum.

Both activity theory and situated learning theorists view learning as a social practice and subscribe to the notion that learning is socially, historically and culturally driven (Lave, 1990). Social interaction and collaboration are thus essential components of situated learning where learners become involved in a 'community of practice' that embodies certain beliefs and behaviors. Participation in communities of practice is therefore a critical aspect of developing 'knowledgeability' or understanding of ideas within their contexts (Guile and Young, 1999). Furthermore, within the zone of proximal development a learner may experience the intervention of an expert via mediation, which Lave and Wenger (1991) agree can enhance learning.

Theorising practical learning through the conceptual frameworks of collective activity theory, situated learning and the Vygotskian socio-culturalist paradigm, enabled a re-examination of often un-problematised critiques of learning in the workplace.

## Exploring candidates' workplace learning experiences

An interpretive approach was employed for this research in undertaking a qualitative case study of Engineering candidates across three streams of Engineering studies at TVET colleges, namely fitting and turning; motor and diesel repair and maintenance; and auto electrical trades. Learnerships and apprenticeships in these trades are well-established at most public TVET colleges, amongst the long-standing historical college offerings. As these programmes are nationally standardised, learners across the country undergo prescribed theoretical training at accredited colleges.

According to Andrade (2009, p.43) an interpretive approach provides a deep insight into "the complex world of lived experience from the point of view of those who live it" (Schwandt, 1994, p. 118). Furthermore, a qualitative case study made it possible to explore how learners experienced things in their 'natural settings' (Firestone, 1987 cited in Merriam, 1998) or 'everyday life', from their own perspectives (Morse 1994; Duffy, 1987). In line with this approach, research methods used were semi-structured interviews (Denzin and Lincoln, 2005) and documentary analyses. In addition, students were asked to keep a journal of 'critical incidents' occurring in the workplace that in their view particularly illuminated their learning 'moments'. Interviews probed learner perceptions of what they were learning, how they were learning, their ability to apply their college learning to the workplace, and the conditions in the workplace that facilitated or hampered learning. While it is generally acknowledged in research methodology literature that qualitative enquiry is fraught with potential biases, the onus is on the researcher to increase 'trustworthiness' of the data, for instance by using multiple sources. As all learnership/ apprenticeship candidates are required to have logbooks signed off by both the candidate and their supervisors in the workplace, the logbooks provided verification of the curricula activities that the candidate had completed, and could be probed in interviews to detail the learning that had taken place in relation thereto. This provided a secondary source of evidence against which the candidates' understandings of their own learning

could be ‘tested’. Semi-structured interviews also enabled questions to be framed in ways that made comprehension of the question easier for the respondent, especially where English was not the first language of the candidate.

In the data analysis core themes identified from convergences in the data and that found purchase in the literature on workplace learning were: learning methodologies used in the workplace; the influence of the workplace environment in the learning process; the influence of mentors and others; perceptions of how best to learn in the workplace; integration of theory and practice in the workplace; coaching and assessment in the workplace; opportunities to practice in the workplace; and workplace expectations and their impact on learning.

Candidates were employed across a wide range of workplaces, which increased the range of their possible learning experiences and contributed to building evidence of trends or patterns in the data across multiple locations. What follows therefore are the themes that have been formulated by trends in the data on candidates’ learning in the ‘real world’ of work. Given that this article is of limited scope, and has a focus on the didactic role of the workplace ‘expert’, themes from the data have had to be selected. It should be noted though that this forms part of a more extensive dataset that cannot be accommodated herein.

## Some themes from the data on learning experiences

In line with the conceptual framing of socio-cultural activity theory (Schribner and Cole, 1971; Griffiths and Guile, 2001) and notions of the workplace as a collective activity system (Engeström, 1987), the data that was gathered covered candidates’ everyday practices in the authentic work environment, workplace learning techniques, artifacts and affordances used, mentoring and guidance given, and problem-solving strategies. The selected themes highlighted below emerged from strong convergences in the data pertaining to learner perceptions on aspects of the workplace that particularly facilitated learning for them.

## Learning in an authentic environment

Learners said they experienced the workplace as a dynamic environment where 'the work had to get done'. Some candidates pointed out with regard to work that, "it's about production . . . because of the production schedule, you are required to work a lot faster, but you are exposed to a lot more work" (R2a). In spite of the pressures of production, they reported that they were exposed to repeated activities or practice that gave them confidence and helped them to 'master' the tasks. Learners commented on these 'real' learning experiences (Brooker and Butler, 1997) which they compared with the more theoretically focused college environment.

