

# Chapter 13

## Growing Innovative Approaches to Environmental and Sustainability Education in Teacher Education Programmes



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It all started with lunch. Knowing that a stronger presence was needed for environmental and sustainability education (ESE) in our preservice teacher education (PTE) programme, a few faculty members gathered for an informal lunch in 2008 to discuss how best to proceed. At the Ontario Institute for Studies in Education (OISE) at the University of Toronto, we were well aware of how important environmental learning is for the next generation of teachers as they help to address the looming crisis of climate change. With food fueling our discussion, we articulated our beliefs, values, and expectations and arrived at a decision: despite significant challenges, few resources, and a lack of institutional approval, we would forge ahead with a plan to grow ESE to support the creation of a culture of sustainability across OISE. Working with Orr's (2007) words in mind, "Hope is a verb with its sleeves rolled up" (p. 1392), we left lunch feeling inspired, rolled up our sleeves, and got to work.

Since that fateful lunch 9 years ago, we have taken a multibranch approach to developing and delivering ESE in OISE's teacher education programmes. As one of Canada's largest faculties of education, we have had ample opportunity to grow ESE for a large and receptive student body, resulting in the establishment of an active and influential *ESE Initiative*. This has established new courses, offered extensive co-curricular programming, undertaken advocacy and research, and nurtured rich community partnerships. As a case study on this work, this chapter tracks the ongoing development, implementation, and refinement of the *ESE Initiative*, demonstrating how we have made ESE an integral part of OISE's teacher education programmes, and the institution as a whole. Each year, the *ESE Initiative* reaches hundreds of preservice teachers (PTs) and has helped to move us closer, in unexpected ways, to our goal of creating an organisational culture of sustainability. It not

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only has helped us to reduce our ecological footprints in terms of behavioural change and physical infrastructure improvements but has also extended our environmental handprint (Centre for Environmental Education [n.d.](#)), a term that signifies our positive impacts that now reach into the wider university and educational communities in which we work. Our challenges in this work, as well as its impacts, are identified and analysed as part of this case study, as are the next steps for continuing to grow this work in the future.

### 13.1 Preparing the Ground

As we began work on seeding the *ESE Initiative*, a few of us had already been integrating environmental learning into Curriculum and Instruction courses in our main PTE programme in small ways; Jane Forbes had been ensuring a place for it in her science education courses, and I had been doing the same in my visual arts education courses. While there may have been other faculty doing similar work, one challenge was finding others who shared our desire to develop a more cohesive approach to ESE within our large faculty of education. When we approached Associate Dean Mark Evans and Program Director Kathy Broad with our ideas, we were delighted to find them supportive and felt buoyed to move forward. We quickly put a small series of extracurricular events in place, including talks and short workshops on ESE, and were impressed with the high level of student interest right from the start. While we learned early on that our students understood the importance of ESE, we still had to assess our colleagues' level of interest.

Our timing proved to be fortuitous in finding like-minded faculty members. A year earlier, the Ontario Ministry of Education (OME) had commissioned a report from the Working Group on Environmental Education (2007), which was accepted by (then) the Minister of Education Kathleen Wynne, and used as the basis for a new policy framework *Acting Today, Shaping Tomorrow* (OME 2009). As a way to introduce this policy, the OME established the theme of its annual forum for PTE faculty as environmental education. This forum helped us to locate other faculty interested in supporting ESE in our own institution, and Jane and I were able to form OISE's faculty-based ESE Working Group with David Montemurro, Erminia Pedretti, Terezia Zoric, and others. This committee demonstrated that there was interest in ESE on the part of faculty at OISE and that their expertise could help ensure that the OME's new policy framework would be infused into our PTE programme. This aligned well with our Chief Administrative Officer's support of sustainability; he had just formed OISE's Sustainability Advisory Committee to investigate possible infrastructure improvements in our 50-year-old building, looking to reduce OISE's ecological footprint (with a corresponding reduction in operating expenses).

