

Storythread pedagogy for environmental education

Pullenvale, Australia

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Introduction

It was early in 1978, and I (Ron Tooth) was in my eighth year of teaching. As I walked toward the edge of the gully near the school, I could hear children squealing and playing. I had already decided that this was not a safe place for them to be and fully intended to call everyone out from among the shrubs and the trees. As I came closer, I could see who was involved, and I was surprised that most of the children were from my own year three class. My first inclination was to interrupt and ask them to climb out from under the fallen branches, makeshift cubbies, and pieces of cardboard and cloth. Instead, I just stood there and watched, captivated by what was happening. I was transported back to my own childhood, remembering the sense of wonder and adventure of playing in the bush near my home. With difficulty I resisted my ‘teacher urge’ to take control. I was a privileged observer of a powerful and exciting learning episode in action.

In the period that followed the gully experience and before I arrived at Pullenvale Environmental Education Centre (PEEC) in 1982, it became normal for me to spend hours with my class each week in the local bushland. We worked like natural scientists *and* artists, collecting information and filling our journals with information, detailed sketches, observations, poetry, and personal reflections about what was happening around us each day. Sometimes, I set half-days aside for our expeditions as we climbed local hills and scrambled through creek gullies. As the standard of student work improved, I began to use narratives to introduce new concepts, knowledge, and problems while I also focused students on the processes of direct scientific observation to heighten their understanding through personal encounters with their local landscape. I soon found that this mixing of story, drama, and outdoor experiences in nature worked well as a way of developing deep knowledge and values. I remember thinking that if only I could continue to

make these kinds of connections, something good would have to come from it.

The ‘gully experience’ was a professional turning point and represented a pivotal moment in the emergence of the storythread approach in 1982 at the PEEC. This Centre is set against a backdrop of forests, foothills, and distant mountains on the western outskirts of Brisbane and exists today as a dynamic educational hub where students and teachers visit to participate in Storythread programs.

Storythreads are mediated ‘environmental narratives’ that allow students to engage emotionally and imaginatively with natural places. Environmental narratives, as they are embodied with storythread programs are, quite simply, stories about people and landscapes and how each has shaped the other.

Decades later in 2007, I (Peter Renshaw) visited the PEEC to find out more about the storythread pedagogy that had been iteratively designed by Ron and his team and then implemented and refined through various research collaborations with teachers both from local schools in Brisbane and across the state of Queensland in other environmental education centres. I As a researcher, I brought an interest in collaborative learning inspired by a Vygotskian sociocultural theory (Vygotsky 1993), and as a citizen I brought a set of values and concerns for the environment. I discerned that various kinds of knowledge were integrated within each storythread unit: conceptual knowledge of the natural world and its interacting systems; process knowledge of how to investigate the natural world in disciplined and thoughtful ways; and knowledge of how to act strategically to protect and sustain the natural world. Storythread also engaged students imaginatively and creatively with natural places in ways that enabled them to see, hear, and feel more deeply and attentively and to appreciate in an embodied manner why protecting and sustaining natural places was crucial for their future and that of humankind.

Storythread was powerful pedagogy: That was clear from my first visit to the PEEC. This insight was not merely an academic one for me. I participated in a workshop on storythread where I pretended to be a fourth grader doing the storythread unit called *Bugs*. In doing *Bugs*, I recalled, informed, designed, labelled, collected, categorized, imagined, argued, and engaged in deep listening to the natural environment. With regard to the latter, I sat quietly in the bush during the workshop for about thirty minutes trying to see and hear nature in a different way. Afterward, I shared *my* novel insight that butterflies fly in complete silence (at least to the human ear) in contrast to noisy flies and other insects. I began to understand that paying attention to nature – listening and seeing deeply – was a powerful experience that was emotionally engaging and interesting. I pondered the evolutionary advantages of different types of wings and the physics of wing designs and the sensory systems associated with gliding and floating through the air (butterflies) versus motoring ahead with vibrating wings (flies). Clearly, young students experienced this as well in their own particular ways. Even in

this pretend mode, as an adult I found the elements of storythread engaging intellectually and emotionally quite moving.

