

A Student Teacher's Personal Pathway to Education for Sustainability

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Abstract

Increasing attention is being given to the inclusion of Education for Sustainability in pre-service teacher education. However, there is little research to explain why and how early-career teachers include Education for Sustainability in their work, or how teacher education providers can encourage and support them to do this. Through analysis of two interviews this paper examines the way in which a pre-service primary school teacher interprets her role in Education for Sustainability. Her personal reflections on the manner in which her life experiences, including her own schooling, have influenced her intentions as teacher are explored. Her university teacher education program in Education for Sustainability and her teaching internship experience also appear to have influenced her teaching goals. The profile presented in this paper outlines her intentions and sense of identity as teacher and how that has developed and is expressed. Conclusions centre on the relevance of her reflections for education for sustainability in pre-service teacher education. In particular, her example demonstrates how the development of pedagogical content knowledge relevant to Education for Sustainability during the pre-service years can play an integral part in an individual's decision-making when teaching.

Introduction

The literature on education for sustainability (EfS) is replete with descriptions of its invisibility in schools; explanations for this; and proposals to help bring about a socially, economically and ecologically sustainable future (Fien, 1993; Grace & Sharp, 2000; Tilbury & Cooke, 2005; Stevenson, 2007). The "why it is invisible" suggestions include the crowded curriculum, lack of time, lack of resources, difficulty in teaching across Key Learning Areas, the lack of opportunity to orchestrate learning out of doors, lack of teacher preparedness and the pervasive contemporary detachment of modern (usually urban) life from the natural world (Payne, 1998; Gruenewald, 2003). Arguably, education has a key role to play in addressing our contemporary environmental problems. Assuming that this is the case, then teacher motivation and skills for engaging with EfS are central to our capacity to adapt and shape our future. However, to date there has been little research to explore the issues that student and early-career teachers may face when attempting to integrate EfS into their teaching and what teacher education providers can do to encourage and support them in their efforts.

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The purpose of this paper is to sketch a profile of a student who is entering the profession with a positive outlook and determination to weave her personal sense of environment and pedagogy of EfS into her work. Her outlook could of course be dismissed as being merely the idealism believed to be characteristic of many pre-service teachers (Wideen, Mayer-Smith & Moon, 1998). Moreover, this is a study of “one”. As such, it offers a narrative that portrays a pathway of determination to engage with environmentalism, but is limited in its application in that no valid generalisation can ensue.

The student, pseudonym Annie, is at the point of completion of pre-service primary teacher education, and not yet fully confronted by the ways in which the school may affect the implementation of EfS. Annie’s profile outlines her intentions and sense of identity as a teacher, how that has developed and how it is expressed. Further discussion centres on Annie’s view of how teacher preparation should address EfS and of how schools can encourage new teachers to teach EfS. These themes will be a part of ongoing research that follows Annie and others into their beginning teacher year. The first two authors were Annie’s tutors in an EfS coursework unit referred to in a later section. This study is informed in particular by the literature pertaining to EfS and to teacher identity, how values influence teacher decisions, and what student teachers draw from teacher education.

Influences on Teachers and the Teaching of Education for Sustainability

Practising teachers tend to teach what they particularly care about (Sund & Wickman, 2008). There are teachers who see EfS not as a body of knowledge but as a way of looking at teaching and learning that reflects personal beliefs about the value of the environment (Hart, 2003). Even so, in addition to the often expressed barriers to EfS mentioned above, Barrett (2007) has identified our cultural norms of self expression and everyday language use as further constraints. She describes how the subject of her study, a specialist environmental educator, working under none of the usual constraints of schooling, chose to keep his deep environmental concerns and convictions on the fringe of his teaching. He chose to use his work time to develop new technology-based teaching materials rather than an holistic EfS program. This Barrett (2007:215) explained as follows:

Contrary to arguments that if teachers believe in a particular pedagogical approach they will use it, or that those who are motivated and care will take up environmental education, I suggest that the power of dominant discourses, (re)inscribed through everyday language and social practices, may seriously constrain ways in which impassioned teachers like Jeff teach environmental education.

According to Barrett (2007:215), her subject was unable to express his “love of land” which she identified as a connection “developed through body, spirit and heart as well as intellect”. It seems that the values of teachers and their ability to express those values are powerful determinants of the presence and nature of EfS in schools.

