

Connecting theory and practice in place - Developing place-responsive science teaching pedagogy



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The issue

There is lack of opportunity for Pre-service teachers (PSTs) to observe and practice science teaching during normal practicum (primary education).

There is lack of opportunity for Pre-service teachers to teach science outside of normal classroom.

The present study

This presentation reports findings from a project based on a school-university partnership which provided opportunities for PSTs to teach science to primary school students outside of normal classroom (local wetland or school yard).

The theoretical framework - Place Pedagogy

Margaret Somerville's (2010) place pedagogy framework investigates the mutual constitution of people and places as constituted by the three elements of the storyline, embodiment, and cultural contact zone:

- our relationship to place is constituted in stories and other representations (Storyline)
 - place learning is embodied and local (embodiment)
 - deep place learning occurs within a contact zone of multiple contested stories (cultural contact zone)
- (p. 326).

The Research Question

How does the affordance of place influence the development of place-responsive pedagogy among pre-service science teachers?

The Context

Two settings with two different PST cohorts

Main procedure:

PSTs visited the settings (early in the semester, one hour) - getting familiar with the environment

PSTs attended university lectures and tutorials (as part of course schedule, a few weeks) - learning about science teaching theories and developing lesson plans

PSTs delivered lessons on the settings (toward the end of the semester, one day (about four hours) - each PST group taught the same lesson several times to different primary students who rotated between activities.

► **The context (cont.)**

► Setting 1 - in a wetland

► Features:

Grasses

Shrubs

Water ponds

Small animals (e.g., frogs,
rabbits, birds, insects)

► Science teaching topic:

Adaptation





- ▶ **The context (cont.)**

- ▶ Setting 2 - in a school ground

- ▶ Features

 - Close to school buildings and indoor facilities

 - an oval surrounded by established trees and shrubs,
constructed play areas,
wooden benches
a small vegetable garden
a large, uncovered sandpit.

- ▶ Science teaching topic:

 - PSTs chose their own topics based on Victorian Curriculum Science

The method

Essay analysis and semi-structured interviews
A thematic analysis method

Essays: 17/50 cohort 1; 38/58 cohort 2
Interview: 7 cohort 1; 8 cohort 2

Examples of essay/interview questions:

- * What concerns do you have about teaching at the wetlands/school ground?
- * Did you make good use of the wetlands/school ground in your teaching? How?
- * How do you feel about teaching science after the wetland/school ground experience?

The findings and discussions - Storyline

In the wetland

The activity, . . . which was to have them[children] find one bug . . . [that they] wanted to draw and label. But we thought that they could do that in a classroom; . . . then we thought of the iPad, but they didn't really want to use them. I thought because we were so close to the mud that was just too enticing, . . . Let's go play in that. (Grace)

In the school ground

In particular we tested the soil . . . and found out that soil under this shed would be perfect for growing potatoes. . . . [We made a] connection with the children that this land wasn't always a primary school, before it might have been a paddock, it might have been someone's home, you never know what that land was before, I really liked that connection we made. (Avery)

The findings and discussions - Embodiment

In the wetland

It would be beneficial, to actually get the students out of the school, into some type of excursion that they could actually benefit from. . . . Aside from getting just a school view, they're actually going out into the world, they're actually viewing the things that could occur and could be associated to science. (Esther)

In the school ground

I think it is a lot different having them out in the yard rather than the classroom, because I guess they see the classroom as the place where you're sitting down, you're working, you're focusing on what it is. But when they're in the yard it seems like they're more comfortable. Maybe it's a bit more relevant to them. . . . Or just being outside, being able to see - our natural environments. (Violet)

The findings and discussions - Cultural contact zone

In the wetland

It was really, really interesting to hear the different opinions and different ideas of the students ... and I think we learnt nearly more from the students about the wetland environment than we were trying to introduce them to, which just broadened our scope of learning even further. (Mary)

In the school ground

I wouldn't know everything about the school yard because I don't go out and play there. ... And obviously they all know their little nooks and everything. ... So, I feel like learning from their experiences and their knowledge is going to benefit me more as a teacher. I'm going to understand them better as a learner. (Mia)

Conclusion and implications

The findings of the present study are a reminder about the ways we might design ongoing coursework that can expose PSTs to diverse places so that they have opportunities to enrich their pedagogical repertoire by making a comparison of the “contrasting materiality of the locations” (Renshaw & Tooth, 2018, p. 1).

The presentation is based on:

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<https://doi.org/10.1080/1046560X.2021.1898139>

References:

Renshaw, P., & Tooth, R. (2018). Diverse place-responsive pedagogies: Historical, professional and theoretical threads. In P. Renshaw & R. Tooth (Eds.), *Diverse pedagogies of place: Educating students in and for local and global environments* (pp. 1-21). Routledge.

Somerville, M. (2010). A place pedagogy for 'global contemporaneity'. *Educational Philosophy and Theory*, 43(2), 326-344. <https://doi.org/10.1111/j.1469-5812.2008.00423.x>

Thank you!

Questions and comments?