What I added to this collaboration with Ron and his team was a research focus on the mediating tools and social scaffolds that had been seamlessly incorporated into storythread over the years. Our ongoing collaboration has enabled us to analyse students' learning in relation to the variety of meditational means embedded in the storythread pedagogy. Briefly, the key insight for us is that there are distinct pathways to learning embedded in Storythread: Some students are influenced powerfully by the characters and the narrative, others by the firsthand experience of the natural place, others by gaining interesting knowledge about nature, and others by their aesthetic sensibility to the beauty of the natural world. We explore and explicate this insight further next.

Storythread as environmental narrative

Storythread pedagogy builds on the environmental narrative genre. Environmental narratives are designed on the basis of deeply personal experiences of the world. The narrative genre affords particular insights into the complexity of life and relationships between humankind and the natural world (Slicer 2003). In Australia, environmental narrative appears in the oral traditions of Aboriginal people and the writings of environmental historians. Chatwin (1987) points to Aboriginal communities in central Australia who use their 'song lines' as flowing environmental narratives about the people and creatures that inhabit particular places. These narratives function as topographical maps that a singer can use to travel through a landscape as he or she locates particular physical and natural features of spiritual significance. Environmental historians such as Bolton (1981), Dovers (1994), Greider and Garkovich (1994), and Rolls (1993) reframe environmental history as a network of stories about wild and dramatic landscapes, the wilderness we have lost, entire species of animals and plants that have disappeared, and the exceptional individuals who have struggled to protect our environment for future generations. Traditionally, societies all over the world have used environmental narratives as 'objects' or 'tools' to deal with the complexity of life, to celebrate culture and land, and to apply knowledge and skills learned over generations.

Storythread pedagogy is a particular adaptation of the environmental narrative. It combines the story journey with deep attentive listening to take learners into a deepened awareness of themselves as they connect to and begin to understand the complexity, beauty, and fragility that exist within any natural place. By engaging students and teachers directly with natural places in this way, they become more attentive to what is actually happening around them, and this can have profound implications for them as individuals and for

how they learn. When students are inspired to look closely and attentively, they begin to see the world quite differently – with fresh eyes. Storythread pedagogy has, over the last twenty years, been profoundly shaped by this idea that listening and attending to nature and to place is central to achieving education for sustainability because it develops the kind of humility that is required for purposeful and meaningful education in the twenty-first century. This form of ‘deep listening’ (McNeill, Macklin, Wasunna, and Komesaroff 2004) and ‘profound attentiveness’ (Clark 2004) has been alluded to by many cultures over time.

All storythreads are built around six main elements, and when these are skilfully and consistently applied in both classroom and natural settings, they create a powerful context in which deep learning happens. These elements include (1) the use of story and drama to create a sense in students of the significant others who have been there before them and with whom they can interact through imaginative and creative play; (2) the creation of ‘personal knowledge’ that develops as students experience a place firsthand and begin to construct new knowledge and theories for themselves based on what they have seen and experienced and what they hear from PEEC teachers and peers during the day; (3) the use of ‘deep attentive listening’ and close observation of small events in nature that are scaffolded by the teachers to create a sense of emotional, sensorial, and ethical connection to place that opens students up to the complexity, beauty, and diversity of the natural world; (4) the use of ‘reflective responding’ both in nature and then back in the classroom allows students to gain a much clearer understanding of their experiences in nature and the changes that are happening in their lives; (5) the development of an ‘ethic of care’ that often emerges, almost naturally, out of the attentiveness and reflection experience: All successful storythread journeys have this strong values dimension that runs from beginning to end, where the focus is on building respectful connections between self, others, and place; and (6) finally there is the full mind-body sensory ‘experience of place’ with all its beauty and unpredictability as individuals are surprised by the unfolding complexity of nature as rain sweeps in, wind blows up, and wildlife appear unexpectedly to catch the interest of a group or of a particular individual. Next, we exemplify storythread pedagogy by considering one program based on the beautiful bushland called Karawatha in the Australian city of Brisbane.