Values and experiences help to shape identity, as does the context of the school and community and the pre-service teacher experience (Flores & Day, 2005). Although every student teacher will bring different experiences and values to the classroom, it may be possible for pre-service teacher education to facilitate the future work of teachers in EfS through the development of pedagogical content knowledge (Grossman, 1990).

Pedagogical content knowledge is a teacher’s conception of what it means to teach a particular subject. It includes an understanding of the goals of teaching a particular subject, of student understandings of the subject, of curriculum related to the subject

and of strategies for teaching particular topics. University coursework is thought to be a major contributor to pedagogical content knowledge along with a new teacher's personal experiences as a school student and experiences as a pre-service practice teacher (Grossman, 1990). It appears then that pedagogical content knowledge, along with teacher values and social norms, influence decision-making about what and how to teach.

The Research

A qualitative, interpretivist methodological approach was selected for the present inquiry (Guba & Lincoln, 1989, 1994). A qualitative approach was deemed to be the most appropriate because the researchers wished to gain an in-depth understanding of the engagement of pre-service teachers with EfS and how that engagement was formed. The data presented here form part of a larger study involving a two-phase design. In phase one, pre-service teachers were interviewed at the completion of a semester one EfS unit and again towards the end of a ten-week internship that followed the EfS unit. Phase two data will aim to capture participants' experience during their beginning teacher year and will be reported on at a later date.

Interview data was transcribed and then analysed using a system of coding, comparison and clustering similar to that outlined by Miles and Huberman (1994). In addition, coded responses were reviewed to provide a holistic understanding of the individual within her unique context. Repeated listening to original audio recordings proved to be useful in the process of interpretation and analysis of meaning. The results presented here pertain to just one of the students who was interviewed. They are presented as a profile derived from two interviews conducted in phase one as described above.

Participant and Context of the Study

Annie enrolled in a provincial university in NSW immediately upon completion of her secondary schooling. Her chosen career was primary school teaching. The university offers a Bachelor of Education course with many of its subjects promoting learner-centred instruction where teachers facilitate student learning from personal experiences and where students actively interpret the world through individual and collaborative inquiry. A final year EfS unit of study (Kennelly & Taylor, 2007) for all primary teacher undergraduates explored EfS as an integrating theme, in accordance with the State of New South Wales (NSW) Department of Education and Training (DET) policy (NSW Department of Education and Training, 2001a), across all Key Learning Areas. Immediately following the semester one EfS unit, Annie and her cohort undertook a ten week internship in NSW schools. Annie's internship school was a parish school with an enrolment of almost 100 located in a small rural town that was distant from the university.

Findings

This section provides an account of Annie's reflections, as a final year student, on the influence of her own school experience, her practice teaching experience, and of university coursework on her capacity and desire to include EfS in her teaching.

Identity Formation: Developing Affinity With the Natural World

Various life experiences are significant in forming teacher identity (Kagan, 1992; Wideen, Mayer-Smith & Moon, 1998). In response to a question about what motivated her to want to teach EfS, Annie responded with a detailed account of her early life

experiences. These experiences largely emanated from her family and her year at a small coastal school with high enrolment of Aboriginal children:

What experiences have you had that contribute to your motivation to teach Efs?

The experiences that have motivated me to teach education for sustainability? My life experiences have been my grandma as a person. She supports the environment. Having a very cherished childhood where the land was very important to me. Having family support in the environment. Experiences that I've had connecting me to the land for example Aboriginal Elders showing me the significance of the land for their survival.

That's had a huge impact hasn't it?

Yes it has, it definitely has and being one of the only white children in the class. This was at Kalinga Primary. I was there for a year and it had a big impact on my life. Getting to realise there is this other way of living. For example, all I wanted to do was play Barbies but they [the Aboriginal children] wanted to go and find sea urchins and run along the beach and make things ... And finding food in the environment. All this other realm of play.

The manner in which her family was involved with the school and the Aboriginal community was particularly significant:

My mother did the murals at Kalinga Primary. If you go there there's a range of murals and they're all Aboriginal. The Elders used to come in and design these murals with my mother and all the children were involved with the painting of the murals, learning the significance of the stories that had come from the dreamtime. I was in year 3 so I was nine.

[The Aboriginal children] found a lot of satisfaction in creating things from the environment and playing games that incorporated the environment. They incorporated things like the trees and all sorts of things into games which I also did at my other schools but it was more like tip and card games and basketball, whereas theirs was very imaginative and creative as well as the other games like soccer.