We were surprised with how quickly the *ESE Initiative* took root. The number of ESE extracurricular events grew quickly, from four in the first year to 15 by the fourth year. This was supported by Toronto's wealth of nonprofit organisations focused on environmental education, from established groups like Evergreen,

Learning for a Sustainable Future, and Ontario EcoSchools to newer additions like FoodShare and the Natural Curiosity Project. We invited educators from these groups to speak, lead workshops, or act as guest speakers in courses. We also invited these same community partners to an annual *EcoFair* to meet our students and share their resources; this had the added benefit of bringing internship positions into our PTE programme, sometimes leading to job offers for our graduates. Professional development in ESE was then added to our offerings, which entailed members of the ESE Working Group leading workshops in faculty meetings, supporting individual faculty members who wanted to infuse ESE into their PTE courses, and providing in-class workshops as requested.

As part of this rapid growth, we drew inspiration and expertise from those who had been doing research and writing in the area of ESE and teacher education before us. While OISE had had an active programme in Global Education in the 1990s, led by Graham Pike and David Selby, it was no longer active by the time we started the *ESE Initiative* in 2008. We had a general sense of the history of environmental education from Palmer (1998) and Russell et al. (2000), as well as its development by UNESCO through the Tbilisi Report (UNESCO 1977), the Brundtland Report (United Nations 1987), and Agenda 21 (United Nations Sustainable Development 1992). But we also knew from Canadian research (Lin 2002; Puk and Behm 2003; Towler 1981) that Canadian faculties of education did not have a strong record of supporting ESE in PTE, though there was much to learn from Canadian scholars who had written in this area (Hart 2003; Hopkins and McKeown 2005; Sauvé 2005). What we didn't know was that at the same time as we were starting the *ESE Initiative* at OISE in 2008, the Council of Ministers of Education, Canada (CMEC), was establishing a new committee, the Education for Sustainable Development Working Group. Interest was growing, but there were few practical examples for us to follow in ESE in PTE in Canada.

## 13.2 Growing Support

As the *ESE Initiative* grew in scope in these early years, so did the workload, making it challenging for faculty to administer on their own. But thanks to our PTE leadership team, key elements of support helped to facilitate the continued growth of the *ESE Initiative*, including course release to balance off administrative time commitments, and work-study students, Teaching Assistant and Graduate Assistant student positions to help develop student leadership and capacity. The latter enabled us to extend the infusion of ESE into existing Curriculum and Instruction courses, including the core Teaching Fundamentals courses, meaning that all of our PTs received an introduction to ESE as part of their PTE programme. This proved critical to continuing to grow the initiative, as students became aware of the importance of ESE in schools. Furthermore, more students chose to attend our extracurricular programming to develop their knowledge and skills in this area and to better understand its connections to experiential learning, outdoor education, and place-based

education. We also continued to draw connections to social justice and equity education via ecojustice education, as these fields of study were already deeply embedded in OISE's programmes and scholarship. Teacher candidates began asking for practica and internship placements with a strong ESE focus, leading us to connect with the Toronto District School Board's (TDSB's) EcoSchools programme, which was also experiencing rapid growth. The TDSB was supportive of connecting our PTs with their EcoSchools teachers as a way of supporting their programme; we didn't know it at the time, but this was to be the start of an innovative long-term partnership.

As the *ESE Initiative* grew, so did the requests from our PTs for an elective course in ESE, and after a few years of lobbying, we added this to our PTE course offerings in 2010. This provided an opportunity for 30 PTs each year to deepen their understanding of the praxis of ESE in class, in their practica, and across the institution. By examining the theoretical roots and history of ESE, its many traditions, its connections to Indigenous education, and the multitude of ways in which it is manifested in formal and informal settings, the course resulted in a core group of PTs who championed ESE as they moved through their other courses in the PTE programme.

In the third year of the course, we began what would become an annual tradition of creating an environmental art installation at OISE, an idea that came from my research programme into eco-art education. We began collaboratively planning art installations that would offer an opportunity for those with little art-making experience to get involved in the creative process in a supportive environment, develop self-efficacy in art-making, and simultaneously learn about an environmental "big idea". In the first year, the focus was on the *Fatal Light Awareness Project (FLAP)* that raises awareness of the plight of migratory birds; we created over 300 handmade prints of Ontario birds (Fig. 13.1) that were distributed to those with outside-facing windows.

