# scope

*Contemporary Research Topics*

## Learning & Teaching 6
## Sustainable Practice

November 2018

**Scope: Contemporary Research Topics (Learning and Teaching)** is peer-reviewed and published annually in November by Otago Polytechnic/Te Kura Matatini ki Otago, Dunedin, New Zealand. Within the series this issue has "Sustainable Practice" as a sub-title and focus for the selected material. Samuel Mann and Ray O'Brien are the editors.

Scope (Learning and Teaching) aims to engage discussion on contemporary research in blended learning for emerging scholars. It is concerned with views and critical debates surrounding learning theories and practices and seeks to address current and topical matters in education. Its focus is on building a sense of community amongst researchers from an array of New Zealand institutions with a goal of linking in, and stepping up to a wider international community.

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This issue of Scope: Contemporary Research Topics (Learning and Teaching) takes the theme of "Sustainable Practice". It aims to engage discussion on contemporary research in the field of sustainable practice (including resilience, sustainability science etc). It is concerned with views and critical debates surrounding issues of practice, theory, history and their relationships as manifested through the experiences of researchers and practitioners in sustainable practice. The focus of this issue is **"Transformation"** where contributors will be encouraged to explore positive actions in the challenge of the required restorative socio-ecological transformation.

**Submissions** for the Sustainable Practice issue of Scope: Contemporary Research Topics (Learning and Teaching) are invited from researchers, writers, curators, theorists and historians from all dicplines and transdiciplines. Submissions should be sent in electronic format (preferably word where appropriate) to Ray O'Brien (ray.obrien@op.ac.nz). Submissions should be made by 30 April 2019 for review and potential inclusion in the annual issue.

Peer review forms will be sent to all submitters in due course, with details concerning the possible reworking of documents where relevant. All submitters will be allowed up to two subsequent resubmissions of documents for peer approval. All final decisions concerning publication of submissions will reside with the Editors. Opinions published are those of the authors and not necessarily subscribed to by the Editors or Otago Polytechnic.

The Sustainable Practice theme for Scope: Contemporary Research Topics (Learning and Teaching) in 2019 is

Integrating the United Nations Sustainable Development Goals.

**Formats** include: editorials; articles; perspectives; essays; artist and designer pages; logs and travel reports; reports on and reviews of exhibitions, projects, residencies and publications; and moving, interactive works (to be negotiated with the editors for the online version, with stills to appear in the hardcopy version). Other suggested formats will also be considered; and special topics comprising submissions by various contributors may be tendered to the editors. All material will be published both in hardcopy and online. High standards of writing, proofreading and adherence to consistency through the APA (6th Edition) referencing style are expected. For more information, please refer prior issues for examples. A short biography of no more than 50 words; as well as title; details concerning institutional position and affiliation (where relevant); and contact information (postal, email and telephone number) should be provided on a cover sheet, with all such information withheld from the body of the submission. Low resolution images with full captions should be inserted into texts to indicate where they would be preferred; while high resolution images should be sent separately.

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# TRANSFORMATIONS

## Samuel Mann and Ray O'Brien

CapableNZ, Sustainable Practice and Development Team at Otago Polytechnic.

Both of the editors of this issue of Scope have at one time worked to lead our institution in terms of the development of sustainability - integrating the operations of the campus, research, and in developing sustainable practitioners. In that role we have both sought to encourage a transformative change - changing the lightbulbs is necessary, but insufficient.

Mann *et al.* (2017) developed a model of a Transformation Mindset as a means to guide practitioners in becoming a sustainable practitioner as part of their professional framework of practice. The Transformation Mindset is a way of thinking that leads to transformational acts resulting in socio-ecological restoration. The Transformation Mindset can be used to frame the papers in this issue of Scope Learning and Teaching.

This transformational focus came from Leach *et al.* (2012) who argued that "what is now needed is nothing short of major transformation – not only in our policies and technologies, but in our modes of innovation themselves – to enable us to navigate turbulence and meet the Sustainable Development Goals" (p.2). While some avoid a problem formulation, preferring a positive framing of opportunities (e.g. a baby is not a problem, but something precious to be nurtured), the challenge posed by unsustainability can be usefully considered as a wicked problem. This means it involves complexity, uncertainty, multiple stakeholders and perspectives, competing values, lack of end points and ambiguous terminology. It means dealing with a mess that is different from the problems for which our current tools and disciplines were designed. As individuals and disciplines we are ill-equipped to cope with the messy complexity we now face - and on top of that, many of us are struck with the nagging feeling that we might not be doing enough - that we might be fiddling while Rome burns.

1. Socio-ecological restoration over economic justification
2. Transformative system change over small steps to keep business as usual
3. Holistic perspectives over narrow focus
4. Equity and diversity over homogeneity
5. Respectful, collaborative responsibility over selfish othering
6. Action in the face of fear over paralysis or wilful ignorance
7. Values change over behaviour modification
8. Empowering engagement over imposed solutions
9. Living positive futures over bleak predictions
10. Humility and desire to learn over fixed knowledge sets

The Transformation Mindset that the authors in this edition have demonstrated, consists of a set of paired items that are activity statements arranged such that while we value the second element, we value the first more. So, for example, **Socio-ecological restoration over economic justification**, makes clear that the point of sustainability is socio-ecological restoration. Economic development is not dismissed but should be seen as a means to achieve benefits in social, cultural and environmental aspects – a vehicle for sustainability, not a goal in itself (this aligns with Daly's Strong Sustainability (Daly, 1996). Boyle, O'Brien and Sellar's article presents a case study that embraces socio-ecological transformation through the potential for an integrated approach to organic waste management. It is widely argued that making small improvements, while maintaining the status quo, is unlikely to result in the required changes for a sustainable future. **Transformative system change over small steps to keep business as usual** means looking for leverage, for things that multiply to create positive system change. Collins recognises that in order for obesity patterns to change, the nursing profession has to take a different role, and to change that system, nursing education needs to change. Also in the nursing profession Ross, McDiarmid and Burkett explore how the profession of nursing is transforming, with the capabilities to lead, delegate and coach emerging as critical elements. In this they illustrate the **Empowering engagement over imposed solutions** item of the Transformation Mindset. In exploring how we engage with interactive art, Kean takes a different approach to interactivity - they challenge us not to interact. This challenges us to think about the nature of the Transformation Mindset item of **Empowering engagement** - sometimes we are empowered by not engaging.

Karetai's reflective journey illustrates a life lived according to another element of the Transformation Mindset- **Living positive futures over bleak predictions.** We take an optimistic frame. It is easy to become negative about the reasons for change. To do so, however, is to miss the point. The focus of transformations is on the solutions, not the problems. Orr (1992) argued that "the study of environmental problems is an exercise in despair unless it is regarded as only a preface to the study, design, and implementation of solutions" (p. 94). This is not to deny the problem. Rather, we would argue for demonstrating positive alternatives: transition towns, or co-housing initiatives, or, in Karetai's case, a relentless belief in a positive outcome.

The Transformation Mindset values **Equity and diversity over homogeneity** and most of us would accept that. But, sometimes we can be blinkered by our own insulated communities and worldview. Fogarty describes how a pivot in understanding was brought about by attendance at in international conference and the sharing of practice around equity of access to education.

The Transformation Mindset **Values - based change over behaviour modifications** means that in order to make meaningful long-term changes, there needs to be a values-based shift, rather than just addressing harmful behaviours. Intervention that achieves behaviour change without corresponding values is likely to not be as effective due to dissonance felt by the individual. Thompson explores these ideas with a study of the relationship between experiencing a place, caring for that place, and taking action. In testing these relationships, Thompson demonstrates a humility- **Humility and desire to learn over fixed knowledge sets** which is also inherent in the rethinking of paradigms, processes and beliefs highlighted by Mann and Montague-Gallagher's featured Sustainable Lens guests.

Each article in Scope: Learning and Teaching- Sustainable Practice in turn demonstrates how the authors, as sustainable practitioners in their own field, have embraced Sustainable Practice though curiosity and questioning – a desire for knowledge, but a firm belief that we can never know all the answers.

We invite the reader to enjoy Scope: Learning and Teaching - Transformation, to adopt a transformation mindset, and to take positive restorative action in their own world.

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The places we live, work and play are where sustainability becomes more than an abstract term. We might think that loving a place means we would care for it, but as Jo Thompson describes, the relationship is complicated.

# TRANSFORMING SECONDARY STUDENTS' ETHIC OF CARE INTO ACTION


## Jo Thompson

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## ABSTRACT

Place-responsive outdoor education is one way to potentially connect and 're-wild' our school students to their place and to nature as a whole. Through this, they may develop an ethic of care. There is an assumption that by developing an ethic of care and responding to place, people will take action to look after or improve their place. However, little research has been conducted to date to show that there is a link between attachment to place and pro-environmental behaviour or taking action. This paper suggests how any potential ethic of care developed from the place-responsive outdoor education journey could be transformed into motivation for students to act for place, by adapting the journey to incorporate environmental advocacy sessions using Birdsall's (2010) model for learning about environmental action.

This research uses a phenomenography approach to study the experiences of a group of secondary school students engaging in a series of environmental advocacy sessions based on the place-responsive outdoor education journey to help them reflect and consider what response they might make to their experiences. Following these sessions, an interview was held with each student to explore their perceptions of an ethic of care leading to action. Data in the form of interview transcripts were analysed and thematically organised.

The students indicated great enthusiasm and motivation to take action as the environmental advocacy sessions began. They decided to use a voting system to decide on the final action to take, which led to some students disengaging at this point as they may not have seen the personal relevance of the specific action chosen. For many of the students, other priorities and pressures made them feel too busy to make the time to take action. The findings indicate that students who have made repeat visits to a specific place have a stronger connection to it, and suggest that this is a predictor of them continuing to take action or display pro-environmental behaviour in response to their experiences.


## TRANSFORMING AN ETHIC OF CARE INTO ACTION

Our consumption and over-use of natural resources keeps climbing, and it has been projected that humans will exceed the regenerative capacity of the earth by 75 percent by 2020 if current trends remain constant (World Wildlife Fund, WWF, 2016). Changing our behaviour to live more sustainably is a slow process, as tangible worries like job security and finances often displace our concern for the planet (Stoknes, 2015). The over-consumption and

climate change message is often framed by the idea of impending doom, with an emphasis on giving up things we value. We have heard this disaster message so many times now that we are de-sensitised to it (Stoknes, 2015). Part of this de-sensitisation appears to be related to our increasing disconnection from nature, partly the result of greater urbanisation and accelerated cultural change.

Part of the solution is place-responsive outdoor education, which can engage students with 'their' place and 'their' community. This approach can begin developing an ethic of care (Wattchow & Brown, 2011), encouraging young people to be intrinsically motivated to take action over specific issues in their own place. If they care, they will take action – or at least this is the assumption.

A gap exists in current research between an ethic of care developed through place-responsive outdoor education, on the one hand, and taking environmental action, on the other. This study explores ways of bridging this gap, taking people from a place of caring through place-responsive outdoor education to being intrinsically motivated to take environmental action. This article thus poses the question (drawn from the second part of my research): How does an 'ethic of care' developed from a place-responsive outdoor education journey motivate students to act for place?

## THE RESEARCH

How do you design a programme that encourages people to be intrinsically motivated to act? There is a body of literature on place-responsive outdoor education and ways of encouraging students to develop an ethic of care (for example, Bratman *et al.,* 2015; Gruenewald, 2003; Irwin, 2008; Stevenson, 2008; Townsend, 2011; Wattchow & Brown, 2011). The first part of my research deals with this question, and concluded that all the participants were beginning to develop an ethic of care. There is also plenty of research on environmental action and how it is understood (for example, Birdsall, 2010; Eames & Barker, 2011; Jensen & Schnack, 2006; Mogensen & Schnack, 2010). However, I could find no research that does more than suggest that place-responsive outdoor education will motivate us to act (Wattchow & Brown, 2011). There are, however, studies that explore people's motivations to demonstrate pro-environmental behaviour (PEB).

Pro-environmental behaviour (PEB) has been shown to have a link with attachment to place (Rioux, 2011; Scannell & Gifford, 2010). Specifically, attachment to the natural environment is a greater predictor of PEB than attachment to the urban environment (Scannell & Gifford, 2010). Identity is also a significant predictor of people's intention to perform PEB, particularly if they have a 'green' identity (Gatersleben, Murtagh, & Abrahamse, 2014). This suggests a link between personal identity, on the one hand, and place and community (Penetito, 2008).

Having designed a place-responsive outdoor education journey involving a range of community members, with the aim of developing an ethic of care directed to this place, as the first stage of my research, my findings concurred with Wattchow and Brown (2011) that a place-responsive journey can begin to develop an ethic of care for place.

To design the research methodology that would enable me to plot the transforming of caring into action, I adopted Birdsall's (2010) three-part model for teaching students about action holistically, which includes learning *about* action, learning *through* action and learning *from* the action undertaken (Birdsall, 2010). This model would potentially enable the students to think about how the future could look and how they could achieve this vision for change. They would get to experience planning the action they had decided on and taking part in it. Finally, they would get to reflect on the action they had taken, allowing them to think about how effective and successful it was.

In order to show the intersections between place-responsive outdoor education and education for sustainability, I reshaped Wattchow and Brown's (2011) four signposts and Birdsall's (2010) three-part learning model by utilising environmental education's emphasis on education in, for and about the environment (Barker & Rogers, 2004). Figure 1 shows the interconnections between moving from an ethic of care to motivation to act ¬– my sole concern in this article.

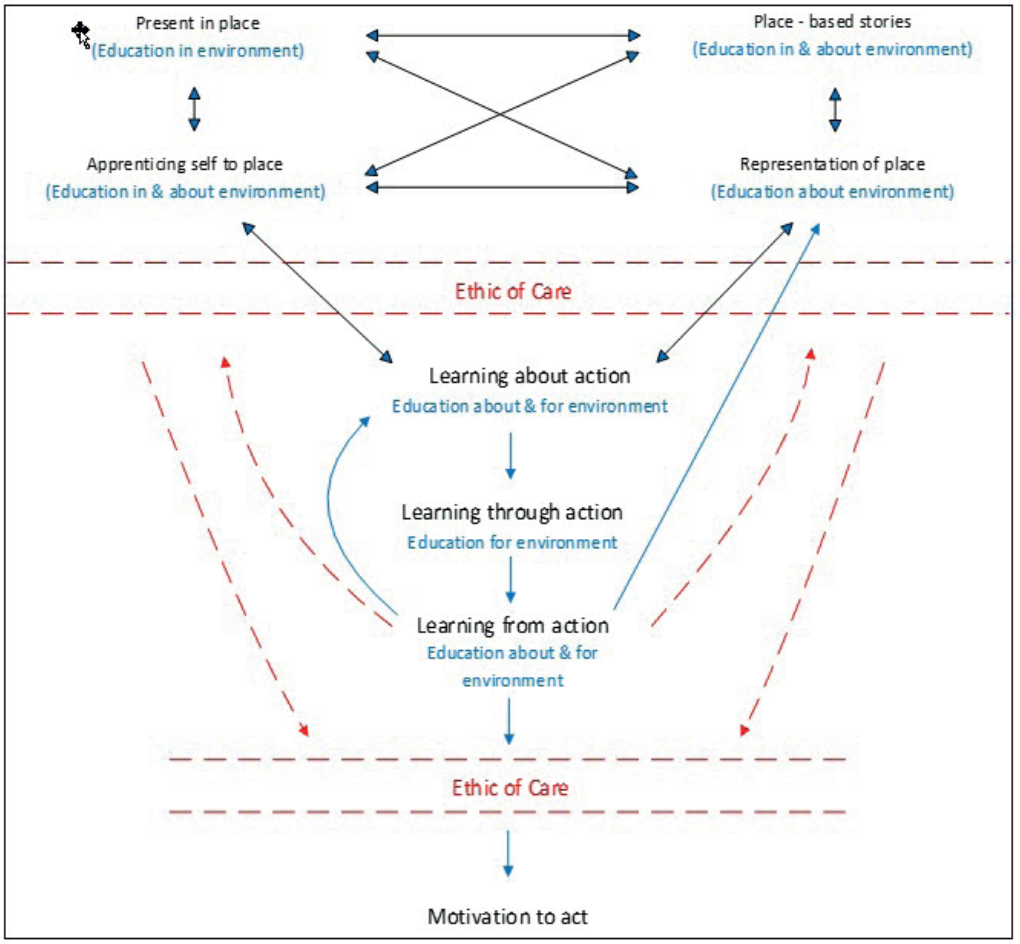


Figure 1. The intersections between place-responsive outdoor education and environmental action.

Their developing ethic of care provides the motivation for students to begin learning how to take environmental action by utilising Birdsall's (2010) model of learning *about, through* and *from* an action. This process is not quite linear. While researching and learning about action, you are also apprenticing yourself to place and learning about the representation of place. Learning from an action can inform one's learning about action. Reflecting on action will also help inform how that place is represented for the actor.

Learning from action also has a link back to the ethic of care. While learning the various stages of taking action, a person is still learning about the place involved, and environmental action can further help develop an ethic of care. There is then a link from the 'ethic of care' between Wattchow and Brown's signposts and environmental action, and the 'ethic of care' at the base of the model (see Figure 1). Thus learning about, from and through action further develops the ethic of care and gives the students the confidence and motivation to act.

