



Learning to teach without an apprenticeship of observation: from home education to initial teacher education

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Abstract

Lortie's original conception of the apprenticeship of observation was one of conservative schooling practice and negative impact on teacher learning for school change. Schooling practices have changed in the 60 years since the original research that established the apprenticeship of observation as launch pad to teaching, changing prospective teachers' experience of schooling. This article shares the experience of one pre-service teacher who never attended school, having been home educated. The absence of an apprenticeship of observation in schools highlights the need to better understand the growing diversity of experience pre-service teachers bring to initial teacher education. This one pre-service teacher's experience raises the need to explore Lortie's conception in the context of contemporary school experience and the impact on learning to teach. Challenging the acceptance of Lortie's view to pre-service teachers' prior experience and the impact on learning to teach has significance for all teacher education programs.

Keywords Initial teacher education · Home education · Pre-service teachers · Apprenticeship of observation

Introduction

Since Lortie (1975) coined the 'apprenticeship of observation', it has become synonymous with entry to initial teacher education (ITE). Broadly portrayed as a conservative and negative view of schooling and teaching (Holt-Reynolds, 1992; Wall, 2016), the apprenticeship of observation has been positioned as something of a battle for teacher educators (Grossman, 1990) that is notoriously hard to win (Gelfuso, 2018). The apprenticeship of observation is an accepted, perennial problem for ITE

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(Darling-Hammond, 2006), leading to little impact being made on the way teachers teach (Flores & Day, 2006; Smagorinsky, 1999).

Change has been witnessed in pre-service teachers' (PSTs) experience of schooling (Smagorinsky & Barnes, 2014) since the time of Lortie's research. Australian schooling (following or reflecting changes in the US and UK) experienced significant population growth and change with post-war baby boom and immigration. Broad societal changes led to progressive increases in mandatory school leaving age, changes to youth employment, and widespread early childhood education. Teacher training changed in response to significantly increased demand and to support school response to societal and student needs through "progressive curricular and pedagogical ideas" and gradual reduction in authoritarian approaches (Campbell & Proctor, 2014). While much of what educational research has demonstrated to be beneficial for schooling does not impact practice, change has and continues to occur (Mehta & Datnow, 2020) and today's pre-service teachers are more likely to have experienced "process-oriented, constructivist approaches" (Smagorinsky & Barnes, 2014) to teaching and learning than the teacher on who's experience Lortie (1975) developed the apprenticeship of observation theory. Globalisation has also supported dramatic increases in the enrolment of international students in higher education (Deeks, 2021; Varghese, 2008), including initial teacher education, potentially drawing together learners with vastly different experiences of schooling and thus apprenticeships of observation. Increasing diversity amongst PSTs and their schooling experience gives cause to re-consider the accepted commonality of experience in the apprenticeship of observation. Absence of schooling experience is potentially the most extreme example of diversity amongst PST personal history, and a platform from which to reflect on the need to expand the view of apprenticeships of observation, and how ITE engages pedagogically with this phenomenon.

The following review of literature explores the apprenticeship of observation to demonstrate the need to re-consider this concept given changed schooling practices and thus experience of prospective teachers. I then provide a view to home education¹ to consider how the absence of an apprenticeship of observation may expand exploration on the experience and related beliefs PSTs bring to ITE. Findings are then shared from a case study of one home-educated PST in Australia. Discussion of the findings seeks to draw on this unique experience to pose the need for more research into the diverse apprenticeships of observation PSTs bring to ITE and how pedagogical approaches might better support this diversity.

¹ I have purposely chosen to use the term home education rather than home schooling in response to the rejection of schooling, and in Biesta's (2006) terms, choosing education over schooling. I recognise that the nomenclature used is loaded with historical, legislative, and philosophical meaning and practice.

An apprenticeship of observation

Lortie (1975) conceived the apprenticeship of observation following interviews with teachers in 1963. In recognising that, as school students, PSTs witnessed thousands of hours of teaching, Lortie gave frame to the impact this unanalysed, partial view of teaching provided the development of teachers. In absence of analysis, or even full view to the practices that lead to the ‘performance’ of a teacher ‘on stage’, school students develop “intuitive and imitative” (Lortie, 1975, p. 62) understanding of teaching. It is upon this limited view that long-held beliefs are formed. Lacking in evidence, or “warranted assertability” (Dewey, 1938, p. 9) these beliefs contain errors, inconsistencies, and gaps. Such beliefs give rise to “fallacious reasoning (which) leads to ineffective practice” (Westrick & Morris, 2016, p. 159).