Engagement in authentic work activities contributed significantly to constructing and learning 'new' work-related knowledge. For instance, a learner explained that at the college, wiring the lights of a vehicle was simulated on a flat board, whereas in the workplace one had to rewire the lights on a vehicle whose wires had been completely burnt out. Machines in the case of learners in the fitting and turning trades were functional and operational and part of a production activity, similarly for those in the motor and diesel trades, engines and gearboxes were mounted in vehicles belonging to customers. A learner remarked that at the college engine components were worked on as single units, whereas in the workplace the units formed part of the whole, for instance in a running engine, an aspect of learning which constituted a new experience. Candidates valued the authenticity of the activities in the workplace above the simulated environment in the college, precisely because they could see the interrelatedness of individual parts they had worked on in the college. A large number of respondents acknowledged that they had, in the workplace, recognised theory learned at the college and were therefore able to make sense of their practice. In the everyday activities of the workplace, candidates were confronted by many tasks that required problem solving, and an integration of knowledge and skills. Here they could apply their institutional learning in a variety of situations, as was evident from the critical incidents recorded in their journals. However, most of the candidates reported being 'tested' by the mentor or expert whilst being observed, and being asked questions relating to the activity.

Though workplace learning has both tacit and explicit dimensions, many learners could describe and explain how they went about solving the problems which they were confronted with in the workplace. To illustrate, a respondent

mentioned designing a food container which had to be conceptualised from starting idea to its final stages (R2); another described two tapers that had to be fitted with precision, using mathematical calculations (R3); while a third explained how he had to widen the rim of a tractor wheel which involved precision cutting on a machine and inserting a piece by welding (R8). Candidates explained how they manipulated problematic situations, evaluated problems in the workplace, and solved them by integrating institutionally acquired knowledge and skills acquired at college into their practices in the workplace (Anderson, 1993).

It was clear from the evidence that their range of everyday practices enabled candidates to derive significant learning from the integration of theory with practice, and that they recognised practices that were informed by theory. Learning in the authentic environment of the workplace was key to the integration of theory and practice in the case of these learners, and enabled them to participate within a community of practice, as the following section reports.

### Learning in a community of practice

Taken together, the workplace environment of candidates in the study was an arena involving artisans, technicians, apprentices, support staff, as well as communication systems and work processes, and could be termed a collective activity system as described by Vygotsky (1978); Leon'tev (1981); and Engeström (1987). Candidates detailed that they were able to ask how to do things, to enquire as to how things worked, to obtain guidance, to learn from the experiences of experts, to share information about work, and to seek understanding. Such interactions in their view provided many opportunities to learn new knowledge and skills for the various tasks and activities assigned to them in the workplace.

Entering the workplace as newcomers, the findings confirmed that candidates moved from being peripheral participants to being fully engaged in work activities as they reported their listening to the experts, asking questions, observing what experts were doing and then practicing in an attempt to master the job. However, despite the dominance of methodologies of learning such as observation, demonstrations, asking questions and doing, learners recorded that they valued the engagement with their mentors and experts, and the

guidance they received from such engagement. It was noteworthy that although learners said they learned a lot through practice, what emerged from their interview transcripts was the overwhelming number of times they mentioned how they were actually learning from their proximity to the expert, and the variety of ways in which this learning occurred, hence the focus on this aspect of workplace learning in the topic of this article.

### Learning from the expert

As this theme featured prominently in learner accounts of their learning moments, and is the topic of this article, it is afforded greater amplification hereunder. In spite of an array of learning methodologies available to the candidates in the workplace, what emerged unequivocally from the research was the learning that was acquired through engagement with the 'expert other'. This concept of 'expert other' locates itself within Vygotsky's (1978) Zone of Proximal Development (ZPD) as mentioned elsewhere herein, and emphasises the intervention and guidance by a 'teacher' (Engeström, 1987) in the learning process, using mediating tools and structured activities that are object and goal oriented. Candidates were not left to their own learning, but were supported by being in the presence of a mentor, a 'teacher' or 'expert other' who through their engagement (to a greater or lesser extent in some cases) provided guidance to these newcomers.

Candidates experienced close individual contact with the experts in the workplace, proximal situations in which they could ask for an explanation or demonstration of practices and processes. Qualified artisans appeared to play a key role in mediating the subject's learning, through both direct and indirect guidance. Far from just 'sitting by Nellie', the pejorative description of how apprentices learned in the past, these novices engaged extensively with the experts. The evidence indicated that candidates looked to and trusted the advice of the experts in the workplace, as in this response: "I interacted mostly with my artisan because I wanted to understand my trade, so I asked a lot of questions" (R4a); and another: "I would go to the guys and ask them what they are doing, what is wrong" (R9a).