A predictor of people demonstrating pro-environmental behaviour or having a motivation to act is having an ethic of care (Rioux, 2011; Scannell & Gifford, 2010). The filter at the bottom of the model is this ethic of care; some people will move through the filter and be motivated to act, others will get caught in the filter.

This new framework model informed the design of the environmental action part of this research.

## THE RESEARCH DESIGN OF THE ENVIRONMENTAL ACTION SESSIONS

The environmental part of the study was designed and organised by the two women running the sessions and myself. I played a big part in this stage in order to ensure that the sessions incorporated the theoretical framework of both place-responsive outdoor education and environmental action into the design. To provide some context, here is a brief outline of the three sessions:

- Session one revisited the students' journey, mapping out where they had been, what they had experienced and seen, who they had met and what they were doing in the community.
- Session two looked in greater depth at the various 'issues' that the students had identified during the journey and which ones they showed a particular interest in. The students split up into groups depending on what issue they wished to explore. They were then shown how to start researching the issue and thinking about possible actions they could take to deal with the problem. They all left this session with some research to do before the final session.
- The final session showed the students how to use their research and ideas to create a plan for action that was achievable for them. Some of their plans needed a little more work and permission to be gained from both the school principal and others if they were to take the planned action.

The students then had three weeks from the end of the environmental action planning sessions to give them enough time, if motivated to complete their action, before the interview.

## METHODOLOGY AND DATA COLLECTION FROM THE ENVIRONMENTAL ACTION SESSIONS

In this study, I was seeking to gain an understanding of the students' perspectives and their motives and motivation in choosing to either take meaningful environmental action or not, as the case may be. I utilised an interpretive lens based on phenomenography that would allow me to explore the different ways that the students "experience, conceptualise, perceive and understand various aspects" (Marton, 1986, p. 31) of environmental action. With phenomenography as the chosen research approach, the study would need to be based on qualitative data, as this type of data is most appropriate to this research methodology.

The specific methods I chose to use for this study were semi-structured photo-elicitation interviews (PEIs). Using photographs as the focus of the interview can help share the power between the interviewer and the participant (Miller, 2015). This sharing of power was important to me, as the participants were all Year 10 students, aged 14 or 15. Taking photos also enabled the students to continue their reflections following the environmental action sessions.

All the students were given disposable cameras and basic instructions for using them. They also received brief instructions about the kinds of photos they might take: "Take photos of what preparing for environmental action is like for you – ensure the photos reflect what it is like for you while planning the action. You are encouraged to think about what you might like to take the photos of – there are no expectations of what type of photos you should take."

The interviews were conducted three weeks after the final environmental action session. It involved six out of the 12 students, who had their names randomly chosen from a hat by their teacher. The interviews lasted between five and fifteen minutes. The interviewer asked the students to talk through their photographs, and then use them to answer five questions about the sessions:

1. This is my favourite photo from the action because …

2. This photo from the action makes me feel … because …

3. This photo of … shows what the action was like for me best because …

4. What I liked most about being involved in the action process was … because …

5. What I liked least about being part of the action process was … because …

There were some additional questions using Birdsall's (2010) three-part model as a scaffold for designing the questions; these were used as prompts. The interviews were used to explore not only what the students had learnt about the action, but also whether they had in fact followed through and taken the relevant action.

Although planned as PEIs, in practice the interviews turned into straight semi-structured interviews. Many of the students took their camera home and forgot to bring it with them to the environmental action sessions, or they forgot to take photos, as I was unable to be at these sessions observing. This highlighted the potential challenges in using PEI, some of which could have been overcome if the school had allowed the students to use their phones for taking photos.

The interviews were transcribed and, keeping an open mind, I highlighted anything that seemed of interest or relevance. To aid my analysis, I also used a theoretical framework drawn from the literature to help guide my interpretation of what was relevant. These items were then organised into categories based on a theme.

## FINDINGS

In analysing the data from the interviews (that took place three weeks after the environmental advocacy sessions had finished), four general themes emerged – learning about action, learning through action, learning from action and pro-environmental behaviour. These themes were unpacked to show how the ethic of care that the students had begun to develop transferred into motivation to take action.

Learning about action and how to create an achievable solution to a problem is important if we want students to feel successful and realise that they can make a difference (Birdsall, 2010). The environmental advocacy sessions began by getting the students to reflect on the journey they had been on. As Leah explained: "We just, like, talked about what we did on the adventure and about the sorta things we learnt. What actions were possible and, like, how they related to something we learnt" (Leah, interview 2). After identifying some issues through reflection, participants then formed small groups and brainstormed ideas relating to what they could do, what interested them and what connected to what they had learnt on the journey.

Two leading ideas were formulated by the group. Running a morning fitness style session to get people outside and recycling Recycling was the most popular option for action, due to the emotional impact that the plastic issue had on the students. As Evie explained: "We went to the [bird] colony. We saw that bird with all the plastic there, and we had to go down to the beach and pick up the rubbish, and on the island, Queenie, she told us about all the process that the rubbish had to go through and we thought, that would be a good thing [to do]" (Evie, interview 2).

Participants used a group decision process to decide the issue they wanted to pursue and what action they wanted to take. Exactly how this happened is a little unclear. Leah told me afterwards that the group voted on which

action to take through to the planning stage. Sophie felt that "it was our ideas, but they [group leaders] chose it." This difference in views may account for some of the participation and motivation issues that occurred later. After deciding on the issue they wanted to address and doing some research, the students moved on to start planning their action.

Learning through action is an important step for students if they want to find a solution to specific problems and see that it is possible to do so. After learning about action, it was time to start planning. As Evie explained: "We planned an action on what we were going to follow through on, the things we learnt, and for that we chose recycling – so we learnt a bit about that and made a plan" (Evie, interview 2). The plan chosen was to teach people how to recycle. The process helped the students create a plan for the specific action they were thinking about taking. For one student, "the planning really helped you, kind of, like, look at what you actually learnt and, like, sort of process that more" (Leah, interview 2). None of the other students thought quite so deeply about what they had learnt.

It was during the planning phase that students' participation started to vary. One student lost motivation, as she didn't agree on the age group of students participants chose to work with. Another student told me what they had planned to do the action on, but could not say if the group had actually ended up carrying out an action.

The motivation of three of the six students seemed insufficiently low to complete the planning for the proposed action. This may have been due to the age group they planned to work with, or that they preferred to carry out an action relating to an alternative goal, physical fitness. However, Ivy offered a view of the group working cohesively together: "I think I like how we worked together on this instead of going off into our own groups and doing our thing" (Ivy, interview 2).

The lack of motivation shown by some of the students manifested in a failure to prioritise and make time to meet up. As Yasmin explained: "Our group leader, she was trying to organise a time for us to meet up during, like, lunchtimes, but everyone was busy, or couldn't come or wasn't in school" (Yasmin, interview 2). Finding the time to plan and take action was an issue for participants, as Leah explained: "At first we wanted to go to the primary school, but then we were running out of time." Although Ivy claimed to have the motivation to be involved, she had unfortunately been off school ill for most of the time that the environmental advocacy sessions had been running, and also for the subsequent final planning session.

I was interested to find out if any action had in fact been carried out. Evie told me that "we went to, some of us, the kindergarten … and we taught them about recycling," yet also explained that she hadn't actually carried out the action herself. Leah, on the other hand, did get involved with taking action along with two other students, one of whom was not in the interview group. Thus one action took place that involved two of the six students in the study.

For one student, a reflective outcome of doing the action was being able to give back to the community. As she said, "I thought it would be a really good thing to do and be able to give back to the community after they kinda gave to us during the backyard adventure [place-responsive outdoor education journey]" (Evie, interview 2).

One of the major objectives of this study was to investigate if the participants would be motivated to take action if the scaffolding was put in place for them to learn about action and how to plan an action. The final part of the study involved exploring if doing this would give the students the resources that, having been used, would have a long-term impact on them. This impact might include modifying their behaviour in order to reduce their negative impact on their place (Kollmuss & Agyeman, 2002), or testing if they now felt empowered to continue taking action on either this issue, plastic waste or any other environmental or sustainability issue facing their place.

Would the students continue to take appropriate action? Three out of the six participants replied they might take some action in the future. Evie was the most enthusiastic: "If there is something to do like volunteering or something or, like, a community garden … I think I would be pretty keen to help the community and give back some" (Evie, interview 2). This statement indicated that she had gained the motivation to want to take further action. Evie

continued: "I am doing a Hillary Award, the young New Zealanders, and for that one of the things is volunteering or some community service type stuff" (Evie, interview 2). Thus Evie's motivation may also have been stimulated from an extrinsic source ¬– completing her Hillary Award. Another student was potentially keen to continue taking action; this time the extrinsic motivation was being paid to do so. The final student who stated that they might take some action said: "I'm not sure [if I'll take any further action] I … we are all quite busy … I would like to do something … possibly next year join the enviro group or Interact or something, which does like service stuff" (Leah, interview 2). This response indicated that she wasn't currently prioritising environmental action. It would be interesting to go back and see if she actually continued to be too busy or prioritised joining one of these groups. The other three students didn't see undertaking action as a priority. All three stated they were too busy and didn't have time.

As a final question, I asked the students if they had changed anything in the way they lived as a result of what they had learnt during the journey or from the environmental advocacy sessions. Skye explained that she had learnt that it was good to reduce the amount of plastic waste, "because it'll make New Zealand more healthy and clean and looking nice" (Skye, interview 2). When probed further to see if she had changed anything about the way she lives, her answer was "No" (Skye, interview 2). On the one hand, Skye understands why it might be important to reduce plastic waste, and yet she hadn't managed to follow this insight through to examine how her own behaviour might affect this issue. This suggests that although she appreciates the value of pro-environmental behaviour, non-environmental motivations of convenience are stronger (Kollmuss & Agyeman, 2002). Only one of the six students made the connection, admitting that their behaviour could have an effect on the issues affecting their place. Leah explained: "I am more aware of stuff and, like, how much food we kinda put away, like waste – and my lunch box, I've tried to use more sustainable kinda wrapping for my food" (Leah, interview 2). Thus of the six students interviewed, only one reported having sustained any kind of pro-environmental behaviour at the end of the environmental advocacy sessions.

## DISCUSSION

A number of points emerged from the study findings: the loss of engagement during the planning of the action stage; motivation and priorities; and action competence. These findings led to a revision of the model plotting the intersections between place-responsive outdoor education and environmental action (see Figure 2).

In this revised model, the link between learning from action to further learning about action has been removed, as the students in the study gave no evidence that this connection had been made. Had there been a more measurable action and facilitated reflection, this gap might have been rectified. The line connecting learning from action with representation of place has also been removed, as once again participants failed to indicate that taking a particular action and the ensuing reflection had influenced, changed or affected their representation of the city. Again, a more facilitated reflection investigating the success of a more measurable action may have retained this link.

As the students transitioned from 'learning about action,' this was the point where the first barrier (solid red line) prevented them from continuing through the web. Although some participants saw the group action as either inappropriate or unachievable, this wasn't the case for everyone – hence the blue arrow continuing to 'learning through action.' The second barrier is the potential cognitive/affective dissonance that prevents people from moving from caring to having the motivation to act. Another potential barrier at this point might be the failure to complete the learning cycle ¬– many participants disengaged after learning about action and therefore failed to learn about planning, taking or reflecting on action.

The blue arrow passing through the final barrier suggests that one may need to navigate the web depicted in the

model multiple times, in order to deepen the connection with and belonging to place, before an ethic of care and the belief that actions can make a difference become strong enough to motivate a person to act. This deepened sense of connection may also lower the barrier of 'being too busy' that many of the students gave as the reason for not following through on their learning about action or progressing to take some action.

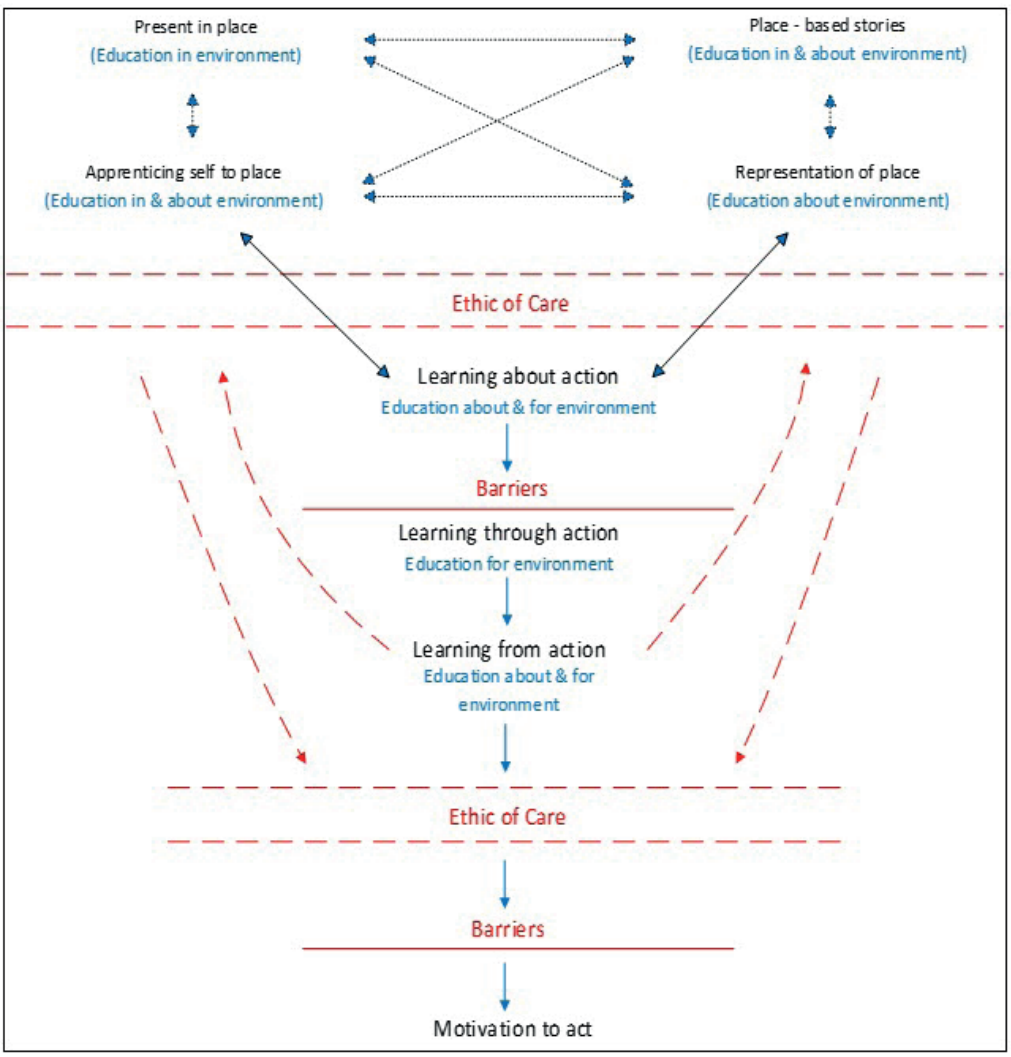


Figure 2. Revised model of intersections between place-responsive outdoor education and environmental action

## CONCLUSION

The following conclusions can tentatively be drawn from the study findings.

The environmental advocacy sessions were designed to give participants the tools to transform an ethic of care into action. The students decided to take action as a group using a voting system to decide exactly what they would undertake. Many of the students disengaged at this point, underlining the findings of Lundholm et al. (2013) that unless people can see the relevance of the action contemplated they will disengage, even if they show an emotional concern about the issue.

Evidence of emotional concern or a developing ethic of care by the study participants was no predictor that they would take action, agreeing with Maxwell-Smith *et al.,*(2016) that concerns for the environment often fail to translate into action due to the subjects' lack of commitment to their beliefs. Those participants who did display a developing action competence made repeat visits to many of the places we passed through and spent more time in the outdoors, agreeing with the idea that multiple visits to a place create a stronger connection with it (Benages-Albert *et al.,* 2015). The study findings also indicate that this stronger connection is a possible predictor of students developing action competence and taking action (Gatersleben *et al.,* 2014).

## RECOMMENDATIONS AND IMPLICATIONS

- It is important to ensure that subjects develop an action plan that is achievable, at least to some degree; one that they have chosen themselves, and that is measurable in some way. Those involved can then see that they can make a difference.
- Many of the students in the study failed to prioritise planning and taking the action envisaged, or think about how their own behaviours might affect the issue that they cared about. Future research could focus on building resilience so that potential actors have the resources to feel less busy, and thus be able to look beyond themselves, prioritising taking action.
- A longitudinal study designed to investigate how a place-responsive outdoor education journey, combined with environmental advocacy sessions, might affect the prioritising of action, beyond the immediacy of post-journey and advocacy sessions, would be important in order to judge the longer-term impacts of such experiences and attachment to place.

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As the Whakatauki describes Ka mua, ka muri (Looking back in order to move forward). As professionals we transform though experiencing our own lives, reflecting upon our experiences, and the experiences of others. In this article, Mawera Karetai describes her own journey. We invite the reader to reflect both upon what is unique to the transformation described, but also explore commonalities of our own personal and professional journeys.