The Karawatha experience: An attentive and reflective journey into place

This example of Karawatha describes how a group of students and a committed teacher became part of a storythread journey that allowed them to step into the realm of a passionate environmental group, and particularly into the life of Bernice Volz², who was one of the people who was instrumental in saving



Figure 10.1 Karawatha Lagoon

from development a string of endangered lagoons on the southern boundary of Brisbane. The lagoon system is now the centrepiece of the extensive Karawatha wetland conservation area that has been purchased by the Brisbane City Council and the state government as part of a land acquisition program. This remarkable woman is a self-taught ecologist with no secondary or university education. She is respected throughout local government and across a wide range of scientific circles for her local knowledge and ability to achieve change.

As part of the storythread experience, students and their teacher were invited to learn more about this woman, focusing in particular on her insights, values, and actions and why she so willingly committed herself to the long-term effort required to save Karawatha. Through a series of mediated environmental narrative experiences at school and then as part of a full-day expedition into Karawatha, students reflected further on her



Figure 10.2 Ron with a group of students

achievements, explored this wetland area for themselves, and visited places that were important to her as they made their own personal connections to the place. Together they traversed Karawatha forest from one side to the other, imagining themselves walking in her shoes. Through this mediated experience, the students were drawn into this woman's life and into the story of Karawatha itself – its biodiversity, history, and environmental significance. Students were invited by their classroom teacher to become environmental leaders in their school and to reflect on the life and actions of this woman as someone who had been an environmental leader throughout her life.

Throughout this extended environmental narrative experience, before, during, and after the excursion to Karawatha, students were asked to record their journey in a visual diary and to reflect on the experience through an ongoing community of inquiry process. The community of inquiry circle (Cam 2006) became an important device that allowed students to think

deeply about the experiences that they were having and how they might be relevant to them in their own lives. Students were asked to think about the total experience and whether it had changed them or their thinking in any way. The storythread experience culminated with the students working together with other classes in the school to coordinate an environmental week of activities and events where they created environmental art pieces to share with their school community that embodied their personal insights and reflections about Karawatha.

During the ten-week experience – but particularly on the day of the excursion to Karawatha Forest – the six storythread elements were very evident, beginning with stories and characters. These were deployed to create a sense of the presence of traditional Aboriginal owners across the centuries and the more recent passionate environmentalists, particularly Bernice and others who had been there before them making their own deep connections to this place. The students were scaffolded to create new knowledge of the natural systems as they saw, heard, felt, and analysed what was happening around them and what was being shared with them. Included also were opportunities for ‘deep attentive listening’ both in Karawatha and in their school grounds and local environment where students refined their ability to observe and respond to the fine details of life that often remain hidden. Closely related to deep listening was the engagement of students in deep ‘reflective responding’ in Karawatha and elsewhere that allowed students to gain a much clearer understanding of the interconnected changes that were happening in their lives and in the natural world. Finally students could appreciate the centrality of an ‘ethic of care’ for the environment as they were enabled to see themselves, others, and Karawatha as parts of a larger complex system.

The mentor teacher from the PEEC listens, responds, and shapes the unfolding experience so that the elements of storythread are woven together to produce opportunities for full embodied learning. To achieve this, however, a storythread teacher needs to be skilled in using a wide range of quite specific ‘micro-mediating tools’ that can be applied at different times to shift student perception, spark the imagination, and move individuals into alternative mind, body, and sensory space where deep learning can happen. The students’ experience of the natural environment is mediated by these quite specific sociocultural tools such as (1) ocular devices including magnifiers, cameras, and recorders that amplify perception; (2) imaginative visualizations and story moments that allow students to enter different times and spaces and experience events long past; (3) thought experiments such as reflecting on past events, present experiences, and possible futures for the environment through deep reflection and communities of inquiry; (4) auditory snapshots such as the silent walk through the forest, deep attentive listening or adopting freeze postures suddenly to heighten awareness of this moment in a natural setting ; and (5) tactile rituals conducted at the point

of arrival into places of significance by placing hands on particular rocks or trees, applying clay to the face and skin, or sifting crystal rocks and soil from the bush path through the fingers – all work to heighten awareness, challenge perceptions, and open the mind to the complexity of nature that is present all around them.