However, learning from mentors and other experts in the workplace did not always involve being directly guided, as often there was indirect guidance

based on observations made and questions asked by the candidate. A respondent in the motor trade illustrated this as follows:

Learning the skill comes by doing the activity yourself over and over so you get the necessary experience, but one has to know why you do things and this understanding comes from questioning the expert (R7b).

What became clear time and again was that learners believed they could learn best ‘by doing’, however they kept discovering that they needed, and wanted, affirmation of the expert to confirm their learning. A learner expressed this as follows:

. . . by doing the work physically, practically, it gives me understanding, by asking questions, by watching them (the expert). . . I also like to do something under guidance in case I make a mistake (R4a).

Practical knowledge according to the literature is best acquired through a combination of listening, observation, asking questions, modeling and doing. Learners placed much value on doing the work themselves, for the opportunity to practice gave them confidence, but in spite of valuing their own practice, they kept an eye on the expert and desired to perform the tasks under guidance.

Learning through observation, demonstrations and listening to others might be argued by some to be non-intentional learning, however (Billett (2000) holds that it contributes directly to the development of competence when candidates are engaged in these ways. Candidates were convinced that they learned and developed both knowledge and skills for performing their tasks. There were those who were given opportunities to work on their own, but the mentors kept a watchful eye to ensure that mistakes were kept to a minimum and to ensure that there would be no comebacks. A respondent commented on this type of guidance as follows:

They talk to me about something that I am not supposed to do, or there is something that I was supposed to do that I am not doing. Sometimes they show me, demonstrate to me, it is easier than explaining (R6a).

Since candidates had to be productive in the workplace they also learned from the experts, easier ways of working more efficiently. This they referred to as ‘short cuts’, clearly the result of experience gained over many years, or part of the experts’ ‘tacit knowledge’, as in the words of a respondent:

These experts who have a lot of experience tend to at times find it difficult to explain to someone who does not understand, so you must watch him closely, they know the shortcuts and the tricks to save time (R1).

While learning in the workplace was dominated by methodologies such as observation, questioning, demonstration and practice, none of these methodologies could be performed in the absence of the expert. Under this watchful oversight, and with artifacts as additional affordances, candidates were able to make sense of theory, while direct guidance provided information and knowledge that candidates might not have had access to through observation only.

## Discussion

### Lessons from the learners

The artisan candidates in the study were not just passive receivers of knowledge, but were socially engaged with their experienced colleagues, and were involved in finding solutions to the situations they encountered. Dynamic interactions between candidates and expert others in the workplace for purposes of obtaining guidance were illustrative of the relationship between the 'newcomers' and the 'old timers'. Through these relationships learners moved constantly from peripheral participation into (almost) full participation (Lave and Wenger, 1991) in the socio-cultural practices at the workplace. Candidates revealed multiple opportunities to tap into the vast knowledge and experience of their communities of practice. They indicated that for many of them the transition from an institutional, simulated environment to the authentic, real workplace environment was a new experience. Encountering high-tech engines and industrial machines for the first time was indeed daunting for many of them. When they were asked what had helped them to learn and deal with the new challenges, more than two thirds agreed that guidance from expert others who might be mentors, technicians, supervisors and so on, had contributed significantly to their knowledge and skills acquisition and learning about work, whether through direct or indirect guidance.

In the experience of these candidates, practical knowledge was being learned by 'getting one's hands dirty' (Gamble, 2004), and, as Suchman (1985, p.21) argues, "in situations where learning is embedded in the situation".

Young (2005) argues that the link between formal and informal learning is critical, and in this regard the findings indicated a very high correlation between institutional learning and practice in the workplace. Candidates, although recognising some of the theoretical underpinnings more strongly than others, reported that they were able to apply a substantive amount of theoretical knowledge to their everyday activities in the workplace but this, a respondent cautioned, also depended on what activities and situations they were exposed to.

Responses suggested that doing things ‘procedurally correct’ was important in the application of practical knowledge in the workplace, as this was a way of ensuring that there would be minimum mistakes or risk of ‘comebacks’. The designated trades in this study are known for their procedural, domain specific knowledge that underpins the execution of trade specific activities. Although novices were required to follow certain protocols to ensure compliance with the ‘rules’, they quickly also learned the ‘short cuts’ that experts had developed through practice, and adopted these while in the workplace. However it is worth noting that there were also constraints associated with learning in the workplace, in ‘real time’, as the following experiences illustrate.

