

Do the right thing- combat our unsustainable future with design education

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Abstract

Governments, policy makers and environmental activists across the globe, entered the 21st century with a renewed focus in combatting the impact of humanities unsustainable practices. To achieve this goal a paradigm shift towards being environmentally responsible and accountable is required in which humanity will have to adopt radical personal change. This paper therefore aims to address the unsustainable future that humanity faces through investigating the role of education as agents of change in motivating sustainable practices and inspiring personal, ethical conduct amongst university students.

The research aim is achieved through conducting both a literature review and reflecting on a sustainable design based student project. The literature review commences with a reflection on the role and contribution of education in offering sustainable design education programmes through introducing the original six goals of environmental education as published in 1976 in the Belgrade Charter: A Global Framework of Environmental Education. The acquisition of appropriate sustainable design knowledge, awareness and skill is further investigated through presenting the sustainable curriculum developer, Paul Murray's (2011), teaching and learning approach that focuses on 'The Sustainable Self'. The literature reflection finally includes the moral development research conducted by James Rest (1986) which identifies in a Four-Component model how decision makers conduct moral decisions and explains the value and benefits of offering ethics programmes to students.

This paper will then discuss a project which aimed to develop design students personal accountability towards sustainable design as well as their moral judgement and decision making processes. The project tested the assumptions that a teaching and learning process can contribute to personal growth, improvement in moral judgement and ethical conduct which in turn contributes to developing design students that can take accountability for their design decisions and actions. In the paper, I will discuss the outcome of the project and focus on the behavioural changes identified by students in their personal feedback. The conclusion includes suggestions to improve the project through applying the goals of environmental education, Paul Murray's curriculum suggestions and Rest's framework to the context of the programme and the particular teaching and learning environment.

Keywords: Sustainable design education, moral development, sustainable design project

Introduction

At the main entrances to our university campus are large banners that read "Do the right thing: Reduce, Reuse, Recycle". Within 800 meters from the main gate, on the side of the road leading to the campus, is a large billboard sponsored by the Endangered Wildlife Trust that reads "Destroy your environment, destroy yourself". These environmental education campaigns form part of many public attempts to promote a radical transformation within society that require attitudinal and behavioural changes. The messages in both campaigns also reveal the unsustainable dilemma that humanity faces – we know we are destroying the environment and are reluctant to take accountability.

Since the early 1960s environmental activists have pleaded with humanity to collectively take accountability and responsibility for the abuse and neglect that is imposed on the planet (Margolin 2007). The call to take action had reached critical levels when Wackernagel and Rees (1996, p. 125) announced in 1996 that the world was in a state of 'overshoot' which indicated that humanity's

ecological footprint had exceeded the global carrying capacity. Governments, policy makers and environmental activists across the globe, entered the 21st century with a renewed focus on saving the planet and therefore saving humanity. To achieve this goal a paradigm shift towards being environmentally responsible and accountable is required of human beings necessitates radical personal change.

Tony Fry (2009, p. 248) explains that if humanity strives towards building a sustainable future, the following three challenges needs to be met; 1) resolve (as many as possible) environmental problems caused by humanity; 2) adapt to the environmental conditions that we cannot resolve; 3) the most difficult challenge - transforming our actions to “cease generating the level of destruction, conflict and inequity that threatens our continuity”. Fry (2009, p. 240) evaluated, through reflecting on his personal experience, the efficacy of change agents to understand the context in which new sustainable design actions and practices could function. In this evaluation, Tony Fry rates the effect of environmental education as “moderate but potentially high” and further identifies environmental education as the only change agent with a potentially high effect. The scope of environmental education is identified to be a very broad area that spans from primary school to postgraduate studies. The activity area includes many thinking methods that can be rated from excellent and insightful to ‘fuzzy thinking’ that is below expectation. However, this evaluation indicates the important role of education to act as change agent in assisting in the transformation of human actions.

This paper therefore aims to address the unsustainable dilemma that humanity faces through investigating literature that provide guidances on the role of education as an agent of change in motivating sustainable practices and inspiring personal, ethical conduct amongst students. This paper will furthermore include student feedback that was obtained after third year students completed a project which aimed to challenge their ethical conduct and decision making processes. The project therefore tests the assumptions that a teaching and learning process can contribute to personal growth, improvement in moral judgement and ethical conduct. This in turn contributes to developing design students that can take accountability for their design decisions and actions.