To summarize to this point, we have shown how storythread incorporates various mediational tools and social scaffolds to promote deep learning about nature and human connections to place. Next, we focus on evidence of changes in students following the Karawatha experience and other subsequent changes in how they began to view themselves, relate to family members at home and peers at school, and how they now believe they should treat the living environment around them.

Evidence of change

The professional development of teachers involved in PEEC programs has been tracked over many years by the staff through examining and sharing professional journals, case writing about memorable insights and events, and extended interviews (see References). During these interviews, teachers were asked about changes they had noticed in their students after the excursion to the PEEC. Incidents of compelling behaviour change both inside and outside the classroom were reported over the years by teachers, including an effort to increase respect for nature by fellow students and parents, a practical concern for litter reduction, a greater respect for small animals (such as lizards and ants) on school grounds, increased personal calmness and empathy for one another, and civic responsibility for looking after gardens and trees on the school site. Recently, we have collected evidence of change directly from students using a range of techniques such as KWH activities (What do we know about this? What do we want to know? How can we find out?); inquiry circles focussed on the experience at the PEEC; and small group interviews after the excursion. In examining the data, we were surprised by the depth and eloquence of some responses from students. For example, one student expressed herself as follows:

Before I did this program I just saw myself as someone who is passionate about nature and, yeah, someone who cares about wildlife but after I'd done this program I see myself as a wildlife warrior and I feel more confident in myself and I've become more alert and observant with my surroundings and it has given me a new confidence to go out and see the environment, instead of – just sitting and think oh I like the environment, I like nature, but not actually doing anything about what's happening.

(Interview with year six student)

In categorising students' responses to the inquiry circles and interviews, we searched the entire corpus for consistent foci and themes regarding the kinds of changes that had occurred. We abstracted three key foci: (1) changes in self; (2) changes in relationship to others and place; and (3) changes in learning at school. The changes to *self* were in terms of their personal qualities such as confidence and enthusiasm and an emerging new identity. The changes to their *relationship with others* were concerned especially with their sense of agency to influence others and do things to protect the environment and their realisation that even children have the power and responsibility to act for others and to protect the environment. *The changes with regard to school learning* were concerned primarily with more-positive engagement and realising the relevance of school learning more. These changes were explicitly linked by some students to their realisation of the importance of direct experience of natural places for longer-lasting and deeper change to occur.

Changes to self

There were changes in how students viewed themselves at school and in the world generally. Sometimes, these were described in terms of change in relation to *personal qualities* or specific personal characteristics such as openness, confidence, alertness, attentiveness, and passion. One boy could see that because of the entire Karawatha experience his openness to others had increased:

I've noticed – I'm more open to new ideas from people because it used to be just like me, me, me but now I'm listening to others because what they say also matters and doing this program, yeah, has let me, like, open up my brain and allow other people's thoughts.

(Interview with year seven student)

Other students summarized their new sense of self as an identity shift – as in the eloquent preceding quotation where the student says, '*after I'd done this program I see myself as a wildlife warrior*'. These self-identifying labels provide students with a strong well-formed schema for deciding how to act in spontaneous and proactive ways. For example, in the poetic comments following, a year seven student imagines green leaves growing inside her – representing a new more passionate and exciting self.

