

## ***Deepening shades of green: Fostering education for sustainability with an experienced-based professional development course***

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### **Abstract**

Environmental education is a lifelong process in which all humans on planet earth should involve themselves. This research critically examines the role of experience-based learning in helping professionals become more aware and interested in sustainability issues. It not only contributes to the discourse on adult environmental education, experience-based learning and professional development, but also takes a unique approach by integrating the ideologies of each to promote education for sustainability. Traditional professional development courses focus on upgrading job related skills, product knowledge, and personal growth. They are an underutilized avenue to foster sustainability education. In the building design field there is an increasing proliferation of environmentally-themed courses, covering topics such as green building rating schemes, energy efficiency and affordability. However, there is a lack of courses which challenge professionals to critically reflect on their core values and beliefs about the environment, their impact upon it and their role in creating a sustainable future. This study was specifically trying to find ways in which to increase sustainable thought in day-to-day professional activities in ways which go beyond simple awareness. A small group of Interior Designers participated in trial course, which included a guided tour of an active landfill and recycling operation located in the Region of Waterloo, approximately one hour west of Toronto. The course was an evocative experience for the participants. Participants all expressed that ‘everyone’ needs to do a course like this, one even suggesting it somehow needs to be a requirement of being a citizen. Participants felt the experience-based learning style was a key to their learning. “If you don’t really see it for yourself you’d miss the point. You can’t relate to the scale of it if you are not there,” was the feedback from a participant. Highlights of the outcomes of the course along with opportunities for further studies and investigation are presented in this paper.

**Keywords:** experience-based learning; sustainability; environmental education; professional development; Interior Designers

## Introduction

Environmental education is a lifelong process in which all humans on planet earth should involve themselves in. David Orr (1994) argues that in order for a more sustainable and desirable future, no students should graduate from an educational institution without a holistic understanding of economic, environmental and social systems. Students should be familiar with concepts such as carrying capacity, limits of technology, appropriate scale, environmental economics and the basic principles of ecology. It is with optimistic faith that the next generation of adults will begin to receive a formal education which integrates Orr's ideologies; however, there also needs to be emphasis placed upon this type of education for the current generation of adults; many of whom graduated from educational institutions without this knowledge.

Climate change, peak oil, resource depletion, deforestation, drought, loss of biodiversity, urban sprawl, and air pollution are just some of the many environment and resource issues ever present in the world today. Education for sustainability needs to not only raise awareness of these issues, but it must also foster a change in people's attitudes and understanding about their impact on the natural environment; herein referred to as 'sustainable thought.' In order to promote education for sustainability we need to provide opportunities for the basic fundamentals of environmental education to be taught to the adult population: the working population who are already literally harvesting the Earth in which the next generation of adults is to inherit (Bhola, 1998). It is unthinkable to "wait thirty years for the next generation to make changes that benefit the environment...the ecological risks are too immediate (Belanger, 2003)." This study specifically tried to find ways in which to increase sustainable thought in day-to-day professional activities in ways which go beyond simple awareness.

To most people the word 'education' conjures up the formal images of a school and classroom, and in turn the traditional "teaching is telling" model. In this traditional model the teacher delivers information and knowledge to students who are charged with the task of learning or memorizing it. The experience-based learning model departs from this traditional educational model and recognizes that it is the experience of the individual involved in the learning process which is the key element in their learning (Ansbacher, 1999). Experience-based learning is the result of "direct, sensory interaction with real living things" (Stewart, 2002, p.122), where learning is an active process and learners actively construct their own understandings. It stems from a constructivist theory of learning, and is based on the common understanding that it is the learner who actively constructs their own understanding, rather than simply receiving transmissions of knowledge (Stewart, 2002; DeLay, 1996; Simmons, 1995; Ausubel, 1978).

