

Teachers from industry: From work to school

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Abstract

Technology and VET in Schools teachers are required to bridge the gap between industry and workplace knowledge and the world of secondary schools. One of the ways in which these teachers can be assured of having sufficient knowledge of the technologies required for the broad and varied subjects offered in Technology and Applied Studies in NSW schools and also be well prepared to teach VET Industry Curriculum Framework courses, is to take teachers from an industry background and return them to schools after an accelerated teacher training program. This paper examines some of the findings of a longitudinal study which took a case study approach to try and find out how some of these teachers have coped with the demands of pedagogy and practice in rural and regional NSW schools.

While acknowledging all teachers are individuals, the researcher was interested in finding out whether this pathway produced a new ‘type’ of teacher. The study used interviews, site visits, emails and conversations with the twelve participants, to try and understand the reality of the new professional lives of these teachers. Interviews were also conducted with other staff in each school as well as, where possible, the Principal of the school was interviewed. As well as looking at each participant as a case study, cross case analysis was also undertaken to ascertain any patterns or similarities emerging from the data. This paper is based on that cross case analysis. The findings demonstrate that these new teachers have a valuable and quite different contribution to make to technology pedagogy and practice in the NSW secondary system as well as offering workplace knowledge and experience in pathways from school to further vocational education and training. These findings are bound to the specific teachers and context of the study so the intention is to understand the ways in which these teachers create authentic learning spaces using their experiences from industry.

Starting point

The inception of this study into teachers moving from a trade to becoming teachers could be located in a response to a question about VET in Schools in 2001 when a senior researcher advised me to think about the teachers and the unique set of bridging skills they would require in order to combine sufficient industry appropriate skills and life as a secondary school teacher. The following year, 2001, saw the first intake of students to an accelerated teacher training program I helped devise, and students from this first intake became participants in the longitudinal study reported on in this paper. A longitudinal study allows for multiple views and perspectives across the pedagogical approaches and perceptions of these teachers as they adapt from one career to another. This paper considers one of the most striking findings from the study – that to some extent rather than adapting to fit around school contexts and cultures, these teachers quietly turn their classrooms and workshops into workplaces and the pedagogical approach has much in common with workplace learning, especially as defined by Stephen Billet as ‘the learning available through everyday participation in work activities guided by expert co-workers and assisted by the contribution of other workers and the workplace environment itself.’(S. Billett, 2001, pp. 103-104) Through observation of these teachers in class and conversations with them and with other teachers and, in many cases the Principals, the pattern of making the classroom or workshop become as close to a workplace environment as possible became apparent in an iterative manner. This contention is the main aspect of the cross case analysis discussed in this paper, however it is not presented as a generalised finding.

When adults change careers, the knowledge, skills and understandings gained in their previous career form part of the repertoire underpinning their role in the new career, in this case as technology teachers in rural schools in New South Wales (NSW). The particular lens and focus that my background in education in general and the work I have done with teachers from an industry background in particular shaped my philosophical perspective in undertaking this study. I started by attempting to find the influences workplace learning may have had on classroom practices and have shifted through what I observed and heard to considering that through an authentic approach to all learning activities, in the language and pedagogical approaches adopted, the twelve participants in the study have made the opposite shift. They operate as if their classrooms and workshop spaces are a workplace in which they operate with their students as workplace learners.

Literature and method

This study was influenced by Lortie's (1975) sociological study of teachers. I wanted to use his approach and methodology of observing, interviewing, corresponding, and examining in detail a group of new teachers who changed from a career in industry to become teachers of technology and Vocational Education and Training (VETiS) courses in NSW schools. The primary purpose was to gain some understanding of the reality of their lives as teachers through studying each of them in context over the first three years of their teaching career. Lortie was intent on understanding the way teachers understood and ascribed meanings to their "professional" lives. This study examines a particular group of teachers with commonalities in their backgrounds: they were all selected because of their backgrounds in industry and trade areas. The focus is on the way they both constructed and attributed meanings to their new identities as teachers. Lortie described his approach as "a stance which combines naiveté with scepticism -- a questioning approach toward what is commonly said about teaching and teachers." (P ix – preface).