Well, this is a bit weird but I think that these, my inside of my body used to be dark and focused on one thing at a time. When I used to write, like, for English and stuff it would just be so boring and I wouldn't use the same sort of expression and passion that I do now because – but now inside where it used to be all dark and nothing special about it, it's sort of got these green leaves and it's just twirling around and I think that

if people keep on doing this that's what will happen to them. And so I think that I've grown more exciting and passionate and not so dull and blank that I was before and so I think that this has improved everything about me not just my nature smartness, so I think it's been really great.

(Interview with year seven student)

Changes in relationship to others and place

A second category of changes we identified were in students' sense of agency to influence others and a concomitant heightened civic sense of responsibility to try to influence family members and other students and act for the good of future generations. This change is reflected in the following comment from a year seven student:

Well, I think that even though we think of ourselves as a very small rock or pebble or whatever, we're actually quite big. We affect everything and even though we think of ourselves as very small the ripples will grow bigger after a while and then we can affect everyone and so the ripples will turn bad if we do something bad and then that will affect everyone so, see, even if it's just a little thing, even if we drop a just packet of chips on the ground that will, first it will just tell you that that is OK to do and then it will tell others that yes, OK, that's all right to do. Then if everyone starts doing it, then even if people don't think that it's OK people will do it anyway and so the ripple just grows bigger and bigger every time. But if we pick up that bit of rubbish then the ripples will grow in opposite and people will think OK, well that's OK for me to do that because it's good to pick up the litter and then it turn into other people picking up the litter and then it will become essential as the ripple grows bigger.

(Interview with year seven student)

The ripple metaphor deployed by this student encapsulates the sense of connectedness that had been foregrounded throughout the storythread experience.

Changes regarding school and learning

The third category of changes involved specific aspects of the students' behaviour at school and their approach to learning. Participating in the PEEC excursion seemed to increase students' motivation and interest in school more generally besides providing an awareness that learning can occur in different ways and can be especially powerful when insights are established

on firsthand experience. The following response from one student captures the notion that the PEEC program influenced his motivation at school.

Well before the program, yeah, I struggled to concentrate in class and just preferred to talk with friends in class, but now I've got a better understanding of my subjects now that I've learned to be attentive because I've found out that it's also very useful in class.

(Interview with year seven student)

The importance of firsthand experience for deeper change to occur is captured in the delightful comment nest from one student who realizes that her family members are somewhat dismissive of her new concern for the environment. She suggests that they have to experience it for themselves (as she did) for real change to occur.

I have spoken to my mum and my sister and they think it's great and they think it's a good experience but they – they definitely are better than they were before I told them about it but I think they need to experience it for themselves, because they think, oh, that's great honey and then they just go along with their lives, they really need to do it for themselves.

(Interview with year seven student)

The difference that the emotional engagement of firsthand experience can make to knowledge creation and learning was succinctly captured by one student in her distinction between 'feeling' and 'seeing' and her realization that this had moved her into a different kind of learning experience.

Before I saw the environment though visuals and now I see it through feelings. The trees were turning from green to yellow because the zone was changing and

(Interview with year seven student)

This emotional connection to place influenced the way students saw Karawatha and how they applied what they had been researching at school. Concepts researched in the abstract at school about ecological zones, differences types of trees, and particular animals became vivid in Karawatha as they moved through the changing forest together. Abstract knowledge became embodied in a sensorial way that allowed students to create and remember detailed personal knowledge after the visit to Karawatha.

The moistness in like the ground was changing cause in Zone 1 the ground was drier and so it had um different trees and in Zone 2 the ground was at bit more moist so there was other different trees. The scribbly bark the um caterpillars, they um like the scribbly moths they

plant their eggs in the tree and when they come out the the um scribbly caterpillar um eats it and when it gets bigger and it moves in like a squiggly line so when um the caterpillar gets bigger the um squiggles get bigger and um then it makes it's cocoon and turns into a scribbly moth.

(Year seven student in class community of inquiry reflection session)

As in the *Bugs* storythread, during the Karawatha experience, students were introduced to scientific concepts and processes. In the preceding quotation, a student is coming to understand the relationship between ground moisture and tree adaptation and the life cycle of scribbly moths.