This aimed to remind OISE staff and faculty to turn off their lights at night to reduce the possibility of birds mistaking office windows as fly-throughs, which results in the deaths of millions of birds each year in urban centres. We also created

**Fig. 13.1** Handmade print for the FLAP project



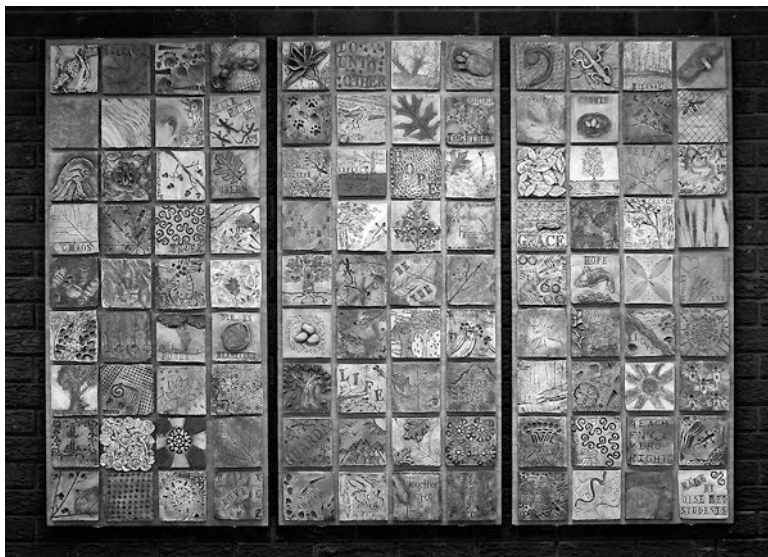


Fig. 13.2 Clay tile mural on nature-based learning

a large clay mural that highlighted the power of nature-based learning; with over 100 individually made clay tiles, its installation near OISE's subway entrance ensured its viewing by an ever-changing audience (Fig. 13.2).

Through this period, faculty involved in the *ESE Initiative* looked for ways to continue their own professional learning. The Ministry's annual *Faculty Forum*, originally useful in finding others at OISE interested in ESE, became a source of locating colleagues at other Ontario universities working in this area: Trent, Brock, Nipissing, Ottawa, and Queen's were some of the PTE programmes with faculty engaged in ESE. The Forum became a way for us to network and compare the developments in our faculties of education each year; for example, Paul Elliott of Trent University shared the start of his extracurricular Eco-Mentor programme in 2012, a series of extracurricular workshops they offered in outdoor education (Bell et al. 2013). Many of us were inspired that their PTs would commit four Saturday mornings to undertaking this learning, and resolved to try something similar of our own. As we already had a series of ESE workshops underway, we decided to offer an Environmental Leadership Certificate to recognise the learning that our PTs did in this area but felt that a more substantial commitment was required. By the next fall, our PTs were undertaking a combination of formal learning, co-curricular learning, and service learning to earn this certificate, the equivalent to an extra 36-hour course of learning (in addition to an already heavy PTE course load).

We were thrilled to have 33 PTs complete the requirements for the certificate in the first year, signalling to our institution that from our PTs' perspective, ESE was a critical component in their development as emerging educators. This was evidenced in the words of one PT: "thank you very much for running this amazing

program at OISE ... the program was well run and was able to provide me with a deep understanding of the importance of ESE and how and when to incorporate it in the different subject areas I teach” (K. Kunaratnam, personal communication, April 2014). Another wrote: “I truly enjoyed being a part of this group. It was a really valuable part of my B.Ed. Sometimes just being with people who are passionate about issues you are, helps to keep you motivated in fighting this grueling battle we are all a part of. Thanks for making it a part of OISE” (S. Regli, personal communication, June 2014).

### 13.3 Branching Out

As word spread through OISE of the high level of student interest in ESE in our main PTE programme (a consecutive B.Ed. programme), other programmes came on board, including our Master of Teaching programme. The latter made space in its schedule for a 1-day conference in ESE starting in 2012, featuring a keynote and 10 workshops that were attended by over 200 first-year PTs. This was an important development as it brought OISE’s graduate students into the *ESE Initiative*, inspiring some to focus their Master’s research in this area. It also brought a greater range of experience and expertise into the OISE student club, the Environmental Leadership Circle, which continued to grow from its inception in 2010. This club took on a number of sustainability campaigns across the institution, including clothing swaps, battery and cell phone recycling, reducing the use of disposable water bottles and paper, and working towards energy conservation. These had tangible results, evidenced by the number of batteries and cell phones redirected from landfill, a widespread shift to double-sided copying of course materials (and then to paperless courses), and the contribution made to a campus-wide ban on the sale of bottled water. Some PTs were clear about the impact that their involvement in the Circle had on them: “Being a part of the EL Circle has been a great experience. It pushed me towards finding ways to incorporate the environment into every aspect of my teaching, and developed my ability to view teaching from the lens of the environment” (A. Cirinna, personal communication, April 2014). Another PT appreciated the activist stance of this work:

