Netla - Veftímarit um uppeldi og menntun



Menntavísindasvið Háskóla Íslands

Grein birt 31, desember 2014

▶ ► Yfirlit greina

[Netla – Online Journal on Pedagogy and Education]
[University of Iceland – School of Education]
[Peer reviewed article – December 31st 2014]

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Designing for a childhood focusing on conservation and sustainability

The Lone Pine Child and Family Centre project in Australia

In this article we present the development of a project that combines the environment of the Lone Pine Koala and wildlife sanctuary, a children's day care centre and aims of sustainability. The first author, visiting the site from Iceland, was introduced to the project by the second author. We discuss the importance of sustainability education (SE) and describe the project and the collaboration of the Lone Pine Sanctuary with the Queensland University of Technology. The ideas for the Lone Pine childcare centre build on the Reggio Emilia philosophy of the whole community raising the child and respecting children's strengths and interests. The intention for early learning in the centre is that experiences will be enhanced by an environmental and conservation focus including routine excursions to the sanctuary. Lone Pine Sanctuary leaders initiated a collaborative project with the Queensland University of Technology, based their expertise in Early Childhood Education for Sustainability. The collaboration created a cross-disciplinary network between academics and students from Early Childhood Education and Design. We conclude that the Lone Pine Project is an example of ambitious goal setting in SE based on quality collaborations between multiple partners.

Að hanna fyrir ung börn með verndun og sjálfbærni að leiðarljósi: Leikskólaverkefnið í Lone Pine í Ástralíu

▶ Um höfunda ▶ Efnisorð

Í greininni segjum við frá þróun verkefnis sem snýst um að koma á laggirnar leikskóla í dýragarðinum Lone Pine Koala, sem auk koalabjarna hýsir margar tegundir af villtum áströlskum dýrum. Leikskólinn mun starfa með sjálfbærni að leiðarljósi. Fyrsti höfundur greinarinnar heimsótti dýragarðinn í september 2014 og annar höfundur kynnti honum verkefnið. Í greininni ræðum við um mikilvægi sjálfbærnimenntunar og lýsum verkefninu og samstarfi starfsmanna í dýragarðinum Lone Pine og Queensland University of Technology (QUT). Hugmyndir

um fyrirhugaðan leikskóla byggja á hugmyndafræði Reggio Emilia þar sem allt samfélagið á að taka þátt í uppeldi barnanna og starfið byggir á styrkleikum og áhugamálum þeirra. Markmiðið er að nám barnanna í leikskólanum eflist með reynslu af starfi sem byggir á áherslum um umhverfisvernd og reglulegum heimsóknum í dýragarðinn. Starfsmenn Lone Pine höfðu frumkvæði að samstarfi við QUT til að njóta sérfræðiþekkingar þeirra á leikskólastarfi með sjálfbærni að leiðarljósi. Samstarfið leiddi af sér þverfaglegt verkefni innan háskólans og við Lone Pine þar sem nemendur í leikskólafræðum annars vegar og hönnun og listum hins vegar unnu saman ásamt fræðimönnum. Við ályktum að verkefnið um leikskóla í Lone Pine sé dæmi um metnaðarfulla markmiðssetningu í menntun til sjálfbærni byggðri á gæðasamstarfi milli margra aðila.

An Icelandic visitor learns about an Australian education for sustainability initiative

In September 2014, the first author of this article had the opportunity to visit Brisbane in Australia and to learn a about Australian schools. Among the many interesting things I heard about was a project to develop a childcare centre in the Lone Pine Koala Sanctuary, an ecotourism business and wildlife sanctuary on the outskirts of Brisbane. The second author, Julie Davis, prepared my visit to the sanctuary and asked me to take part in a symposium about the project. I visited the Lone Pine Sanctuary and took part in the symposium and observed the unique animal life, the different educational and recreational activities run by the sanctuary, and how they work to showcase and protect the wildlife in their care. The idea of a childcare centre at Lone Pine is interesting for many reasons, but particularly because of its foundational philosophy focusing on sustainability and wildlife preservation (Wilson, Design Brief¹).

The need for sustainability education

Around the world, awareness of the importance of sustainability thinking is rapidly emerging, as identified in the 2009 UNESCO Bonn Declaration (nr. 2): "...the world faces substantial, complex and interlinked development and lifestyle challenges and problems. The challenges arise from values that have created unsustainable societies." UNESCO (2014) promotes Education for sustainable development (ESD) as a way to work towards sustainability by dealing with all four dimensions of sustainability: environment, society, culture and economy. In some nations such as Australia, the commonly used term is 'education for sustainability' (EfS), whereas the 2011 Icelandic National Curriculum for all school levels uses the term 'sustainability education' (SE) (i.e. Ministry of Education Science and Culture, 2011). Pálsdóttir (2014) in her recent doctoral thesis explains the terms of the national curriculum such that 'sustainability' is the final goal, 'sustainable development' the path towards it, and SE is the education that enhances such development. SE builds on various approaches to encourage people's understanding of the complexities and interconnections of the issues threatening our planetary sustainability (Pálsdóttir, 2014). In this paper, the authors use SE, except where the original reference uses the alternative.