Conclusion

Just being in a natural place is not enough. The most successful storythread experiences depend on classroom teachers' and PEEC teachers' weaving together all the elements of storythread into a mediated learning experience. The experience of the natural places needs to be scaffolded so that students are able to see the world around them with fresh eyes and can develop the alternative knowledge, values, and practices of sustainability that are the goal of all storythread journeys.

In reflecting on the data from the project, we are impressed by the transformational rather than simply incremental changes in students' thinking and their civic sense of responsibility. In student responses, we hear the authentic voice of children coming through into changed behaviour in very different ways. There appear to be 'multiple pathways' into learning and change from within a storythread experience that reflect and mirror the key elements of this pedagogy of place. These elements work independently and together as 'hooks' that capture the attention of students and engage different kinds of learners. It might be one pathway predominantly or a combination that leads to authentic engagement and deep learning in different students. Some are captivated by the sensuality and beauty of the place as it is experienced through deep attentive listening, others by the personal embodied knowledge and values that they create for themselves, and others by the imaginative power of the unfolding narrative in space and time.

In the responses of students, we have noted their awareness of the tension that exists between the abstraction and detachment typical of some classroom learning and the personal change and commitment to action that is associated with learning to care for the environment in a natural setting. We have also observed that when storythread's multiple elements combine and unfold over extended periods of time as part of a single 'mediated experience', that dramatic and transformational change can be achieved. It is the combination of its multiple elements, however, that we believe is the defining feature of a truly successful storythread experience and marks it out as a powerful

expression of pedagogy and place that is able to deliver transformative learning.

It is the sensory reconnecting to place (Abram 1997) through narrative, where knowledge and values are ‘embodied’ experientially, that identifies storythread as a powerful expression of pedagogy and place and situates it as one of the new ‘outdoor’ body/mind doing and meaning-making pedagogies that engage students in learning beyond the classroom (Ballantyne and Packer 2008, 2009; Tooth and Renshaw, 2009; Tooth, Wager, and Proellocks 1988; Wattchow, Burke, and Cutter-Mackenzie 2008). This is why the generic elements of storythread can be so readily transferred to other contexts and places. They are reflections of a much broader and emerging vision of ‘pedagogy and place’ that focus on ‘learning beyond the classroom’. Engaging students and teachers with this kind of pedagogy is what we urgently need to develop the knowledge, values, and practices of environmental sustainability and to prepare them for living in our complex and changing world.

Final comment

PEEC is one of a network of twenty-five Outdoor and Environmental Education Centres (OEECs) distributed across Queensland. A study by Ballantyne and Packer (2009) demonstrated that the quality of teaching and learning in these centres is exceptional across key aspects of their performance. We would suggest that the OEECs benefited greatly from being on the margins for long periods of time. They were not directly subject to many policy changes and shifts that rolled through Queensland schools according to electoral cycles and the influence of different pressure groups. The blueprint for the OEECs was a single policy document written in 1989. This turned out to be a boon that allowed the highly committed teachers and principals in the OEEC network to experiment and iteratively design professional know-how through dialogue, commitment, and sharing knowledge consistently over many years. The result is that there is now a network of Centres with strong but quite distinct experiential pedagogies running through all their programs. This coincidence of high quality and diversity of approach, we suggest, was made possible because the Centres were free to participate in long-term committed professional practice and research as design.

Notes

- 1 OEECPA (The Outdoor and Environmental Education Centre Principals’ Alliance) is a network of principals from twenty-five Education Queensland State Government OEE Centres that work together to deliver ‘learning beyond the classroom’ experiences and programs for students, teachers, and schools (<http://education.qld.gov.au/schools/environment/outdoors/>).

- 2 In the early 1990s, Bernice Volz was one of the founding members of the Concerned Residents Group, which later became the Karawatha Forest Protection Society Inc (www.karawatha.com).

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