Lortie’s (1975) articulation of the apprenticeship of observation was of conservative school experience, congruent across prospective teachers, and negative in understanding of teaching, learning, and learners. In observing “teachers taking a frontal position (Goodlad, 1984) and authoritative role in transmitting to students a cultural heritage curriculum, and assessing students on their ability to recall it for tests” prospective teachers embrace a ‘default option’ replicating conservative schooling (Smagorinsky & Barnes, 2014, p. 29). This project explored the impact on learning in ITE when a PST’s apprenticeship of observation differed from that theorised by Lortie.

Observations as a school student “suggest to prospective teachers what schooling should properly look like” (Smagorinsky & Barnes, 2014, p. 30). It is their own schooling that is the most significant impact on prospective teachers’ beliefs (Crowe & McGarr, 2022; Rahman et al., 2020; Warford & Reeves, 2003; Zeichner & Tabachnick, 1981). Having developed from such an early age these beliefs are entrenched and difficult to shift (Pajares, 1992). Change in beliefs as an adult requires shift in gestalt (Westrick & Morris, 2016). The apprenticeship of observation was conceived as “fixed and impenetrable, impervious to change” (Smagorinsky & Barnes, 2014, p. 30). As a core and perennial problem for ITE (Darling-Hammond, 2006), the apprenticeship of observation is positioned as something to be overcome (Grossman, 1990), mitigated (Gray, 2020), disrupted (Westrick & Morris, 2016), prevailed over (Cancino et al., 2017), counteracted (Moodie, 2016), broken (Oerlemans, 2017), or neutralised (English, 2021a). Experience of an apprenticeship of observation and the significant, and detrimental, impact on learning in ITE continues to be recognised in research (Borg, 2003, 2019; Burri et al., 2017; Rahman et al., 2020), along with the pervasive conservatism in the resulting beliefs across cultures (Kuzhabehava & Zhaparova, 2016; Shankar, 2020).

In the largely constructivist-driven world of contemporary ITE, the apprenticeship of observation is the starting point – it is the prior knowledge of PSTs from which understanding of pedagogy and curriculum must be built (Bullough, 1997; Richardson, 1996; Weinstein, 1990). Direct experience of school is the “frame of reference” to understanding teaching and learning (Flores & Day, 2006, p. 224),

a “filter to determine ... (what) will be integrated into an individual teacher’s professional knowledge base and ... (what) will be rejected” (Lofstrom & Poom-Valickis, 2013, p. 106). Through critical reflection and inquiry into past experiences of schooling, ITE has developed pedagogical approaches to shift teaching practice from what was experienced to what is needed to meet the full range of student needs (Furlong, 2013; Westrick & Morris, 2016).

Lortie’s research that formed the basis for the concept of an apprenticeship of observation (1975) was conducted with practising teachers in 1963 in a conservative, non-diverse area of the USA. Those teachers likely attended school across the 1930s to 1950s. The concept related to a view of a group of teachers at a specific time and place. Since then, policy and ITE have created change in schooling and thus the experience of prospective teachers. Prospective teachers across the world today have experienced schooling very different to that experienced in Lortie’s (1975) time and area of the USA. It is to be expected that the apprenticeship of observation has also changed, and potentially in a manner that can no longer be viewed as a homogenous experience.

Missing an apprenticeship of observation

Home education is rising dramatically (Neuman, 2020) and entrance to higher education from home education is becoming easier providing the prospect of PSTs without an apprenticeship of observation. The absence of an apprenticeship of observation, and the potential for replacement with radical thinking on schooling, coupled with critical pedagogy that is possible through home education, would provide a divergent path to teaching to that described by Lortie (1975).