Huckle (2006) argues that the need for sustainability thinking increases every day while Sterling (2001) claims that we have a necessity to be educated to 'care and conserve' in

¹ Peta Wilson the Early Education and Care Project Coordinator at Lone Pine Koala Sanctuary provided the authors with a 27-page design brief introducing the ideas behind the Lone Pine Childcare Project: philosophy, potentials, requirements, regulations and others'experiences building on similar ideas.



Figure 1 – A koala in the Lone Pine Sanctuary (photo by Auður Gróa Valdimarsdóttir, 2014).

the spirit of sustainable education. The main aims of SE are to develop understandings of what it means, individually and as a global society, to respect, develop and use both natural and human made environments wisely, protect human rights, nurture multiculturalism, and take responsibility for actions that affect natural and human wellbeing, both now and into the future (Macdonald, 2009).

Sustainability education is a challenge

Because of the complexity of sustainability issues, approaches in SE are often multidisciplinary, crossing many traditional boundaries of school subjects, including roles of students and teachers, as well as between teachers themselves and between school and society (Macdonald, 2011). Therefore, many find SE to be a challenging task, and those who promote it do not present it as simple or easy. Nevertheless, SE is considered so important in many countries that it has become an embedded part of national curricula. In Iceland, for example, sustainability has been one of six fundamental concerns of the curricula of preschool, compulsory school and upper-secondary school levels since 2011. Preceding the release of the aim for sustainability in the Icelandic curriculum, an ambitious development and research project – the GETA project – worked across all three schooling levels with the University of Iceland to prepare the groundwork. The GETA project sought to understand the ways in which education for sustainable development was given space in the public school system in Iceland (Jóhannesson et al., 2011). Project outcomes provided valuable experience and knowledge for schools, and many in Iceland are now working on implementing sustainable education along with the other fundamental concerns that all are connected and influence each other directly and indirectly (see GETA, 2008).

Australia, on the other hand, has a less integrated curriculum approach to SE. For example, while sustainability is one of three mandated cross-disciplinary strands within formal schooling - the other two are 'Embedding Indigenous Perspectives' and 'Australia's Place in the Asia-Pacific' (Australian Curriculum, 2011) – early childhood education has a separate national curriculum, The Early Years Learning Framework, (Australian Government Department of Education Employment and Workplace Relations, 2009), which offers lightweight attention to sustainability. Additionally, there is a legislated National Quality Framework (Australian Children's Education and Care Quality Authority, 2011) for early education that must be complied with and that includes references to sustainable practices. However, continued inclusion of these sustainability components is under review by the current conservative federal government. Nevertheless, there is a long history of engagement with environmental and sustainability concepts and practices in education in Australia and a robust community of educators across all sectors who continue to work in this space despite political ambivalence, and impressive programs, projects, and initiatives related to sustainability topics and issues continue to be implemented around the country. For teacher educators, it is important that we are aware of national policy directions and take leadership in embedding sustainability into our courses. Unfortunately, though, teacher education, and higher education more generally, has been slow to address this topic. The example below is one university's effort to change this situation.

Ideas behind the Lone Pine Sanctuary Day Care Centre

The Lone Pine Koala Sanctuary (LPKS) is a well known koala sanctuary. It is the world's first and largest koala sanctuary with over 130 koalas (Wilson, design brief). The sanctuary was established in 1927 and has several other Australian animals either free ranging or in cages. Visitors can cuddle a koala, hand-feed a kangaroo, hold a snake, feed wild lorikeets, watch sheep being sheared or observe a free flight show with birds of prey. The sanctuary has some rare species, for example the Tasmanian Devil, a species in danger of extinction.

The vision for the proposed childcare centre is to provide quality care for children of the local community inspired by the Reggio Emilia Approach (Wilson, design brief). The intention for early learning in the centre is to enhance experiences through an environmental and conservation focus, including through routine excursions to the sanctuary. The idea is that the centre will be for 60 – 100 children (from six weeks to five years of age) as well as a place that facilitates academic research related to children learning in a sanctuary/zoo setting (Wilson, design brief).

