

## **Rethinking culture and diversity in Early Childhood preservice teacher education: looking at teaching and learning through an interdisciplinary lens**

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**Key words:** interdisciplinarity, sustainability, sustainable design, early childhood education, design education, teacher education, professional identity, transformative learning and teaching, disciplinary culture, learning environment design

## **Chapter abstract**

Early Childhood Education (ECE) has a long history of building foundations for children to achieve their full potential, enabling parents to participate in the economy while children are cared for, addressing poverty and disadvantage, and building individual, community and societal resources. In so doing, ECE has developed a set of cultural practices and ways of knowing that shape the field and the people who work within it. ECE, consequently, is frequently described as unique and special (Moss, 2006; Penn, 2011). This works to define and distinguish the field while, simultaneously, insulating it from other contexts, professions, and ideas. Recognising this dualism illuminates some of the risks and challenges of operating in an insular and isolated fashion.

In the 21<sup>st</sup> century, there are new challenges for children, families and societies to which ECE must respond if it is to continue to be relevant. One major issue is how ECE contributes to transition towards more sustainable ways of living. Addressing this contemporary social problem is one from which Early Childhood teacher education has been largely absent (Davis & Elliott, 2014), despite the well recognised but often ignored role of education in contributing to sustainability. Because of its complexity, sustainability is sometimes referred to as a ‘wicked problem’ (Rittel & Webber, 1973; Australian Public Service Commission, 2007) requiring alternatives to ‘business as usual’ problem solving approaches. In this chapter, we propose that addressing such problems alongside disciplines other than Education enables the Early Childhood profession to have its eyes opened to new ways of thinking about our work, potentially liberating us from the limitations of our “unique” and idiosyncratic professional cultures.

In our chapter, we focus on understandings of culture and diversity, looking to broaden these by exploring the different ‘cultures’ of the specialist fields of ECE and Design (in this project, we worked with students studying Architecture, Industrial Design, Landscape Architecture and Interior Design). We define culture not as it is typically represented, i.e. in relation to ideas and customs of particular ethnic and language groups, but to the ideas and practices of people working in different disciplines and professions. We assert that different specialisms have their own ‘cultural’ practices. Further, we propose that this kind of theoretical work helps us to reconsider ways in which ECE might be reframed and broadened to meet new challenges such as sustainability and as yet unknown future challenges and possibilities.

We explore these matters by turning to preservice Early Childhood teacher education (in Australia) as a context in which traditional views of culture and diversity might be reconstructed. We are looking

to push our specialist knowledge boundaries and to extend both preservice teachers and academics beyond their comfort zones by engaging in innovative interdisciplinary learning and teaching. We describe a case study of preservice Early Childhood teachers and designers working in collaborative teams, intersecting with a 'real-world' business partner. The joint learning task was the design of an early learning centre based on sustainable design principles and in which early Education for Sustainability (EfS) would be embedded

Data were collected via focus group and individual interviews with students in ECE and Design. Our findings suggest that interdisciplinary teaching and learning holds considerable potential in dismantling taken-for-granted cultural practices, such that professional roles and identities might be reimagined and reconfigured. We conclude the chapter with provocations challenging the ways in which culture and diversity in the field of ECE might be reconsidered within teacher education.

## **Introduction**

For societies to thrive well into the future, graduates require not only insights and ways of thinking informed by disciplinary knowledge, but to be able to integrate these forms of knowledge successfully. Interdisciplinarity is increasingly the hallmark of contemporary knowledge production and professional life, and we must nurture this ability (Boix Mansilla & Duraising, 2007). This applies as much to ECE graduates as to those from professional fields such as business, health, engineering or architecture. This sets up new challenges; how to rethink diversity and intercultural learning and teaching when examined through the lens of interdisciplinarity.

## **Interdisciplinarity in higher education**

Many universities espouse commitments to interdisciplinary teaching and learning, linked to strengthening teaching quality and learning outcomes and attending to collaborative work across faculty or divisional boundaries. While there is a great deal of discussion about what constitutes multiple disciplinary approaches, for example multi-inter-trans-disciplinarity (Stock & Burton, 2011), for this project we consider interdisciplinarity as bridging disciplinary viewpoints through collaborative thinking and problem-solving. However, disciplinary 'silos' remain strong and an embedded part of the higher education landscape. These silos remain notoriously stubborn in changing their one-directional, often hierarchical, and singular disciplinary approaches to teaching and learning. This can be especially so within the field of ECE, with the profession typically described as requiring unique and special attributes such as high levels of physical stamina, the ability to build intimate relationships, adaptability, highly developed skills of observation and interpretation, knowledge of child development and recognition of the importance of families and community contexts (Fasoli, Scrivens & Woodrow, 2007).

While interdisciplinary teaching and learning and curricular reform to break down silos is often a stated priority of higher education institutions, this needs to be in a manner conducive to the cultivation of educational spaces that respect disciplinary knowledge enriched by multiple disciplinary understandings. At the meta-level, such learning should nurture self-determination, critical thinking, reflective capacity, and action competence, and where uncertainty, conflict, and divergent norms provoke creativity, innovation, agency and participatory solutions to problems and issues.