In collecting data, I attempted to encourage the participants to describe features of their transition in their own language, to situate the investigations in their lived in reality and to supplement data gathered in interviews through e-mail conversations, personal solicited and unsolicited telephone conversations as well as discussions with at least one other teacher and, in most cases, the principal of the school. The study is thus situated in the tradition of ethno methodology (Silverman & Marvasti, 2008) but using a case study approach (Stake, 1995; Yin, 2004). Each teacher participant forms a case for study and the individual cases are examined in detail. In addition, cross case analysis was undertaken to provide understanding of and insight into these teachers as a different type of new teacher, potentially offering a different approach and attitude to the profession. There is an attempt to examine the perceptions, beliefs and progress of these new career change teachers and the alternative pathways they have undertaken to become teachers without rendering this study a comparison with teachers who have followed more traditional pathways (for example from school to university to becoming teachers).

All teachers are individuals with their own motivations, philosophies and approaches. By focusing on the lived reality of a small group of teachers with similar pathways,

commonalities and features of their approaches and journey through the first three years of their new careers as teachers, the advantages and disadvantages of such a pathway can be more clearly identified and understood. No attempt to generalise is made; rather these individual journeys are described and analysed. This is followed by theorising and discussing differences and commonalities in order to discover whether they can be characterised as a new 'type' of teacher in what they have to offer students in NSW schools, in particular rural, regional and remote schools, where these new teachers are living and working. As a researcher, in practice as a teacher educator as well as in terms of a lens for research, I begin from a social constructivist paradigm (Windschitl & Thompson, 2006), which means that the focus is on the meanings attributed to the reality of their teaching lives (Scott & Howell, 2008) and their experiences adapting to their new profession. Using the perspectives of the participant is an emic approach (Cresswell, 2008) which means that their views construct the reality under discussion. Although an etic approach (ibid), where the researcher establishes the criteria, is not adopted, as I have neither been a trades qualified teacher nor have I taught in any of the schools in the study, I have taught on the ATTP program over the seven years since its inception in 2001 which means I had experiences with at least 500 pre-service teachers with similar backgrounds. The influence this has had on the study, in particular the analysis and interpretation needs to be considered. As all data collected comes from the experiences of the new teachers, relational to their biographies, their industry backgrounds, their experiences during university studies and most importantly on their lives over the first three years of their new careers as teachers, I have some opportunity to attempt to make sense of, describe and analyse the world they inhabit in their work lives. "That lived experience shapes the researcher's approach to data collection and analysis"(Cresswell, 2008, p. 68).

Data gathering

An iterative approach to collecting, examining and analysing the data was used in order to firstly discover how these new teachers constructed their teaching identity. Prior to beginning the accelerated teacher preparation course (ATTP) all participants undertook to become teachers, a brief survey was completed by the entire first cohort in September 2001. As this was prior to ethics approval, participants granted 'retrospective permission' for the researcher to use this data, as well as reports from professional experiences in schools undertaken during their studies. From the first cohort of accelerated teacher education students, twenty four pre-service teachers volunteered to become involved in the research at the third and final

residential school in July 2002. Once the graduated teachers were allocated to schools, only those posted to rural, regional and remote schools were included, partly because my own career and life experience as a teacher is in rural education; this also limited the study to the context of rural education contexts as a focus for study. After ethics approval was granted, seventeen of the original volunteers were eligible through being granted positions in rural and regional high schools and central schools, with the latter being schools which combine primary education, from kindergarten to Year six, with secondary education, in these instances to Year twelve. Ultimately, after the first year of teaching, twelve participants remained in the study.