# LET YOUR LIFE PROCEED BY YOUR OWN DESIGN


## Mawera Karetai

Learning Facilitator with Capable NZ at Otago Polytechnic,


There is a line from a song by the Grateful Dead that goes: "Fare thee well now – let your life proceed by its own design." Not by anyone else's design. Not by the prophecies or hopes and dreams of others. But your design. Your life by your design. The following work is a submission for my Doctorate of Professional Practice with Otago Polytechnic. It outlines a life lived by that principle.

> *"Can you remember who you were, before the world told you who you should be?"*
>
> Charles Bukowski, 2018

Who was I? Who could I have been? How did I get to this place in my life? Where am I going from here? These questions have plagued me for the whole of my adult life. In what has been a life well-lived, there have been many changes of direction – some by my own choosing, but some that were not – and each of them a source of new learning.

I-am-a-child, I-am-a-musician, I-am-going-to-be-a-scientist, I-am-a-mother, I-am-going-to-be-a-librarian, I-am-a-wife, I-am-a-cook, I-am-going-to-be-a-chef, I-am-a-race-engine-builder, I-am-going-to-be-a-teacher, I-am-divorced, I-don't-know-what-I-am, I-am-lost … I-am-lonely … I-am-broken … I-am-going-to-be-a-teacher, I-am-a-mum-and-wife, I-am-going-to-be-a-mediator, I-fish, I-am-a-fisher-of-men, I-am-a-business-owner, I-am-a-community-advocate, I-am-going-to-be-a-scientist, I-am-a-teacher, I-am-a-student, I-am-the-sum-total-of-every-experience-I-have-had-and-everything-I-have-learned.

With each new learning opportunity has always come the need to redefine and recreate my identity, as a new and improved version of myself – more to offer, more to give and more to learn inevitable change, spiralling onwards, repeating itself over and again. In going through this process, I am not alone.

From my life's work, and especially lately, in my work as facilitator for Capable New Zealand, I have learned that these same questions, in some form or another, wrap themselves around the thoughts of most people at some stage in their lives. We are compelled to reflect by changes in our lives, or by a willingness for change to occur. Reflection helps us to have clarity in our thinking. It helps us to learn more about the essence of ourselves, to determine our strengths and our weaknesses, to set and break patterns, and to understand more about the true nature of ourselves. It is the process which strikes a match, the light pushing away the darkness in our minds.

The light has gone out

and I have been sitting here in the dark

thinking:

Is the power off or is the bulb no good?

Very nice to wander in aimless anonymity

among the metaphysics of astrological signs,

but if I can't see where I am, how can I see where I don't want to be?

I asked Someone in the room:

did you notice that the light is out?

*and Someone said: I cannot see my Self in others*

*until I can see my own Self.*

*Then I asked Another: did you notice?*

*and Another answered: I have to get my head straight first.*

*Finally I asked Everybody:*
*DID YOU NOTICE THAT THE LIGHT IS OUT?*

*but Everybody was too busy*

*trying to find space in the dark.*

*Never mind.*

*I will strike a matchand see.my*

("The Light Has Gone Out,") ("My," 1977)

Reflection is not always pleasant, and not always something we choose consciously to do. But the need for introspection and self-examination are human needs, the results of which enable us to create our ever-changing stories. Through this process of reflection, we have the opportunity to break free from how we are taught to view OUR existence, and from who WE are through the lens of others – to see the truth of ourselves. We begin a process that Sousanis describes as seeing "what possibilities emerge when we author our own paths, as uniquely our own as our feet themselves, in shoe sizes determined by the wearer" (Sousanis, 2015).

My name is Mawera Karetai. I am a 46-year-old mother, wife, daughter, educator, facilitator, mediator, mentor, learner, community warrior, outspoken non-activist, rule-maker, rule-breaker, lover of all, hater of some, cook, writer, waffler, researcher, doer of mostly-good-deeds and maker of mischief. For the last month or so I have battled with myself to write this. It was not a case of an inability, or unwillingness to reflect – it has been more about there being so much going on in my mind, as I prepare for this doctorate journey, that I had no natural starting place. And then Stephen Hawking died, and I lost a hero in this world. What better place to start than an ending?

Stephen Hawking wrote: "I have noticed that even people who claim everything is predestined, and that we can do nothing to change it, look before they cross the road" (Hawking, 1993). I am not a particularly spiritual person and so I don't have a working concept of karma, or pre-destiny, or a higher power, or of a book written in blood from the wounds of every deed we do unto ourselves or others. Having a faith in an afterlife seems like a tragic way to journey through life – always focused on something so incredible in an unseen world that you don't see all that is incredible in this one. Nope, an afterlife is not for me and so I look before I cross the road. I believe in the here and now. This moment. This actual instant in time, with each tap on my keyboard being the only thing I have control over. But with that I also have hope for the future – so much hope that it is like an aquifer providing unlimited quantities of the purest water, ready at any time to quench the thirst of all who need it. My aquifer of hope does not run dry, ever. It has persisted in the most difficult of times. But why?

Why do I have this way of thinking and some others in my life don't? What has shaped my thinking to make me like this? In the same way that it has happened, could it unhappen? What is the source, and could it dry up? And die? Can my mind become an arid desert where hope cannot live – where all that remains is dust in the shape of the memories of a past that was so real and so wonderfully useful? Hope eternally extinguished, and the end of that one thing that I know myself as and others define me as. It terrifies me. That fear has been a theme throughout my life and it has at times had the power to stop me in my tracks. However, as well as that there have been other themes that have kept me on track, and that are fundamental to who I am as a human.

My insatiable curiosity, my pursuit of fairness, and my life-long participation in transformative learning processes. These three are the focus of this work. While my fear is significant, and my battle with it constant, I have found that the better my understanding of the other three, and the role they play, the less power fear has to impact on my life.

"Curiosity killed the cat," say some. Others say, "satisfaction brought it back." Oh, the satisfaction of new knowledge – there is nothing else like it my world. That moment of understanding, that rush of dopamine, the connecting of neurons, the growing myelin, and the sense of having achieved something that matters. Learning is beautiful. From my own childhood, through to this day, the pursuit of knowledge has been a driving force, keeping me moving forward. It has not been knowledge for its own sake – it has been an intentional accumulation of knowledge for the purpose of sharing, rooted firmly in a need to make my life matter.

Does everyone have a conscious need for their life to "matter"? If so, is that another human condition? There are hundreds of self-help books that indicate that yes, we do and yes, it is. My own need to matter has a clearly defined starting point – the death of my younger sister, Melissa May Maarea Karetai.

Figure 1. Melissa Karetai.

She was three years old and I was four. A car accident robbed the world of a lovely little girl and robbed me of the only happiness in my life at that time. As I got older, I felt a responsibility to live my life for both of us – for my life to matter, otherwise hers could not, for I lived, and she did not. And so I consciously set out to be all things to all people. I wanted to know everything. I needed to know everything. High school did not meet that need for me, except in music, English and science. The rest of it was suffering I had to endure to escape from a life that was not conducive to success.

At school, music and English were about communication, and science made the world make sense to me. It was through learning to play the cornet, and playing it well, that I first had a real feeling of adding value – of mattering. The better I got at it, the better we, as a school orchestra, collectively sounded. With music there is nowhere to hide when things go wrong. Music taught me to take responsibility for my mistakes and to work harder to know more; to be better; to share with others; to be part of something greater than myself; to feel, in a way that only music can help you feel. As I grew as a musician, my curiosity drove me to explore other instruments and genres. My playlist now honours a lifetime of wanting to know more and experience more in music; Ozzy Osborne resides next to Vivaldi, who is next to The Grateful Dead, who are next to Holly Arrowsmith, who is next to Burning Spear, who is next to Bob Dylan … and so it goes. It is my addiction of choice.

Like music, English also took me on a journey of feeling. It enabled me. The Dewey Decimal System was my friend and together we explored the universe. It was in the Darfield High School library that I learned to independently find information from books. I also learned to write about what I was reading, and that is when I began to understand the power of individuals who could research, to make change happen. Knowledge became power. I was learning things other people did not know and teaching what I learned. I was able to take knowledge of complex ideas and reframe them in a way other learners could understand. Plato said, "Human behaviour flows from three main sources: desire, emotion and knowledge" (Majdi, 2012). As I reflect on that time in my life, I know it is the foundation for this work today. The more I learned, the more useful I was and the better I felt about myself. That pattern has repeated itself over and again, throughout my life.

After school finished for me I began to explore tertiary study, and there I found the same difficulty I had in high school – I just did not fit and could not adapt to the way knowledge was delivered. I bounced from degree to degree, from provider to provider, always looking for something, but never finding it. In the meantime I amassed an excellent skill set in business, social sciences and education. I became more and more useful, while at the same time beating myself up for not being able to stick to a course of study. My values system was wrong, but I did not understand that at the time.

A major breakthrough came when I met my second husband and began helping him with a custody dispute. I became curious about the law and landed in a Graduate Diploma in Dispute Resolution at Massey. The delivery was the same as every other provider and nothing else was different, except I was different. I was trying to learn something I needed to know to help someone else. And so, success came. I completed the papers I needed and kept going to complete a bunch of papers that interested me. I began to understand what it is to be an intentional learner and the lifelong relationship between myself and learning started to make some sense (Bereiter & Scardamalia, 1989). I could not learn in a formal setting unless the topic either really interested me, or I had an application for it. It was not enough that I wanted to be a sponge, soaking up information. I first had to be curious and the learning needed to satisfy that curiosity.

As I have come to understand who I am as an intentional learner, I have had to think a lot about what has motivated that intention. Reflecting through my life and the learning gained from it, another pattern emerges – natural justice, the application of it and how I respond to the absence of it. While it is unclear to me exactly where this drive to see natural justice done has come from, I suspect its foundation is in feeling quite powerless in the early years of my life. Things that were unfair happened that I had no control over. When I was in a position to have control, I used that to make good things happen. I recall learning about the Magna Carta quite early in my high school years, while my friends were reading *The Diary of Adrian Mole,* etc … (that might have been better for me). The Magna Carta, first written in 1215 during the reign of King John, was an attempt to bring peace and natural justice to the relationship between ruler and servant, a relationship that until then was about the power and control of the ruler.

John was a tyrant king who took land and assets from people who did not comply with his demands, or simply disposed of the person concerned. There was an uprising which resulted in King John having to agree to a new framework for the relationship between him and his subjects; one that was fair. The original Magna Carta document evolved over time, and also became the foundation document for many others, including the United States Bill of Rights (1791), the Universal Declaration of Human Rights (1948), the United Nations Declaration on the Rights of Indigenous Peoples (2007) and even our own Treaty of Waitangi (1840). Although almost all the original statues have long since been repealed (Worcester, 2010), there are several clauses from the original 63 that remain in statute and, of them, there is one that has always meant something to me:

> No free man shall be seized or imprisoned, or stripped of his rights or possessions, or outlawed or exiled, or deprived of his standing in any other way, nor will we proceed with force against him, or send others to do so, except by the lawful judgement of his equals or by the law of the land. To no one will we sell, to no one deny or delay right or justice. (British Library, 2018)

This simple clause granted the right to a fair process for people to defend themselves. It protected people from unjust and biased processes. It provided in the law for natural justice, in that the procedures implemented are morally right and fair within our cultural norms.

While I continue to admire the inclusion of this clause and the continued use of it in law, at some point along my journey I stopped to consider what it means to be "free," and with that came a major shift in my thinking. I realised that being "free" in 1215 meant that you were still in the higher echelons of British society. The vast majority of people were living in some form of servitude, and education remained the domain of the wealthy; the clause did

not include them. In 1354 the wording of the statute was changed (Levy, 2008) from "no free man," to "no man of what estate or condition that he be," and so it was more inclusive, as least on paper. But now let's consider history since then and also the current situation.

Yes, in New Zealand we all have access to the same rights in law and the law is underpinned by natural justice. But there are barriers – like a lack of resources, networks and education – which prevent people from exercising their rights now, as there were in 1215, and they impact on the same kinds of people – the vulnerable, the hardest working but lowest paid, the unemployed/infirm/unsupported, and the least educated in Aotearoa, who have not made it to the blue-collar class in our country, let alone the white-collar class. These people are the least likely to be able to get the law to work for them. Natural justice is not part of their reality. Unless you have resources, or a support network, or an understanding of the law, you have limited ability to navigate those barriers.

It is the difference between equity, equality and justice (Maguire, 2018). Everyone has the same rights in theory, but not everyone has the privilege of being able to exercise those rights. The only fair response, is to address the issues in our society that prevent people from being able to take control of their lives – we must remove the barriers and bring about social change. Martin Luther King Jr said: "Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects us directly, affects all indirectly" (King, 1963). I am with King on this. We live in a society where people regard themselves as free and where there is a widely held belief that our society is democratic and just. If you, my reader, are nodding your head in agreement with this, then you are indeed privileged.

Your privilege comes from confidence that the law is there to protect you. In your mind, you believe that you have choices and that you have been empowered by a system that has rules to keep you safe. In my professional practice, I have devoted most of my adult life to working with people who don't know those rules, who don't have choices and who feel disempowered by a system of legislation that they can't understand or apply. They need help, and I have been that help for many years.

My interest in natural justice has seen me involved in problem-solving for others in both formal and informal roles. This has naturally evolved into a professional practice in ADR (alternative dispute resolution) and, of course, my first successful completion of a tertiary qualification. My formal practice started when I was an atheist minister of a non-denominational church, supporting members of my congregation in issues they could not resolve by themselves. I realised I had a knack for that, and so from there I established an ADR practice, specialising in family and employment disputes. After undertaking mediation training with what is now the Resolution Institute, I began volunteering as a McKenzie friend, assisting dads in the Family Court for the Union of Fathers.

This changed to problem-solving outside of the court, to try and prevent the parties from entering aggressively litigious Family Court processes, where the only winners were the lawyers. I found I was good at facilitating conversations and helping people to move past their fixed positions and work with the other party for solutions. Throughout all of that, I was often asked to support people in all sorts of courts and legal processes. As a McKenzie friend you can't speak in the court, which can be frustrating. One of my favourite memories was turning to my client, who was struggling to articulate his position, and in a voice loud enough for the court to hear, telling him what he should say. That generated laughter from around the court, with Justice Venning stating, with a smile on his face, "Miss Karetai, that was a very loud stage whisper!" My client won.

From Family Court, to the High Court, to social services, health, education, employment and commercial matters. I have taken the knowledge gained from a lifetime of curiosity and applied it to solving problems for others where there is an absence of natural justice. Sitting in front of a judge as a layperson and reminding them of their responsibility to the person I support has generated mixed responses. Battling with lawyers who have specialist degrees in law, with my knowledge of the basics, but driven by my need to see natural justice done, has been challenging. Holding people to account for not being fair, or just, or unbiased has been rewarding. The amazing Dr

King also issued us, as human beings, a challenge: "Every man must decide whether he will walk in the light of creative altruism, or in the darkness of destructive selfishness" (King, 2016).

I have chosen to walk in the light of altruism, and with that light also comes the responsibility to pass the torch to others. From helping myself through to helping others, I understand the power of transformative processes. It was not until recently, when I began my learning journey with Capable New Zealand, that I came to understand this in an educational context – something that has come naturally to me through my life was given a name. As I have reflected on how I best learn and on my teaching practice in formal and informal teaching, I have found a pattern in my life best described as transformative education.

Transformative learning theory is where "learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience to guide future action" (Ker, 2017, p. 21).

> "You become," said the Skin Horse. "It takes a long time. That's why it doesn't happen often to people who break easily, or have sharp edges, or who have to be carefully kept. Generally, by the time you are Real, most of your hair has been loved off, and your eyes drop out and you get loose in the joints and very shabby. But these things don't matter at all, because once you are Real you can't be ugly, except to people who don't understand" (Williams, 1922).

My own journey into transformative education started early in my life. My childhood was a difficult time, with the loss of my sister and 28 house changes in my first ten years. I attended more schools than I can count and did not have a great foundation for learning. My home life was tragic, violent and character-building. There are lots of good things that came from my early years, though, and one of those was from a dad who was a disrupter. My dad taught me to question everyone and everything. He also taught me that even though we had very little in the world, we had choices and our choices came from knowledge. He was determined that his struggles in life should not become our struggles.

My dad taught me to think about what I was learning and how what I learned was making me feel. He encouraged introspection as a habitual process. I recall when I was nine years old that we were watching the Billy T. James show on TV. The audience was laughing, and so I laughed. My dad turned off the TV and asked me why I was laughing. I said I laughed because they did. He said to me then that he never wanted to hear me do it again. I was not ever to let someone define for me those things that I should only define for myself, and that if I don't understand then I should look for understanding and not just go along with the crowd. I tend to take that attitude to an extreme in life, but I am at least conscious of it. That early learning from my dad was the beginning of transformative learning for me, which has driven a life-long, relentless search for applicable, useful knowledge and a deep understanding who I am as a person.

Having grown up in Te Ao Māori for the first part of my life, I learned that reflection comes naturally to Māori. When we are culturally connected we look back, constantly analysing the present in the context of the past. From a young age we are made aware that we are part of something so much greater than ourselves. We are representative of everyone who has come before us and everyone who will come after us. We are reminded of our ancestors by references and comparisons. "You have inherited your humour from poua Hiki," or "you have inherited your love of music from taua Maaki," "your ability in science comes from aunty Marama," "your love of history is just like cousin Tahu," etc … We grow up reflecting a lot on why we do things a certain way and why others don't. I don't think this is something that only happens in Te Ao Māori, but I have not experienced it with my non-Māori family. Reflection on tikanga and kawa and how they apply to life eventually becomes reflection on all aspects of life. Why do I get so frustrated or mad about things that others don't care about? Why is it so hard for me to say no to things at times, when I know I am overcommitted? Why? Just why? That self-analysis keeps us moving forward, mindful of those who will come after us and making sure that what we do matters.