The ideas for the Lone Pine childcare centre build on the Reggio Emilia philosophy involving the whole community raising the child and respecting children's strengths and interests. Children learn how to learn, and teachers and children work together as co-

researchers and co-learners (Wilson, design brief). Other principles of the Reggio Emilia approach that will guide teaching and learning in the centre when it is established include:

- The environment as the third teacher
- Respecting the 100 languages of children for creative expression
- Emphasis on uninterrupted child play
- Encouraging curiosity and discovery
- No set curriculum; the learning process is entirely child-directed
- Provocations: deliberate and thoughtful actions by an adult to challenge and extend the child's interests
- The child is free to explore these provocations in their own way without interruption
- Children leading the learning process and engaging in open-ended investigations

(Wilson, design brief)

Ideals of wildlife preservation, sustainability, and respect for and connection to the environment have guided the design brief for the proposed centre building. Design features and objectives for the building are in the following spirit:

- All design and construction builds on environmental sustainability design principles aimed at creating an holistic, sustainable culture.
- Design must fit with the local setting. Trees are to be a part
 of the architecture; existing native trees are not to be removed;
 instead they are to be used in the design of the building
 and its outdoors space.
- A circular building is to be considered, as such a design celebrates a holistic view uniting everyone in the building.
- Available spaces, including walkways, should be considered in terms of how to engage children

(Wilson, design brief).



Figure 2 – The proposed site for the day care centre – to the left of Lone Pine Koala Sanctuary's main entrance (Wilson, design brief).

Collaboration with the Queensland University of Technology

In order to advance these ideas, in January 2012, the LPKS leaders approached the Queensland University of Technology (QUT), based on initial identification of expertise in Early Childhood Education for Sustainability, to propose a collaborative project aimed at developing this child and family centre and community hub concept (Davis, 2013). QUT and LPKS then worked to create a cross-disciplinary network between academics and students from Early Childhood Education (Faculty of Education) and Design (Creative Industries Faculty), as a way to implement the sanctuary's vision and plans. This resulted in the collaborative interdisciplinary project, From the ground up: Embedding sustainability in a real-world context, funded by a small grant from the university designed to foster university-community partnerships.

The Interdisciplinary Student Design Project

The project offered a unique opportunity for Early Childhood and Design students to work collaboratively on a real world project. Students and staff engaged in practical, real world, community-integrated learning while the sanctuary benefitted from the inputs and expertise of early childhood educators and designers. Collectively, the project brought together three areas of endeavour: sustainability, education and business (Davis, 2013).

The core QUT team was three academics from the School of Early Childhood and four from the School of Design who had regular meetings to design a strategy and focus for the project. Thus, in 2012, 60 Design students who were enrolled in a design subject offered in the second and third year of their studies chose, from a number of project options, to be involved in the project outlined above. The subject required teams of five designers (architects, landscape designers, interior designers and industrial designers) to work together to produce a collaborative design responsive to the LPKS design brief with the possibility that their designs might be incorporated into the final design of the early learning centre. These collaborative designs constituted key assessment for these Design students.

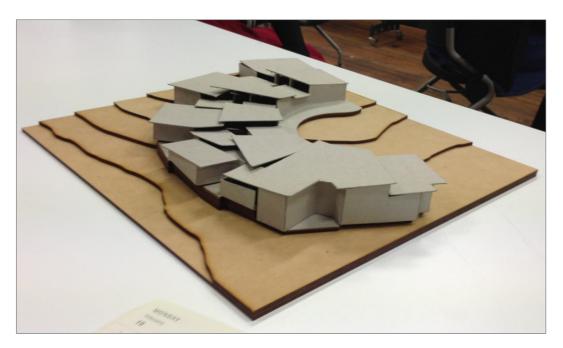


Figure 3 - One example of students' designs of the centre (photo by Julie Davis, 2012).

For students

To deepen and enrich their learning, and because these students had little or no experience with young children, early childhood educational settings, or early childhood pedagogies, the design project was extended to include pre-service teachers from the School of Early Childhood. Final year Early Childhood students who were enrolled in an Early Childhood Leadership and Management subject and who had undertaken a second-year subject that focused on Education for Sustainability were given the option to participate as part of their assessment and engagement in the subject. Students in this unit engaged in two key assessment tasks. The first was an analytical case study, where students conducted an interview with a person in a leadership position whose role had a focus on sustainability. The second assessment task saw students develop a professional development program spanning five weeks, and again this had a focus on sustainability.