Worldwide home education is the fastest-growing sector of education (Shohel et al., 2021). In Australia, the increase has been dramatic, with Queensland witnessing an almost threefold rise in the five years to 2018 (Caldwell, 2019), with the Covid-19 pandemic contributing to further growth of up to 26% between 2019 and 2020 (English, 2021b). There are multiple reasons for choosing home education with the commonality being a rejection of mainstream schooling, whether that be for religious, philosophical, pedagogical, or other reasons (English, 2015; Neuman, 2020; Slater et al., 2022). Research has explored the experience of home-educated children and young people, as well as their entry to higher education and employment (Cogan, 2010; Gloeckner & Jones, 2013; Ray, 2004; Snyder, 2017) though it appears no research has considered the experience of moving from home education to ITE.

Home education has been shown to result in equal or greater academic success to schooling (Cheng et al., 2016; Gloeckner & Jones, 2013), with particular benefits in learning skills such as self-direction and intrinsic motivation (Gray & Riley, 2015). Higher education has shown increasing provision of alternative pathway entry without ever having attended school (Jackson et al., 2023). While the success of home education is obviously dependent on the carers facilitating the home education (Hamlin & Cheng, 2022), evidence does point to home education promoting creative thinking and social competencies Madara and BenDavid-Hadar (2020) along

with other skills that have led some US colleges to actively recruit home-educated students (Ray, 2004).

Pedagogic approaches in ITE that have built on PSTs' apprenticeship of observation to broaden their knowledge and understanding of schooling, students, teaching, and learning require critical reflection and inquiry (Boyd et al., 2013; Furlong, 2013; Knapp, 2012; Westrick & Morris, 2016). Engagement in self-directed learning and "slightly risky pedagogies" is necessary (Ng et al, 2010, p. 287) to enable the "overcorrection" required to develop school practice beyond what they experienced themselves (Grossman, 1990, p. 350). Critical reflection has been developed in ITE to successfully support learning beyond the apprenticeship of observation through varied approaches including: life history narratives (Syaripudin & Apandi, 2023), collaborative lesson study (Collet & Greiner, 2020), digital stories (Botha, 2020), blogging (Boyd et al., 2013), school partnerships (Oerlemans, 2017), ongoing engagement as early career teachers (Gray, 2020, 2021), and digital portfolios (Petrarca & Samaha, 2022). Development of critical reflection has become a cornerstone of ITE (Korthagen, 2016), though no research has explored the impact of ITE pedagogy for PSTs with diversely different apprenticeships of observation to that theorised by Lortie, and used as the starting point for learning.

There is alignment between the recognised skills in home-educated students and the skills to be developed in ITE. Adults who have been home-educated have been found to be successful, well socialised, self-confident, self-directed and motivated, independent, politically and socially engaged, and greater readers than the average (Gray & Riley, 2015; Knowles et al., 1992; Neuman, 2020; Ray, 2004; Sheffer, 1995). It is possible that home-educated PSTs miss an apprenticeship of observation and engage in progressive practices for teaching and learning, which combine to benefit their learning to teach.

An absence of being 'schooled' (Sefton-Green, 2019), educated within the rejection of the existing approach to school, opens up an entirely different basis for learning to teach, having experienced the possible alternatives for learning beyond the confines of school. The absence of schooling in home education has been seen to create "a more holistic and broader perspective on learning, in the spirit of the constructivist approach, compared with children (and thus PSTs) who attended school" (Neuman, 2020, p. 762). This potential alignment of beliefs with ITE may enable dissonance experienced during learning to teach, to be productive to learning (Anderson-Levitt et al., 2017). In that case, home education would develop skills enabling easy progression into critical reflection necessary for the transformation of schooling (Ward & McCotter, 2004).

Home education varies in approach from unschooling, to informal approaches following children's interests, and formal approaches based on textbooks and a school-like routine (Drabsch, 2013; Jolly & Matthews, 2020). Lortie (1975) asserted that "the apprenticeship of observation (is) undergone by all who enter teaching" (p. 67), though regardless of the approach taken in home education, a home-educated PST will not have experienced an apprenticeship of observation as theorised by Lortie. Exploration of this absence, or replacement, provides acknowledgement to the diversity of experience amongst PSTs that should inform ITE pedagogy and practice. The next section outlines a case study of one home-educated PST in Australia.