ELC provides a supportive place where ESE initiatives not only get talked about, but get done. This is so key. So many people attend classes or workshops and think that’s enough. The ELC was dynamic in that we were always hearing and sharing about things that were actually happening—which is so inspiring. (R. Ly, personal communication, May 2014)

Perhaps, the most eye-catching result was the founding of the OISE Community Learning Garden in 2013 (Fig. 13.3). Developed by a team of students and faculty over the course of a year, the garden was planned with multiple goals in mind: to become both a symbolic and physical manifestation of the *ESE Initiative*; to model the power of educational gardens; and to showcase OISE’s pedagogical and curricular approaches to the local community and the public who frequent the building.

**Fig. 13.3** The OISE  
Community Learning  
Garden



The Learning Garden was planted in a high-profile location at the front of OISE and was organised thematically to showcase some of the foci of our programmes: indigenous education, equity and inclusive education, holistic education, creativity in education, and environmental and sustainability education. More than 30 plants native to Ontario were selected to demonstrate these themes in six different gardens, growing and changing with the seasons (just as they do theoretically in the academy). Thanks to funding from TD Friends of the Environment Foundation (TDFEF), OISE classes now use the garden as a learning resource, as does OISE's daycare and K–6 Lab School, and we offer programming to support garden-based learning each year through workshops and lectures.

Around this time, members of our ESE Working Group recognised the need for a broader conversation around ESE in PTE and organised a Provincial Roundtable on this topic in 2013. Sixty faculty, policy-makers, and community educators from across Ontario attended, helping to share their expertise and experiences in how to develop PTs' core competencies in ESE in terms of their knowledge, attitudes, and actions. What resulted was a first-of-its-kind publication, the *DEEPER* guide (Inwood and Jagger 2014), which acted as a summary of the roundtable discussions by sharing proven strategies and existing practices for developing ESE in PTE. Funding from TD's Friends of the Environment Foundation proved crucial for both the event and publication of the guide, which has now been distributed internationally in English and French. Writing the guide also helped to form a core working group by improving the flow of communication about ESE between facul-

ties of education across the province. It also set the stage for collaborative conference presentations at CSSE, NAAEE, AERA, and WEEC, as well as further publications (Karrow et al. 2016a, b).

### 13.4 Deepening Roots

As we gained momentum in growing the *ESE Initiative* at OISE, we found it easier to identify new places for growth across the institution. We located internal university funding sources to support small research projects, including one on co-learning between PTs and their associate teachers in practicums (Inwood et al. 2014) and another on the Learning Garden (Jagger et al. 2016). While there were ample research possibilities in the work we were doing, running extensive ESE programming took many hours of planning and delivery time and limited our ability to conduct research. But success in this work was demonstrating itself in other ways; one example came from our annual EcoFair, as our students were connecting with, learning from, and supporting EcoSchool teachers and community partners across the Greater Toronto Area. Some even got hired by our community partners and by the TDSB's EcoSchools programme, a huge win in the tight Ontario job market.

Other students cycled back into OISE's graduate programme, both at the Master's and Doctoral levels, choosing to continue their learning and research in ESE in multiple ways and offering strategies to strengthen and share our work in ESE across the institution and more broadly (Inwood and Hoeg 2015; Inwood and Sharpe 2018). We added a seed "lending" service to the OISE library, providing us with a reason to collect and disseminate seeds from the Learning Garden to share with OISE students and teachers; we also added two vermicomposters that were available to borrow for PTs' practicums. Our annual environmental art installations, totalling 13<sup>1</sup> in number at this time, grew into a walking art gallery. This encouraged the OISE community to walk the stairs, rather than take the elevators, contributing to energy conservation and improved fitness. We were also able to bring in well-known speakers for talks and workshops, including Mitchell Thomashow in 2014 and David Sobel in 2015. In addition, we were recognised for our work by the wider university community, winning University of Toronto *Green Ribbon* awards in 2011, 2015, and 2016. At this stage, we had far exceeded our plans made at the initial lunch in 2008, were feeling exhilarated (and somewhat exhausted) with what we had achieved across the institution (see Table 13.1 for a summary), and believed that the work of the *ESE Initiative* had fully taken root at OISE.