Interdisciplinary collaboration, then, capitalizes on the diversity of perspectives and practices that each discipline offers in the hope of providing innovative solutions to multifaceted problems. For

interdisciplinary work to be effective, however, collaborators must recognize that cultural differences exist between and within disciplines. Reich and Reich (2006) conceptualise disciplines as cultural groups and advocate for culturally-competent practices to facilitate interdisciplinary activities. Specifically, participants in interdisciplinary collaborations “must value diversity, develop the capacity for self-assessment, work towards understanding one’s own disciplinary culture, and be sensitive to the dynamics inherent when cultures interact” (p. 51), in order to offer creative solutions to important problems. In this chapter, we take similar views of diversity and culture, applying them to a variety of disciplinary experiences and standpoints. These conceptualisations of culture and diversity, rather than more typical representations that describe the ideas and customs of particular ethnic or language groups are our focus too.

The pedagogical issue addressed in this chapter is how Early Childhood teacher education might navigate across discipline boundaries and its own cultural ‘silos’ to develop and support authentic and engaging learning strategies, assessment tasks and outcomes for students that add value to their disciplinary learning and offer a suite of professional skills suited to the demands of contemporary society. The chapter profiles a study initiated by academics from the fields of Design and ECE working in a large Australian university who saw opportunities to engage in interdisciplinary teaching, learning and research underpinned by the theme of sustainability. The context was a real-world project of an early learning centre proposed for construction within the grounds of an iconic wildlife sanctuary in south-east Queensland, Australia. In this project, Early Childhood preservice teachers and Design students from a number of sub-fields (Architecture, Industrial Design, Landscape Architecture and Interior Design) worked in collaborative partnerships to present ideas for the centre’s design.

### **Study Context**

In January 2012, academics from an Australian EC teacher education department were approached by a wildlife education officer from an iconic wildlife sanctuary in Brisbane (Queensland) with a proposal to collaborate in the design of an early learning centre on the Sanctuary grounds. The vision was to establish a centre that would be an exemplar of early Education for Sustainability (EfS), sustainable design, community engagement, and sustainable business encapsulated by the vision statement “care with education and conservation values” (Sanctuary Design Brief, 2012, p. 3). Given the Early Childhood academics’ commitment and experience with these central tenets, foundations were laid to move forward with collaborative work.

Early conversations led to the inclusion of academics from the Design school at the same university. We were mindful of the possibilities this project offered for participants across disciplines to contribute ideas to the project. Collaborations were forged between Early Childhood preservice teachers (18) and academics (3), and Design students (50) and academics (3). It was envisaged that these cross-Faculty collaborations would add layers of interdisciplinary richness to the teaching and learning experiences of our students, especially as the project would be shaped around sustainability as a key topic of interest.

After several discussions and brainstorming sessions, an interdisciplinary project emerged where Early Childhood and design students would work collaboratively with core components such as assessment tasks within their courses being re-designed. The aim of this strategy was not only to embed this 'real-world' opportunity into the students' learning experiences, but also to enable engagement with authentic and meaningful learning collaborations between the various Design disciplines and preservice Early Childhood programs of study. The multi-layered approach of interdisciplinary collaborations provided rich conditions for student learning and professional engagement.

### **Getting underway**

Architectural and design education have taken their cues from their professions, which has resulted in the studio, or atelier, being the dominant environment within which teaching and learning occurs. The word 'studio' has two primary meanings; it refers to the physical space where Architecture or Design is practiced, but it is also a pedagogical practice which combines the physical space, types of project-based activities/assessment and the master (teacher)/apprentice (student) relationship. The studio is a 'signature pedagogy' (Schulman, 2005), ubiquitous to design disciplines and associated somewhat uniquely, with their professions. The studio is a core component of a Design student's education, and one studio is typically offered as a core subject in each semester of their studies.

In 2012, 50 Design students enrolled in a third year collaborative design studio, elected from a number of possible project options, to be involved in the project outlined here. Assessment for the studio required teams of five design students (typically comprising two Architecture students, an Interior Design student, a Landscape Architecture student and an Industrial Design student) to collaboratively design a response to a provided Architectural brief. Rather than responding to a hypothetical brief (which is typically the case in design studios), this studio differed in that the early

learning centre was a real project, with the potential that some student designs may be incorporated into the final design of the centre.

To deepen and enrich their learning, and because these Design students had little or no knowledge of, or experience with, young children, early learning settings, or Early Childhood pedagogies, the project was extended to preservice teachers from ECE at the same university. Final year ECE students who were enrolled in a Leadership and Management subject – and who had previously undertaken a third year subject that had focused on Early Childhood Education for Sustainability (ECEFS) - were given the option of participation as part of their assessment and engagement in this subject. These students engaged in two key assessment tasks. The first was a case study where students conducted an interview with a person in a key leadership position, and where their role had a focus on sustainability. The second task saw students prepare a professional development program, again with a focus on sustainability. Both tasks were closely connected with the early learning centre project; thus all students' participation in the project was synergistic with their regular time commitments and scholarly investments. In other words, the project was not an 'add-on'. Five students who were enrolled in the subject in 2012 took up the option to tether their assessment to the interdisciplinary project.