Initially, only a small number of Early Childhood students from the leadership unit were nominated to participate in the project, so the opportunity to participate was extended to students from other cohorts and from the graduate Early Childhood program (i.e. a one-year post-graduate qualification). As these students' involvement was not connected to any particular subject, it was not linked to assessment. In all, 8–10 Early Childhood students took up the offer, which enabled for allocation of one Early Childhood student to each of the collaborative design teams. A model of learner engagement was developed where, each week during the Design students' tutorial class, Early Childhood students attended and worked with the Design students to design the childcare centre, providing advice to the Design teams as they formulated designs for the sustainable early learning centre at the sanctuary.

In the following year, the Early Childhood students and their assessment tasks became the focus of project activities. In the interest of brevity, this second phase of the project will not be discussed in this article. However, it is worth noting that over the two years that constituted the funded part of the project, a total of 140 undergraduate Design students and 26 undergraduate Early Childhood students collaborated in course work, assessment tasks or as volunteer consultants across both Faculties. Additionally, five QUT students have undertaken research on the project.

For academics

In addition to on-going planning, implementation and critical reflection meetings between cross-faculty academics, two symposia of key stakeholders were held in February and July 2013 where participants discussed project outcomes and ways forward. Students from both Early Childhood and Design contributed to these deliberations by presenting their work and reflections of their interdisciplinary learning experiences at these symposia.

Overall, the project had several positive outcomes for the university. In particular, the QUT academics expanded their understandings and practice of cross-disciplinary teaching and learning through engaging with sustainability as a core concept. Important experience and knowledge was garnered as QUT trialled (in 2012) and refined (in 2013) its model of inter-faculty and business/community cross-disciplinary partnerships.

Additionally, a group of academics from the Schools of Design and Early Childhood, architects and personnel from Lone Pine visited Melbourne to become acquainted with a suite of exemplary early childhood services. The visit served to further strengthen professional and personal relationships and deepened shared understandings of quality early childhood structures and practices. Furthermore, within QUT, wider interest has emerged for incorporating other faculties such as Health, and potential new Early

Childhood Education partners into an expanding partnership focused on healthy and sustainable early childhood services more generally.

For Lone Pine

The benefits for the LPKS of the collaboration with QUT were also multiple. First, it expanded Lone Pine Koala Sanctuary's understanding of what is possible in the design of a world-class early learning centre. The process and collaboration deepened the sanctuary's understandings of high quality Early Childhood Education, particularly with reference to education for sustainability. It also provided the sanctuary with 18 collaborative design proposals and 50 architecture proposals as a result of Design students' engagement with the project.

For both parties the collaboration provided a model for cross-faculty teaching, learning and engagement with society and business that can inform the work of the broader academic community. It can also be concluded that it provided a groundwork for rethinking indicators of high quality educational spaces for young children, potentially shaping future design implementation research such as post occupancy evaluation measures (Davis, 2013).

The road ahead

As mentioned earlier, in September 2014 the LPKS and QUT held a third symposium in which the first author had the opportunity to participate. This meeting, called Australia and Japan: Dialogues in Early Childhood Health and Sustainability, was held to promote and answer the question: How can we sustain and grow this project?

Participants from the QUT, among them Julie Davis (the second author) and the LPKS introduced the collaboration and work already finished and future visions. Svanborg's contribution was to introduce the concept of enterprise education into the discussion. The parallels between SE, design education and enterprise education became obvious, with common elements of inquiry, student focus, and active learning as evident. The participants realized and discussed the strong connections between the Australian work and the Icelandic perspectives presented. A common theme about learner participation, action competence and action learning was identified. The inclusion of enterprise learning into future Australian projects as an added dimension is something the project participants will consider. Additionally, an architect from Japan who had heard about the project during a visit by Julie Davis to Japan in May 2013 where she spoke at a symposium for architects, town planners, landscape architects and the like, introduced a Japanese orientation to sustainable architecture in buildings, especially for children. Finally, there was a session on the properties of hemp as a sustainable building material that could be useful in this proposed building project.

At the time of writing, the project is pausing due to some critical staff movements and course redesigns in both the Education and the Creative Industries faculties. As noted, research and evaluation associated with the project has told us that there have been many benefits. However, we also know that a great deal of the success was due to the volunteer efforts of academics, students and Lone Pine staff to make the project work. A great deal more needs to be done at the institutional level to make cross-faculty teaching sustainable, in terms of supporting these 'experiments' by changing the way, for example, academics are allocated to teaching teams, as well as how and who develops and assesses student learning. Efforts need to go beyond volunteerism to authentic cross-faculty teaching and learning. The intention is to restart the work between the Designers and the Early Childhood academics and students in the new academic year

of 2015, taking the education for sustainability work across the faculties into new areas of teaching and research.