However, as with any cycle of change, there are years of prolific growth and those of decline. We knew that 2015 would offer either, as major changes were coming to PTE in the shift from a 10-month model of PTE to a new 20-month programme across Ontario, aligned with a 50% decrease in PT enrolment. We began considering the opportunities and the challenges this might present for the *ESE Initiative* and actively searched for ways to maintain its growth. As part of



**Table 13.1** Chronology of the growth of OISE's ESE initiative

2008	Initial discussions at a faculty lunch Small roster of ESE events offered
2009	Ministry of Education establishes EE policy framework Faculty Forum on Environmental Education ESE Working Group formed Sustainability Advisory Committee formed Work-study and TA positions in ESE offered for the first time Infusion of ESE into teaching methods courses began ESE website started (ongoing)
2010	First offering of the ESE elective course First year of the Environmental Leadership Circle (student club) in ESE (ongoing) Establishment of the annual EcoFair (ongoing) New institutional goal of social and ecological responsibility established
2011	Professional Development for ITE faculty offered Development of OISE's Community Learning Garden begun Research study on TC/associate teacher co-learning in ESE started Sustainability campaigns started (ongoing) U of T <i>Green Ribbon Award</i> for the <i>ESE Initiative</i>
2012	ESE Certificate programme offered for the first time (ongoing) Annual environmental art installation begun (ongoing) First year of the annual Master of Teaching programme ESE conference Graduate assistantship in ESE added to support the initiative (ongoing)
2013	First season of the OISE Community Learning Garden (ongoing) Research study in ESE begun Provincial Roundtable on ESE in ITE at OISE Annual "Amazing Stairs Race" begun (ongoing)
2014	First year of AQ Course in Environmental Education (part 1) offered (ongoing) Summer Speaker Series: Mitchell Thomashow <i>DEEPER Resource Guide</i> published
2015	New "Science & Environmental Education" course offered for first time (ongoing) First year of AQ Course in Environmental Education (part 2) offered (ongoing) Summer Speaker Series: David Sobel U of T <i>Green Ribbon Faculty Award</i> (Hilary Inwood)
2016	First year of AQ Course in Environmental Education (part 3) offered (ongoing) U of T <i>Green Ribbon Faculty Award</i> (Jane Forbes) National Roundtable in ESE in preservice teacher education
2017	Start of formal collaboration between OISE and the TDSB's EcoSchools programme (ongoing) OISE/TDSB ESE collaborative conference in ESE begun (ongoing) OISE's revised Academic Plans now include references to ESE

OISE's decision to end its long-standing B.Ed. programme and expand its two Master's-level teacher education programmes, we advocated for a new, core, cross-curricular course in ESE to be added to the Master of Teaching programme. This was partially successful in the creation of a new course called "Science and Environmental Education", becoming one of only four faculties of education in Ontario to add in new core courses with mandatory ESE components (a huge win overall as no faculties had these ESE courses prior to 2015). Yet, due to administra-

tive shifts, the *ESE Initiative* found itself, for the first time since its inception, with no departmental supports due to the closing of the B.Ed. programme, which had backed it for 7 years. This was a huge challenge, given the scope of its work; without a supportive lead in the Dean's office, it appeared as if this successful initiative might come to an end.

### 13.5 New Growth

Sometimes seeds planted lie dormant for months or years before germinating and then spring into life with just the right conditions. We had been slowly cultivating a partnership with the TDSB's EcoSchools team over a number of years, but it had not been a core aspect of the work of the *ESE Initiative*. I had co-led a series of Summer Institutes for TDSB's EcoSchools' teachers over 6 years and also offered after-school workshops for them. We had collaborated on a small research study (Inwood et al. 2014), which resulted, as part of its knowledge mobilisation plan, in an annual celebration to highlight the successes of EcoSchools teachers; this was hosted at OISE and involved our PTs as attendees. This proved to be an enriching part of PTs' learning:

Throughout the year I have learned an immense amount about the possibilities that Toronto and the TDSB offer in terms of environmental awareness and learning possibilities. The meetings were wonderful because we got the opportunity to speak with our classmates and the teachers and see what experiences were working for them. (N. Otten, personal communication, May 2013)