Why were their games different?

Because of their upbringing, because of the Elders, and their connection to the land is always important to them and goes back centuries. It's ingrained and from a child's perspective you pick that up. You can learn their values by being around them.

This extended response shows that Annie as *student* teacher readily engaged in a process of self analysis of values and experiences from the past. She revealed a personal identity that embraced affinity with natural environments, an affinity that was recognised by her as being strongly influenced by those early life experiences. Furthermore she believed that early experiences connecting her with nature established her desire to engage with Efs in teaching.

While she still was a student teacher, Annie had firm ideas about the kinds of experiences that children should have and indeed that teachers should have:

The Arawara people used to live just down the road and take us on bush tucker walks and things. For a student, the history of living in a place where the Aboriginal people still have a wealth of knowledge was really powerful. And for a teacher to realise the impact it has on a child is really powerful. It is necessary for us as teaching professionals to get that sense of belonging.

For Annie, a central formative experience for her as a teacher was the time spent in natural places in the presence of others who deeply appreciated those places. It was thus her belief that the development of a sense of belonging to a special place was essential not only for children but also for teachers so that they could understand how children were affected by the places around them.

Values, Identity and Teacher Intentions

Values were the most important element of EfS for Annie. Her role in this regard was well established whilst she was still at the university. As *student*, Annie believed:

I think it's all about values, [EfS] for me. I think it's definitely all about values. That's where I would start with my educative role.

In turn these values were incorporated into her identity. The identity of self as teacher is influential on teaching and learning decisions made (Flores & Day, 2005). This was certainly the case for Annie. Annie's early experiences in the environment gave her a sense of the value of environment and how this connected to human life. This understanding fuelled her motivation to teach EfS and shaped her intentions. As *student* Annie was asked:

On a scale of 1 to 10 where would you place your motivation to teach EfS?

Ten. Because the environment is where we live and the environment is how we survive and if it weren't for the environment we wouldn't be here. We should understand that and improve it for future generations.

Annie's sense of the importance of environment and her intention to teach with a view to the future was later reflected in a strong value statement about her teaching role. As *intern* Annie was asked:

Now that you have had opportunity to work with your class over many weeks and you are distant from the university, what does EfS mean to you?

It means it is my responsibility within my classes with the children I deal with to actually get them to realise that they can make a difference in their small ways. For a more sustainable way for their own living and to try and pass that on to their children and try and really make it a key value.

Here Annie is expressing the impact of her identity on her intention as teacher. In particular, she feels that her teaching role can help shape the future by helping children to learn more sustainable ways of living.

The inability of Barrett's (2007) subject, Jeff, to express his environmental values appeared to inhibit his practice of EfS. Annie, however, repeatedly made her environmental values explicit and overtly reflected upon them:

One of the significant [university] units that affected my perspective on place was the ecotour where we went around Australia and sang a lot of Australian songs and incorporated all sorts of different things. So that helped me develop a special connection with our land and our connection with Aboriginal people who have a very strong connection to the land and value it.

Nothing changed for Annie when she entered the classroom. Unlike Jeff in the Barrett (2007) study, she used the internship as opportunity to put her values into practice. As an *intern* working with kindergarten children, she discussed her teaching program and offered values as a core reason for engaging with EfS:

They're learning about where they come from and why this place is special for them and why they need to conserve and sustain those places for future generations and for their own enjoyment as well.

Annie believed that she had had a privileged upbringing in the presence of exceptional people. Her determination to share her values fired her desire to teach and to provide similar rich experiences for the children in her care. Her view as intern does not appear to have altered from her view as university student. Rather, her comments appear to indicate that as intern she was drawing upon the values established during her earlier experiences to drive her teaching.

The university EfS unit (known to students as "412") was structured to help students develop pedagogical content knowledge. As *student* Annie had emphasised the value of practical experience and ideas that had been included. As *intern*, Annie was able to reflect on the change that occurred for her during the university teaching unit. Her view of its influence:

How has 412 influenced your view of EfS?

Made me have a view.

I would have thought you had all the values in place before 412?

Yes, but I didn't really know how to get it across to the students. I guess I would have been able to go into class and talk about why places are special and that we need these certain places but I wouldn't have had the background to actually teach and I wouldn't have known about the inquiry approach and what the quality teaching things are, like deep knowledge and deep understanding.