In my formal education, prior to beginning my journey with Capable NZ, it was only that habitual reflection instilled by my dad that kept things on track for me. To be honest, I don't know how I survived school; it was really only music that got me through. Paul Mayhew and Judy Bellingham were fundamental to my success at high school and if you asked them about their teaching practice, you would find two constructivist teachers who practiced transformational teaching. They promoted positive change in students' lives through challenging and encouraging, through engaging mentally and emotionally, through creating lessons that worked with the way we best learned and, most importantly, through involving us in the teaching plans. It was our plan that we decided on – we were in this together. They were ahead of their time and I am so thankful for that. I can pinpoint my time with them in my later high school years as being a huge part of the reason I am writing this now. They have been my role models for my own teaching practice, some 30+ years later. It was not until I was in my early 40s and starting as a learner with Capable that I had a name for what they did. It is my honour to write about them today.

As my practice evolved over time, and my accumulated knowledge added up to something of value, I was presented with an opportunity to teach in a tertiary environment. I took a role as a lecturer at a PTE (private training establishment), where I was delivering face-to-face lectures on business strategy and leadership. My learners were Punjabi Indian and Nepalese young adults who had come to New Zealand to start a new life, leaving their families and all that was familiar behind them. The students had all come to my classroom from failed PTEs, had low levels of literacy and no real understanding of what was required of them to pass their desired qualification. They had been exploited. They were broken. Alone. Afraid. Terrified. On that first day I had one shot at building our relationship. This really mattered. So, I went back to my own learning, to some years before when I had tried becoming an early childhood teacher.

Working in an Early Learning Centre was not for me, but the learning about teaching was significant and it is not hard to see why; early childhood education is all about transformation. Young children, away from their parents and everything familiar to them, become capable, independent learners. Preschool is learner-driven. Learners build new skills from old skills. The relationship between learner and teacher/facilitator is central to the success of the learning process. Reflection becomes a natural part of the learners' experience (Nakamura, 2005), a habit which should continue beyond early learning and into the rest of their educational journey. One of many wonderful examples of this process is Te Whāriki, and that is the model that underpinned my practice in my role with the PTE.

Te Whāriki is a kaupapa Māori model of teaching/facilitation that was developed in the late 1990s as a bicultural framework for the delivery of early childhood curriculum. "It encourages all children to learn in their own ways, supported by adults who know them well and have their best interests at heart" (Ministry of Education, 2017). It acknowledges that each learner is on a unique journey and that the learner is the end product of every experience they have had and everything they have learned. They are not there to simply receive knowledge. The principles of kaupapa Māori include tino rangatiratanga (self-determination), taonga tuku iho (cultural aspiration), ako Māori (preferred pedagogy), kia piki ake i nga raruraru o te kainga (socio-economic mediation), whanau (extended family structure), kaupapa (collective philosophy), te Tiriti o Waitangi (the Treaty of Waitangi) and ata (growing respectful relationships) (Smith, 1992). Learners are there to grow, to build relationships, to develop and learn, to increase competency (Bruner & Weinreich-Haste, 1987) and to participate on their own terms in a co-constructing environment that is inclusive and where relationships are safe. And so were my Punjabi and Nepalese learners. And there began a journey for all of us, as we developed a whāriki to stand on.

"Toku Rangatiratanga na te mana-matauranga – knowledge and power set me free" (Reedy, 1993).

From the beginning of my time with the PTE, until the end, Te Whāriki was my guide. My approach to my practice was to really 'see' my learners, to enable them to understand themselves and where they had come from to be where they were. We reflected a lot on how we got to where we were. We delved into culture and how that shapes our thinking. We acknowledged differences as something to celebrate together instead of something to divide us. At the beginning of each session, when I called the roll, I would call a learner's name and when they acknowledge

being present I would make eye contact with them and say, "I see you, Manpreet" or "I see you, Sukhmander." My learners knew that it meant I was engaged with them and they knew it meant that I saw the whole person they are, and not just the receiver of knowledge. It was effective. Our relationships in the classroom were positive. The learners applied this same way of viewing people with others in our class and then in our school. It was a wonderful tool for minimising conflict, since we all stood as equals on our co-created whāriki. Knowledge and power released us from preconceived ideas of how a classroom should run and how our relationships should be. We were free to be who we decided we were.

Success came slowly, but it came, and I am certain it was having this wholistic kaupapa Māori-based practice that underpinned our success. That success continues today in all aspects of my professional life; those same kaupapa Māori principles continue to underpin my practice. The presence of them shapes the way I engage with people. In the absence of them I see and experience suffering.

It has been an accumulation of experiences that has become the primary motivation for my doctorate work today. I have lived my life purposefully, seeking knowledge to share. From a young age my life has been about honouring my past and planning a future that meant something. Learning has not come easily for me in formal settings. At times I have recognised in my learning experiences a lack of care from teachers and others in authority. As I have grown older and more aware, I have learned that the lack of care had sometimes come from a person's bias, sometimes from a person who has already given all they have, and sometimes because they simply could find no basis for an ongoing relationship with me. These realities have names – dysconsciousness, empathy fatigue and the absence of unconditional positive regard. The exploration of these concepts has given me a purpose in my learning journey. My focus is: The articulation of Unconditional Positive Regard as a model of professional practice.

The exploration of my question will be my focus for the next two years of my life – and likely beyond. It is not going to be easy. But what will get me through the tough times ahead is that this is me living my life by my own design, as I have always done and as I will always do.

Flight of the seabirds,

Scattered like lost words,

Wheel to the storm and fly.

Fare thee well now,

let your life proceed by its own design.

Nothing to tell now, let the words be yours,

'm done with mine.

I'm done with mine.

(Barlow & Weir, 1974)

Figure 2. Photograph by James Stanbridge (copyright James Stanbridge).

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While climate change is transforming our global temperature, it is also having a less well-known impact on our oceans. Here, Kean explores how interactive art can engage us to consider how we address one of the greatest challenges of our time

# A GAME YOU DON'T WANT TO PLAY – TRANSFORMING PERCEPTIONS OF INTERACTION


## Martin Kean

Senior Lecturer in the School of Design at Otago Polytechnic


Figure 1 - Ocean Art

Does human interaction have an effect on our environments? How might we interact less? Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the ocean's uptake of carbon dioxide ($CO_2$) from the atmosphere. Increasing acidity is predicted to have a range of potentially harmful consequences for marine organisms. Ocean acidification is evidence of climate change, just like the more commonly known global warming.

Recent studies suggest that ocean acidification will impact marine plankton communities in a number of ways, potentially causing great harm to plankton populations and therefore also to animals higher up the food chain.

In a 2018 artwork project, I collaborated with Morgan Meyers, a PhD candidate at the University of Otago's Departments of Botany and Marine Science. Morgan is completing her doctorate on trophic processes and distribution patterns of New Zealand zooplankton through the lens of climate change. She and I worked together to problem-solve an interactive artwork based on copepods – a group of small crustaceans found in the sea and nearly every freshwater habitat. The results exhibited were an interactive screen work and a watercolour painting in as part of the Art + Oceans Project, shown in the HD Skinner Annex, Otago Museum, 23 July–5 August 2018, in association with the Sustainable Seas National Science Challenge.

Morgan wanted to incorporate references to ocean acidification in the artwork. We discussed the idea, wondering if copepods could be the visual focus of the work, while phytoplankton might be represented as a cloud of small particles surrounding the copepods. The work would be interactive for the audience, with the interaction communicating ocean acidification through personal gesture. Initially, we considered a watercolour visual style for either the entire screen projection or just to represent the copepods. Utilising the game development tools within Unreal Engine, plus the Kinect for Xbox Windows adapter kit, I prototyped an interactive game space that mimicked a hypothetical situation where an underwater game player would increase acidity in the water by 'generating' harmful $CO_2$. When exhibition visitors move their hands in front of the artwork, carbon dioxide 'darkens' the surrounding water, 'reducing' copepod and phytoplankton numbers, and generally making the game environment appear 'unliveable.' It is only when visitors to the artwork do not engage with the work that pH levels 'normalise;' the 'water' within the game environment clears, and healthy copepods, phytoplankton and fish can be seen 'swimming' within the projection.

Visitors interacting (and not interacting) with the artwork are encouraged to consider how their own actions impact on marine life, and subsequently how reductions in some human activities can be effective. As my collaborator Morgan Meyers states, "reducing carbon dioxide levels released in the water thereby reduces ocean acidification. This in turn reduces stress on marine life and helps keep our seas healthy" (Meyers, 2018).

In 1987 Hines, Hungerford and Tomera proposed a model of responsible environmental behaviour (REB). Following an in-depth analysis of pro-environmental behaviour research studies, they found that some aspects of such behaviour, including "control" and "attitude," depended on engagement and action (Hines, Hungerford & Tomera, 1987). In particular, the idea of "locus of control … represents an individual's perception of whether he or she has the ability to bring about change through his or her own behaviour. People with a strong internal locus of control believe that their actions can bring about change. People with an external locus of control, on the other hand, feel that their actions are insignificant, and feel that change can only be brought about by powerful others." This sparked my interest in the idea that lack of control, or lack of interaction, could effect change by allowing an environment to self-normalise.

Morgan and I were looking for an elegant solution that allowed for interaction and yet didn't look or work like a screen-based game. We struck on the concept of non-interaction as a way in which visitors could discover that they should be hands-off with the oceans, because constant and increasing human activity is predicted to drive up acidity levels in the seas. So, if a visitor to the artwork feels drawn to engage with the screen, the moment they start waving their arms around the waters darken and the copepods and phytoplankton are visibly affected. If observers do nothing, the water clears.

This interactive element communicates a positive message about how human behaviour can help mediate or slow down the harmful effects of ocean acidification (instead of focusing on the negative emotion tied to how humans caused the problem in the first place). During the 'game state,' the condition of the copepods and the water changes, demonstrating the effects of ocean acidification. Avoiding this outcome requires the player or players to avoid interacting, not to play the game, and thereby model a reversal of the ocean acidification process.

Link to video of the installation: https://vimeo.com/287367269

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The profession of nursing is transforming and the capabilities to lead, delegate and coach are emerging as critical elements. In this article Ross, McDiarmid and Burkett explain how they have transformed their pedagogical approach to nursing education.

# THE DEVELOPMENT OF A TRANSFORMATIONAL MODEL: A LEARNER-CENTERED APPROACH TO ENHANCE NURSING COMPETENCE

Jean Ross, Rebecca McDiarmid & Donna Burkett

School of Nursing Otago Polytechnic

## INTRODUCTION

Contemporary nursing practice is changing as the landscape of the healthcare workforce evolves with the increase in healthcare assistants and enrolled nurses. With this changing landscape, there is a requirement that registered nurses (RNs) graduate with the skills and knowledge that will allow them to respond to this evolving workforce dynamic. Among other things, newly qualified RNs are required to demonstrate their competence and confidence in the direction and delegation of members of the health workforce in clinical areas, including enrolled nurses (ENs), health care assistants (HCAs) and nursing learners. Equally, the profession of nursing anticipates that these RN graduates will contribute to the knowledge generation which supports nursing practice. Given this environment, we are aware there are limited opportunities for third-year nursing learners to practice coaching skills and share and present knowledge. Our aim is to raise awareness of our learners' needs and provide a supportive context within the undergraduate nursing programme in order to prepare work-ready nursing graduates who are responsive to the demands of the profession.

## BACHELOR OF NURSING PROGRAMME

The journey to becoming a RN in New Zealand is wrapped in theory and practical experience to ensure that graduates have the ability to demonstrate RN clinical competencies for practice, as identified by the Nursing Council of New Zealand (NCNZ, 2012). Clinical environments are changing, along with the complexity of population health needs. Learners are introduced to a complex healthcare system that is focused on patient outcomes and the expectations of employers and the nursing profession to respond and to be work-ready.

The Bachelor of Nursing (BN) programme is a three-year, full-time degree; the learner is introduced to theoretical, practical and technical skills that are applied and assessed in a variety of clinical practice contexts. There are a variety of fundamental clinical skills that learners need to master prior to being exposed and practised in healthcare settings. Fundamental skills are traditionally taught to undergraduate learners using a manikin (on which to practice a variety

of clinical skills) in a laboratory or classroom environment. For this to be effective and for learners to maximise their learning, scaffolding of content, skills and tasks need to be provided.

As Year 1 learners transition into clinical placements, they often appear anxious, lacking the confidence to implement the knowledge and skills acquired within the skills laboratory. Practical and technical skills are introduced and practiced by learners in Year 1 in a supportive environment. This takes the form of simulated clinical laboratories where learners need to demonstrate that they are proficient in fundamental technical skills before they can proceed and practice in healthcare settings. Teaching and learning educational models include simulation, self-directed and flipped classroom approaches. Theoretical content is offered in a variety of mediums, including large group, face-to-face traditional lectures, smaller groups in tutorials and group work including online directed and self-directed content.

Procedural knowledge acquired through practice in Year 1 of the BN programme is considered to be the cognitive phase, on the basis of which the learner can progress through the second year of the programme, when they have the opportunity to practice the skills and knowledge learned as they transition into an autonomous phase by the completion of the programme and proceed to graduate. Successful completion of learning in Years 1 and 2 of the BN programme (NZQA Levels 500 and 600 respectively) positions the learner as competent to enter the third and final year of the programme (NZQA Level 700). The third year of the BN programme "directly brings together clinical practice, theoretical, research and scientific knowledge including ethical and professional responsibilities which enables students to apply and demonstrate the RNs competencies to practice, in their allocated clinical placements" (Ross, 2017, p. 21).

## CASUAL SPACES

The authors are aware of the importance of 'corridor conversations,' which have often stimulated our curiosity to find workable solutions to improve learners' needs. Four examples of such needs, with workable solutions, are discussed below.

Firstly, the facilitators of learning and teaching in the BN programme (the authors of this paper) have often dialogued in 'casual spaces' and acted on these conversations with the aim of producing competent, work-ready graduate nurses. References to 'corridor conversations' are scattered throughout the literature, suggesting that such 'casual spaces' can act as valuable conduits of information flow. The interactions that take place in these spaces allow people to engage in informal activities and interactions where much work happens, despite the lack of formal organisation (Breu & Hemingway, 2002).

This was certainly the case for the authors within this process – the informal, collegial corridor conversations that took place on several separate occasions sparked the development of creative ideas and solutions to address the problems we had identified, while challenging traditional clinical learning and teaching models. These opportunistic conversations drew on the expertise of academic staff and forged unique working solutions that would transform our teaching and learning contexts by providing opportunities for senior learners – in a facilitated, safe, simulated environment – to coach first-year learners and to gain a better understanding of coaching in the context of their professional responsibilities. Given this responsibility, we set out to extend third-year nursing learners' opportunities to practice delegation and direction in a supportive environment before exercising these skills in clinical practice.

## OPPORTUNISTIC LEARNING

During placement experience in clinical settings, opportunistic relationships were formed between the Year 1 and Year 3 learners. When observing first-year learners, it was apparent that the third-year learners were creating opportunities to connect, inviting their junior counterparts to participate in experiences and enhance their clinical exposure, going beyond the clinical skills practiced in the skills laboratory. These opportunistic connections happened by default, without formal preparation such as coaching training for the senior learners.

Further, we could see the value of formalising this opportunistic learning as a component of the BN programme. As we have seen, in New Zealand (NZ) it is necessary for all RNs to be competent and confident in the direction and delegation of student nurses, ENs and HCAs. The Nursing Council New Zealand (NCNZ) is the professional body to which RNs are accountable while maintaining their annual practicing certificate. To demonstrate competency to practice, NCNZ has a structured set of competencies which include the professional responsibility to direct and delegate care. Competency 1.3 specifically states the RN's ability to demonstrate "accountability for directing, monitoring and evaluating nursing care that is provided by enrolled nurses and others" (NCNZ, 2012, p. 11).

On reflection, we saw that the third-year learners could benefit from practising and improving their direction and delegation skills to enable the transition of this competency into their RN career. Furthermore, third-year learners could support their ability to facilitate learning with the first-year learners during clinical experiences. A student nurse's scope of practice is monitored by their 'preceptor,' a RN who guides and supports the learner during their clinical placement. As a result of this clinical exposure, learners observe the process of direction and delegation as carried out by the RN. Learners then progress to full responsibility in this area once they graduate and become a RN.

To achieve our aims, we engaged with the work of Edgecombe and Bowden (2009), who highlight the expectations on undergraduate nurses and the influence of coaching on their professional development: "Currently it is expected that graduates can facilitate the learning of themselves and others. By developing these skills in the undergraduate program, graduates will be better equipped to participate in workplace learning, first as a learner with their mentor, later becoming a preceptor to undergraduate students…" (p. 125).

Opportunities for our learners were created throughout Year one and Year three to both provide and receive coaching, grow effective presentation skills and gain confidence in sharing their written projects with both the profession and the communities they had worked with, while enjoying the dual benefits of creating collegial relationships between learners and staff. These actions, derived from our casual conversations, led to the generation of the model presented in Figure 1, in which a supportive environment is regarded as essential to enhance learning.