Research Methodology

The research methodology employed in the paper includes a literature review and consolidation and analysis of data gathered from student feedback. An investigation into literature assisted in providing insight to relevant theories, models and practices that pertain to sustainable design, ethical behaviour as well as goals and objectives of sustainable education. Student feedback was obtained through presenting a questionnaire to students that were enrolled in the third year theory module in which the project was executed in 2012, 2013 and 2015. The data was collated and analysed. Both statistical feedback and textual data were extracted from the feedback. Coding, themes and subthemes were utilised to analyse textual data and pertinent quotes were extracted and included within this paper to enrich the discussion of the research findings. The paper further includes the first person voice of the researcher, who was also the facilitator of the project. These reflections aim to enrich the content of the paper through including personal observations and explanations of critical decisions that were made during the teaching and learning process.

The role of design education as a change agent in transforming society

Goals and objectives of Environmental Education

The relevance and importance of environmental education has gained recognition since 1972 at the United Nations Conference on the Human Environment that took place in Stockholm, Sweden. Environmental Education was identified as a vehicle through which global environmental problems could be resolved. In 1976, The United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the United National Environmental Program (UNEP) published the Belgrade Charter: A Global Framework of Environmental Education (UNESCO, UNEP 1976). The Charter presents a global framework that established a need to adopt a new global ethic that includes both attitude and behavioural change for individuals and societies. The Belgrade Charter defines the goal of Environmental Education as follows;

To develop a world population that is aware of, and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitments to work individually and collectively towards solutions of the current problems and the preventions of new ones.

The Belgrade Charter defines six goals for Environmental Education of which the first four goals can be summarized as the intention to help individuals, groups and societies to acquire awareness, knowledge, attitude and skills to understand and solve problems relating to the total environment. Environmental education should further assist in helping individuals to develop the ability to evaluate environmental measures and lastly to develop a sense of responsibility through participating in solving environmental problems.

The goals for Environmental Education identified in the Belgrade Charter were included in the school curriculum from the 70s onwards. I include the Belgrade Charter in this paper as an important reference point which defines the role and goals of environmental education and I do not intend to expand further on the development of strategic goals and objectives within the Education for Sustainable Development (ESD) programme. For the purpose of this paper I incorporate the six objectives, as presented in the Charter, to identify the fundamental core areas that informed the learning objectives and desired outcomes of a teaching and learning strategy.

Since the publication and original implementation of Environmental Education various evaluations and critical reflections have been conducted to determine if the objectives of the EE programme have been met. Kopnina & Meijers (2014, p. 196) explain that the EE programme has had “mainly activity and output objectives rather than outcome and impact objectives”. Kopnina & Meijers (2014, p. 196) further identify that literature published in the domains of social psychology and environmental anthropology challenge the assumption that an increase or change in environmental knowledge equals change in attitudes, motivation and behaviour. On the contrary, a rhetoric-behaviours gap has been identified which explains that “educating people to care about environmental problems does not equal raising their motivation, let alone providing guarantees of their participation in combating these problems”. Therefore, gaining an understanding and awareness of environmental problems does not determine a desire to take accountability for the unsustainability dilemma. This realisation turned my research focus to the work of sustainable design curriculum developer - Paul Murray.

Changing and developing the sustainable self

In his book *The Sustainable Self: a personal approach to sustainable education*, Paul Murray encourages individuals to think and reflect deeply on the role they should perform in the sustainability agenda. Murray (2011) disagrees with the general approach that I present to design students which is to “save the planet”. Murray (2011, p. 1) considers this as the wrong message and explains that “[I]t is not the world that needs saving but us;...to save ourselves we need to embrace fundamental change.” Murray (2011) therefore argues that the shift towards a sustainable future commences with an attitude change within each individual on this planet.

The author included his personal attitude and approach in his observation. Through introspection the author discovered that as an academic, he approached sustainability as a ‘professional issue’ and his professional experience has barely influenced his personal choice and practices. This realisation had a profound impact on his research focus and through a United Kingdom (UK) funding initiative he developed, over a period of five years, teaching, learning and training techniques that could engage people at a personal level with what he refers to as “the biggest issue of our time” (Murray 2011, p. x).