For Annie, a main function of the unit was the development of pedagogical content knowledge, in particular, of strategies that would support her intended goals.

Additionally, as *intern*, when Annie reflected on her experiences in the university unit, it was apparent that she particularly valued experiences that she had undertaken as a student. As part of the unit students had the opportunity to experience inquiry learning, suggested as a useful strategy in EfS (Australian Department of Environment and Heritage, 2005). They were required to investigate and act upon an environmental issue of their choice. As *student*, Annie's chosen issue had been the decline of biodiversity and her chosen, self-initiated action was to teach a group of visiting children about biodiversity, and about how they could address biodiversity loss by augmenting habitat for native creatures. As *intern*, Annie was asked:

So how has 412 influenced what you are doing in school?

Biggest impact was the experience of being able to teach that group of kids that came out to the uni. That definitely made it real to me. Actually having that group of kids and being able to do that for my assignment proved to me that I was able to teach it with children and be able to relate it to things we did in class as well.

Can you talk about different aspects of that teaching experience?

I had to do the research and find out the background information that I needed and then speaking to educators and other people in the community to make it to a year one level proved to me that I could learn it and that it's important to teach to students so they can utilize the information and share it with their parents as well. I just found it a really enjoyable and rewarding experience. And I found that students were really engaged with the materials that I created.

It gave me a starting point when I did the bird friendly garden and the research. I really got into the community. And got them involved in my one little project ... Yes I think that project was the most beneficial thing that I did during the course.

Why?

Well it was successful and it really showed me that the kids are really interested in making a difference and they do care and they want to know about how they can care for the environment. It gave me the confidence to contact [invite to school] the people like for the Aboriginal day today and yes I could contact people and get them involved.

As *intern*, Annie was implementing an approach to teaching that brought community members into the classroom, and that engaged children in actively learning about the environment then contributing in some way to improvement of the local environment. This action built upon her experience as university *student* where she herself had identified this approach of developing partnerships with significant others, as both interesting to children and rewarding to herself. Such early success had encouraged her to continue with a student-centred active learning approach to EfS with the children's caring response being a key motivator for her pedagogical choices. The university unit had legitimised her desire to incorporate her interpretation of EfS into her work, an interpretation which she herself identified as greatly influenced by the early life experiences that shaped her identity as teacher and as environmentalist.

Improving Pedagogical Content Knowledge

When asked how the university EfS unit could be improved, Annie as *student*, commented on the teaching strategy of experiential learning, in particular, visits to nearby localities:

With the sewage treatment works that was definitely a new experience for me ... That was a motivational experience because it puts it into a real life situation. It's not just text book materials.

Annie as *intern* built upon this idea, suggesting more pedagogical content knowledge should be included in the university unit to complement field experiences:

Should we have done more curriculum planning work in 412? Do you think people need to plan lessons and units?

I think that all of those things we did: walked around and saw the drains and went to the sewerage treatment works, everything we did all the movies and excursions, we then could have had the opportunity to design a lesson, which we did for a lot of things, and I thought that was beneficial but we needed more of that.

So we really need to ask the students more often to reflect on the experience in terms of their professional work?

Yes. And how they would teach it in class. So you give them the class context. How would you approach going to the sewerage treatment works and teaching the students? So just take into consideration things like that because teachers need to realise they need to be flexible and if they want to get outcomes across to students that they have to have a bag of tricks like your bag of tricks to show their students. So if they have the opportunity to think about how they would teach this class that definitely backs up everything they just learnt.

Her focus was on her professional role and so far as she was concerned the role of the university was to enhance her capabilities in that role in a very practical manner. This is the point made by Kagan (1992: 162), that “a primary goal of pre-service programs should be providing procedural knowledge to novices”.

Support for EfS from the Internship School

Annie identified several aspects of the context of the internship school as supporting success in her work:

So in what way has the school context encouraged you to engage with EfS?

It's been a support framework. The school context for me is how you can channel helpful people who people know and what they know.

They're allowing you to?

Go and do my own inquiry learning process they're allowing me to develop my own framework. They're not putting me in a box.

So they're giving you trust?

Yes.

So how important is that to your ability to engage?

It proves to me that I would be able to do it in the first place. They have high expectations. Yes it's the same as the inquiry learning project we did. It was you trusting us that we could come up with our own project.

How has the school context helped you?