The Association for Experiential Education (AEE) provides the following definition for experiential education:

*"Experiential education is a philosophy and methodology in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills and clarify values."* (AEE 2006)

Experience-based learning is not easily described in a straight forward set of strategies, methods or formulas, however characteristics which distinguish experience-based learning from other learning approaches include: a requirement that at some level a person's intellect, feelings and senses are being stirred; recognition and active use of the learner's relevant life experiences and learning experiences; and continued reflection upon earlier experiences, to add to, transform and deepen their understanding of them (Andresen et al., 2000). Professional development courses are a complementary learning forum for experience-based courses, as they often relate to the learner's work life experiences and seek to promote personal and professional growth.

Traditional professional development courses focus on upgrading job related skills, product knowledge, and personal growth. In the building design field there is an increasing proliferation of environmentally-themed courses, covering topics such as green building rating tools, designing for energy efficiency and the costs and benefits of greening design. However, there is a lack of courses which challenge professionals to critically reflect on their core values and beliefs about the environment, their impact upon it and their role in creating a sustainable future. Professional development courses are an underutilized avenue to foster education for sustainability. There is still a large gap when it comes to critically focused and experience-based informal adult environmental education opportunities. We are concentrated on "learning for earning" and there is a need to increase the critical reflection of our way of seeing the world (Sumner, 2003).

Hence, to employ an experience-based learning model in a professional development course was a natural compliment to the research project goal of increasing sustainable thought in day-to-day professional activities in ways which go beyond simple awareness. An extensive literature review was conducted on experience-based adult environmental education and it was determined that this is an under-explored area of research.

Much of the research on experience-based environmental education relates to studies involving children and young adults. Studies to date have sought to influence and determine how the experiences affected their environmental knowledge, attitudes and behaviours (Rhee, 2003; Stewart, 2002; Haluza-DeLay, 2001; Knapp and Poff, 2001; Laney, 1993). Generally the themes for the experiential studies to date are based on experiencing nature, its pristine qualities, ruggedness, and beauty, with the aim of developing an appreciation and desire to preserve it. Experience-based studies have not to date considered experiences that illustrate humans' unsustainable impacts on the environment. This case study course sought to provide adult participants with a less pleasurable and romanticized experience of the environment, by seeking a location that is directly related to unsustainable human activity.

## **Case Study**

### **Interior Designers and Waste Management**

A two hour professional development course was organized, in which participants took part in an educational tour of a waste management site at the Region of Waterloo Landfill in Waterloo, approximately 1 hour west of Toronto. The tour was given by a Waste Management Coordinator employed by the Region of Waterloo and the information

presented was based on the tour the Waste Management Coordinator regularly conducts. This included a tour of the interactive environmental education centre, the materials recovery (recycling) centre and a driven tour of the landfill site. Participants were exposed to a variety of topics such as Recycling, Landfill Design, Life Cycle of Materials, Waste Facts and Statistics and visual experiences of areas such as recycling and sorting, an active landfill cell, methane gas generation, hazardous materials drop off, composting, decommissioned landfill cells, an expansion site and re-vegetation areas.

The trial course had three main objectives which were to:

1. Experiment with an experience-based learning style and its ability to increase sustainable thought in day-to-day professional activities in ways which go beyond simply developing awareness
2. Expose the participants to basic environment and resources education not obtained during their formal education or through other professional development courses.
3. “Awaken” the participants to the impacts that design makes on the health and welfare of the planet and the people who live and work in the communities they design.

### **Why Interior Designers and Waste Management?**

Interior Designers are key decision makers about the amount and type of interior fitout building materials specified for a project. They generally make their decisions based on cost, durability, function and aesthetics and can often overlook the environmental impacts of the new materials they specify and the material waste created from the built forms they propose to demolish. Design and construction activities have a large impact on the natural environment. In terms of waste creation alone Public Works and Government Services Canada (2003) reports that “as much as one third of the 20 million tonnes of solid waste of municipal waste streams is generated by construction, renovation and demolition activities.” To move towards a more sustainable future, Interior Design professionals need to develop a broader understanding of environment and resource issues and their role in promoting sustainability and the environmental impact of their professional activities.