Brief interviews with each participant were undertaken during their first year of teaching, in 2003, although these were mainly used to establish their interest in participating in the research, and much of this early communication was unsolicited by the researcher as the participants voluntarily emailed and phoned the researcher to discuss their new lives. However, notes from these interviews and copies of emails assisted in establishing the location, context and initial approach and attitude to teaching described and discussed by the participants. More formal telephone interviews, which were recorded and fully transcribed by the researcher, were undertaken during the later months of 2004, when the research participants were in their second year of teaching. Another rich source of data included biographical details and 'life history' documents the participants emailed to me during their first two years of teaching. Emails, both solicited and unsolicited, have been exchanged with many of the participants through out the study. For example, all interviews were sent to each interviewee once they were transcribed. Although, disappointingly, the participants rarely commented specifically on these transcriptions and other material sent to them, they always responded to emails and often phoned as well to discuss their lives and work, and notes from phone calls and the information from these emails also added to the data collection. During all of these semi-structured interviews, I attempted to make these telephone calls more like conversations than formal interviews, starting each interview with a sentence such as "I will suggest about seven or eight topics but you can suggest some topics too if you want".

The interview questions, or topics, were:

- Major concerns about beginning teaching
- Teaching – planning and implementation issues
- Managing classrooms

- Communicating and working with students and staff
- Monitoring and assessing student learning
- Reflecting on teaching
- Beliefs about teaching at this stage of their career
- Their journey towards becoming a teacher
- The teacher preparation they experienced both at University and in schools during their course

The final stage of data gathering was undertaken during 2005, the participants' third year of teaching, when I visited each of the twelve new teachers in their schools. During these visits, further conversations with each participant teacher, observations of the classroom context in which they were teaching and field notes afforded me an opportunity to understand more about each context as well as to see these teachers in action. During these visits, another teacher, approached by the research participants themselves, was interviewed, with these interviews also being transcribed and analysed. It is acknowledged here that there is a limitation in asking the participants themselves to arrange the 'other teacher' to be interviewed as they naturally selected colleagues they felt comfortable with. However, the data gathered from these 'other teachers' provided another data set to triangulate against the self-reported data from interviews and discussions, and the field observations. Again, the research attempted to make these interviews conversational using similar topic suggestions and approach to those used with the participant new teachers, with the variation that these were based on their, acknowledged potentially favourably biased, perceptions of their new colleagues. The interviews with other teachers encouraged the interviewees to provide a general commentary on how the participant was adapting to teaching in that particular school environment.

The interview topics appear below:

- Perceptions of how the participant is coping as a beginning teacher
- Planning and implementing teaching and learning
- Managing classrooms
- Communicating and working with students and staff
- Monitoring and assessing student learning
- Approaches to and beliefs about the profession and becoming a teacher
- The teaching preparation and background the participant brings to the school

During many of these visits, the school principals, who were of course approached to gain permission to visit each school, often provided unsolicited but interesting comments. It was also evident that most of them wanted to provide information about their new teachers. After seeking the permission of the participants themselves, many of these principals were interviewed after the visits as an additional opportunity to gather data, but these interviews were unstructured and notes were taken rather than transcripts from recordings. Only nine of the twelve principals were interviewed.

Findings

This paper focuses on the findings across all cases – that is, the twelve participants within their rural and regional school contexts, in terms of the influences of their prior career experiences, their work in industries. Again, it is emphasised that these ‘findings’ are restricted to the teachers involved in the study and are not intended to be read as generalisations. Whilst the researcher acknowledges that the very act of looking for similarities rationally leads to these being found, the repetition of comments and observations across all school settings lead me to examine these findings in terms of workplace learning models. What I am referring to is the classroom climate, the language and the pedagogical approach; which meant that the teacher took the position of workplace supervisor or team leader, where there was an assumption that anyone in the room could add to the learning and the activities, although expertise could usually be sought from the teacher. ‘Workplaces and educational institutions merely represent different instances of social practices in which learning occurs through participation. Learning in both kinds of social practice can be understood through a consideration of their respective participatory practices’(S. Billett, 2002, p. 57). From the moment students entered the classrooms observed, the atmosphere and practices seemed different in terms of role allocation, urgency and routine of getting on task and expectation of compliance and efficiency. This was particularly evident in the VET classes, and this approach is very much recommended in the curriculum documents. However, what I had not anticipated was that this appeared repeatedly in classes at all levels. From my observation notes during a Year 8 Technology class being taught by a male former electrician: *‘I noted an interesting mix of fairly low key style in terms of interaction and energy. I would describe it as quiet push push push – keeping students on task. Emphasis on making them think – what are they doing / what do they need to be doing / being very*