Murray (2011, p. 22) acknowledges that it is not possible to accept new ways of thinking suddenly, but “they can be cultivated over time if we engage constructively with our internal drivers and mental capabilities”. The role of the educator, facilitating the sustainability teaching and learning process, is therefore not only to present knowledge and develop skills that could inform sustainable practices. A deeper level of approach is required that includes; promoting awareness, motivating a deep intention to act sustainably, foster empowering beliefs and establishing wise application of knowledge and skill. Murray (2011) explains that this can only be achieved if students recognize the

connections between their core values and sustainable behaviour which in turn create conscious awareness on altering our automatic responses and behaviour. Once students transform their self-limiting beliefs they will be empowered to override internal barriers to change. In order to obtain deeper levels of learning and change at an individual level it is therefore essential to employ teaching strategies as presented by Murray.

James Rest's framework: Changing moral values

The final literature reflection is into the field of moral development and the Four-Component Model developed by the psychologist James Rest in 1986. Craig Johnson (2006) presents an outline of James Rest's Four-Component Model which aims to explain that ethical action is the product of four psychological sub-processes. These are (1) moral sensitivity (recognition); (2) moral judgment or reasoning; (3) moral motivation; and (4) moral character. According to Johnson (2006, p. 60) James Rest aimed to answer the following question with this model, "What must happen psychologically in order for moral behaviour to take place?" In order to discuss the four different sub-processes I present a brief summary of the stages as described by Johnson (2006, p. 60-72);

Component 1 -Moral sensitivity is the ability to recognize that an ethical problem exists and is the key to transformational ethics. Such recognition requires being aware of how our behaviour impacts on others, identifying possible courses of action, and determining the consequences of each potential strategy. In order to solve a moral dilemma we have to know that an ethical problem exists.

Component 2- Moral judgement follows after an ethical problem has been identified. The decision maker (person that aims to resolve the ethical problem) needs to cast judgement (determine if a solution is right or wrong) on the situation and determine the appropriate course of action based on the evaluation conducted in component 1.

Component 3 and 4 require personal motivation and moral character of the decision maker to ensure that the identified course of action is executed. Johnson (2006) indicates that rewards and emotions play an important role in the following though the ethical action. A strong willed, moral character is also required to resist distraction, overcome obstacles and persist when the decision maker encounters personal differences and difficulties.

Johnson (2006, pp. 65-66) indicates that Rest developed a Defining Issues Test (DIT) to measure moral development and conducted the test with over 800 students. Liisa Myyry (2003) explains that one of the goals Rest and his associates (at the University of Minnesota) had was to have a theory and methodology for studying morality of everyday life and not only to reason on hypothetical dilemmas. Johnson (2006, p. 66) outlines some findings and explains that Rest identified that older students benefitted greatly from an ethics programme and that moral reasoning improves with age. Students at higher levels (such as postgraduate or professional levels) therefore have greater benefit from ethic programmes. Dramatic changes occur in young adults in their 20s and 30s in terms of the basic problem-solving strategies and the manner in which they perceive society and their role in society. Educational environment makes a valuable contribution to developing and improving moral judgement through both offering ethics coursework and allowing students to debate topics outside the class room. Unfortunately, moral development plateaus when the educational context dissipates. Continuous activities and discussion within the domain of moral judgement and motivation therefore needs to take place. The most important conclusion from this study is that education plays a valuable and important role in teaching ethics and moral judgement to students. Furthermore, higher education has the opportunity to offer these courses to young adults who are in an age group where they develop their moral judgement and ethical perception of society.

Student project – A comprehensive Recycling Audit project

Brief overview of a third year project

In third year design students are expected to deliver project outcomes in which they show an ability to manage a greater scope and complexity of knowledge. In addition, students have to conduct deeper levels of critical thinking and evaluations through incorporating knowledge and skills obtained in the first two year of study. I am the facilitator of a third year module that includes themes that address sustainability and critical thinking. Taking the expected third year outcomes into

consideration I have developed and introduced a Recycling Audit project since 2011, which is evaluated and refined annually. The group project requests students to conduct a series of tasks which include conducting audits of recycling stations located on the university campus. The execution of the project takes place over a six week period and class sessions takes place parallel to the execution of the project.