Interior Designers were also selected for the trial course because of the convenience of their already established mandatory professional development structure, particularly in the Province of Ontario.

A recruitment letter for participants was sent out to Interior Designers on the Association of Registered Interior Designers of Ontario (ARIDO) electronic mailing list. The recruitment email requested expressions of interest for participation in an undergraduate research project on environmental education. As an incentive to participate the ARIDO members would be given recognition for one Continuing Education Unit (CEU) point towards their required tri-annual point requirements. Within the time frame for this study there were five positive responses to the email recruitment and three participants took part in the entire research project.

Participant 1 is a Facilities Planner for an administrative branch of government and has just over 6 years of Interior Design work experience. Her main area of expertise resides in the commercial sector. Participant 2 is a Registered Interior Designer who owns his own firm. He has over 20 years of Interior Design work experience, and his main area of expertise resides in the residential sector, more specifically focused on higher end residential projects. Participant 3 is a Registered Interior Designer who also owns her own firm. She has over 20 years of Interior Design work experience and specializes in the commercial sector.

## **Methodology**

The research design for this project was modeled on a number of similar research studies including Rhee (2003), Haluza-DeLay (2001) and Knapp and Poff (2001). All of these project's research designs employed participant observation as well as pre and post semi-structured informal interviews. An extensive literature review on conducting qualitative research, participant observation, measuring changes in attitude and behaviour and naturalistic inquiry was conducted and also informed the research design (Norris and Walker, 2005; Gray 2004; Denzin and Lincoln, 1998; Erlandson, D et al., 1993; Lincoln and Guba, 1985).

**A Pre-Interview** was conducted 7-10 days prior to the tour of the waste management site. The purpose of the pre-interview was for the researcher to gain some insight into the educational background and experience of the participants, with the key focus on their professional life.

**Participant Observation** is a natural compliment to collect data from an experience-based learning course. By being immersed in the course with the participants it was expected that a greater understanding of the participants experience in the course would be gained, rather than receiving only their second hand account afterwards. It would also be possible to record their emotional and physiological reactions to the learning situation. The participants were informed prior to the course that a researcher would be present to observe and record their interaction and participation in the course, as well as interact with them. This observation style is referred to as 'observer as participant' (Junkers, 1960).

**The Post-Interview** was held approximately 10 to 15 days after the course. The post-interview was structured with two goals in mind: an opportunity for the participants to reflect upon their experience and to provide feedback on the content, style and suggested improvements for the course.

## **Discussion**

### **The Course**

The Region of Waterloo Waste Management Centre has recently renovated a small administrative building into an education centre. This was the starting point for the course. The centre is designed with experiential learning in mind; there are interactive displays, scaled models to look at, things to touch, and the sounds and smells of the waste

management operations outside. The structure of the information delivery varied as the participants moved through the centre, from seated classroom type presentation, to participant directed learning as they were left to freely navigate the centre. The second stop on the tour was the Materials Recovery Centre, where the participants could get a bird's eye view of the recycling operation from a viewing mezzanine. The driven tour of the landfill took approximately 20 minutes, and although brief, re-enforced many of the topics discussed in the education centre, through sensory stimulation and interaction with the waste management site. As they toured the waste management site participants displayed an astute level of observation pointing out the litter fence, the methane gas pipes and the testing wells along the sides of the landfill. All of these items had been discussed when viewing the scaled model of the landfill in the education centre. Participants' connected aerial photographs and diagrams of the landfill to the real thing. They were speechless at the rate in which the newest landfill cell had been filled since the photograph they saw, which was taken one year prior. On many occasions they displayed characteristics of a young child, wide-eyed and mesmerized, seeing something new for the first time. One participant was truly amazed at the height of the closed cells and when the future landfill expansion area was pointed out by the tour coordinator, the encroaching urban sprawl was pointed out by all. Their senses were constantly challenged as the course progressed as they processed the overwhelming smell of the freshly turned compost piles. However, because the course was held in the Canadian winter, participants were spared the smell of the landfill itself.