Exploring a journey from home education to teaching

This project took the form of a single case study focussed on the experience of Ella; a home-educated postgraduate PST studying to be a secondary school science and maths teacher. Case study (Stake, 2010) provided an appropriate frame for the research to take a nuanced view to the experience of one PST. While a small sample size is frequently critiqued, it can be essential and highly informative for future research (Boddy, 2016; Flyvbjerg, 2006). One participant was essential given the so far rare occurrence of a PST having been home-educated for their entire schooling. A single case also enabled greater depth into this phenomenon that has not been explored in research previously, providing a rich basis to inform future research. The aim of this study was not generalisability, rather to raise questions, expand dialogue and research to revise the apprenticeship of observation with relevance to the diversity of today's prospective teachers.

When I met Ella, I was a home-educating parent, leading the foundation units in the postgraduate ITE program in which she was enrolled. Our shared experience of home education drew us into conversation which led to this project. Being a home educator, a teacher, and researcher across various alternative approaches to schooling, and a teacher leading the foundation units of the ITE program Ella was enrolled in, I brought insider and outsider perspectives to this project (Corbin Dwyer & Buckle, 2009).

As an insider to home education and ITE I was able to talk with Ella about her experiences with knowledge and understanding that contrasted with some of her experiences in ITE. Ella found her peers were quick to judge, bombarding her with their curiosity that left Ella needing to explain and even justify her home education as adequate. Teachers during her in-school professional experiences shifted in the way they worked with her after learning that she was home-educated, seemingly less confident in her content knowledge and classroom management. Ella was bemused as to how her colleagues thought she had come to be doing a postgraduate degree.

I was also an outsider having been schooled, taught in schools, educating PSTs to work in schools, and researching in schools. Crucial to managing the impact of my own experience was reflexivity (Richardson, 2000). Throughout the project, I maintained a journal noting my own thoughts in response to Ella's experiences and beliefs (Tracey, 2010). Continual reference to my notes was made throughout data analysis to see Ella's experience from different perspectives.

Ethics approval was granted through The University of Sydney's Human Research Ethics Committee. In addition to accepted essentials in meeting ethical obligations of research such as the use of pseudonyms and appropriate data storage, the approval required that I not teach Ella across the program nor grade her assessment tasks. A further concern was raised by the Ethics Committee in relation to the single case which required further clarification of the reasoning and benefits (Boddy, 2016; Flyvbjerg, 2006).

To explore Ella's journey from home education to teaching we engaged in regular informal conversations (recorded as notes during or after the conversations)

across the 2 years of the ITE program and conversational interviews (Rubin & Rubin, 2005): one at the end of her first year and another at the end of the 2-year program. I also gathered the twelve assessment tasks Ella completed across the four semester-long foundation units that explore pedagogy, sociology, psychology, and philosophy of education. I used reflexive thematic analysis (Braun & Clarke, 2019, 2021; Braun et al., 2018) to support an inductive exploration of Ella's conceptions of learning, teaching, and schooling. Guided by a social constructivist position, valuing the multiplicity of truth I engaged in multiple listenings and readings of the data to familiarise myself with the data taking notes to guide the inductive process of theme generation where I sought both points of agreement and dissonance (Crotty, 1998). Themes were constructed, then revised, and defined maintaining this reflexive and inductive approach (Braun & Clarke, 2019). Attention to quality in the research process was drawn from Braun and Clarke's (2021) 'guide' to quality in the use of reflexive thematic analysis.

The following discussion of findings first provides a view to Ella's experience of home education and awareness of schooling, before exploring the central topics of ITE, schooling, learning and teaching. Within these topics, the core themes: school may never live up to home education; learning is an independent process of knowledge acquisition; teachers are another resource independent learners may draw upon to acquire knowledge; entangle with a further theme: teachers are essential to learning.

From home education to ITE

Independent learning dominated Ella's home education and her beliefs about learning. The extent of independence in her learning through home education informed her understanding of learners, in turn building her view of teaching, and the roles of teachers and learners. Coupled with her external perspective on schooling, independence is a thread throughout Ella's construction of schooling.

Ella's home education

Ella was home-educated, in Australia and New Zealand, for pre-school, primary and secondary school; attending a school solely for the hours it took to complete her A-level² exams, via correspondence, at the age of 15.³ Ella entered university in Australia to complete a science degree at 15, then worked in a variety of jobs including university tutor before enrolling in the postgraduate ITE program at age 21.

² 'A level' exams are the culminating assessment for the UK General Certificate of Education (GCE) which is an option for home education through distance learning—with exam completion supervised at schools across the world.