specific. Mutual respect was very obvious' (From observation notes, 3/8/2005). In other visits I noted what appeared to be a very relaxed style was underpinned by routines well and quietly established combined with total expectation of compliance – the mainly unspoken belief that learning and completing tasks was part of the job of students and keeping them on track or on task was the job of the teacher. Although it may be argued all teachers work this way to some extent, the marked difference was that the atmosphere and style were replicated in all of the visits made. Where silly adolescent behaviour broke out, in most cases the teacher tended to calmly state preferred behaviour or response and move on so that the whole group could 'get back to work'. From an observation (30/5/ 2005) of an Industrial Technology, Metal, class with another teacher, I noted: *'A lot of 'job ready' sorting / scheduling – very efficient and fast at sorting / getting going (avoids getting caught with time wasters). 'Battle along / sort it out among yourselves / help each other'. Making a necklace piece – 'tribal jewellery' or 'elegant jewellery' – those who had been absent / had not done drawing – have a look at what others are doing – can start from there. A lot of collaboration is going on. Busy-ness of all students very evident / assumption all have lots to do.'*

A final example from the notes taken during observation may suffice to exemplify the atmosphere of the workplace I found in almost all classes visited and observed during the site visits. In this case, the former welder was working with VET Metals and Engineering students and I observed the class was *'set up so that rather than student focused, it virtually seemed student lead, although students politely and continuously ask questions / permissions, check in with him – kind of like an understated conductor – like it isn't so obvious what he is doing, but he is actually affecting all the activity – it pivots around him'* (19/10/05).

Some of the observations that accompany the assertion that these teachers are making their classrooms into workplace replicas are that in almost every instance, the twelve participants I followed had made significant differences to the physical school environment to assist them in making activities authentic and the main emphasis become practical work underpinned by essential knowledge and learning. In one school, the teacher had gained permission to take over a spare area, formerly used for drama apparently, and with students had constructed a network centre and workshop where all Information Technology students, in particular the VET IT students, could organise authentic network set up, maintenance and other tasks. They had set up complex systems for the whole school which were specific to their own programs of learning. In another school, the workshop space for technology had been virtually re-built

as part of a construction project for senior VET students so that there was a small 'desk space' area on one side (used for activities where all were working together on 'theory' or project meetings, which was also used for students not complying with workshop rules) and the various machines, tools and bench spaces set out workplace style, even incorporating a welding shed and storage space the teacher and class had converted from a spare space adjacent to the classroom. In the case of Hospitality and food technology teachers, the changes were more in terms of seeking and carrying through authentic tasks rather than being able to change the physical school environment. Here, the practices and approaches of the teacher participants were far more analogous to other teachers in these areas, although the quest for authenticity appeared more natural and evident than aspired to.

Underpinning these practices was another feature that appeared through visits and interviews. As the teachers moved through their schools, I could not help but observe how these teachers spoke to any student encountered during the school day. It bore more resemblance to the way co-workers address each other in a workplace than the style of interactions I have noted on many other school visits. An example from my notes after a visit to an information technology teacher (5/10/2005) – *'He speaks to each person he passes, whether student or staff, in the same respectful yet informal way. In the time I followed him from the gate to his staffroom, he has spoken to eleven students on topics such as the school formal, sport, family, interests and to five staff members, more briefly, almost exclusively on school related matters.'* When I spoke to participants about communicating with students and staff, they all commented on the fact that they believed forming a relationship of mutual respect and showing an interest in all aspects of student's lives was paramount in gaining and maintaining classroom management.

Discussion

In their study exploring who is choosing teaching as a career and why (2006), Richardson and Watt found that the three main motivations were the belief students had that they had skills which that were worth passing on, they had altruistic ideas about teacher's social contribution and value, and they wanted to be part of shaping the future for young people. In the data collected for this study, these motivations have emerged strongly. In the participatory process involving collaborative attempts by both the participant beginning teacher and the researcher to become reflective practitioners (Schon, 1983), these motivations were explored further.

They are diverse and intricate to analyse as individual and shifting perspectives require a more constructivist orientation in order to consider the complex and evolving nature of teacher development.