Nevertheless, in order to engage a larger number of Early Childhood students to support the 50 Design students and to wider participation within the general Early Childhood student population, the opportunity to participate in the project was extended to students from other Early Childhood cohorts. These additional students' involvement was not connected to any particular subject and, therefore, not linked to assessment. Another 13 Early Childhood students took up this offer, enabling us to allocate at least one Early Childhood student to each of the collaborative design teams.

A teaching model was, thus, developed where each week during the design students' on-campus design workshop, Early Childhood students attended and collaborated with their design colleagues. Early Childhood students, with their knowledge of Early Childhood pedagogy, practices and curriculum, were positioned as 'consultants', providing advice to the design teams as they formulated designs for the sustainable early learning centre.

A key expectation of this initiative was that, taking an interdisciplinary approach bringing together EfS and Sustainable Design, would open up new ways of considering Early Childhood centre design. In particular, we anticipated that there would be learning affordances for the designers with respect to

centre operation and function. An example was the idea of the ‘forest kindergarten’, common in Scandinavia and becoming a more common option in the Australian early childhood education context, where ‘the outdoors’ is the classroom where children learn and play. This perspective on sustainable learning environments offered a contrast to the more usual way that architects might see a ‘learning space’. Through their inputs, we believed that Early Childhood students would see themselves as authentic consultants to the designers, able to offer particular knowledges about young children. Further, we saw real opportunities to bridge the perceived ‘cultural’ gaps between Early Childhood Educators and Designers through an interdisciplinary approach.

### **Why interdisciplinarity?**

There is growing recognition of the need for interdisciplinary approaches to teaching, learning and research in universities. Interdisciplinarity is seen as offering new ways of tackling complex societal problems that cannot be adequately addressed by single disciplines alone. Rittel and Webber in their seminal 1973 paper coined the term ‘wicked problems’ to describe problems that cannot be successfully addressed within typical, linear, discipline-based problem solving approaches. Wicked problems are not easily defined, are often sites of conflict, and have many perspectives. Examples of wicked problems include childhood obesity, social inclusion, and living sustainably. Their resolution requires multiple disciplinary and cross-sectoral contributions.

Interdisciplinary collaboration capitalises on the diversity of perspectives and practices that each discipline offers, in the hope of providing innovative solutions to multifaceted problems. However, for such work to be effective, members of the collaboration must recognize that cultural differences exist between and within disciplines. A recognised problem in trying to use an interdisciplinary approach is that many academics view talking and thinking across disciplines as being extremely difficult (Strober, 2010). While academic institutions are increasingly promoting interdisciplinarity, it is acknowledged that these same institutions are places “where traditional discipline boundaries are deeply delineated, practiced and defended” (McClam & Flores-Scott, 2012 p.232). The literature raises complex questions about the possibilities, generally, for interdisciplinary teaching, learning and research, and specifically, for efforts towards educating for sustainability in universities.

As discussed earlier, the project described in this chapter brought together students from Early Childhood and Design, positioning them all as professionals, rather than ‘students’, with capacities to shape the design of an early learning centre for a real-world client with its explicit focus on EfS and sustainable design.



### **Sustainability, EfS, and sustainable design**

Sustainability is a complex and contentious topic with no universally accepted terminology or definition. A commonly used definition that will suffice here was first articulated in the World Commission on Environment and Development's (1987) Brundtland Report also known as *Our Common Future*. This describes sustainability as human development "that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 8). Regardless of definition, what is well recognised is that humans are entering a world very different from that of even the recent past, a world marked by uncertainty, complexity and rapid change manifested through an array of global issues relating to climate change, economic instability, rising inequality, loss of biodiversity, environmental migration, to name a few (Sterling, 2014). Addressing the multiple challenges of sustainability requires people to work together in new ways that help us see the world from new perspectives, produce innovative solutions, and transform cultures towards sustainability. Everyone needs to be involved - governments, academic and scientific communities, teachers, nongovernmental organisations, professions, local communities and the media. All are essential to the birth of a culture of sustainability (UNESCO, 2002).

Education has a key role in these cultural transformations with EfS increasingly illuminated as essential for addressing these complex issues globally and locally. At its heart, EfS calls for a sustainability 'frame of mind' (Bonnett, 2002, p.6), a philosophical transformation that qualitatively changes outlook and relationships and where 'the attitude of sustainability is not a bolt on but a necessity' (p.19). However, more of the same kinds of education that, mostly benignly, have contributed to unsustainable patterns of living are not what we require. EfS requires transformative education approaches and strategies that help learners shift from fragmentary, short-term, 'here-and-now' thinking towards systemic, long-term, futures-oriented ways of being (Sterling, 2011). This necessitates, amongst other things, the transcendence of discipline-bound knowledge production, a type of cultural transformation, such as that which we have attempted in the project outlined here. Nevertheless, while it is increasingly recognised that education can enhance the effectiveness of policies and strategies aimed at addressing sustainability challenges, the key role of EfS in realising sustainability remains too often ignored, downplayed and underestimated. Not before time, Sterling (2014) admonishes that higher education and teacher education are beginning to develop an emerging interest for leadership in tackling sustainability after years of laggardly efforts compared, for example, to the schooling sector in embracing and leading EfS initiatives.