The project provides students with an opportunity to observe their immediate environment and the recycling patterns of fellow students. The recycling station audit requires of students to document the usage of a recycling station over a five day period at two hour daily intervals during an 8 hour work day. The groups monitor the type of waste that is recycled, peak recycling periods, bin cleaning patterns as well as the correct recycling of waste. The theoretical component of the project aims to deepen the student's knowledge in relation to sustainability issues, create awareness of sustainability challenges and present the benefits of recycling initiatives. Class discussions assist in improving the students understanding of the broader sustainable design challenges through addressing climate change, impact on resources and the impact of the built environment. These teaching and learning activities therefore incorporate the first four goals of The Belgrade Charter goals for Environmental Education which is to acquire awareness, knowledge, attitude and skills to understand the total environment.

Through conducting the recycling station audits, observing recycling patterns of fellow students, interviewing students and engaging in critical group discussion that stemmed from the outcomes of the project; the students reached deeper levels of learning. The latter stage of this teaching and learning process assisted the students in gaining an ability to evaluate and measure their immediate environment as well as identifying ethical problems within this context. This action corresponds with component 1 (moral sensitivity) of Rest's Model. Through presenting a critical reflection and recommendation in relation to the recycling situation on campus, groups can debate aspects of moral judgement (Rest- component 2).

The ultimate level of learning is achieved when students through their personal insights and reflections identified that they needed to take personal responsibility to combat the impact of human actions. The final stage of the teaching and learning process was to inspire students to proceed to component 3 (personal motivation) and 4 (moral character) of Rest's model. The importance of reaching a stage of personal motivation further corresponds with the teaching and learning outcomes as presented by Paul Murray. These focus on developing self-motivated individuals that can take personal action and responsibility for their future design actions. If this final stage of learning is achieved, goal five and six of the Environmental Charter have also been included. These goals aim to assist in helping individuals to develop the ability to evaluate environmental measures and develop a sense of responsibility through participating in solving environmental problems.

The brief overview of the project therefore identifies two distinctly different stages of teaching and learning. The first stage aims to meet minimum expectation and outcomes prescribed in this curriculum. These achievements are assessed by being rewarded through the successful completion of the group project and completion of the individual assessment. This stage indicates that the students have acquired knowledge, understand content and mastered identified research skills. The second stage of learning is achieved through a student's personal involvement and commitment to the teaching and learning process. Students that become personally inspired and motivated through their individual reflections and take personal accountability and responsibility for their sustainable design actions; have reached the ultimate outcome that the facilitator aspires for in this process. The final stage cannot be assessed and rewarded with marks, but presents ultimate satisfaction to the facilitator and student. Over the past five years, I have monitored the outcomes delivered in the second stage through engaging in student discussions and in obtaining student feedback. This student feedback will be briefly discussed hereafter, in attempt to address the main investigation of this paper.

Student feedback – can design education make a difference?

The findings presented in the student feedback reflect on student feedback obtained from three class groups;

- Class of 2012 - 11 students out of a class of 23 students (48 per cent participation)
- Class of 2013 - 25 students out of a class of 30 students (83 per cent participation)
- Class of 2015 – 31 students out of a class of 31 students (100 per cent participation)

Students were requested to indicate if the project was of personal value. Overall 88 per cent of students replied 'yes' to this question and 12 per cent responded 'no'. The majority of students that responded with a 'no' identified that they are already engaged in recycling initiatives at home.

"I am already aware of the low usage of recycling as it is something I do" (respondent 37)

Over the past five years, I have noticed with concern that students lack adequate insight, knowledge and practical awareness when embracing sustainability issues during the sustainability discussions. The six week project improves their knowledge and further provides them with practical tips into including sustainability practices as part of their daily activities. This observation was articulated by two students as follow;

"I emphasize to those I live with the importance of using only what we need in cooking food, using water and electricity as well as the way we choose what we buy" (Respondent 51).

"I am thinking of how I can design more sustainably and it taught me to not waste for eg, leave the light on, let water run" (Respondent 58).