One of the significant themes which recurred in many responses is that these new graduate teachers are drawing on their life and work experience prior to teaching and their teacher education learning. Already, and during their studies, these participants see themselves as very different from teachers who have followed the traditional pathways of school, university or college then back to school. This difference may be in style, approach, culture or even in the beliefs about the purposes and intentions of secondary education. However, both this different background, combined with the shorter teacher education program, can lead to confrontation with other teachers, which was mentioned in most interviews. Some interviewees were critical of the cynicism of more experienced teachers, with one commenting that ‘they shouldn’t be teaching because they’ve lost the spark’. This leads to a very rich vein of potential exploration, of interest in its own right, while the researcher is attempting to avoid emphasis on direct comparison or value judgments. “I believe my past experience allows me to see beyond school. Unlike many teachers I had at school, (and still appear to be around), I am not interested in educating the students only to pass exams. I want them to learn things that will help them all their life, if they pass an exam it's a bonus. It is a bit like a driving instructor. They can teach you to drive, or they can teach you to pass the driving test. My aim is to instil in the students a work and social ethic that regardless of what career path they follow, they will be useful members of society” (Industrial technology teacher, former electrician). Another aspect of their industry background which many trade on is their knowledge of the world of work, including ‘horror stories’ from the field, which appeal to many adolescents, as well as more daily aspects of work life. As a female former chef said – “they want to know what it’s like out there”. With policy in Australia emphasising the importance of transitions from school to work (Smith, Brennan Kemmis & Woodland, 2007, p21) this attitude may enable informal career advice and recognition of opportunities and pathways beyond school.

Rather than discussing their discipline areas specifically, in most cases the interviews have been characterized by examining the whole student and their engagement with the teaching and learning process, which one participant, in his second year of teaching, believed to be “more important than fulfilling the needs of the syllabus” at times. Practicality, relevance,

authenticity and encouraging positive attitudes have been mentioned many times as the most important aspects of planning and programming to meet student needs. One interviewee said, in discussing what he called the “intricacies of programming” that he “develops programs in a reverse manner”, starting from the individual students, moving up to class groups and then working back to the curriculum document. Through reflection, these programs are constantly evolving and changing, although he is worried that they may not be as officially acceptable as those written more traditionally.

Teacher preparation

Another theme which recurred through the interviews with these ATTP graduate new teachers is the teacher preparation they experienced during their accelerated program. Many had experienced teaching through working with apprentices and one, a former chef, had taught at TAFE. However all perceive secondary school teaching as having virtually nothing in common with these earlier experiences as the intensity, the level of control over classrooms and curriculum and the professional responsibilities of teachers are far more demanding and challenging. Interestingly, it was experiences with on the job training with apprentices and other workers which sparked the initial decision to change careers for many of those interviewed. One of the main criticisms of the University course was that it lacked information on the “practical...realistic side of teaching” (Industrial technology teacher, former metal worker). Most would have liked more work on curriculum areas, particularly on how to read and interpret the syllabi and very pragmatic assistance with realistic and relevant programming. Despite having spent over twenty-three weeks in two different schools during their eighteen month program, some would have liked further work in schools. One interviewee, another former chef, who is working in a larger school in a regional town, felt that this problem was alleviated by the fact that during both of his first two years of teaching he has had an official mentor who has really developed this professional aspect with him. Unlike those in the more remote schools, who typically have no other teachers in their discipline area, he was in a well established and collaborative faculty with four teachers working in food and hospitality with him. His comments were the most positive in terms of the support given which he asserted enabled his confidence and practice to develop very rapidly.