### **The Impact of the Experience**

**Participant 1** definitely felt that she could make a connection between the course topic and her professional activities. The connection she described exhibited characteristics of critical reflective thought, as she stated that interior designers need to be prepared for the long term effects of their actions. "We are thinking too short term and too focused on up front costs and the bottom line." She found inspiration in the course stating "you don't feel you're walking the path alone...it was like having someone showing you the way." As a result of the course, she feels she will and already is doing things differently, both personally and professionally. Since the course, she has been taking more care to properly sort all the recycling in her blue box. Professionally, she is looking at how to incorporate recycling accountability and waste management strategies into her project tendering process. She feels motivated to continue to think outside the box at work and make alternative material suggestions and design strategies to reduce the environmental impact of the spaces she designs. However, she does feel that it will still be an uphill battle because of the institutional barriers in place at her place of employment. Part of her did feel a bit saddened by the experience; "even in light of all the good things the waste management people are doing. It is still an ugly side of humanity to see our heaps of garbage", she remarked.

When asked what he learned about waste management that he did not already know **Participant 2** replied "quite a bit." "It was a real eye opener", he said. When probed to explain further, he responded he was impressed to learn about the volumes of garbage, how it is being treated and what the plans are for the local municipality to do with it in the future. When it came to relating the topic to his professional activities, he replied that

he did not so much relate to the course as a designer, but rather more on a personal level, as a citizen. He also indicated that he is already doing things differently as a result of the course. He felt that he is now more aware when shopping about the impacts his purchasing decision will have on waste creation; he now looks for the mobius symbol on plastic packaging and considered purchasing recycled content copy paper. He believes that a course like this should be done by every member of the community...sort of like a citizen CEU course. The experience based style was a key to his learning, he felt. "If you don't really see it for yourself you'd miss the point. You can't relate to the scale of it if you are not there." One of the best outcomes of the experience for him is that the experience it has encouraged him to talk about what he learnt with others. He feels he is passing along the knowledge he gained and it has empowered him to educate others. He proudly remarked that he even stopped a friend from throwing batteries in the garbage bin. He also added that he was "somewhat saddened by it all (the waste) and thinks that it is gross."

**Participant 3** had recycling and composting on the top of her list of things she remembered and found most interesting. When asked if she felt there was any relation between the course topic and her professional activities she responded "that's a tough one." As the Interior Designer, she generally leaves it up to the contractor to dispose of waste on the site. She has in the past encouraged the use of Habitat for Humanity ReStore, but she admits that she doesn't always take the time to be cognoscente of the construction waste, but is now more aware that she should. On a personal level she has already started doing things differently, and is also taking more care to properly separate and sort her recycling. She used the post-interview as an opportunity to reflect on the design process and barriers to sustainable design. Currently, in her view, the main barrier is cost. However, being profoundly honest, she also commented that "people don't want to plead ignorance on environmental issues and may shy away from the topic so they don't have to feel stupid." She felt that having a resource person through their professional governing body who represents environmental issues, could be an advocate for education, as well as a resource for Interior Designers to assist with material specifications and other environmentally related design knowledge could help overcome this barrier. She enjoyed the experience-based style of the course as it was more hands on and allowed for her and the other the participants become actively involved in the learning. She noted the 'short attention span' of Interior Designers and remarked that she was kept engaged for the entire length of the course.

### **Recommendations for Course Improvement**

Below is a summary of feedback from the participants as to how to improve the course design in future iterations:

- Provide take away materials with conclusions and summary of the information presented and links to other information sources as a resource for future reference;
- Transport people to and on the site in an alternative-fueled vehicle;
- Run a follow up course, which provides more specific design orientated information about building products, materials minimization and waste management strategies;

- Conduct a debriefing session at the end of the course for participants to discuss what they have learnt.