EfS in ECE contexts, too, has been gaining momentum with the United Nations and many governments nominating this focus as having significant capacity to empower communities to bring about sustainable change (UNESCO, 2014). In the Australian ECE context, EfS has been spurred on by the incorporation of sustainability into national guidelines for ECE through the National Quality Standards (ACECQA, 2011) and, to a lesser extent, in Australia's Early Years Learning Framework (DEEWR, 2009), although it is apparent that many in the ECE field do not have a good grasp of what is involved in EfS. These Early Childhood curriculum policies partly prompted our desire to enable our Early Childhood students to work with and demystify sustainability concepts and practices. Thus, we saw the real-world opportunities to form strategic partnerships between EfS, childcare, business, and sustainable design that would allow our students to better understand what might be meant by 'sustainable practices' as emphasised by the NQS. Additionally, as there have been few partnerships between ECE contexts, Designers and businesses that focus on EfS, we also saw this project as offering a unique opportunity in interdisciplinary tertiary teaching and learning that deliberately addresses sustainability by engaging in and learning through the different disciplinary cultures of participants. The following section explores the specific disciplinary cultures of Early Childhood teachers and designers.

### **Understanding the professional cultures of Early Childhood Teachers**

Notions of professional and professionalism have gained increased attention in recent years across just about every discipline, and every line of work (de Botton, 2009). The field of ECE has also been shaped by being 'professional', with calls for accountability and measurements of work performance examples of ways in which professionalism is valued and measured. Early Childhood teacher education typically occurs within the discipline (Penn, 2011; Rodd, 2013). As previously mentioned in this chapter the notion of silos is alive and well, with disciplines - and the associated knowledge, attributes and skills required to become prepared for a particular profession - quarantined from other disciplines. This works to produce graduates/Early Childhood preservice teachers as specialist teachers, though at the same time, producing graduates whose professional identities are constrained by the discipline knowledge that they have acquired during their course. Early Childhood teacher identities are produced through any number of discourses that are accessible and in play, yet subject to contingencies. Existing studies have looked closely at some of the ways in which discourses produce Early Childhood teacher professional identities (see for example, Moss, 2006; Whitebook & Ryan, 2011). Emerging studies such as that of Warren (2013) link discursive production of identities with the complexities of the work in Early Childhood. Attention has also been given to discourses of gender, maternalism, care and developmentalism (Moss, 2006).

Pay, conditions, qualification requirements and teacher preparation have also come under scrutiny by Whitebook & Ryan (2011) in their United States investigation into factors that play some part in the production of Early Childhood teacher identities.

The notions of a profession and professionalism emerged from occupations in the early 18<sup>th</sup> century, thereby distinguishing an initially small number of occupations, including religion, law and medicine (de Botton, 2009). Features such as training, professional development and policies point towards professionalism, along with technical skills, specialist knowledge and qualifications, meeting high standards and regulations (Moss, 2006; Osgood, 2012). Such a focus, in turn, enhances working conditions and the status of the professional worker.

A middle-class notion of professionalism positions occupation as a central marker of modern identity (Cowman & Jackson, 2005). Many occupations that have, in the recent past, been identified and constructed in terms of technical attributes are now referred to as professions (Nelson, 2001; Yinger, 2005). To become a profession or “the making of a profession” is referred to as professionalisation. An example is the professionalisation of nursing (Mahony, 2003; Nelson, 2001). In the late nineteenth and early twentieth century, the professional formation of nursing was constructed through the issues of presentation of self and institutional shaping. It is argued that the inculcation of a specific set of attributes created “the nurse” (Nelson, 2001). Increasingly, professionalisation has gained momentum across traditionally female-dominated, attribute-based occupations. Likewise, professionalisation has entered the Early Childhood practitioner lexicon.

### **Understanding the professional cultures of Architects and Designers**

In order to legally use the term ‘Architect’ in Australia, graduates must have completed at least five years of study in an accredited university course, and post-graduation, are also required to undertake a three-part examination process, after a mandatory minimum period of working in practice under the guidance of a registered Architect. As a result of this highly regulated process, courses offering Architectural education are subject to interim reviews by national panels of academics and practitioners, in order to maintain their professional course accreditation. This regulated process places significant limitations on curricula design, and the implications of this are openly discussed with students. Nelson and Stolterman (2012) comment that designers as professionals require both training and learning experiences in order to develop the multiple forms of expertise needed to create desired change in a complex world. A common discussion thread in design education is how a professional might approach a particular scenario or problem. Students are frequently required to

role-play a Design professional, and to solve a design problem that includes a real site, client, and brief. The discipline of Architecture refers to the 'profession', rather than the 'industry', a term more commonly used by other disciplines. This distinction has an important impact on the thinking, attitudes and culture of Architecture students.

Greenwood (1957), in his seminal work about the professions, categorises the attributes of a profession as: '1. systematic theory, 2. authority, 3. community sanction, 4. ethical codes, and 5. a culture' (p.45). The issue of cultural capital, particularly within the context of educating professionals is important and worthy of further exploration. Much research has been conducted in the area of studio culture for Architecture and Design students, however, an understanding of the development of a professional culture within an educational context for these students is lacking.