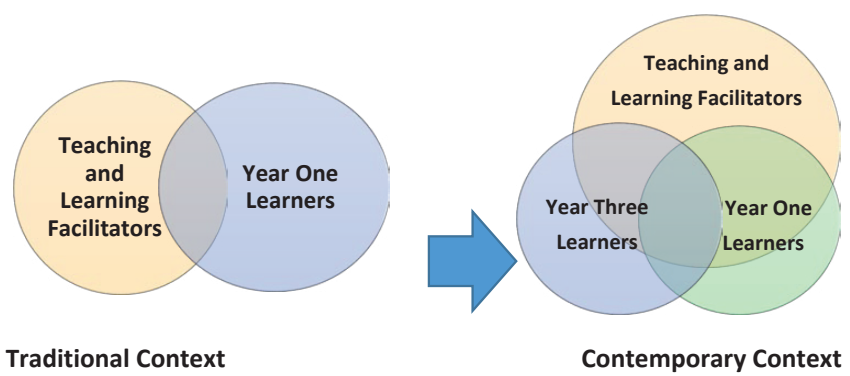


Figure 1. Transitioning learning and teaching in supportive environments. Source: Authors.

## SUPPORTIVE ENVIRONMENTS

The purpose of the supportive environment is to enable the Year 3 nursing learners to practice coaching, contributing and collaborating in a facilitated context, and to reduce the potential stressors experienced by first-year learners. First-year learners can experience a variety of stressors; they may question their professional role, identity and belonging (Ownes & Walden, 2001). Some learners find the learning experiences and clinical placement as an undergraduate extremely intimidating (Goldsmith *et al.,* 2006; Sprengel & Job, 2004). An effective coach in the clinical setting can create a supportive learning environment for learners (Levett-Jones & Bourgeois, 2011). To develop skills in coaching proficiency in relation to direction and delegation, Edgecome and Bowden (2009) identify various positive extrinsic factors, intrinsic factors and negative extrinsic factors that can impact on skill acquisition. Positive extrinsic factors may help to develop intrinsic motivation, student persistence and engagement (Dennison, 2010). These factors can impact on the evolution and proficiency of skill. One way to foster coaching skills development within the current curriculum is to provide facilitative support.

Clinical coaching is part of a process which recognises the individual and their journey, and optimises the navigation of the learning journey and the nurturing required along the way. In the BN programme, clinical coaching is a three-tiered process, where the facilitator provides overarching guidance for both Year 1 and Year 3 learners. The learning environment simulates the healthcare context and provides the medium for the connection between junior and senior learners. Through connecting, caring and communication, the process of coaching occurs, growing clinical skills for all learners.

This coaching experience enables the Year one learners to focus on clinical skills development associated with healthcare delivery, alongside a simulated peer coach. In turn, the Year three learners experience delegation, practising direction and evaluation of junior staff knowledge within a supportive learning environment, while having the opportunity to reflect on their own fundamental clinical skills, knowledge and readiness to graduate.

In the BN programme, third-year learners support Year 1 learners for two laboratory sessions throughout the year. To prepare for their coaching experience, the third-year learners were introduced to the concept through a face-to-face lecture. The lecture gave an overview of learning frameworks to adopt when exploring strategies to support new learners. The subject of professional responsibility and transitioning from undergraduate status was further explored with Year 3 learners to prepare them for coaching. For the Year 1 learners who participate, learning becomes less intimidating, easing their transition from theory into the practical setting (Dennison, 2010).

The images in Figures 2 and 3 below show Year 3 learners encouraging and enhancing clinical skill practice opportunities in the skills laboratory. Year 1 learners are engaged, seeking guidance and support from their peers. All learners appear invested in the opportunity to work collaboratively and grow both knowledge and collegial relationships.

Figure 2. Skills coaching in progress. Source: Rebecca McDiarmid.

Figure 3. Clinical coaching in progress. Source: Rebecca McDiarmid.

As Year 3 learners coached their junior counterparts, they became more confident in their ability to contribute to direction and delegation of skills and tasks. Anecdotal evidence gathered from the third-year learners in their group debriefs expressed this as a positive outcome. Further examples of engaging in knowledge transfer include contributing to the generation of evidence-based knowledge, communicating via the School of Nursing newsletter and the School of Nursing online journal (Ross, 2017), and contributing to the development of health promotion resources such as posters. Health promotion is an inherent part of a nurse's role and by providing a forum for learners to participate positively in health promotion efforts, this led to the development of, and contribution to, health promotion initiatives by Year 3 learners throughout their course.

The standard of information presented in these initiatives was exceptional and created further opportunities to share and disseminate information via poster format to present in clinical laboratories. The presentation of health promotion activity provided a format for shared knowledge, which further enhanced the collegial relationships between the Year 1 and Year 3 learners, as they had a shared forum in which to acknowledge work and contribute to knowledge generation. This process inspired, motivated and encouraged the Year 1 learners with future curriculum awareness and engagement as they progress into years two and three of the BN programme.

The health promotion initiatives chosen were those running concurrently with both the national and international health promotion activities calendars. Topics explored included: NZ Immunisation Week, World Smoke-free Day, National Stroke Week and National Well Child Week. Examples of learners' work produced is illustrated in Figures 4 and 5.

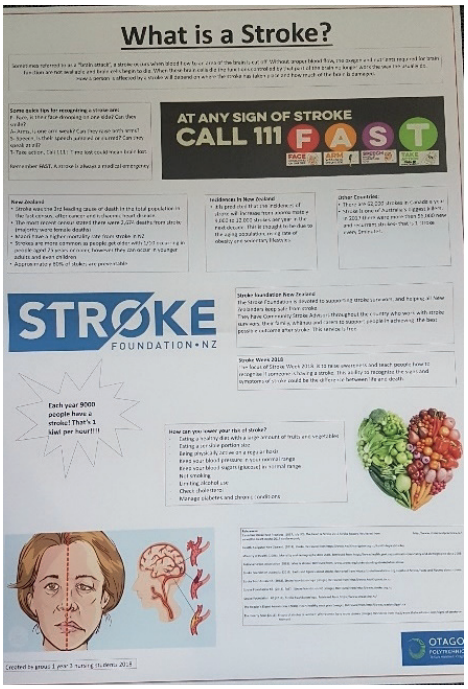


Figure 4. Health promotion poster. Source: Authors.

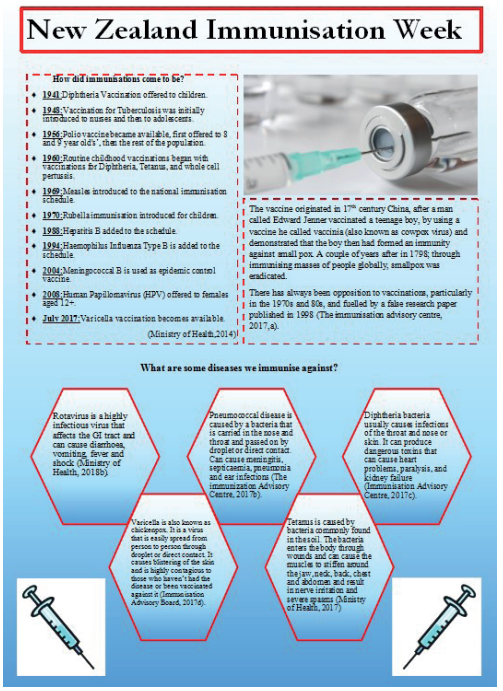


Figure 5. Excerpt from Nursing newsletter. Source: Authors.

In a similar way, co-constructing knowledge linked with community health assessments between Year 3 and Year 1 learners engages their understanding of the foundational knowledge and progression of assessment skills throughout the curriculum. Community assessment and projects are included in Year 3, where the senior learners present and discuss the outputs of these projects with their junior colleagues. This approach increases learners' awareness of how the clinical assessment skills are applied, both within clinical settings and as part of ongoing expectations for undergraduate achievement (Ross, Crawley, & Mahoney, 2017).

Valuing the community assessment component within Year 1 has been challenging, as it is not situated within a traditional clinical placement (e.g., general practice, with a RN preceptor). Students work as a team to create a resource and explore their individual skills that they can contribute to the team, with an emphasis on *connecting* (providing a context in which to connect); *communicating* (providing a team project, encouraging various forms of communication, using Google Doc and presentation skills) and *caring* (utilising resources related to mindfulness, workload management, consideration of collegial learning and individual attributes).

## DISCUSSION

'Casual conversations in casual spaces' have led the authors to reflect on the teaching and learning conducted within a supported environment and has led in turn to the creation of a model which illustrates the transformational approach discussed in this paper. The TEAModel emphasises the context for a supported learning environment (see Figure 6). The supportive learning environment provides the *connection* for learners to be *coached, contribute* to the profession, and *collaborate* to generate knowledge in order to navigate their learning contexts towards gaining competence as a new graduate.


Figure 6. The Transforming Educational Approaches Model (TEAModel). Source: Authors

In the past, we have recognised the 'floundering' of our learners as they navigate their way into tertiary study and begin to develop RN professional competencies. The third-year learners at the centre of the TEAModel are demonstrating increasing proficiency in their journey towards delegation and direction, and contributing to evidence-based knowledge with confidence. The learning environment enhances positive intrinsic factors (Edgecombe & Bowden, 2009) to support learners' progress and skill development. Within this model, third-year nursing learners have valued the opportunity to revisit their fundamental clinical skills and support first-year learners to develop their practice, while being involved in a teaching environment which nurtures the growth of the profession. Providing theoretical and clinical skills within the BN educational context needs to be meaningful and responsive to the real-world encounters to which the TEAModel adapts and adjusts.

Third-year nursing learners are required by NCNZ (2012) to articulate their professional competency in relation to direction and delegation. Learners face challenges in demonstrating and discussing the professional responsibility associated with direction and delegation as a result of the restrictions of their undergraduate practice. In order for learners to demonstrate capability in this area, they must demonstrate communication skills so that they are able to direct and delegate care.

The authors had numerous courageous conversations in 'casual spaces,' demonstrating the importance of such spaces as venues where problems can be discussed. These problems have been approached through solution-focused strategies aimed at improving learning opportunities, connecting the experiences of Year 1 and Year 3 learners throughout 2018. In 2019 we will progress the TEAModel to further enhance learners' experiences as a learning and teaching model and test its validity.

## CONCLUSION

Transformational change has been embedded for Years 1 and 3 learners of the BN programme through the introduction of an innovative approach aimed at creating work-ready new graduate registered nurses. In the process of innovation, the TEAModel has been developed, a model which values the contributions of both groups of learners through a process of coaching and knowledge-transfer aimed at improving the confidence and competence of Year 3 learners as they move towards becoming valued members of the nursing profession.

**Sustainable Practice Solution Box**

**Problems:**

As the changing landscape of the healthcare workforce evolves, nursing learners are facing challenges in demonstrating and discussing the professional responsibility associated with direction and delegation, due to the restrictions of their undergraduate practice.

Learners lack confidence and undervalue their ability to contribute to the nursing profession by applying the knowledge they have generated.

Academic facilitators within the three-year Bachelor of Nursing programme work within a structure which has led to an unintended disconnect between the facilitators in Years 1 and 3, revealing the limited cohesion of teaching and learning approaches across the programme.

**Solutions:**

Development of a clinical coaching model has created peer coaching opportunities between Year 1 and Year 3 learners that develops individual learners' confidence in a supported learning environment. This model also has the potential to:

Empower learners with the confidence to present their projects in public spaces.

Facilitate learners to collaborate with the profession.

Identify the health status of vulnerable populations within communities and develop resources to improve their health.

Encourage collaboration to transform learning and teaching

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**Donna Burkett,** RN, BN, MHPrac(Child Health) is a registered nurse with 18 years of clinical experience primarily in Child Health and is a recent addition to the lecturer team within the School of Nursing at Otago Polytechnic. This is her first publication and showcases her passion for growing and mentoring nursing students to be the best versions of themselves in order to positively impact on patient health outcomes.

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Sustainability conversations often include the common vocabulary of the Sustainable Development Goals. In this article Collins explores how one profession can make a direct impact on one of these goals. The reader is encourage to explore what specific contributions they could make to the Sustainable Development Goals through their own profession.

# SUSTAINABLE NURSING PRACTICE – HOW NURSING CAN ASSIST WITH THE OBESITY EPIDEMIC

Emma Collins

School of Nursing, Otago Polytechnic

New Zealand is ranked sixteenth on the Sustainable Development Goal (SDG) index identifying overall performance of OECD countries, based on 17 goals and 34 indicators (Kroll, 2015). While this shows that New Zealand is achieving well in many areas such as the gender pay gap, with one of the world's least corrupt public sectors, and accountable public institutions, this country is struggling in other areas. The report by Kroll (2015) shows that, at 31.3 percent, New Zealand has one of the highest rates of obesity in the OECD, with only Mexico and the United States scoring higher. The Ministry of Health in New Zealand also states that this country has the third highest rate of adult obesity in the OECD, and our rates are rising (MoH, 2017). In addition to this, obesity in children is highlighted as of particular concern in the New Zealand Health Strategy (2016). This document states that "obesity is becoming more common and has long-term health and social impacts." The author goes on to say that "among New Zealand children as a whole, 10 percent are obese, but the rate is 30 percent in Pacific children" (MoH, 2017).

So what is New Zealand doing about the issue of obesity in New Zealand society, among adults and children? What role can nursing have in addressing this problem?

This paper takes a brief look at the current state of obesity in New Zealand, in relation to Ministerial directions. It then discusses a number of obesity-related projects that are underway, placing this issue in the wider health context in which it is situated. The paper then moves on to place the topic in the broader nursing context before discussing possible future initiatives that nurses may be able to achieve at the local level. These suggested initiatives can be viewed as recommendations for future nursing activity.

Obesity is related to the second sustainable development goal. While this goal aims to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture" (UN, 2018), the epidemic of obesity is also relevant to it. The United Nations states that the world is facing a global childhood obesity epidemic, with a predicted 70 million children to be classified as obese within the next decade (UN, 2016). The same UN report goes on to state that this situation is largely the consequence of the marketing of unhealthy foods and non-alcoholic beverages, and that the largest group affected are children from low- and middle-income countries.

There are many co-morbidities associated with obesity. The World Health Organisation (WHO) attributes 44 percent of diabetes cases and 23 percent of ischemic heart disease to sufferers being overweight, which in turns places significant strains on the health budget in most countries (Kroll, 2015). The impact of obesity on New Zealand society, and the effect that obesity can have on a person's health outcomes, is reiterated in a number of studies. A

study by Watson *et al.,* (2018) showed a number of improvements in diabetes-related and general wellbeing when participants were put on high protein diets, which resulted in weight loss which in turn improved their diabetes management. A study by Gray *et al.,* (2018) examined weight loss conversations between GPs and their patients, and found that the prevalence of such discussions is increasing. According to Stokes, Azam and Noble (2018), obesity is the most prevalent chronic preventable disease affecting Maori and Pacific Island patients. Krishnan *et al.,* (2018) found a significant association between sedentary activity and increased body-fat scores, a factor contributing to New Zealand's high rates of childhood obesity.

As these recent studies indicate, obesity is a significant health issue in New Zealand, and so a future needs to be designed where this problem is addressed and managed appropriately. But what exactly will this future look like?

In 2015 the Ministry of Health released a childhood obesity plan. This plan aims to prevent and manage obesity in children and young people up to 18 years of age through a number of initiatives (MoH, 2018). These include targeted interventions for individuals who are obese, increased support for those at risk of becoming obese, and broad approaches to make healthier choices easier for all New Zealanders. Nursing can play a key role in all of these proposed interventions. In 2018, there is a significant amount of work being undertaken to tackle the problem of obesity, in New Zealand and worldwide. It is a complex and multifaceted issue with no 'quick fix.' It is important that all potential solutions are approached holistically.

In New Zealand, the nursing workforce is the largest of all the healthcare professions. Therefore nurses have the potential to make the greatest impact on patient outcomes and the general health and wellbeing of society. The role of the nurse is changing. Nurses are becoming more proactive in working to the limits of their capacity, and some are further developing their skills to become nurse practitioners. In New Zealand, nurse practitioners are highly sought after to ensure that patients receive a comprehensive service in circumstances where care may otherwise be intermittent.

Nurses are also becoming more aware of the need to become sustainable practitioners, a concept that is evolving in nursing. One definition of sustainability through a nursing lens puts the issue thus: "Designing and delivering health care that meets today's health and health care needs of individuals and populations without compromising the ability of future generations to meet their own health and care needs; this requires the provision of health care that recognises and respects the dependence of our health on the earth's ecosystems, without resulting in unfair or disproportional impacts within society" (NurSus, 2015).

In 2017 the International Council of Nurses released a document titled *Nurses' Role in Achieving the Sustainable Development Goals,* showcasing the work that is being undertaken internationally by nurses to achieve the SDGs. For Goal 2, which is related to obesity, an example is given of a comprehensive bariatric surgery programme. According to the nurse who developed this programme, Shirley Lockie, the "[n]urse-led programme of individualised patient care lead [sic] to a tighter control on clinical assessment and enhanced clinical outcomes" (ICN, 2017). Although this is only one example, it is clear that nurses can have an instrumental role in the improvement of obesity statistics and work effectively as sustainable practitioners.