Culture

Many participants commented on 'teacher culture', a complex area which is difficult to discuss without veering close to prejudice and negative commentary through difficult comparisons. The following comment exemplifies this idea: "I fear I am being programmed into the 'school way' of doing things and as my confidence grows as a teacher, I am rejecting it. I get bored just watching the kids do the same projects I did twenty-seven plus years ago. They were boring then and still are. I thought it safer to change the world slowly, for the time being anyway. Although new to teaching, I think my past experience and age gives me the confidence to question the system, and hopefully the skills and diplomacy required to actually do something about it" (Industrial technology and Construction teacher, former builder). What this participant was encountering on a daily basis was a clash of cultures with differences in the construction of discourses and pedagogies. Others clearly relate, in their comments, to their own experiences at school. To exemplify, one of the participants who moved to Australia during his primary school years commented that "Teachers failed to see the problems that I experienced. In high school a couple of teachers understood and concentrated on my problems with English (thankfully) and developed some self confidence and belief in my ability" (Industrial Technology and Metalwork teacher, former telephone technician). Further investigation is required in future data gathering to see how the context of their lives, including past school and learning experiences, influence the decisions and reflections these teachers are making about their practice. "Reflective teaching entails a recognition, examination, and rumination over the implications of ones' beliefs, experiences, attitudes, knowledge, and values as well as the opportunities and constraints provided by the social conditions in which the teacher works" (Zeichner & Liston, 1996, p.33).

Some of the comments show appreciation for the opportunity to engage in a new career, and all indicate an enthusiasm and belief in the beginning teacher's ability to really achieve positive outcomes with students, as this quote illustrates: "But for me, a bloke who had to leave school at 14 and 11 months because of financial restraints following the death of my father, who has tried throughout his life to learn and get ahead to be allowed the opportunity to be on this adventure through the six plus years I had been doing Uni and now to be involved in youth in such a positive way is great" (Computing teacher, former mechanic and IT specialist). For the researcher, the rewarding aspect of these interviews is the excitement, even during the exhausting end of year requirements as the end of their third year of teaching draws to a close, that all of these teachers express about the decision they made to change

careers, re-engage with on-going learning, and try to inculcate their students with confidence in themselves and the desire to keep re-engaging with learning.

Conclusion

Learning to teach is a difficult and challenging journey for any education student. However, for the traditional education student, school is immediately behind them and the models and images they have of what a teacher is or should be is based on immediate and recent experiences. However, these students come to the learning from a very different place. School was at least a decade in the past, and was not necessarily a valuable experience for many of the participants in the study. They have also taken a giant leap of faith in moving from one world to another. To move from a successful career in an industry context to the world of school, and to participate in a transformative journey involving apprentice status requires many personal and professional accommodations. In some ways, these teachers mirror or reflect the changes in the senior schools system, as well as being part of a response to implement these changes. ‘VET in schools ... brings divergence of experience and cultures into a reasonably rigid system, with change as a natural consequence of this diversity’ (Green, 2000).

Researching their teaching journey will add to the knowledge collected about other types of beginning teachers, as they construct a teaching identity (Danielwicz, 2001). To complement their trade knowledge, ATTP student teachers need systematic preparation in the classroom. By offering the maximum time in schools, supervising teachers worked collaboratively with the intern student as they provide support, models and experience to contextualise the learning of the novice. The ATTP program depends on forging partnerships with other education and training providers and recognises that teachers can come from a multiplicity of backgrounds. As a teacher educator I endeavour to facilitate the crossing of boundaries building on experience and expertise to offer teacher preparation in a culturally and socially sensitive way. This research attempts to investigate these particular new teachers whose backgrounds and teacher preparation may contribute to a profound change in school cultures. The process for successful outcomes included student determination and growth as learners and teachers; the supportive learning community built through both virtual and real discussions, debates and knowledge sharing; the excellent advice, nurturing, modelling and encouragement provided by the in-school supervisors and mentors; the introduction to the possibilities of theoretical knowledge and research through academic study; and the efforts of

the ATTP teacher educators staff who have developed and implemented the program. The first graduands, when they returned to collect their testamurs in April 2003, were inspiring in their discussions of the challenges being faced in isolated, remote and city 'hard to staff' schools. The further analysis of this longitudinal study of their approaches, attitudes and values over time should demonstrate the effect of these factors on the teaching identities these educators construct. The analysis of the data collected over the past seven years and the conversations that followed are far from over. Although the findings are specifically about the teachers studies, they are of interest in terms of evaluating this pathway, thinking about any teachers appointed to rural and remote sites and understanding the way these particular teachers have constructed their persona and approach as new teachers. Since the end of the data gathering period, all have remained in the profession, most in the same schools, one in an Australian Technical College and three have taken up positions as head teachers.

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