Stevens (1998), perhaps somewhat cynically, argues that Architects should abandon any analysis of Architecture solely in terms of 'the profession,' which implies less than ideal connotations inherent in old Anglo-American sociologising. Indeed, he considers that the notion of "profession" in the social study of Architecture should be abandoned. His concerns are that this approach results in four significant defects:

- Inappropriate focus on the capitalist marketplace and work in the private sector;
- Concentration on design 'products', thus ignoring the social milieu and systems within which Architects are embedded;
- Ignores the social stratification (what individuals do, and their social status) within the Architectural field; and
- The 'profession' holds the deployment of specialised knowledge as central to its definition; however, 'being' an Architect is surely more important than 'knowing' Architecture? Focusing on knowledge alone diverts from examining the importance of social being in defining the occupation. (Stevens, 1998)

While Stevens' (1998) assertions about professionalism in Architecture have resonance, his concerns regarding the socio-cultural study of Architecture (and Design in this case) can be addressed through mindful curriculum design and experiments with collaborative Design studio pedagogy, such as the collaborative project discussed in this chapter.

### **Design for sustainability and systems thinking**

Consumption and use of valuable finite resources have reached a concerning level in global society. Profit and ethics are no longer considered mutually exclusive and there is evidence of growing pressure to purchase local, socially responsible, and ethical goods and services with the positive emergence of the 'green consumer' and 'ethical investment.' Businesses and organisations are

reacting to these pressures, and are starting to take a more holistic approach to socially responsible Design or Design for Sustainability, more seriously (Bhamra & Lofthouse, 2007).

Wisdom or tacit knowledge is the capacity for 'knowing how' rather than 'knowing that' (Sternberg, 1998). Such knowledge is often based on situational assessment, which Senge and Sterman (1992) refer to as 'systems thinking' (p. 138). They argue that simulation - such as that engendered through the Design Studio learning strategy - is an important element of successful learning that develops Systems Thinking (Senge & Sterman, 1992). Birkeland (2002) argues that Systems Design, a transdisciplinary process, should be at the forefront of thinking about Design for Sustainability. A Systems Design approach encourages Design professionals to:

- Work across the boundaries of academic disciplines (social, ecological, psychological, economic, political etc.);
- Communicate in many 'languages' (legal, numerical, conceptual, aesthetic) with clients, collaborators and decision makers from different perspectives and backgrounds;
- Integrate different practical parameters: functional and ecological requirements, social needs, cultural values and economic constraints; and
- Work to achieve new social goals, while dislodging existing social, economic and political impediments to sustainability. (Birkeland, 2002)

Birkeland also proposes that the capacity to design and innovate must be fostered through transformative educational processes focusing on how to innovate and transform rather than overly studying the impacts of existing systems. The priority, she states, needs to shift to the transformative education and professional development of future decision makers. The project discussed in this chapter successfully adopted such a transformative Systems Design approach to the education for sustainability of future decision makers, in this case both Designers and Early Childhood Educators.

### **The study and method**

For the research aspects of this teaching and learning project, our aim was to investigate the value of our interdisciplinary learning partnerships for sustainability. We posed the following research questions:

1. *What can we learn about professional 'cultures' from engaging across disciplines?*
2. *How might interdisciplinary learning generate new ways of responding to sustainability?*

We drew on qualitative evidence to explore these questions. Data were collected via eight focus groups of Design students in the first collaborative iteration in 2012 and two individual interviews with Early Childhood students during the second round of collaboration 2013, exploring how the

students experienced their participation in the project. The study was granted ethical clearance No. 1200000570 in 2012 with data collection occurring in 2012 and 2013.

Data were collated, transcribed and analysed using a three-step analysis process (Creswell, 2005). This involved *familiarization* with the data through multiple readings, followed by *thematic analysis*, then *synthesis* of the emergent themes. In this chapter section, we examine two key themes that emerged from this analysis. These are:

- rethinking the disciplinary culture of ECE, and
- the value of interdisciplinary learning

As academics, our own critical reflection of our perceptions and feelings about our experiences of the project as we engaged in and worked with each other and with our students across disciplinary boundaries, also helped construct our analyses and discussion points. The act of bringing together staff and students from two distinct academic and professional cultures was a particular point of reflection. The practice of reflection is widely recognised for its power to foster deep learning and understanding (Boud et al. 1985; Mezirow, 1991).

### **Research findings**

These findings offer a knowledge contribution to research about higher education/teacher education pedagogies with respect to interdisciplinary teaching and learning for sustainability, an area that is increasingly called for but is notoriously difficult to enact (Gasper, 2010; Golding, 2012). In so doing it also deepens our understandings of the taken-for-granted disciplinary cultures and perspectives of ECE and Design.

#### Early Childhood student perspectives – rethinking disciplinary cultures

As discussed earlier, in this study we conducted individual interviews with two of the eight Early Childhood student volunteers who participated in the project during the second round of collaborative work in 2013. We recognise that our data set is very small; however, we are confident that these powerful comments reflect the experiences of the wider group who participated during 2012 and 2013. Early Childhood students typically left the collaborative sessions telling us how much they had gained from working with the Design students, particularly with respect to their increased sense of professional confidence and capacity.