³ This was significantly early in comparison to most Australian students who complete the end of school exams aged 17–18.

The decision to home educate was made by Ella's parents based on her eight-year senior sister's experience of school and early entry to university. Ella's sister attended school with short periods of home education. Her sister's schooling was brief however given her early entry to university at the age of 11, and not in Ella's memories. It was her sister's move to university that necessitated Ella's home education due to the family's need to be available to Ella's sister in the university environment.

Involvement in her sister's education impacted the approach taken to teaching and learning for Ella: a mix of formal and informal approaches. Ella's learning occurred mostly through textbooks and other resource books, with her university-based scientist parents taking the role of one-on-one tutor to instruct and assist. This formal approach was flexible operating without a routine, interspersed with travel and 'cultural experiences', with curriculum led by Ella's interests, ultimately focussing on maths and science. Ella's learning environment was solely individual with no shared learning.

Choosing to teach

Following completion of her science degree, Ella's plan had been to follow the rest of her family into a PhD. Towards the end of her degree, she watched the employment opportunities of her peers and began to question her initial plans. When she began teaching university classes she saw "gaps" in the students' knowledge and asked herself "how can I use my skills and passion to help these students?" (Interview 1). Ella's interest in teaching was raised though she didn't pursue ITE for a few more years.

Becoming a teacher

In starting ITE, Ella saw her experience as an independent learner well aligned with learning to teach and teaching. Stemming from this was a preference for practical learning over theory. In the first assessment task, Ella raised her beliefs regarding the need for ITE to be practical, reiterating this in other tasks and across our conversations and interviews. Ella explained that she does not like reading, preferring video, which she felt may underpin her dislike of theory and preference for practical 'tips and tricks'.

All of Ella's assessment tasks made minimal reference to theory, with routine or technical consideration (Ward & McCotter, 2004). The only theory Ella raised during conversation or interview was Dweck's (2017) highly critiqued (Sisk et al., 2018) theory of mindsets. In doing so Ella drew attention to her misunderstanding and application of the theory, stating the need to "convince" students to take on a growth mindset, without active pedagogical engagement in the development. During an interview at the end of the program, Ella continued to espouse the necessity for ITE to focus on the practicalities of teaching, and the gathering of 'tips and tricks'. Ella drew attention to her value for practice over theory, as many PSTs do when resisting the challenge to existing beliefs (Loughran & Hamilton, 2016).

Schooling

Ella's knowledge of schools came from movies evaluated through friends' stories filled with boredom, disengagement, homework, and routine:

rows, teacher at the front teaching to the masses, disengagement, boredom, bullying, lots of homework, large classes, strict timetable, formals/proms, detentions, bad food. (Interview 1)

lots of chalk and talk, not even whiteboards, I think teachers would just write on the board, teachers give instructions and students do work from the text-book because I saw the work and assignments my friends got, and also from movies. (Interview 1)

These stories guided how Ella watched movies taking away a view of a school being "still a classroom, teacher at the front, students in rows" (Interview 1). The differences to her friends' stories seen in these movies were cast aside as fiction.

Ella's first experience of being part of a school day came two weeks into her ITE. Ella's seminar group visited a Montessori school which Ella said was like home education as "students were just quiet and well behaved" (Interview 1) suggesting unfamiliarity with the normality of noise and varied behaviour in classrooms.

Ella separated home education as the ideal, providing an opportunity to tailor learning to the individual, from the lesser option of schooling. Ella saw schooling as constrained compared to home education, informed by her view of teaching and learning as the meeting of pre-determined outcomes:

(in home education you can) tick off every dot point (of the syllabus)... whereas in the classroom the teachers would definitely try and differentiate and address the student learning needs but at the end of the day you can't. I feel like it's a very difficult task to tick all 30 students...I feel like no matter how hard you try it's like there's always going to be ...not many but some students who get left out because there's a lot to fit in. (Interview 1)

Ella was critical of school practice such as the structure of the secondary school day: "it seems like any human can't really handle going to PDHPE⁴ to food tech to maths to science to English to art" (Interview 1); though ultimately believed that was the only way as the approach of her home education is not possible in school and she saw those as the only options.