## Findings

*“Experiential learning will always alter our minds.”*

(McDermott et al. 2002)

The course was an evocative experience for all of the participants. The experience-based learning style made the learning fun and engaging. All participants either during or after the course commented that everyone should have to do a course like this. A study of the relationship between education and personal behaviour change found that personalizing environmental issues, increasing individual knowledge of scientific and technical data and boosting confidence in an individuals understanding of complex issues, were all very important factors which could contribute to personal behaviour change (Carter, 1998). None of the participants had any environmental education in their formal studies, and none had ever been presented with the opportunity to take a course specifically on waste management. None of them had any prior knowledge as to how a municipal landfill operated, and therefore their knowledge and understanding of waste management techniques, the life and maintenance of a landfill, risks associated with landfilling, markets for materials recovery, hazardous waste disposal was improved. Participants were pleased with their new understanding of the overarching concept of waste management rather than their prior awareness of simplistic terms like garbage, recycling and landfill.

While it is difficult to determine whether a change in values occurred in any of the participants, in the short term at least there has been a change in all of their personal waste management behaviours. All participants have made efforts to be more aware of their waste behaviours in various ways, from source separation, to the consumer choices the make. Increased confidence to engage in discussion of waste management issues is a noted change in all the participants’ behaviour. All the participants have been actively discussing and sharing their learning experience with friends and colleagues. Reflection is one of the key stages in the process of experience-based learning (Boud and Walker, 1990). Learners reflect during and after the experience by handling feelings that arise and re-evaluating the experience. This ongoing process of reflection involves the learner associating new data with previous learning, integrating these associations and testing out their new learning. By sharing their experiences in the course the participants are actively engaging in this reflection, integration and testing process.

## Limitations of the Study

Response to the recruitment email was limited. A couple of factors may have contributed to this including, the subject line of the email (recipients needed to open and read the email to learn that the research project was a professional development course) and the limited number of CEU points (one) being offered as compensation for the commitment of approximately 5 hours to the study. Normally, ARIDO members are given 1 CEU point for each hour of continuing education, but because the course has not yet been



accredited by the ARIDO Education Board, participation in the research project fell under category AR314 Community Service/Volunteer Work.

The Waste Management Coordinator who gave the tour addressed the majority of questions from participants during the tour with ease. However given her limited expertise in interior design, as well as construction and demolition waste, she could not offer strategies and information to the participants that they could apply to their professional practice.

## Conclusions and Future Directions

This research should be viewed as an exploratory study which adds to the discourse on education for sustainability and more explicitly on experience-based learning, professional development and adult environmental education. It should be used as a catalyst for more studies in the future. It is a narrative to trigger ideas and motivation in the reader to think outside the box when developing methods to educate for sustainability.

Education for sustainability needs to not only raise awareness of issues, but also foster a change in people's attitudes and understanding about their impact on the natural environment. Further qualitative studies and structured experimental research designs are needed to make generalizations about changes in attitudes and behaviours stemming from professional development courses taught in experience-based learning styles versus traditional classroom type settings. Other experience-based environmental themed professional development courses could include: touring urban fringe developments to view their impacts on the surrounding buffer zones; visit areas affected by drought; a tour of a waste-water treatment plant; and visiting areas affected by deforestation. A series of courses could be developed which provide an experience-based course on an environmental issue (such as deforestation) with a course which provides a design tool (such as specifying certified timber or using salvaged timbers). Joint research efforts with professional organizational bodies, similar to ARIDO, to implement strategies to make environmental education a mandatory requirement of professional development also needs to be explored.

Adult environmental education only may not be sufficient to cause the amount of attitude and behaviour change required to put humanity on a path toward a more sustainable future it is still necessary. On a professional level, adults need to deepen their understanding of the impact their activities have on the natural environment which moves beyond simple awareness, before being given more specific tools to address the problems. For an individual to be given a tool to reduce construction waste, without teaching them about waste management, is only giving them half of the picture. By providing professionals with increased confidence in the depth and breadth of their knowledge about environment and resources issues they will be more able and willing to address them.

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