*It's helped me shape myself again, giving me worth, giving me that confidence to think hey, I'm much more than just a preservice teacher. I know what I'm doing. That's a good thing. It's also shaped my thoughts – how important it is to work in groups with students (EC student 1)*

*It's also taught me I guess the role of teamwork and the importance of hearing individual voices and of people's differing opinions. I think that they're all valid and they all work together to create something from which we can learn from each other. (EC student 2)*

*... as an educator anything that makes me question or critically look at my preconceived ideas is a good thing for me. So that enables me to grow and reflect I guess on where I'm going. (EC student 2)*

These quotes reveal aspects of Early Childhood professional culture at work, such as humility, teamwork, valuing diversity and critical self-reflection. This suggests that the experience of working on a real-world project with students from the school of Design and a business partner both reinforced and challenged the Early Childhood students' assumptions about their professional culture.

#### Design students' perspectives – the value of interdisciplinary learning

We argue that, if universities are to contribute to finding solutions to real-world problems such as sustainability, innovative real-world approaches to learning are required. Interdisciplinary approaches involving partnerships across traditional professional cultures and boundaries are part of this solution. Data presented here profile the value of interdisciplinary learning from the perspectives of the Design students:

*Probably the best single thing that's happened.*

*...when we spoke to the education students, we wrote so many notes. There were so many things that we hadn't even thought about ... having this extra bit of information really brings you back to what is necessary and being really logical and practical.*

*It's kid-friendly but also that's going to help educate them on sustainable practices as well ... I guess that's something that you wouldn't really get or be able to experience, or you don't have the knowledge without that collaboration.*

This latter quote, in particular, is worthy of further examination. This student is indicating that the collaboration with gave him/her knowledge about EfS. This knowledge enabled the Design students to extend their thinking beyond the design of a sustainable building. Their new knowledge enabled them to design a sustainable building that also supports EfS. Value-adding EfS to their repertoire of skills as Designers is one powerful aspect of the collaboration. Through this process the Design students shifted their focus from the design of a building, to also consider the social milieu and the systems within which ECE and EfS are embedded. The importance of social being and contribution dominates over the simple quest for knowledge, challenging perceptions and ultimately shifting

professional cultures. We argue that this is one example of how interdisciplinary work across professional cultures may encourage new and authentic partnerships for sustainable change.

## **Discussion**

In this chapter we have presented the idea of interdisciplinary teaching and learning as offering opportunities to examine the notion of professional cultures in the Early Childhood and Design professions. The context in which we undertook this examination was an interdisciplinary teaching and learning project focused on the design of a sustainable Early Childhood centre. Data were drawn from focus groups and individual interviews with Early Childhood and Design students.

Our analysis suggests that the interdisciplinary project we describe here paradoxically reinforced and challenged taken-for-granted aspects of professional culture for the two disciplinary groups. First, for the Early Childhood students, the project appeared to reposition their identities from 'student' to 'professional', where their knowledge, expertise and perspectives were simultaneously validated and challenged in their collaborations. Considering oneself "more than just a student teacher" challenges multiple aspects of Early Childhood professional culture. First, while the design students typically referred to themselves as 'Architects', 'Landscape Architects', 'Interior Designers' or 'Industrial Designers', and therefore already a part of their profession, it is more common for Early Childhood student teachers and academics to hold a deficit view of the professional status of beginning Early Childhood professionals, calling them 'students' or 'preservice teachers'. We note this to be an interesting finding given that, as academics and teachers, we strive hard to push back against deficit views of children.

Second, in providing an opportunity for Early Childhood students to engage authentically with another professional culture, the project gave these students inputs into an authentic task that expanded the typical classroom role of the Early Childhood teacher whereby their professional expertise was recognised and validated by the designers. Such work holds the potential to reposition Early Childhood professional culture such that teachers might see themselves on a par with other professional groups in society, challenging what we believe is a lower sense of professional self-worth compared with 'true professionals'. Possibly having its origins in the fact that Early Childhood teachers are seen as working predominantly with children rather than adults, being seen as 'experts' by the Design students has the potential to challenge this lower self-status and to build a stronger sense of professional confidence.



A third, related aspect of this reframing of Early Childhood professional identity relates to expanded notions of teamwork and valuing diversity - two valorised concepts within Early Childhood professional culture. Teamwork in ECE is most typically framed around the idea of professional teams working together for the benefit of children within a school, Early Childhood centre or other similar context. Our data suggest that this project provided opportunities for teamwork to including working with professionals beyond those most commonly encountered in the education field such as social workers, therapists and health professionals. For example, one student acknowledged the importance of listening to diverse professional opinions about the design brief, and how the experience enabled people from different disciplinary backgrounds to learn from each other. As noted above, this both validates and challenges the cultural ideal of valuing diversity in the Early Childhood profession; while reinforcing the idea of professional teamwork, at the same time, it expands 'diversity' to include the views of others from outside the traditional Early Childhood professional cultural context.

A fourth aspect of Early Childhood professional culture that was validated through this project was critical thinking and reflection, nominated by one participant as having been optimised in this real-world project. For Dewey (1910), seen by many as the 'father' of critical thinking, such thinking is defined as 'active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends' (p.10). Critical thinking and reflection are forms of higher order thinking; they encourage open-mindedness about beliefs and a questioning of arguments that helps to shine a light on the reasoning underpinning arguments and the evidence that supports such arguments. Critical thinking and reflection are actively encouraged in preservice teacher education (Ryan & Gibson, 2015, in press). One student, for example, emphasised that her interactions within the project encouraged her to critically consider her preconceived ideas about young children and their education, to evaluate whether her own ideas were aligned with others such as the business partner and Design students. Thus, the interdisciplinary project provided opportunities for her philosophy to be challenged and reshaped by the interdisciplinary interactions to which she contributed.