Most importantly, as we added in Additional Qualification (AQ) courses in Environmental Education for teachers in 2014, the TDSB's Sustainability Office decided to subsidise their teachers to attend, ensuring a steady flow of in-service teachers into our AQ programmes. By 2016, all three parts of this AQ course were up and running, engaging over a hundred teachers in intensive learning in ESE over 3 years. As the TDSB team was busy with the certification of EcoSchools, they had limited capacity to mentor and support their teachers' professional learning in ESE to the extent needed. In a landmark meeting in December 2015, we were asked to take on responsibility for all of their teachers' professional development in ESE, running it in conjunction with our PTs' preservice learning through the *ESE Initiative*. This was a turning point; integrating professional learning in ESE for teachers and PTs at this scale was a remarkable opportunity. We began by piloting one aspect of this with the first OISE/TDSB conference in ESE in 2016; entitled *Climate of Change: Environmental Education in Action*, we successfully hosted over 230 people, 2 keynotes, and 20 workshops.

On a side note, most school boards would not have access to this type of in-service funding for ESE, but the TDSB's Sustainability Office had a unique source, its *Environmental Legacy Fund*. By installing solar panels on school roofs (and getting the roofs fixed simultaneously), their team was able to sell energy back into the power

grid as part of Ontario's Feed-in Tariff system and also sell carbon credits on the carbon emissions trading market, resulting in revenue that was dedicated to supporting sustainability measures, such as teachers' in-service training, across the school board. The TDSB's main challenge was not having enough staff available to deliver it.

While we had no way of knowing this at the outset of our work with the TDSB, this proved to be just the right conditions for a new collaboration to flower between the *ESE Initiative* and the TDSB's EcoSchools team focused on professional learning in ESE. With this substantial collaboration in ESE in the offing, and supports for PTs in ESE at risk, it was a logical step for the largest department at OISE (Curriculum, Teaching & Learning) to become the new home for this work. Chair Clare Brett proved to be a supportive administrator, fully understanding the importance of doing this work as a part of OISE's Master of Teaching programme. While it took over 18 months to negotiate, this collaboration formally began in fall 2017, signalling the beginning of an innovative programme of integrated preservice and in-service professional learning in ESE. Aligning the learning of these two groups provides enhanced opportunities for OISE students to learn from and collaborate with EcoSchools' teachers, resulting in deeper learning in ESE for OISE students, training and work opportunities, and a greater number of practicum placements and networking opportunities in certified EcoSchools. In turn, the TDSB benefits by being able to access year-round programming in ESE to enhance the professional learning of EcoSchools' teachers, gain PT volunteers to support the work of their EcoSchools programs, better prepare new teachers before they are hired, and increase opportunities for their teachers to deepen their mentoring and leadership skills. A programme evaluation component and research study will track the successes and challenges of this collaboration and allow the collaboration to be improved as it unfolds. As far as we have been able to ascertain, no similar programme on this scale exists in North America, offering both partners a unique opportunity to contribute to creating a new vision for professional learning in ESE.

A second flowering of ESE activity happened simultaneous to this one. The core team of Ontario PTE faculty, formed at the Provincial Roundtable in 2013, began organising a National Roundtable in ESE in preservice teacher education in 2016. Once again, TD Friends of the Environment Foundation provided generous funding to support this 3-day conference, which brought 75 faculty, policy-makers, teachers, and community educators together from across the country to Trent University to more fully investigate this field. Three keynote speakers, 10 roundtable presentations (highlighting the work of 40 presenters), and 4 working sessions drew on the research and practice presented in these sessions to inform the creation of a National Action Plan (described elsewhere in this volume). A national committee has now been formed to implement the plan: this includes the establishment of a national network of educators and stakeholders, a new digital communications hub,<sup>1</sup> and new resources, videos, and webinars, all to strengthen ESE in preservice teacher education across Canada.