## NURSING INITIATIVES

If a futuristic approach was to be taken to the Ministry of Health's initiatives to reduce childhood obesity, here is what it might look like from a nursing perspective.

## TARGETED INTERVENTIONS FOR PEOPLE WHO ARE OBESE

Nurses are already playing a key role in obesity interventions and it looks likely that they will continue to have a significant role here. The targeted interventions proposed by the Ministry of Health place nurses at the centre of this activity – as nurses are the practitioners who often identify this issue in the context of the Before School Check. Perhaps the future will see more nurses engaging with children at this level, case-managing their care and working more directly with their families and communities.

## INCREASED SUPPORT FOR THOSE AT RISK OF BECOMING OBESE

For nurses to have a key role in combatting this health problem, they need to be out there facing it. Thus there needs to be a nurse in every school, seeing every child in New Zealand. This may not seem like a practical approach to sustaining the nursing workforce when there are already shortages looming, but when thinking about the reduced burden on the healthcare system for adults with obesity, and the improved health choices they could have made as children, it is a sustainable approach. Early intervention has been proven to be important for general heath, and this is equally true in relation to obesity: "Failing to start interventions as early as possible is seen as missing an important opportunity for learning and favourably influencing early brain development" (Spiker, Hebbeler & Mallik, 2005, p. 310). A future where there is a nurse in every school, present every day to work with children and their families, would result in a healthier New Zealand in the long term.

## MAKING HEALTHIER CHOICES EASIER FOR ALL NEW ZEALANDERS

As with its childhood obesity plan, the Ministry of Health is currently undertaking a vast programme of activities and interventions. If nursing is to play a major role in these plans, then the profession needs to have a voice and be proactive, especially in relation to sustainability issues. For example, according to the UN the marketing of unhealthy food and non-alcoholic beverages is a significant contributor to the obesity epidemic (UN, 2016). Where is the nursing voice in addressing this topic at the political level? Nursing is the largest healthcare workforce in New Zealand, and we need to be visible, political and strategic in our approach. This starts at the beginning – through educating people to become nurses. Collins, Ross, Crawley and Thompson (2018) have developed a model for articulating sustainable nursing practice and addressing the need for sustainability to have a prominent place in nursing curricula. If this were to happen globally, then we would have a future-focused, sustainability-oriented nursing workforce, ready to tackle challenges such as obesity from a more holistic perspective than is the case at present.

## CONCLUSION

The obesity epidemic in New Zealand is a difficult topic to discuss and tackle effectively. The Ministry of Health is committed to addressing this issue, and nursing needs to be an active and visible part of this effort. Exactly how this will be done in the future is anyone's guess. More nurses visible in schools could be one potential solution, along with other initiatives. What we do know is that New Zealand will face a significant health crisis if the childhood obesity epidemic continues to transfer into adulthood, and sufferers develop multiple obesity-related illnesses. If this happens, then New Zealand will need a significant number of additional nurses to care for these patients. The alternative is to prevent this situation from arising in the first place. Early intervention is absolutely the key to battling obesity.

**Emma Collins** is a Principal Lecturer in the School of Nursing with interests in sustainability, nursing informatics and research. She is currently researching the use of augmented reality in nursing education. Her clinical background is in paediatric nursing where she has a variety of community and inpatient experience, and is an area of nursing in which she is still an active practitioner.

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Mann and Montague-Gallagher have amassed more than 350 discussions with people from many different professions who are working towards a sustainable future. In this piece they use their guests' own voices to begin to unpack the attributes that make up these agents of transformation

# TOMORROW'S HEROES: RETHINKING

## Shane Montague-Gallagher & Samuel Mann

University of Otago, and Otago Polytechnic

This work forms the first in an intended series. Tomorrow's Heroes celebrates the work of people actively working towards a sustainable future. The heroes in this work are people the authors have interviewed on "Sustainable Lens: Resilience on Radio" (http://sustainablelens.org/).

In Tomorrow's Heroes we present key quotes to explore a sustainable "superpower". These powers are all verb phrases: organising, caring, empathising, systems thinking etc - or in this case "rethinking". How do we go about developing new understandings, or adopting new paradigms? How do we achieve a transformation in thinking?

"Tomorrow's Heroes" is intended as a positive counter the idea that people in 2050 will look back and say "what were they thinking?". The intention is a biodiversity of wisdom, optimism, challenges being faced and things that can or could be done. It is written in the now, looking forward with hope, positivity and empowerment. These are the people that are working – at variety of scales and contexts - for a sustainable future. What can we learn from them so that we might be able to scale that up to the socio-ecological transformation that we really need? The twist of course is that the "super-hero powers" - activities, motivations - are really all things that anyone can do. This goal to identify a pattern for us all to unleash our transformative superpowers.

**Dr. Bran Knowles** argues that green computing that focuses on saving money through efficiency gains – either of computing systems themselves or behaviour change motivated largely by saving money – is actually doing a disservice to sustainability. She says the focus on individualist rational behaviours appeals to a selfish motivation and we need to flip those frames on their head.

"What we need is a change in mindset. If we stopped and thought about what matters, we could get by with less.

*(On gamification in sustainability)* It's the goal of game that matters, if we're not directed to improving the environment, you're not really changing anyone's thought patterns that might ultimately lead to long term change. If it's about scoring as many points as you can… that's not going to spill over into additional behavioural change for the cause of the environment.

If you think of people as selfish (a rational actor, selfishly motivated), you can only get so far. Think of people as you do your friends, I know my friends care about many things – they are multifaceted, the more you talk with them about the environment, the more they begin to understand – to care – but we are not taking that approach to the strangers we design for.

Values are malleable, the more we are exposed to "it's good to care", the more likely we are to care that way. The more we pander to the selfish – acting this way is protecting your wallet, this is distracting to the cause. If you make feedback technology that visualises how much money you save by switching off the lights for example, that's just reinforcing the selfish mentality. If you encourage people that the only reason to change their behaviour is to get some financial reward for doing so, then this damages their potential for opting to doing that for other, more altruistic reasons."

Henrik Moller is Professor at the **Otago University Centre for Sustainability** , and the principal investigator at **Ecosystems Consultants**. Henrik describes the conservation estate as a "triumph", but "now we need to turn our attention to the restoration of the wider environment". This is a consequence of the paradigm shift accepting people as part of nature, and part of the contract, and not isolating environment as something outside us.

"We've known what to do to live sustainably for 100s of years, we just don't seem to be able to do it.

[We are] wedded to the belief that we'll heal the planet by the mass actions of lots of small scale local initiatives and people taking responsibility… We have to have just solutions with group agreement that emerges from dialogue with more listening than talking. Some marching on the street is needed, but the main action has to be through consensus about shared future… We need to go beyond forums of conflict... There's got to be a middle ground where NZ society agrees to pay for environmental goods.

Simplifying those production landscapes – both structurally and diversity – we've led to degradation

Resilience is accepting that we're journeying without a roadmap.

Simplifying those production landscapes – both structurally and diversity – we've led to degradation… Sustainable use is harder to achieve than a reserve over the hill somewhere – day to day sustainable living is much harder, it involves so many other dimensions... [It is] about how we interact with each other and how share a space and our love of a space and each other… Feel part of a club by looking after our shared environment… We need to avoid a shootout between different constituents. We could call it pluralism, let's go for "and" rather than "or".

Am I an activist? (*You said you were an activist when you were younger, are you an activist now?*) I hope I'm not dead yet. What is an activist? In the past I used to strut my stuff – yell my opinions, I had no shadow of a doubt that the system didn't have the solution, everything from racist tours to environmental defense society – I was instrumental for taking 300 farmers in breach of discharges into a legal process – so I was very much interested in that forcing, amnesty, homosexual law reform. At the root of this I'm a humanist, it's about respect for people, because in the end that will lead to the big reciprocity of looking after plants and animals. I was so puzzled then as an activist, I had a favourite Amnesty Poster – a typewriter with barbed wire – and I gave it to a friend and went round to his place a few months later and there was my beautiful poster scrawled over the top 'but what about the environment?'. And I thought that's really weird, I had seen the whole thing as a power – power over people, power over environment. They come from the same sour well, where very few lasting solutions will emerge. So now I hope I hope I'm an activist but working in a more subtle and inclusive way, some might even say a more cunning way. But this comes from a changed belief that the solutions are very much more about a patience and slow resolution and dialogue

We're failing conservation-wise, you could point to a lot of things…species declining…but worse we've created this idea that to be a greenie is to be a leftie, radical and not very practical, and not embracing economics. We've created a bit of a prison, the ideal would be if we could all see, not matter what we vote, that we're all seeing the importance of environmental sustainability as sustaining us all, the platform on which we all stand… We need to abandon war talk…if we carry on with fences between ourselves – saying that person is a conservationist and that person isn't, we'll be divided and fall….We're all in this together.

The central paradigm shift is accepting people as part of nature, as part of the contract."

**Philippa Brakes** works with Whale and Dolphin Conservation (whales.org) where she leads the ethics programme. She is the co-author of Whales and Dolphins: Cognition, Culture, Conservation and Human Perceptions.

"As an eleven year old we visited a zoo in Thailand and saw an elephant in chains…..and I went on and on about it…eventually my father said, "If you feel so strongly about it, why don't you write to the King of Thailand" so I did. And that was the beginning of my career of feeling that I needed to represent those who don't have a voice.

Whales and dolphins are not well adapted to life in captivity.

[Whales and dolphins are] very much like us: long lived, slow reproducing mammals that just happen to live in the sea. They have complex social groups…but they're very different to us too. Their world is usually one of sound, whereas ours is predominantly one of sight… The spatial scales of other species who can transmit and communicate with each other across ocean basins…we can't help but consider things from our own perspective. If you could talk to your friend who was 10, 15, 20 kilometers away, that makes your sense of scale quite different.

While I'm massively concerned about the conservation and sustainability implications of some of the things that are going on in the modern age, I'm also very concerned about the welfare of some of the individuals… Individual behaviours have population level effects…but it is not really taken into consideration in conservation models. For socially complex mammals the individual is going to be really important in the future... If we focus on populations, knowledge rather than genes becomes the currency if it's influencing fitness.

Things are going in the right direction with whaling, but there's still a lot more to do. They're quite diminished from 150 years ago, so we need to be looking at protecting their environments better rather than looking at how many we can sustainably remove from populations.

*(On a Minke whale from the area targetted by Japan's whalers being found near Australia's Great Barrier Reef)* It's important that we don't get into the game of saying "they're our whales..no they're our whales we can do with them what we like". The whales are their own entity, they should be allowed to go about their business unharassed... The scientific evidence is such that it can be argued that some whale and dolphin species qualify on the basis of personhood.

We rightly have rights for my 4 year old daughter, yet we wouldn't say here decision making is at the level of qualifying her as upstanding member of our society yet…just because an individual is granted rights doesn't mean that they have associated responsibility. This comes up as a confusion 'does that mean that Orcas shouldn't hunt Hector's dolphins?'. Personhood is a legal term based on certain traits – communication, cognition, meta-cognition, all of those aspects – no-one wants to call them people. The legal recognition qualifies them to not suffer psychologically, or physical trauma for any extended period. The right not to be subject to abuses."

**David McKay** is a researcher at University of Otago's CSAFE. His recently completed PhD thesis considers the relationships between Māori cultural perspectives and environmental education policy or practice.

"As a science and technology based society we tend to assume that technology can solve everything and tend to overlook that we are a biological species and part of the environment rather than separate to it

Environmental Education, Education for Sustainability, it doesn't matter what you call it, it's common sense… What does make sense is learning for survival and continuance with integrity.

There's nothing in the (environmental education) literature that anything like matches up with the "old ways"... People interpret the curriculum in a western point of view rather than a holistic view… could we come up with a multi-cultural paradigm?

For many people the environment is something magical, out there, away from where we are. This totally overlooks that not only are we – you and me – *in* the environment right now, we *are* the environment.

Engagement and connection is what's missing… We haven't lost the connection…we've forgotten it. We just forgotten that we are part of all that is. we haven't lost anything, we're not disconnected, we've forgotten what we are… We are inextricably interconnected, interrelated and interdependent on all that is… We lose sight of this simplicity – and that's what we need to rediscover.

Elders tend to speak less, but more cryptically. When they do speak it's a good idea to listen. It is part of multi-culture that it is cryptic, there are levels of understanding of the same message. Education is about readiness, if you are up to getting the message then so be it, if you're not then nothing is wasted…. People coming from cooperative societies (the marae)… walking with feet very firmly in both worlds, and that's something awesome.

A tohunga said to me "you pakeha fellas, You measure the readiness of our young people by them giving the right answer – what the system wants – we measure readiness by our young people by them asking the right questions, and that is a different thing entirely". A very important to learning in traditional Māori ways is critical thinking and individual identity, and having the mana and self confidence to be yourself, and stand to your rights and ask those questions and if it doesn't match up, to disagree.

Living and learning *as* the environment or as part of, rather than *in* the environment, *about* the environment or even *for* the environment. [David's interviewees were] aghast at the thought that anyone could think the other way – how could you not understand that you are related to everything – we are all stardust.

In many cultural worlds time has no meaning…but timing is everything.

Learning is about actualising the potential of being the best of the best of who you can be, and because it is about being the best of who you can be, and we can never be the same, we can never be taught the same things. In a crisis we all know something a bit different, we all know each others' strengths and we can all work together very strongly…makes a very strong and resilient community."

Dolphin Research Australia's **Dr Liz Hawkins** and **Isabella Keski-Franti** talked about research, education and Indigenous Management Frameworks.

"As well as academic performance, students have to have character strength, they have to have a feeling of citizenship – they have to belong… Students have to remember that they belong in the ecosystem… Children are very curious, they want to know what is around them, it's a matter of providing them with opportunities.

*(On kids fund raising to adopt a dolphin)* It's the interconnectedness of everything, that makes them understand the importance of saving an animal, that even though they don't have a direct connection but they are doing something – this is empowering them in becoming a citizen – an active citizen in their community.

Everybody can make the changes, everybody has a right to be different… There is a role for all of us… Making the change through connecting with children – helping them shift the status quo of our society… To talk about an inter-generational future, we need to connect with our children and help them make connections with their ecosystem.... We need to be part of the ecosystems and working together.

We create our world, our reality, dependent on the changes we make… Every little step, every little change that you make is huge. So don't feel overwhelmed by the news or what is happening around you. Focus on every little change that you make on a daily basis.

If I am making the change through connecting with children, helping them shift the status quo of our society – the focus inter-generationally speaking, for the families and our future – I see this as an activism."

**Prof Susan Krumdieck** is developing Transition Engineering at the University of Canterbury. We talk about green energy mythologies, transition engineering of complex systems, growing up in Colorado, and how her son's persistent questioning led her to look for ways or making real change.

"Ask 100 people what changed 100 years ago that made a profound change, not one would say "safety engineering".

At the turn of the last Century, our factories, mines and transport were engineered in a way that they were extremely successful for the owners, investors making huge amounts of money…but people were dying or being maimed at rates we can't contemplate today…so there was a huge change over 40-50 years – that was the impact of safety engineering... The change was exponential, so huge at the beginning – so simply think about what's wrong and work on that.

People can adapt to whatever situation they're in, and they can do that if they have the ability to see what's happening, understand what's happening, trust one another and work together on it.

My concern is what we are doing that is not sustainable, and changing that – transition engineering.

Mechanical engineers have made these big systems work really well, but they have not been given the task of winding them down in a way that is sustainable... How engineering interacts with people is at the core of sustainability... The conundrum, that if you are going to engineer your systems even more, so that you can overcome bad behaviour – you've introduced more reliance on the engineered system instead of reliance on people thinking.

Green energy myths give false hope.

Green energy mythologies – may be as important as mythologies have always been for people – that we have a belief in our own progress and in our own development, and we need stories and mythologies that support that belief. But the facts tell us we are in trouble… We tell ourselves these big stories – and then start to believe them.

Our development, our progress – that we've been so successful at is a trap, and a bit suicidal – a lot suicidal – and we don't know how to deal with that except to believe more in the story. The party we've been having – we've come to a trough that is bottomless, an all-you-can-eat banquet with a free returns card, and we we've come to think that's how things are, but we gotten quite obese – it's not good for us, it will kill us, and yet we're afraid of change… We know continued growth is doomed, so we've shifted our growth over to the green category – it's still doomed, the miracle green energy is a myth… Basically anything that anybody sends you with a big "Yay!" solar roads, house batteries…, your green energy myth radar should just ping.

Solar panels…something that says to people something about you that you will probably be quite smug about…it will fulfil an emotional need that you have, but what I call it is green bling – you didn't need it, it didn't change your circumstances or add value to your life. It is decoration for your house, not a legitimate part of the energy system. But something you couldn't see – perhaps insulation – would make so much more difference… If we really want to talk about the route to sustainability, what we really have to talk about is what is not sustainable – that's it.

We'll never really be sustainable. All we can do is look at the most stupid things we do, and tell the engineers that are making them "thank you very much, but we want something that isn't that bad, we want you to rethink this."... Anything that is disposable, not reusable, not returnable – all of those we're engineered that way on purpose, we can change that.