### **Study Implications**

There are several implications arising from this interdisciplinary learning and teaching project. First, we believe that there should be more efforts to work in interdisciplinary ways across traditional boundaries in all levels of education, but especially in higher education where we should be showing educational leadership and innovation. We know that overall, our students gained a great deal as

demonstrated by our findings. We know that as academics we, too, were excited by the academic and professional learning that arose from our interdisciplinary interactions. Despite the recognised problem when trying to use an interdisciplinary approach of many academics seeing talking and thinking across disciplines as being extremely difficult (Strober, 2010), a typical comment amongst this group of chapter authors was just how engaged we had become in this new aspect of our academic work. The combination of collaborating on an authentic project (the design of a childcare centre), woven together by an issue of professional and personal concern to us all (sustainability), and the frisson of working out of our zones of comfort by dipping into another disciplinary field offered high levels of academic engagement. Supporting interdisciplinary projects within universities is one way for the higher education sector to build leadership around the many challenging issues and problems facing contemporary societies, with the potential to feed into calls for more work-ready students with the capabilities for dealing with complex challenges.

A second implication from this study that directly relates to Early Childhood teacher education is the potential benefit of increasing students' awareness of their own taken-for-granted professional cultures. A stronger focus within Early Childhood teacher education courses on considering some of the "possible discourses that shape and reshape" (Gibson, 2013, p. 134) students' experiences and encounters within their course will go some way to understanding how their professional identities are constituted. Alongside this is the desire to strengthen teaching for critical thinking, and provide opportunities for challenging assumptions.

Jones (2009) discusses the general difficulty within universities in teaching critical thinking and self-reflection, explaining that many academics struggle with how to reduce complex learning attributes such as critical thinking to fit a set of definable learning outcomes. As reflection also encourages learners to attend to their learning journey and makes visible how personal experience shapes values (Armstrong, 2011), projects such as the one described in this chapter, allied with learning that both strengthens and problematises professional culture, has the potential to offer a powerful tool for shaping and reshaping Early Childhood educators' sense of professionalism.

### **Issues and challenges**

The project, however, was not without its issues and challenges. As Miller and Boix-Mansilla (2004) comment, despite "the promise of generativity, effectiveness, dynamism and intellectual richness... interdisciplinary integrations are often difficult to accomplish" (p.4). To a large degree these difficulties are due to efforts at coordination - both among minds and at the technical level. While

we believe we were able to ‘cut through’ reasonably well in terms of cultural mind shifts, most of our challenges centred around the management of interdisciplinary teaching and learning in a higher education context. If there is to any scaling up of interdisciplinary efforts, there are a frustrating range of ‘technical’ matters between faculties that require resolution, for example, timetabling (our challenges were compounded by students working across different campuses), service teaching recognition between faculties, who ‘owns’ the unit where interdisciplinary work is occurring and therefore who ‘earns’ the benefit from student enrolments, concerns for discipline course ‘integrity’, and differing assessment approaches and pro forma, to name but a few. Especially if there is a major strategic emphasis towards interdisciplinary teaching and learning within a university will require, at least, an overhaul of student enrolment and academic workload systems, processes and procedures.

Another key challenge for us has been the fact that, after three years of liaison, consultation, co-located research symposia and the like, we were recently advised that the childcare centre was unlikely to be built due to shifting priorities and staffing changes of key people at the Sanctuary. While this was disappointing, nevertheless, the richness of the experience has a continuing legacy. The academics who participated from the outset continue to work collaboratively, with new opportunities being actively sought to bring together Early Childhood and design students and academics in new interdisciplinary teaching, learning and research projects. Indeed, interdisciplinary collaborations have been expanded recently to include members of the Health faculty as we further explore ideas at the intersection of ECE, sustainability, design and health.

We believe, too, that the learning initiated through this interdisciplinary innovation has the potential to contribute to greater uptake across the higher education sector through our experiences of seeking to overcome the obstacles to such work. We believe our contributions offer a foundation for innovative ‘signature’ pedagogies and processes in higher education for interdisciplinary work, broadly, and around sustainability, specifically.

In summary, our core argument is that academics from different disciplinary cultures *can* work successfully to support student learning and engagement; however, there are challenges and barriers to be overcome if such work is to become widespread. Nevertheless, together with our design colleagues and their students, the initiatives described in this chapter have enabled some preservice Early Childhood teachers, at least, to learn about, and practice, a new frame of professional culture that could be vital for leading change in an increasingly complex world.

## Summary

In this chapter, we have articulated how we grappled with ideas of diversity and intercultural learning and teaching – quite common terms used in early childhood education – and reexamined these through the lens of interdisciplinarity. We have done this through describing and theorising a teaching and learning project that saw Early Childhood preservice teachers and Design students working together to plan a child care centre. This project gave us rich opportunities to think in new ways about culture and diversity in Early Childhood preservice teacher education. Our preconceived notions of culture and diversity were challenged, extended and deepened as all of us – staff and students – recognised the professional cultures that were at play and the value of embracing professional diversities to address a complex real-world problem. The re-examination of our work through an interdisciplinary lens was an exciting process of cultural exchange that heightened our awareness of what we had in common with colleagues from another discipline, while simultaneously exposing some interesting cultural differences, particularly for our students.