Education for sustainability is indeed challenging but experiences in Iceland and those articulated here from Australia show that working in the spirit of sustainability is possible; furthermore, the urgent advice of a range of international experts and groups (Intergovernmental Panel on Climate Change, 2014; UNESCO, 2014) tell us that such initiatives must continue, and rapidly, and that higher education should be leaders (The Association for the Advancement of Sustainability in Higher Education, 2010). The Lone Pine Project is an example of ambitious goals in SE involving teacher education and higher education that have been initiated and had quality collaborations between multiple partners as the core of learning for sustainable education.

Acknowledgements

Svanborg's visit to Australia was funded by the School of Education, University of Iceland.

We want to thank Peta Wilson for her input into this article. Peta's vision, drive and passion for this project enabled us to achieve more than we could have hoped for in bringing a diverse group of people and ideas together.

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About the authors

Svanborg R. Jónsdóttir (svanjons@hi.is) is an assistant professor at the School of Education, University of Iceland. She completed a B.Ed. degree at the Iceland University of Education in 1978, an M.A. degree in pedagogy from the University of Iceland in 2005 and a Ph.D. from the University of Iceland, School of Education, in 2011. Her thesis is titled, *The Iocation of innovation education in Icelandic compulsory schools*. Her research fields are innovation- and entrepreneurial education, curriculum development, creativity in education, school change and teacher education.

Julie Davis (j.davis@qut.edu.au) is Associate Professor in the School of Early Childhood, Queensland University of Technology, Brisbane, Australia. In addition to her initial teaching qualification, Julie acquired a bachelor degree in Environmental Studies and completed a Masters Program in Environmental Education. Her Ph.D. project was based on action research to develop an environmental education program for teachers. Her research fields include Early Childhood Education for Sustainability (ECEfS) and the embedding of sustainability into teacher education using system approaches. She has recently co-edited a research anthology on ECEfS, Research in Early Childhood Education for Sustainability: International Perspectives and Provocations and second edition of her successful book, Young Children and the Environment: Early Learning for Sustainability, was released in November 2014.

Key words

early years day care centre – Lone Pine – sustainability education – education for sustainability – education for sustainable development

Um höfunda

Svanborg R. Jónsdóttir (svanjons@hi.is) er lektor við Menntavísindasvið Háskóla Íslands. Hún lauk B.Ed.-prófi frá Kennaraháskóla Íslands 1978, M.A.-prófi í uppeldis- og menntunarfræðum frá Háskóla Íslands 2005 með áherslu á nýsköpunarmennt og doktorsnámi á Menntavísindasviði Háskóla Íslands árið 2011. Doktorsritgerð hennar bar titilinn *The location of innovation education in Icelandic compulsory schools*. Rannsóknir hennar eru á sviði nýsköpunar- og frumkvöðlamenntar, námskrárfræða, skapandi skólastarfs, breytingastarfs í skólum og kennaramenntunar..

Julie Davis (j.davis@qut.edu.au) er lektor á sviði leikskólafræða í Queensland University of Technology í Brisbane í Ástralíu. Auk kennararéttinda býr Julie að B.S.-gráðu, meistaraprófi í umhverfismennt og doktorsverkefni þar sem hún notaði starfendarannsókn til að þróa heildrænt umhverfismenntunarnámskeið með kennurum. Viðfangsefni hennar í rannsóknum eru á sviði sjálfbærnimenntunar í leikskólum og snúast meðal annars um að flétta sjálfbærni inn í kennaramenntun á kerfislægan hátt. Hún var nýverið annar tveggja ritstjóra að safnriti um rannsóknir á menntun ungra barna til sjálfbærni, Research in Early Childhood Education for Sustainability: International Perspectives and Provocations og er höfundur bókarinnar Young Children and the Environment: Early Learning for Sustainability sem kom út í annarri útgáfu síðla hausts 2014.

Efnisorð

leikskóli – Lone Pine – sjálfbærnimenntun – menntun til sjálfbærni – menntun til sjálfbærrar þróunar



Svanborg R. Jónsdóttir og Julie Davis. (2014). Designing for a childhood focusing on conservation and sustainability: The Lone Pine Child and Family Centre project in Australia. Netla – Veftímarit um uppeldi og menntun. Menntavísindasvið Háskóla Íslands. Sótt af http://netla.hi.is/greinar/2014/alm/002.pdf

[Svanborg R. Jónsdóttir og Julie Davis. (2014).
Designing for a childhood focusing on conservation and sustainability:
The Lone Pine Child and Family Centre project in Australia.

Netla – Online Journal on Pedagogy and Education. University of Iceland – School of Education.

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