Engineering has to be where we start with these changes… Somebody has to actually do things that changes things – transition engineering… Adaptive change have to be engineered – it has to be done on purpose… Simple solutions might be the answer, but they have to be real… I wish solar, wind, hydrogen were miracle solutions, but they're not. If I can help any engineer not waste the ten years I wasted on Hydrogen, then that gets us closer to real change.

The way we use energy has become so embedded in our social structure and our belief system – we're talking a fundamental change in our shared cultural values.

It is possible to do change- to take on what seemed like impossible situations. We've done it before in safety engineering and environmental engineering… You can't solve the world in one go, so frame the problem – every engineered system can be re-engineered… We've reached a point where our progress, our own technological success is indeed the biggest threat to us.

When we make a big mess we need the engineering field to look at itself and say "we can do better than this"... Everything around you is an engineered system – start demanding of the engineers to change things… You are in a system that is engineered to work beautifully, it is also self destructive, it is also designed to fail… Turn around and look at the people who designed these systems and say "I hope you're busy figuring out how to change things".

We need the emergence of transition engineering just like we needed safety engineering, natural hazard engineering, environmental engineering.

I am pushing the comfort zone of the engineering professional to challenge them to take on this responsibility. They say "we already do sustainability engineering – recycling systems and so on" but this is a bolt-on to unsustainable systems. We need engineering to boldly take on the big unsustainable systems… Transition is about change, about changing engineering, and if you can change engineering, you can change the world.

My son said "Mom, you have to do something, if something doesn't change then it's going to be really bad, you have to figure out how to change things".

[People need to] stay with the math and science, especially the young women. We need people who understand that it's complex systems but you can change them – you just have to think in systemic ways – and if we could could get women to be half of the tiny percentage of people who are engineers, we'd we well on our way. Do not accept anything less than a global perspective, learn what is known but do not accept that we have to cook this planet as part of human requirements."

**Pella Thiel** an ecologist and change agent who chairs the board of the Transition Network Sweden, Omställningsnätverket, and is also working with values for transition within the Common Cause network. She is also facilitating End Ecocide Sweden. Pella works to create meeting places that build the trust in the possibility of the big changes necessary for a sustainable, just and meaningful world.

"Addressing ecocide is a prerequisite – we can't have thriving local communities if we don't put an end to the destruction being done as an everyday thing… Our current system…we think it's OK to destroy living systems. Ecocide is mass damage and destruction of ecosystems where people and other organisms live. And what we're working on [is an] international law against ecocide.

The movement is to have Ecocide recognised by the Rome Statute…the most severe crimes – crimes against humanity, genocide, war crimes - they are tried in the international court. This will have to be a process as we find out together, what do we accept and not accept. Today as a society we do accept mass damage of nature – and we

know where that is taking us, we're well into the 6th mass extinction.

Our collective actions are taking us to a place that doesn't benefit any of us. We have to change that, and that's not easy, but if we don't begin…

Transition, most horrible things and most beautiful things happen at the same time….when we actually say this has to change. if you are an addict, it is not until you realise I can be alive [or] I can be dead, and this is the choice I have to make.

Do we have to convince everybody? This is a stress – "we have to reach everybody, we have to be palatable enough for the middle class, everybody needs to be in this change", which is true to a certain degree, but from what we know about big shifts in complex systems, they don't happen that way – that suddenly many people do something different, on the contrary, they happen because a small amount of individuals do things from a very different logic. Maybe 5%, maybe even less because we are so interconnected – if a few people can spread a message that many other people resonate with…maybe even fewer than 5% to tip the system. This path we are on is not going to take us any further, so we get to choose the path we want. So then the question is options for change – mostly the transition message that we can deal with this together… We have invested heavily in the current picture, and it will be difficult to leave…but we can make money from other things, and that money will be serving us better. Serving the complex we live in much better, much healthier, less stressful and less lonely than we are today.

Values change and shift all the time. If we what change, we need to be conscious of values... Values influence everything we do, but we are usually unaware of them. We don't usually notice societal values, what values are strengthened in our society – what is perceived as desirable, normal and important in a society.

Extrinsic values: if you get a reward for what you do, how people see you, material wealth, status, power…and then there are intrinsic values - they are more related to the context you are in: relationship to nature, friends and family, social justice, equality, and things such as creativity… For us to be able to act on bigger than self issues, we have to act on intrinsic values – so they have to be the strong ones.

I caution against good and bad values, but its normative in the way that if want to move in the direction that is more collective – and just people, but also taking into account the interests of other beings, even landscapes, then we have to be focussing on the intrinsic values. Selfish, rational economic man…that's really strange thinking, that we could build a society that is good for all based on the interests of individuals that don't care about that whole society. That's a sad picture of people being very very small – and we aren't that small. We're big, we have big hearts if we can believe in those big hearts... When you appeal to the rational economic man, you strengthen those values, prime those values, and the intrinsic ones become weaker. If I tell you that installing these solar panels will be cheaper, then you become less interested in unity with nature, social justice – a beautiful world. And what we know is that a beautiful world, thinking and action for a sustainable future rests on those intrinsic values.

Transition needs a whole shift in thinking, and by appealing to your economic gain from that, you will undermine and cause collateral damage to those intrinsic values and weaken your ability to participate in the transition.

We need to go even deeper than an overthrow of capitalism. Using money as a measurement is really shallow. We measure money, but that's not the interesting stuff – people are interested in healthy relationships with politicians, neighbours, their children's teachers, healthy food, beautiful setting – those are the things we should strive for. The best things in life, money can't buy. We know that, so why do we keep focussing on money?"

Doing less bad is not enough. While for most of us in the sustainability field have long known this - if just for the realisation that we are past a point of saving the world through reduction - there is a temptation to focus on an ecomodern approach where a lean efficiency is king - less bad but without an ethos of more good. More recently, restoration and regeneration have emerged to capture this positive effect, and in this paper Boyle, O'Brien and Sellar apply this lens to questions around institutional organic waste.

# A CASE STUDY APPLYING MANG AND REED'S MODEL OF SUSTAINABILITY TO ORGANIC WASTE PROCESSING

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## ABSTRACT

This article presents a case study applying Mang and Reed's model of sustainability to identifying and addressing organic waste management issues in a New Zealand tertiary education institution. Globally, there is an increasing awareness of the urgency required to address climate change. Many organisations will need to find ways to transform their operations to achieve this. While tertiary education institutions are not exempt from this need for change, there are few clear examples of how to achieve this transformation. This research project first identified the challenges presented by organic waste management in the context of a New Zealand polytechnic. A range of organic waste management solutions were then evaluated through an integrated systems approach, embracing a range of value propositions including those based on environmental, financial, social and, critically, educational values. The project took a pragmatic approach to context-specific case-study research design in order to develop a set of recommendations for an institutional solution. The findings extend beyond the institution's solving of its immediate problems (organic waste) and into socio-ecological regeneration seen in a wider context.

## BACKGROUND

This case study was initiated following concerns that the organic waste management systems at Otago Polytechnic's Dunedin campus had reached capacity and could no longer process the quantities required. Mismanagement of organic waste streams is a significant source of greenhouse gas (GHG) emissions (Lim, Lee, & Wu, 2015) and is therefore an area worthy of focus for any organisation looking to reduce its environmental impact. As well as presenting a disposal problem, organic waste materials also represent a resource that can be used to enhance and restore ecological systems, if managed appropriately. Because the same issue is faced by many large institutions, including similar educational bodies, we believed that an effective solution developed at OP might inform the practices of other organisations looking for solutions.

In an initial search of the literature, the researchers did not identify any material directly applicable to the situation of OP. Sullivan (2010) provides a brief description of campus-based organic waste processing systems across several

institutions, systems that are each integrated into educational programmes in some way. Although these integrated models provided valuable information, none of the systems described were directly translatable to the context of Otago Polytechnic. The key differences that make OP unique are: the composition of the waste, the sources of waste materials and the quantities involved, and the level educational engagement available through the existing curriculum. A further aspect of the context at OP is the values and strategic goals of the institution. These values and goals (Otago Polytechnic – Te Kura Matatini ki Otago, 2018) provided major reference points and guides when developing recommendations from the findings of this investigation.

## METHODS OF INQUIRY

This research project was carried out as a context-specific case study of organic waste management at the Dunedin campus of Otago Polytechnic. This case study approach (Baxter & Jack, 2008) was adopted with a view to understanding the wider issues (or opportunity) presented by organic waste management in educational institutions. This process was informed by models including the Design Double Diamond (Design Council, 2017) and Permaculture Design Principles (Mollison, 1988). The Double Diamond is a design model which describes a process that moves from problem to problem definition, to outcome (Design Council, 2017). This model proved useful in defining the stage that our design process had reached, and in turn in identifying the processes yet to be considered. Elements of the Permaculture Principles (Mollison, 1988; Ulbrich, 2016) were used as a reference point for describing the various values that were upheld or created in the design process.

## THE EXISTING WASTE PROCESSING SYSTEM AT OTAGO POLYTECHNIC

Before discussing possible changes to waste processing, it is important to evaluate the current systems at OP. The organic waste that is produced at OP includes food waste, materials from teaching activities, and waste from campus operations such as maintenance. At present, all successfully diverted food waste and some other organic materials are processed through a range of composting methods overseen by the staff and learners involved in the New Zealand Certificate in Horticulture. By using a variety of processes working in parallel, the current system is highly resilient, has reasonable capacity and requires only a moderate input of labour and resources. One of the core values of this established system is its role as an educational platform – it is primarily managed by students and allows for a lot of hands-on learning.

The Horticulture programme at OP employs three primary composting systems: aerobic hot composting (Gajalakshmi & Abbasi, 2008), in-vessel anaerobic composting (Bokashi: Tomash, 2016) and vermicomposting (Worm Farm: Asha Aalok, 2008). Although none of these systems has a very high capacity on its own, when combined and well managed the OP facility is capable of processing all the waste currently diverted or retrieved on campus, which is roughly 50kg per day. However, the existing systems need some reworking and scaling to deal with significantly increased input – the result of a new accommodation facility on campus and plans to increase the effectiveness of waste sorting, meaning that less organic waste will go to landfill.

From a two-week sample based on weighing organic waste at its source, it became clear that significantly more organic waste was being produced than was being diverted to composting. Using data derived from multiple audits and reports on waste produced at OP over the last few years, combined with data from the polytechnic's waste collection contractor, we estimated that 64 tonnes of organic waste is produced annually at OP. If OP reaches the point where all organic materials are successfully diverted from landfill, we would need processing systems with a capacity of more than 300kg per day – a six-fold increase in the capacity of the current systems. However, if achieved, this could result in a cost reduction of around $12,000 for waste managed in-house rather than sent to landfill.

A key challenge raised by this evaluation related to particular types of waste that the current system cannot process, including compostable food packaging (such as coffee cups) and boiler ash (from a woodchip boiler). As we believe that an appropriately designed system would be capable of processing these inputs, this feature was identified as a key capability to integrate into any new system.

While there is clearly a challenge to the capacity of the current system, it is important to recognise the value it represents. The current system is not only successful at managing organic waste, it is integrated into the operations of the organisation and, specifically, into the delivery of horticulture education. It is also a very resilient system that is not dependent on a single person or machine to continue to deliver value.

Based on an evaluation of the current systems, various options to increase the institution's capacity and capability for effective organic waste management were investigated. This investigation explored immediate, medium-term and long-term solutions.

## IMMEDIATE IMPROVEMENTS TO THE EXISTING SYSTEM

Several improvements to the organic waste collection system can be actioned immediately:

1. Collect and process post-consumer waste from food service at the new student accommodation facility – average 10kg/day
2. Improve inter-departmental communication. Some questions asked in this inquiry could have been addressed sooner, given more effective communication
3. Enhance waste collection sites and education across the campus to increase diversion rates
4. Experiment with processing PLA (polylactic acid) packaging in the existing hot composting system
5. Review policy and guidelines for compostable food packaging used on campus (including local vendors such as Fluid Café and food trucks and mobile vendors).

While these initiatives will reduce the amount of waste going to landfill, they will also add to the volume of organic waste that the current system will need to process. This will add extra pressure to the system's already strained capacity.

## EXPLORING ESTABLISHED SOLUTIONS IN NEW ZEALAND

In order to identify longer-term solutions, we investigated the actions undertaken by several other institutions, mainly through an inquiry carried out in June and July 2018. The researcher travelled New Zealand, visiting a range of facilities that specialise in processing food waste and/or organic waste. Stretching from the Bay of Islands to Dunedin, the investigation required visits to 12 separate sites, each employing technology and processes appropriate to their context. These facilities ranged widely in scale and scope – from a single home-kitchen to a community-level initiative on Waiheke Island, through to an enormous, centralised city-wide facility in Christchurch. The processing capacity of these facilities ranged from 2 kg to 250 tonnes/day. (See Appendix A for further details of the venues visited and the systems observed.)

This investigation uncovered a broad range of methods, techniques and technologies used in organic waste processing in New Zealand, enabling the researcher to evaluate how and why the chosen processes were used, particularly in relation to their scale and to the nature of the materials processed. Having been exposed to wide range of problems and solutions, the researcher formed a much better idea of the questions to ask, data to gather and opportunities to seek in designing solutions for OP.

## THEORY

The primary outcomes of this project took the form of three conceptual solutions which could serve as pathways for designing and implementing a solution to the organic waste problems faced by OP. The principle theory used in developing these concepts is known as the Trajectory of Ecological Design (Mang & Reed, 2012), developed by Bill Reed (Figure 1).

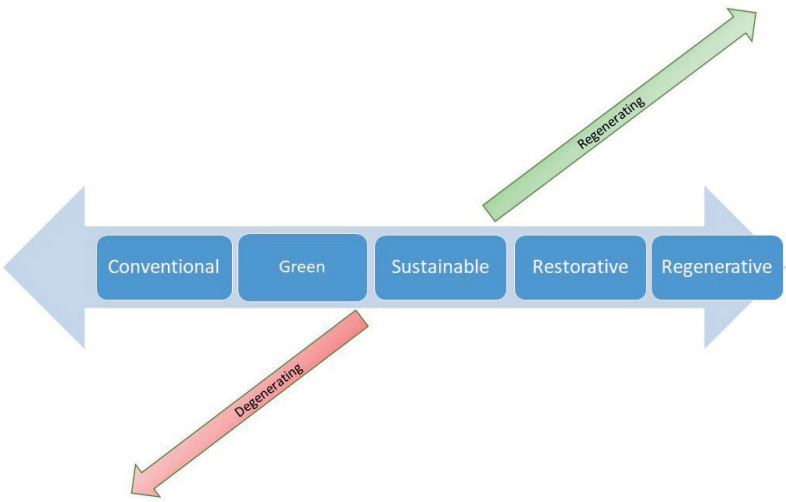


Figure 1. The Trajectory of Ecological Design (based on Mang & Reed, 2012).

In this framework, systems can be placed on a scale from conventional and degenerating examples – which take more energy to maintain and cause ecological harm – through to regenerating and living systems that generate ecological health. The term ecology is used in this instance to describe a living or dynamic system such as a habitat, people, buildings or infrastructure. The present case study – organic waste management in an educational institution – includes all these features, meaning that Otago Polytechnic can be properly described and evaluated as an ecology.

## INTEGRATION OF PRACTICE AND THEORY

Using Reed's model (Mang & Reed, 2012), we developed three possible solutions to meet the needs of organic waste management at OP. Focusing on three points on the Trajectory of Ecological Design – "sustainable," "restorative" and "regenerative" – for each stage we developed a conceptual pathway to be used as a guide in designing solutions.

## THE SUSTAINABLE PATHWAY – AN EFFICIENT SOLUTION TO WASTE

This pathway is primarily aimed at solving the problem of organic waste on campus by developing a simple, efficient method of reducing the environmental harms resulting from ineffective organic waste management. The primary value in this concept is the efficiencies gained in terms of energy, expenditure and time. According to Mang and Reed's theory, the goal of a sustainable pathway of this kind is to do less harm or halt degenerating processes (2012).

Adopting this pathway would redesign OP's on-campus waste processing systems to form a single, primary process such as the on-site composting apparatus (OSCA) built by Worms Down Under in Australia (OSCA systems, 2018). Although this pathway would involve a high initial cost (NZ$60-80,000), it would also incur very low running costs. This choice would allow for a simple, self-contained solution capable of processing all organic waste inputs from OP, including PLA packaging (in moderate quantities).

Installing technology like the OSCA would use very little energy and require minimal labour inputs. As this kind of machine is simple to operate, no specialist knowledge would be required for its day-to-day operations. However, as it would perform almost all the processing necessary internally and automatically, it would provide very little opportunity for hands-on engagement. This system could either replace the existing systems managed by Horticulture, or these systems could be retained for their educational value. As this pathway relies on a single mechanised process, it could be vulnerable to disruption or faults. Although this could be mitigated by in-house expertise in repairs and maintenance, it would require specialist training of OP staff.

This pathway is not recommended as a course of action, as it fails to fully align with the strategic goals and values of OP. Specifically, if adopted it would reduce the amount of learner involvement in the waste management process, and thus reduce the opportunity for the hands-on involvement required for learners to develop as sustainable practitioners (Otago Polytechnic – Te Kura Matatini ki Otago, 2018).