They have been really encouraging and by their example. They have incorporated lots of EfS. They've tried to in their own teaching and they've encouraged me to do that. And given me ample opportunities to do it in my own teaching.

So they've given you a long leash?

Yes, and encouraged me to use the channels they've already made to find people.

The internship school provided Annie with an example of how children's care for nature and sense of place and community could be developed. In particular, Annie suggested that trust, practical help, high expectations, autonomy, encouragement and provision of good example have enabled her to experience success as intern. This is

consistent with the findings of other studies of new teachers (Kagan, 1992) and appears quite different from the context that Barrett's Jeff faced.

Discussion

For Annie, her identity as an environmentalist appears to have been established prior to her student teacher and internship years. The discourse of environmentalism expressed through the EfS unit within the university program encouraged her to implement a style of teaching that utilised rich experiences for her young students. Further, it legitimated her desire to express her love of land as kindled by her particular history as a child, in a manner that Barrett's subject felt unable to do.

Overwhelmingly, the interviews revealed that what was important for Annie as student (in this instance her valuing of environment) was still important to Annie as intern, and that unlike Barrett's (2007) subject she was confident in expressing those values. The things about which she spoke as student (her personal and professional values, experiential learning and knowledge integration, other aspects of pedagogical content knowledge, involvement of broader community partners in schooling, support from colleagues and those in authority) were common to both interviews. As an intern in a school she implemented the things that she identified during her student years at university as of greatest importance and as having the greatest impact on learning. These were the things that she had come to see as important in her childhood. She was not overwhelmed by the context of schooling during her internship, as has so often been reported (Wideen, Mayer-Smith & Moon, 1998), but exploited the advantages offered by the school to further her teaching goals. She was also fortunate that her internship school fully supported her as a teacher and was committed to EfS practices.

Conclusions

This profile provides insight into why and how one student teacher took the opportunity to engage with EfS during her internship experience. It illustrates for one individual the links between particular life experiences, teacher preparation in EfS and the context of the internship school. For many years there have been calls for the inclusion of EfS in teacher education. The profile drawn demonstrates how the development of pedagogical content knowledge relevant to EfS can play an integral part in an individual's decision making in teaching. Studies by Grossman (1990) support the notion that university education is a major contributor to a teacher's conception of what it means to teach a particular subject. Even though EfS in Australia is taught in schools in an integrated manner, not as a "subject" or Key Learning Area, teaching it nonetheless requires an understanding of EfS goals, of particular student understandings, and of the relevance of particular teaching strategies. Indeed, Miles, Cutter-Mackenzie and Harrison (2006) have shown that student teachers, although interested in the environment, are nonetheless likely to perceive themselves as lacking in knowledge and unprepared to include EfS in their teaching. This was in a teacher education program where environment related content was mainly delivered as an element of other curriculum areas. It should be noted that this profile in itself does not provide comment on the broad mode of delivery of EfS in teacher education. Although this paper refers to the delivery of EfS in a dedicated unit, there is considerable commentary available on other ways of delivering teacher education in EfS (Ferreira, Ryan & Tilbury, 2006, 2007a, 2007b).

Annie's is the view of one person and does not necessarily provide a definite path for improvement of teacher preparation in EfS. However, in describing the connections between her life experiences, her aspirations, values and actions and how these connect with her student and internship work, it provides insight into the importance of her university and significant life experiences. From glimpses into her life history comes

the suggestion - as elaborated by Martin (2007:62) - that caring for nature, in the sense of acting to uphold the interests of nature, comes from “getting to know nature”, and “experiencing, learning and sharing time with nature”. This has implications for the pedagogical decisions of teachers and teacher educators alike, suggesting that the value of engaging outdoor experiences “in” the environment should not be overlooked.

While a great many studies of beginning teacher experience are about how difficult this is (Maxwell et al., 2006), some people find a way to make the first years satisfying and enjoyable (Hebert & Worthy, 2000). As shown through this profile of Annie, a rich experience in the environment, a strong determination to succeed as teacher, confirmation that EfS is a legitimate focus of teaching, knowledge of ways to go about it, some small teaching successes in a supportive and encouraging school context all reinforced the motivation and success of an intern teacher in EfS. Ongoing research will investigate Annie’s practice of EfS in her first independent, in-service teaching year.

Keywords: Pre-service teacher education; early career teachers; case study; teacher identity; education for sustainability.

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