Beliefs of schooling's inadequacy were framed as unavoidable consequences: "too much for teachers to do...cannot meet the needs of every student, too curriculum heavy" (Interview 1); rather than options for transformation (Ward & McCotter, 2004). Such a perspective may be expected early in ITE (Ward & McCotter, 2004), though as will be discussed later this viewpoint did not change in Ella's thinking.

⁴ Physical Development, Health and Physical Education (PDHPE) is the New South Wales curriculum area to meet the Australian Curriculum requirements for Health and Physical education. PDHPE is compulsory for the first 11 years of school.

Ella saw home education and schooling as two distinct entities without the possibility to learn from one another.

Learning

Ella's dominant experience of learning during home education was independent learning. Being autonomous and not interacting with others, Ella worked through set problems, textbooks, and other resources. Ella summarised her beliefs regarding learning, identifying:

three crucial stages in the learning process: think, do and reflect. I found these three actions formed a feedback loop from which to execute and adapt my learning strategies depending on a current situation. Furthermore, my learning outcomes stemmed from a culmination of making mistakes, identifying for myself which areas need to be fixed, and communicating the theory effectively to someone else. (Task⁵ 1)

Ella's definition of learning arose from this independent practice, as "an intricate combination of theory, practice and communication feedback" (Task 1).

Ella advocated for independent learning as the most pivotal aim for schools to develop with students. According to Ella, independent learning is essential for students to develop life skills that will enable them to thrive in higher education and the workplace. Ella maintained a binary view of learners as either capable of independent learning or not, demonstrating a static or fixed view of ability (Muenks et al., 2015). Ella stated that year 7⁶ students would not be capable of independent learning both due to lack of familiarity, as well as development, though seeing the possibility for growth as a learner's choice:

Even if I was teaching a year 7 class...because they are so young and they are still transitioning from primary to high school it might take them a few terms, maybe like term 4 of year 7 they might start feeling like 'ok I need to know, get in my you know strength and like understanding the real life like what's out there. (Interview 2)

Ella raised this again when discussing inquiry approaches within science and maths content: "STEM⁷ is not for all. Without the fundamentals (they) might be demotivated, lose interest in science or maths, or lose interest in learning" (Interview 2), showing misunderstanding of inquiry learning as being unguided (Hmelo-Silver et al., 2007) which supported her view of learners being capable or not.

⁵ Reference to 'Task' is made in relation to the assessment tasks completed throughout the Foundation units of the initial teacher program.

⁶ Year 7 is the first year of secondary, or high, school in New South Wales, Australia.

⁷ STEM refers to Science, Technology, Engineering and Mathematics.

Teaching

Ella's experience of teaching during home education was one on one with a parent. Each parent would take this role separately, with each using the opportunity for direct instruction from which Ella would continue with independent learning through textbooks and other resources. This resulted in Ella seeing teaching as transmission rather than transactional (Boyles, 2018). Coupled with the absence of peers for shared learning, Ella saw people in the role of 'teacher' as those who provide resources or whom she could ask questions for transmission of knowledge to continue her autonomous learning.

Ella recognised the scope of teaching has changed from her early, external views to see that teaching is about "helping them (students) in many ways not just their learning but building their social skills, giving them life advice, giving them career advice, telling them what's right and wrong, there's so many aspects a teacher does" (Interview 1), though maintained a view of knowledge transmission. In discussing inquiry learning Ella described her role as one of convincing learners to inquire rather than developing pedagogic strategies, and thus "dependent on how well I can convince someone. I know I can convince some but can't convince all" (Interview 2).

When asked about her philosophy of teaching and beliefs about pedagogy, Ella explained "the main belief I want to convey to students and hopefully they can receive it well and then understand my perspective is ...independent learning" (Interview 2). I asked what that might look like and Ella outlined:

students would be working independently; it would be very student-centred. I would probably be roaming around maybe like helping a group or a student. But I really want to see my students collaborate and like debating problems, why this solution is right, why this is wrong, what different ways, because maths is all about different strategies and seeing multiple angles. (Interview 2)

Ella's articulation of practice showed demarcation in the role of students as active learners, with her role as teacher dictated by the students' ability to garner the right information from her: "my ideal of independent learning—just like engaging in a good conversation and ...asking me the right questions every now and then...basic questions that you should have learned like 4–5 years ago" (Interview 2).