## THE RESTORATIVE PATHWAY – A MEDIUM-TERM SOLUTION

Citing Jenkin and Zari (2009), Mang and Reed (2012, p. 2) describe restorative design as "a design system that combines returning 'polluted, degraded or damaged sites back to a state of acceptable health through human intervention' with biophilic designs that reconnect people to nature." Here biophilic refers to the love of life or living systems (Fromm, 1964).

In this pathway, the design of the solutions required is undertaken through an integrated systems approach. In the case of OP, this would focus on retaining and multiplying the social and cultural values (such as learner engagement) of the established systems, as well as ensuring that those systems have the capacity and capability to process all organic waste produced on campus. This concept also seeks to reframe "organic waste management" as "organic resource recovery," thereby shifting the focus from (merely) solving a problem to utilising an opportunity for transformation and restoration.

This pathway is considered complementary to the regenerative pathway, as the technologies and systems involved can be integrated into a larger, more extensive solution undertaken at a later stage, without any investments or infrastructure being made redundant. Thus, this pathway is a stepping stone to a regenerative approach.

Following the restorative pathway, we would recommend that existing systems be scaled and adapted to meet the projected quantity of organic waste diversion within OP, while maintaining learner engagement. Utilising medium-scale processes operating in parallel would allow lots of hands-on human engagement and mean that redundancy could be designed into the system. This would make for a system that is highly resilient, as complex systems with designed redundancy are inherently resilient (Mollison, 1988; Asokan, Yarime, & Esteban, 2017). Such processes can also be designed to require minimal mechanical or technological inputs, thus allowing little opportunity for mechanical or technical faults to cause delays.

Designing and building this system for OP would open up great potential for collaboration between departments, including Horticulture, Engineering, Foundation Studies and Design. This would enable a good deal of of student engagement in both the design and implementation of the system, as well as in its running and upkeep.

We believe that this pathway could be followed without the need to develop major infrastructure. We recognise

the opportunity that the redevelopment of campus buildings, including those where Horticulture is based, affords for the requirements of these systems to be incorporated into the redesign process. Existing processes could be scaled up one by one, allowing for a simple transition and integration procedure.

In following this pathway, we recommend that the implementation of technologies for hot composting such as a small OSCA unit, which is estimated to cost around $30,000, be considered. This would cut energy inputs (labour, time and power) sufficiently to allow the processing volume required, while still maintaining educational values. This kind of mechanisation would allow easier processing of problematic inputs such as PLA packaging by ensuring a prolonged, high-temperature composting environment.

This pathway is estimated to cost $20-40,000 depending on the specific design and operation chosen. This figure is an estimate based on discussions with operators. This cost would be offset by the $12,000 currently spent on the off-site disposal of organic waste.

### THE REGENERATIVE PATHWAY (CREATING SYSTEMS-LEVEL CHANGE IN THE LOCAL COMMUNITY) – A LONG-TERM SOLUTION

Mang & Reed (2012, p. 2) describe regenerative design as "a system of technologies and strategies, based on an understanding of the inner working of ecosystems that generates designs to regenerate rather than deplete underlying life support systems and resources within socio-ecological wholes."

This pathway would take a regenerative approach to designing solutions. In addition to the cultural value of learner engagement outlined in the restorative pathway, this concept would allow OP to generate systems-level change in its wider community. This could mean developing solutions to organic waste that have capacity beyond the needs of the OP campus – catering for the wider community's organic waste issues. OP would also act as a leader in the tertiary community, exemplifying a transformative way of approaching waste management and problem-solving.

Following this route, OP could seek to collaborate with local entities, such as other education institutions or businesses, to design and implement a highly capable, high-capacity processing system.

It is reasonable to assume that there are several local organisations in Dunedin collectively producing around 1 tonne of organic waste per day, and we know that no local service is currently capable of processing these quantities. If OP was seeking to provide processing capacity for this volume of waste, a large in-vessel processor like an OSCA II machine could be the simplest option. This device has a 1 tonne/day capacity, with an initial cost of approximately $130,000. We believe it is possible to build an effective business case for this option, or alternatively explore funding for not-for-profit models. The Waste Minimisation Fund administered by the Ministry for the Environment could be a key funding source (Ministry for the Environment, 2018).

The regenerative pathway has other advantages. It takes a pre-emptive course in respect to the Dunedin City Council's (DCC) waste management strategy (see below). As this pathway builds on that described in the Restorative Model, its adoption would also enable extensive opportunities for interdisciplinary collaboration, as well as providing ongoing engagement and educational value for learners.

## CONSIDERING OP WASTE WITHIN A WIDER CONTEXT – AIMING HIGHER

This inquiry into food waste is situated in the wider context of Dunedin and New Zealand in general. The primary factor to consider when choosing a path for OP is the reality that, in 2018, there is no facility in Dunedin that processes food waste or other organic waste at the scale required. This issue is also positioned in a wider national context in which waste management, – or rather, *resource recovery* – is an issue that carries a good deal of momentum and public awareness. Thus it presents a very potent opportunity in terms of social and environmental impact, but also in terms of making a business case.

However, there are some specific problems which present market gaps. One of these gaps relates to the processing of compostable packaging made from PLA – no facility within 500km of OP accepts this particular waste stream (Renshaw, 2015). If OP was to put its resources into developing a solution for this unharnessed resource stream, a very tangible impact could be made as well as gaining potential revenue.

This investigation has given rise to a significant concept – that of OP becoming a central hub for organic waste processing across Dunedin's tertiary precinct. This approach holds great potential for regenerative change that could potentially affect the wider community. Currently, there is no organic waste processing system to serve the wider Dunedin tertiary precinct. This deficit is not only costing institutions financially, and our environment ecologically, but it is putting additional strain on the city's municipal waste facilities (landfill). OP is well placed to take leadership in this area and lead the way in Dunedin to provide a model for other institutions around the country.

Dunedin City Council's waste management and environmental solutions department is currently revising the city's Waste Management Plan (Dunedin City Council, n.d.). This plan will include frameworks for establishing organic waste processing systems. It is reasonable to expect that a localised model could devise a resource recovery system that could process 1 tonne of organic waste per day. This would make it more accessible to local communities and give people agency over their local waste management systems. As part of its review of the Waste Management Plan, the DCC is currently exploring how various systems could function in Dunedin. This strategy sets the stage for OP to be a core player in devising and running local resource recovery systems.

## CONCLUSION – THE NEXT STEPS

In applying Mang and Reed's model of sustainability to food/organic waste processing systems, Otago Polytechnic sits at a crossroads, facing paths that lead in three conceptual directions. These paths are characterised by different models – sustainability, restoration, regeneration. We recommend that OP choose one of these frameworks in developing its organic waste processing systems.

The final choice will affect many elements of the waste management systems that operate within OP and the teams that maintain them. Considering this, the decision on choosing a particular path should take into account the many actors and levels of management involved.

The information and recommendations contained in this report are intended *as guides to choosing a path* to follow in this endeavour. Moving forward along any one of these paths will require *significantly more in-depth discussion and evaluation* than we have attempted in order to determine exactly what form a new or upgraded system will take.

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| Site & Location | Size/scope | Method/Process | Inputs/feedstock |
|---|---|---|---|
| **Living Earth**<br>Christchurch<br>www.livingearth.co.nz | 250 tonne/day<br>Whole city | Hot compost: aerated semi-static pile & windrow maturation | Residential food & garden + commercial green waste |
| **Envirofert**<br>Tuakau – Waikato<br>www.envirofert.co.nz | >10 tonne/day<br>Regional facility | Hot compost: aerated static windrow | Residential food & garden + commercial green waste + chipped timber/wood |
| **Xtreme Zero Waste**<br>Raglan<br>http://xtremezerowaste.org.nz/foodwaste-collection-service/hcu/ | 2 tonne food/week<br>(4 tonne total)<br>Town contractor | Hot compost: in-vessel, regular turning/aeration | Residential food waste + green waste |
| **Cultivate**<br>Christchurch<br>www.cultivate.org.nz | 2.5 tonne/week<br>Services local hospitality businesses | Hot compost: conventional multi-bin system – turned weekly | Commercial food scraps + chipped wood + green waste |
| **The Compost Co.**<br>Waiheke<br>www.wrt.org.nz/projects/compost-co/ | 250kg/week food<br>500kg/week total<br>Services local hospitality businesses | Hot compost: conventional multi-bin system – turned weekly | Commercial food scraps + chipped wood + green waste |
| **Devonport Naval Base**<br>Auckland<br>https://www.bighanna.co.nz/news/big-hanna-makes-navy-resource | 160kg/day<br>Barracks food-service | Hot compost: mechanical in-vessel – Big Hanna T240 | De-watered food scraps + wood-pulp pellets |
| **Waikato University Food Service**<br>Hamilton<br>https://www.waikato.ac.nz/news-events/media/2018/and-the-osca-goes-to | 150kg/day<br>Student hall of residence kitchen | Hot compost: mechanical in-vessel – OSCA Bite Size II | Food scraps + campus green waste (leaf litter) |
| **My Noke**<br>Tokoroa<br>www.mynoke.co.nz | Varied – very large scale<br>250-95,000 tonnes/year | Worm farm: industrial vermicomposting – static windrow | Varied – includes municipal bio-solids, dairy effluent |
| **Central Wormworx**<br>Cromwell<br>www.centralwormworx.com | 20-30 tonnes/week<br>Large-scale commercial customers | Worm farm: industrial vermicomposting – semi-static windrow | Food industry waste from orchards, vineyards, etc. |

Appendix A- Facilities investigated in the course of this research project

The definition of the words we use and our understanding of sustainability are interpreted through our own world view. In this article, Fogarty describes how attendance at an international conference exposed how the meaning of a key sustainability issue can be transformed when viewed through different world views

# WORKING TOGETHER TO MAKE A DIFFERENCE IN INCLUSIVE EDUCATION ON ANOTHER CONTINENT

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The words we use and our understanding of sustainability are interpreted through our own world view. In this article the author describes how attendance at an international conference exposed how the meaning of a key sustainability issue can be transformed when viewed through different world views.

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In April this year, I was fortunate enough to be invited to share at the first International Conference on Research in Special Education in Lahore, Pakistan. What follows is an account of this journey and a comparative analysis of what the term 'inclusion' means in two very different cultures. By working together and sharing a common language, we can work sustainably to support one another to create a fully inclusive education system.

## BACKGROUND AND HISTORY

Just over 18 months ago, I attended the London International Conference in Education. This was a very multicultural conference, with participants (mostly researchers) from all over the globe. While I was there, I ran a workshop on global issues in education with participants from 11 other nations. One workshop participant was Dr Humaro Bano, director of Special Education at Punjab University in Pakistan. After the workshop, she and I talked about our common interest in disability and inclusive education. We spoke about possibly visiting one another "one day" in our respective countries.

Little did I know that just 18 months later, at the end of April this year (2018), thanks to the generosity of the Otago Polytechnic Contestable Fund and Punjab University, my husband Ian and I would end up travelling to Lahore, where I had been invited to be a keynote speaker at the first International Conference on Research in Special Education. As it was their first conference in special education, I felt it was an immense privilege to attend. It took 16 hours to reach Lahore – 13,000 kilometres from New Zealand – by plane. Due to security concerns, very few Westerners travel there at present. Even our cricket team declined to go!


Figure 1. Dr Humara Bano and I at the Education Centre, Punjab.

We arrived at 12.30am and were met by three staff from the Special Education Department with a massive bunch of flowers, which were given to me in front of all those waiting at the airport. As the plane was late, the staff had been faithfully waiting for over an hour and a half!

The conference was held in the Law Auditorium on the old Punjab University campus, the oldest university campus in Lahore. The weather at that time of the year was unseasonably warm, even for the Pakistanis. Despite it being spring, temperatures in the outside tent at lunchtime were as high as 55 degrees, and we quickly retreated to the air conditioning in the auditorium.

The conference was hosted over three days, with five international keynote speakers (two virtual and three in person) and around 250 attendees. The keynotes came from various places, mainly international universities: one from Virginia in the United States, one from Mauritius, one virtual speaker from London, another virtual speaker from UNESCO in Tralee and myself from a New Zealand polytechnic. Each of us brought a different message. My presentation was centred on how to become a competent researcher in special education, using my current Masters in Professional Practice (MPP) research project as an example (Fogarty-Perry, 2018). The theme of this study is: Strategies that create resilience in families who have children with physical disabilities.

## OUTLINE OF PROBLEMS AND SOLUTIONS

Listening to the range of speakers – from Karachi, Islamabad, government departments and various aid agencies – who presented, I felt initially that Pakistani schools were in a similar position to New Zealand. They talked about 'inclusion' and children with special needs attending their schools. I was asked to chair some sessions at the conference and on hearing students' research findings, I was most impressed by the high standard of their work in terms of both process and results. Most of the students who study in the Department of Special Education at Punjab University are already trained teachers studying for Masters and doctorates of education.

Figure 2. A group of students, who studied for Masters and Doctorates in Special Education, and I at the conference in Lahore

However, on the second evening of the conference I realised that while we were both talking about inclusion, our definitions of this term were very different. At the World Conference on Special Needs in Education held in Salamanca in 1994, attendees came up with a guiding principle of inclusion at all levels of education by stressing "the rights of ALL children to benefit from an education without discrimination, implicitly or explicitly" (Salamanca Statement, 1994).

During a discussion with a special education teacher at the conference dinner was, he told me that in the province of Punjab alone (where Lahore is situated) there were 257 special schools and 63% of girls (particularly in rural areas) do not attend school. I realised that while we were both talking about inclusion, we meant very different things by it. Len Barton has described "inclusion as the participation of all children and young people and the removal of all forms of exclusionary practice" (cited by Armstrong, 2003, p. 3). In New Zealand, we have closed all but a handful of special schools and have been working from 1996, since the inception of the Special Education 2000 policy, towards providing mainstream educational opportunities for all children. This means that almost all children in New Zealand schools attend their regular local school. While we still have issues in these schools about best practice and how well these children are included, the fact that most children are actually attending their local school means that we can focus on getting effective inclusive practice right.

In Pakistan on the other hand, special education is funded through a charity model – special schools do not receive government funding. Much of these schools' time is spent making items such as crafts to sell in order to keep the schools in operation. One of the local speakers at the conference was a medical doctor who devoted his time to setting up micro-investment companies which raised money for these schools.

While my wish was to continue to work long-term with my friends from Pakistan in a collaborative and sustainable way, the challenge for me as the conference came to an end was to find a way of 'bridging the language gap' and developing a shared understanding of what inclusion means. In highlighting the principles of sustainable practice in New Zealand, Sustainable Tertiary Education in New Zealand (STENZ) point to the need to look for "common elements and shared understandings." (STENZ, ND) The United Nations also reiterates the need for "shared language" in their sustainable development goals.

With these principles in mind, I tried to work out how I could illustrate the differences in our approaches to inclusion in a non-offensive way, so that we can continue to work together in the future and learn from each other. The answer came from an unexpected source, one of the virtual keynote speakers, Catherine Carty (UNESCO chair manager), in her address. While referring to a different context of inclusion, participation in sport, she described a "continuum of inclusivity" which covered special, integrated and inclusive practices. She discussed five modalities on this inclusivity spectrum:

a)Separate activity – performed separately in different times and spaces

b)Parallel activity – the same sorts of activities on the same site, but in separate spaces

c)Reverse activity – where people with disabilities and non-disabled are included in the disability activities together

d)Modified activity – designed for all, with specific adaptations related to space, tasks, equipment and teaching

e)Open activity – everyone does the same tasks, with few or no adaptations (Carty, 2018).

Convinced of the need to foster dialogue about the quality of education provision for all students as a key goal in order to work sustainably and long-term between New Zealand and Pakistan, I could immediately see how these principles could apply to our different contexts, and also globally. My opportunity to raise this new definition came in the final plenary session, where I was chairperson. I was able to share this idea of a continuum of inclusive practice in education with attendees, firstly by defining the stages and then by comparing an example involving two regions: one where there are only a handful of special schools and the other where there are hundreds.

Figure 3. The Hospitality Inn doorman and armed security guard were happy to have their photo taken with me in the hotel foyer

Although the proportion of students attending their regular local schools needs to be worked out based on the population of the two regions, by invoking the notion of a continuum we can develop a shared definition of what inclusion is in education and how we can move closer towards it. In both of our nations we are on a journey – something that became clear at the end of the conference when further plans for continued partnering through joint publications, peer-review of marking, and a possible return visit to New Zealand by staff of the special education department from Punjab University were discussed. In the final session, permission was given by the Higher Education Commission of Pakistan – one of the funding bodies – to host this conference annually – a decision that departmental staff were thrilled about.

For my husband Ian and I, this was a wonderful, immersive week spent in a totally different culture and we felt very fortunate to have been given this opportunity. I suggested that next year, the conference organisers may wish to have their own students with disabilities as keynote speakers, as they have people with the necessary lived experience right there on campus. One of my team joked that I may have just done myself out of a job! If we are invited back (a possibility which was mentioned at one stage), we would definitely go and would encourage others to visit Lahore, too. While there is a strong military presence there, at no time did we feel unsafe and we took the opportunity to explore the shops and city on our own when we had time.

In terms of sustainable practice, developing a shared language and clear goals, as well as fostering trusting relationships and sharing experiences, are key objectives, particularly when it comes to working globally with others in the same field of practice. The end goals are to enhance best practice in education, a commitment to inclusion and supporting students' right to education. We can do this by creating solutions together and working with other nations which are at different stages on their respective journeys.

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