For the Early Childhood students, the ‘preservice’ culture of being a student and not yet being a teacher was challenged by the realisation that they were able to contribute as consultants to teams of designers, demonstrating their expert knowledge about their work with very young children. They realised how much they had to offer, and began to see themselves as teachers, rather than teachers-in-waiting. We all admired the well-developed sense of professional identity held by the Design students, who reflected a robust and confident professional culture. They saw themselves as Designers, rather than designers-in-waiting. Just as this interdisciplinary work provided opportunities to enhance the Early Childhood students’ sense of professional identity, the project also enabled the designers to experience the value of consulting with those outside of their profession – the end users of the product they were designing.

Apart from these opportunities to explore the ways in which interdisciplinarity might, both, challenge and enhance professional cultures in Early Childhood and design, the project also generated new ways of responding to the challenge of sustainability. In reality, the project would never have been conceptualised without sustainability providing the ‘glue’ that brought design (for sustainability) and education (for sustainability) together so that there was a reason for collaboration in the first place. This project has provided an excellent example of how emerging Early Childhood professionals can share their professional expertise with other members of the community in order to address a pressing problem. Importantly, while addressing the sustainability imperative in new and creative

ways, these professionals are learning from each other and strengthening their own professional cultures and identities.

We find ourselves in a new century in which there are increasingly urgent challenges for children, families and societies. ECE must respond to these if the profession is to continue to be relevant. Powerful and creative responses to such challenges are made possible when teachers have a strong sense of professional capacity and identity that acknowledges the contributions they can make when they work effectively alongside other professionals and the community at large. An important first step is understanding the professional cultures that exist within the Early Childhood profession. Some of these cultures should be reinforced and extended so that they are applied more broadly beyond the EC classroom. Other aspects of Early Childhood professional culture – those that restrict the potential positive impact of the profession – should be challenged and overcome. This needs to start in preservice teacher education, at which point we might reconsider use of terms such as ‘student’ teacher or ‘preservice’ teacher such that we, and our students, acknowledge the creative and intellectual capacities (McArdle, Gibson & Zollo, 2015; Ryan & Gibson, 2015; Sumsion & Patterson, 2004) of our emerging teachers from the moment they enter the university and begin their journey into the profession (Gibson, 2013).

### **Suggestions for further readings**

1. Birkeland, J. (2002). *Design for sustainability: a sourcebook of integrated, eco-logical solutions*. Earthscan.

This book introduces systems design thinking that intersects academic and professional boundaries and the divide between the social and physical sciences, in order to move towards a transdisciplinary approach to environmental and social problem-solving. Birkeland offers radical and innovative design solutions, where everyone could be living in buildings and settlements more like gardens than shipping containers, and that purify air and water, generate energy, treat sewage and produce food, all at lower cost than mainstream approaches to urban design. The text presents examples of integrated systems design based on ecological principles and concepts and drawn from the foremost designers in the fields of industrial design, materials, housing design, urban planning and transport, landscape and permaculture, and energy and resource management.

2. Gibson, M. (2013) 'I want to educate school age children': producing early childhood teacher professional identities. *Contemporary Issues in Early Childhood*, 14(2), pp. 127-137.

This paper explores how the professional identities of early childhood teachers are produced by the various discourses that dominate the field. A number of taken-for-granted early childhood teacher identities are explored; the notion of what it means to be an early childhood professional is challenged. Preservice teacher education is in sharp focus in this paper as the author attends to questions about how course content and underlying discourses shape preservice teacher identities. The discursive practices explored shed light on the complexities that shape and inform the professional identities and work preferences of preservice early childhood teachers.

3. Reich, S. & Reich, J. (2006) Cultural competence in interdisciplinary research collaborations: A method for respecting diversity in research partnerships. *American Journal of Community Psychology*. 38, 51-62.

This paper discusses the imperative for interdisciplinary collaborations to tackle complex societal problems that cannot be adequately addressed by single disciplines. The authors explain that interdisciplinary collaborations capitalise on diverse perspectives and practices that each discipline offers in the hope of offering innovative solutions to multifaceted problems. For such work to be effective, however, collaborators must recognize that cultural differences exist between and within disciplines. The paper conceptualizes disciplines as cultural groups and advocates for culturally-competent practices to facilitate interdisciplinarity.

### **Questions for critical reflection and discussion**

1. What aspects of professional culture might be challenged, strengthened or reframed such that Early Childhood teachers are empowered to contribute to professional conversations in diverse contexts?

2. How do the ideas in this chapter provoke you to think about interdisciplinary possibilities that have the potential to contribute to new ways of working with young children and families?

3. How might education institutions work to overcome obstacles in order to better support interdisciplinary teaching and learning?

4. What terminology does the Early Childhood profession use to refer to 'preservice teachers'? How do these terms position 'preservice teachers' professionally and serve to construct their identities? How might these terms be reframed?

5. Nominate as many diverse groups and professions as you can with whom you could authentically and realistically collaborate in order to contribute towards addressing the complex challenges of sustainability through early education.

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