Ella often drew on ideas and approaches to teaching that were new to her fiction-based beliefs though without understanding of articulation into practice to enable relationship between teaching and learning. Ella maintained a view of teaching separate from what she saw as the pivotal role of the learner to be independent not just in learning, but independent from the teacher in the learning process:

...(I) want to teach.... inquiry based learning...not out of the text book but having said that....having a text book I feel will help the students as like a safety net, so whenever they feel lost they can consult it but I want them to be able to not just rely on textbooks you know, go on youtube, there's heaps of websites like good websites about science and maths. (Interview 2)

In her final task in the program which reflected upon a small teacher inquiry project, Ella showed that while she aimed for the students to develop independence through using games in maths, she was unable to pinpoint what was needed in her practice to develop this with the students and instead identified the problem as the students' lack of skills. Ella's focus remained on a transmissive role of teacher as instructor separated from a static view of student ability to learn independently:

(S)tudents did not seem to have the level of knowledge and willingness to participate in the hands-on activities.... Majority of the lesson was spent on managing the class to listen attentively and not interrupt the teacher. This frequently caused an insufficient amount of time to properly conduct the activities. (Task 12)

Ella maintained her view on the central role of a teacher for “proper behaviour learning should be enforced in schools, and this can be attained by the teacher's aptitude in classroom management skills” (Task 3). This was evidenced further in her reflection on classroom teaching as successful as: “students were compliant to my instructions” (Task 5). While Ella placed enormous value on independent learning, asserting the aim of teaching as “teaching students how to learn” (Interview 1) to enable autonomy, epistemological dissonance to her practice was unrecognised.

An apprenticeship of fiction—epistemic entanglements

Ella did not have an apprenticeship of observation as theorised by Lortie (1975). Ella saw herself as entering ITE as a “clean slate” (Interview 1). She contrasted this to her peers who she perceived as seeing schooling through “a filter because they did the HSC⁸” (Interview 1). Ella saw her peers as having been spoon-fed throughout school and their undergraduate degrees, reliant on teachers for organisation and knowledge (Interview 1). While Ella did not have firsthand experience of school, teachers, and other students, she had an education in schools through popular culture, primarily movies, which were filtered through the stories told to her by friends who went to school.

Perceiving home education to be more “difficult on comparison to other students who attended schools” (Task 1), Ella positioned home education as optimal to the lesser experience of school. The limitations she recognised in schooling and the impact on learners, was to Ella, unavoidable. She did not see possibility for home education to inform school transformation, rather saw the need for schools to engage in methods, such as behaviour management for control to spoon-feed knowledge to be regurgitated on exams, as necessary.

Ella recognised what she saw as necessary schooling practice leads to gaps, which ultimately guided her to pursue teaching. Through these gaps Ella saw connection between practice in ITE and her value for independent learning. Epistemological dissonance prevented articulation of these practices. Caught in believing

⁸ The Higher School Certificate (HSC) is the set of end of school exams in New South Wales, Australia.

transmission to be the only view to teaching, Ella did not see the dissonance created through practice such as inquiry. Misunderstanding inquiry as unguided (Hmelo-Silver et al., 2007) Ella positioned independent learning as the sole responsibility of the learner to ask the right questions of a teacher as resource for knowledge transmission. Such dilemmas remained as confirmation for Ella as to the superiority of home education, and barriers school students must endure rather than as opportunities for transformation.

Epistemological dissonance is not uncommon for PSTs given the dominance of transmission in their apprenticeship of observation (Moodie, 2016). Ella's apprenticeship of observation was potentially more problematic. She had no firsthand experience of schooling to critique, reflect upon, and build understanding (Furlong, 2013; Tarman, 2012; Westrick & Morris, 2016).

Rather than the romanticised visions of teaching (Scanlon, 2008) offered by John Keating, Lou Ann Johnson, and even Professors Dumbledore and McGonagall, Ella's "cumulative cultural text of teaching" (Mitchell & Weber, 1995, p. 166) equated to a view of students sitting in rows, the teacher at the front delivering content. It was not a case of the real not measuring up (Gregory, 2007) rather nothing, not even the movies, being able to measure up to her ideal of home education. Ella thus created herself a conservative, negative apprenticeship of observation of schooling (Holt-Reynolds, 1992; Wall, 2016) through fiction.