### Constraints of learning on the job

Candidates in this study aspired to qualify as competent artisans ready to take their place in the world of work. In order for them to be found competent in the trade test they needed exposure to an abundance of learning opportunities that would make them trade test ready. Maximum exposure to work activities was viewed as a way to enhance knowledge and skills acquisition and that sufficient on-the-job ‘practice’ would give them enough confidence to face the final competency test. All the respondents in the various engineering trades had the opportunity to practise the main areas of theoretical knowledge that they had learned at college. Respondents also confirmed that they had practised most of the activities covered by the trade test, but there was some concern about not having had sufficient time to practice the skills. Diesel mechanic candidates reported more limited workplace exposure and opportunities to practice skills learned at the college, as the extent of their practice depended on what jobs were required on a specific day in the

workplace, since, 'you do not get enough time to practice on the work activities because some activities do not come up a lot' (R6a).

The limited time for practicing skills in the workplace was the result of production requirements since practice by the candidates formed part of the regular job activity and was not performed separately from that. Candidates said they were required to work a lot faster, even though they appreciated getting exposed to a lot more work. In spite of constraints on practice time, production in the workplace provided candidates with the opportunity to get exposure to generic skills such as time management, learning to work with others, being exposed to tight time schedules and learning to work under pressure. The disadvantage of such pressure though, from the perspective of the candidates, was that the skills practiced in the workplace were fewer than the skills taught in the prescribed college curriculum. Final year students exiting their apprenticeship training felt that they had not been exposed to sufficient skills practice in the workplace and that lack of exposure to such activities might compromise their success in the trade test. To some extent time was limited 'to time on the job', though a respondent explained that one needed to practice a skill by doing the same job over and over, to sharpen skills through repetition.

The findings in this study showed that although learning occurred predominantly through interactions with and through the mediation of mentors and other experts, a challenge to the candidate-expert learning scenario was posed by production pressures in the real work environment. The expert was tied to a production schedule, where time was a commodity to be used for 'selling hours' and meeting production targets. Thus pressure on the expert potentially limited the quality of learning which the candidate was able to rely on, and ways may need to be found to free the expert from the production space from time to time, in order to be able to support candidates' learning in the ways demonstrated in this study.

## Significance of this research

Skills development and TVET in particular have been the targets of extensive policymaking in the last fifteen years, with much policy borrowing from other contexts. The local research base in the skills development domain has been shown to be thin, and there is much that is not known about how

vocational/occupationally directed students learn in both the academy and the workplace apart from a popular notion that ‘learning by doing’ is beneficial to trainee artisans. While there has been a major policy drive to encourage employers to partner with TVET colleges and to open their workspaces for practical learning, there is little understanding of how the candidate learns in and from practice in the workplace. This research has attempted to contribute to this lacuna by focusing on the students, their experiences of workplace learning and their perspectives on how they might learn best. In spite of their assertions that they indeed learned best by ‘doing things themselves’, the data is interspersed with evidence that they needed constant reassurance from the expert practitioner, the mentor, the ‘expert other’ to affirm that they were ‘doing the right thing’ and to push them to further understanding.

This window onto apprenticeship learning holds important implications for how learning in the workplace should be planned for, organised and supported, taking into account the production pressures upon qualified artisans and their limited availability to guide, model and engage with the novices, and in the light of just how powerful their mentorship of the student could be. It is hoped that the findings conveyed herein will find purchase in the spaces where skills development decisions are made.

## Conclusion

There can be little doubt that workplaces currently provide essential and complementary learning to that which takes place in TVET colleges, offering real work experiences and situating learning within communities of practice. Second, candidates in this study did not simply ‘sit by Nellie’ – they engaged dynamically with expert artisans, mentors and co-workers, learning from the periphery and at the centre, and demonstrating through their responses that their most valuable learning resource was the expert practitioner.

Despite the positive feedback around the huge learning potential of the workplace, this research also identifies challenges to be addressed in strengthening that context, such as harnessing and nurturing the role of the expert, increasing the use of (high tech) artifacts and enhancing the scope of practice opportunities for candidates in preparation for the trade test, the final test of their competence. Finally, it can be confirmed that candidates are learning in the workplace, far more than we might suppose, and that their

occupational competence is being advanced in no small measure. Our job as policymakers, institutional providers, employers and concerned individuals is to ensure that we retain and reward our expert practitioners in order to build a secure foundation for the next generation of artisans.

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