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<sup>1</sup> See: [www.eseinfacultiesofed.ca](http://www.eseinfacultiesofed.ca)

## 13.6 Principles for Growth

The OISE faculty involved in the *ESE Initiative* had no way of anticipating where this work would lead us when we first started to meet in 2008. In retrospect, this initiative has grown more broadly and deeply than we could have ever imagined, taking its own organic route to connect with the programmes and activities of those doing related work in ESE across the city, province, and country. Given what we have learned from the organic growth of this initiative, is there a way that aspects of it could be replicated in other faculties of education? Based on self-study, analysis, and reflection, we believe that it is replicable, and what follows is our advice for others wanting to develop a pathway into ESE in their own faculty of education. This is framed loosely around the principles of permaculture, a design process based on Whole Systems Thinking (Holmgren 2002) that can just as easily be applied to gardening as it can to any movement of social change.<sup>2</sup>

### 13.6.1 *Use Small Solutions*

We began with the classic EE saying in mind, “start small and do it well”, which applies nicely to growing ESE in PTE. By showing that we were able to run a few events effectively and efficiently, our administration gave us more latitude and resources to grow the *ESE Initiative* over time. While we started with an expansive vision of what we wanted to accomplish, we started with small steps, being patient with what was possible in the first few years. It takes time to build trust between those who are funding the work and those who are willing to roll up their sleeves—with a nod to Orr (2007).

### 13.6.2 *Integrate Rather Than Segregate*

As things developed, we looked for opportunities to connect with and support existing initiatives, programmes, and projects across the institution. At times, seeing the connections between the work we thought was important and what others valued was difficult, but over time it became easier to see how “all education is environmental education” (Orr 1991, p. 54). Connecting with others’ initiatives helped us to build allies as others began to see how their work supported ours and vice versa.

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<sup>2</sup>For a list of all of the principles of permaculture, see: <https://permacultureprinciples.com/principles/>

### ***13.6.3 Use the Edges, Value the Marginal***

We discovered early on that there were many ways to make the work of the *ESE Initiative* visible and that making use of the edges or cracks of the spaces in which we worked was where ESE could easily take root. There were no complaints when we offered to place environmental art installations in the main stairwell as no one saw value in this marginal space. Similarly, taking over the empty garden spaces at the front of the building, which had been left untended for years, turned out to be one of the most high-profile locations at OISE. Sometimes working at the margins provides unexpected ways to enhance traditional means of knowledge dissemination and mobilisation.

### ***13.6.4 Produce No Waste***

From the outset, members of the *ESE Initiative* modelled the sustainable behaviours we wanted others to adopt, from minimising waste and energy use at events to offering vegetarian meals on reusable plates and cups and ensuring that food waste was composted. This often entailed extra work beyond our academic duties (like washing the dishes or watering the garden), but people quickly understood that we walked the talk and sometimes joined in to lend a hand; this helped to build community around the initiative.

### ***13.6.5 Value Renewable Resources***

While it may seem obvious, ensure that educational work in ESE is sustainable over the long term. This can mean making sure that institutional supports are in place; having the brief institutional goal of *social and ecological responsibility* allowed us to reference it repeatedly in garnering support for our work with allies and partners; this could mean finding a way to support the facility manager's goal in connection to sustainability, as well as getting the departmental Chair or Dean on board. Not surprisingly, bringing in funding to support ESE helps to grab everyone's attention, for example, start with finding funding for a community garden (which is relatively easy to do), and often other money can be found to support research that aligns with this.

### ***13.6.6 Creatively Use and Respond to Change***

With every change of university leadership, the *ESE Initiative* came to expect unanticipated ripple effects on its work; sometimes this played in our favour, but often it did not. Recognising that change is an ongoing part of the development process and

learning to be creative in responding to changes in policy, leadership, funding, and partners has become a regular occurrence. Some parts of an initiative may stay the same, and others may have to be changed as partners come and go; sometimes as one component fades, something new and unexpected grows in its place.

## 13.7 Conclusion

The *ESE Initiative* has had an excellent record of growth at OISE; we are proud of what we have accomplished so far. By working with thousands of PTs, hundreds of community members, dozens of fellow faculty members, and now a national network of colleagues, we have seeded and grown ESE in a multitude of innovative ways. We know that we are not alone in this work; others have been growing research and programming in this area at the same time, documented by research by the CMEC (2012), Sims and Falkenberg (2013), and Karrow et al. (2016b). Our next challenge will be maintaining the pace and quality of this work as we integrate the learning of our PTs in ESE with that of the TDSB's EcoSchools' teachers and align it with a research programme to better analyse the effects of this learning on their praxis. We are happy to continue to roll up our sleeves in this and prepare for organic, verdant, and unimagined growth as this work develops.

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