It was her idealised experience of home education that Ella drew upon throughout ITE as reference point, which left school absent from much of her critical reflection. In this way, Ella drew connection between her value for independent learning in home education and the focus on pedagogy for student autonomy in ITE without recognising the fundamental between teachings as transmission to teaching as transaction (Boyles, 2018). Ella's epistemological entanglement was best captured in her contorted statement: "teachers (are) there to educate the students because how else would they learn if they didn't go to school?" (Interview 1).

Ella's thinking was not impacted by ITE perhaps because the bridge between her beliefs and the evidence of ITE was simply too far and was not supported through ITE's acceptance of everyone entering with an apprenticeship of observation. Ella experienced epistemic dissonance (Bendixon & Rule, 2004); she saw that schools had changed since her view from afar through movies and friends' stories, and wanted to engage in pedagogic practice developed in ITE that she recognised as able to develop independent learning at school, such as inquiry, though was unable to see the dissonance in her thinking to be able to reconcile and develop.

Moving beyond a homogenous apprenticeship of observation

To strengthen impact ITE must build upon PST's biographies, bridging past and future learning from which the tensions created across contexts may be explored, ultimately challenging the beliefs developed as a student to the expansive view of educator (Ng et al., 2010). Ella's biography positioned her past learning not just a bridge away from ITE, but another realm.

When ITE built on PST experience it was based on experience of school. For Ella, the very basis was missing, in the place of an apprenticeship of observation was a view to schooling through fiction that failed to compete with her valued home education. It was in this absence of schooling that Ella developed her entrenched beliefs on schooling, learning, and teaching; a place from which ITE did not posit explicitly for reflection and inquiry. Without the bridge between past and future learning, Ella held tight to her beliefs, resulting in little evidence of ITE impact on her beliefs or practice.

Completing ITE without changing beliefs is nothing new (Crowe & McGarr, 2022; Flores & Day, 2006; Smagorinsky, 1999). Researchers have long shown that the beliefs and ideas PSTs bring to ITE have a significant impact on their practice and beliefs as a teacher (Borg, 2003, 2019; Lortie, 1975; Novak & Knowles, 1992; Pajares, 1992; Sanger & Osguthorpe, 2011). The strength of existing beliefs has been recognised as so great that ITE may have a “relatively weak impact” (Flores & Day, 2006, p. 224) on PST development of beliefs and practice as a teacher. PSTs will hold onto strong beliefs in the face of conflicting evidence (Murphy & Mason, 2006) and when robust beliefs are challenged, PSTs have been found to “dismiss the challenges as too theoretical and non-practical” (Ng et al., 2010, p. 279).

PST beliefs are “amenable to change”, though some more than others, and that change is directly related to ITE (Ng et al., 2010, p. 207) which may challenge PSTs to learn and grow well beyond their experience of schooling as students (Loughran & Hamilton, 2016). Focus on critical reflection and inquiry in ITE has been found to impact PST beliefs and practice enabling school change (Furlong, 2013; Westrick & Morris, 2016). Tarman (2012) suggested that “(T)he story of how prospective teachers experience ITE programs begins with a questioning of who they are and what beliefs they bring” (p. 1964). The history PSTs bring to ITE may be mediated by the context of ITE (Crowe & McGarr, 2022) and new school experiences when the contexts are “strengthened by a stronger focus upon personal biography and the cultural contexts of schools in order that the tensions between them might be better understood” (Flores & Day, 2006, p. 230). Ella’s situation draws attention to the diversity of experience PSTs bring to ITE, and the need for greater differentiation in building connections to prior learning from which new learning may begin.

The most significant aspect of looking at Ella’s experience is understanding the epistemological divide that may occur for PSTs between their own learning experience and that of ITE. While most PSTs experience an apprenticeship of observation in schools, the increasingly diverse cohort is widening the gap between experience and ITE. Further research is needed to understand the diversity of PSTs’ prior learning experiences, the ways in which ITE bridges gaps, and whether the gap for some PSTs is so large that additional time and coursework is necessary to enable ITE to impact on teacher practice. Existing beliefs “are the link between current and future learning—the basis for challenging and changing ideas” (Walkington, 2005, p. 56). Better understanding of the tensions between PSTs’ biographies, the contexts of ITE, and individual PST response to ITE (Borg, 2019) is needed to build upon their history to strengthen the impact of ITE (Ng et al., 2010).

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