A number of students indicated in the feedback an understanding that personal accountability towards sustainability should be incorporated in their future design actions and decision making processes;

"I realized that as a student if you start using sustainable resources in your designs as well as encourage green design it becomes a habit of your future designs" (Respondent 41).

"Enabled you to think differently and creatively also to challenge yourself and solutions in subjects such as interior design and construction" (Respondent 42).

"As a designer our job is to design for the environment. After the projects it showed exactly how important the designer's role is first hand" (Respondent 50).

"I started looking at ways to design to include environmental benefits" (Respondent 36).

A positive outcome was that through a focus on the value and benefit on recycling the majority of students indicated that they were willing to adjust their personal behaviour to incorporate sustainable practices (see table 1 below).

Questions relating to change in recycling behaviour		Yes	No
1	Did you recycle waste at home prior to the execution of the project?	43%	57%
2	If you answered NO in previous question, did you start to recycle waste after you completed the project?	55%	45%
3	Did you share the importance of recycling waste with family/friends or fellow students after you completed the project?	78%	22%
4	Did the project encourage you to improve your contributions towards a sustainable future?	97%	0%

Table 1: Personal behavioural change (n=67 students)

The ultimate level of delivering the teaching and learning outcomes is to determine if the students have moved to the second stage of learning as described in the brief overview of the project. This stage determined long term commitment to sustainability practices and indicated if students had reached level 3 of Rest's component and considered proceeding to component 4. The findings revealed that the majority of students have met basic project expectations, which indicates that they gained knowledge, insight and awareness in relation to the concerns and problems around the challenges of a sustainable future. The observation indicates that a small group of students reflect after a six week period that they are willing to take personal action and responsibility. The following responses describe some of the actions presented in the questionnaires;

"I have applied principles of sustainability in my own home and started researching more about how I can integrate it further into my design" (Respondent 11).

"I am internally motivated when it comes to the effects of not recycling and pollution because of the effects first hand" (Respondent 38).

"The project made me aware of others behaviour and motivated me to make a greater impact towards sustainability" (Respondent 39).

"It enlightened me about the recycling process that is operating on campus. It also made me think of what changes I could make in my community off campus" (Respondent 43).

"We have a social responsibility to conserve the eco-system for future generations" (Respondent 45).

This final finding corresponds with observations made by James Rest, through which he indicates that moral development and ethical problems should be a continuous process. This process therefore needs continuous reinforcement in a design curriculum and can be achieved through consistent inclusion of students participating in solving environmental problems.

Conclusion

The paper explains the role of education in relation to developing sustainable design projects and programmes. The Belgrade Charter identifies that the intention of environmental education should be to assist individuals, groups and societies to acquire awareness, knowledge, attitude and skills to understand and solve problems relating to the total environment. Environmental education should further assist in helping individuals to develop the ability to evaluate environmental measures and develop a sense of responsibility through participating in solving environmental problems. These goals serve as a roadmap to guiding fundamental goals and objectives of a sustainable design teaching and learning process. However critical reflections in this area identified that merely acquiring knowledge and awareness of environmental problems does not guarantee personal motivation to take accountability and combat the desperate challenges of our unsustainable future.

The sustainable curriculum developer, Paul Murray (2011) suggests that educators should not only present sustainable knowledge and develop skills, but introduce a deeper level approach that motivates a deeper intention to act sustainably, foster empowering beliefs and promote wise application of knowledge and skills. The moral development research conducted by James Rest (1986) identifies that ethics can be taught to students and that they have great benefit from ethics programmes. Education can play an important and valuable role in offering ethics coursework or themes within a teaching and learning process.

In an attempt to assist the third year design students' in increasing their knowledge, awareness, attitude and skills in relation to social and moral responsibilities towards developing a sustainable future, I have included the role and goals of Environmental Education. Furthermore, I have consulted Paul Murray's presentation of the 'Sustainable Self' which describes the personal change that is required for individuals to make valuable contributions to the sustainability agenda and James Rest's moral development model. The overall student feedback indicates that students consider recycling and embracing sustainable practices as "The right thing to do". This acknowledgement of the right or

appropriate behaviour is however presented as a noble action, since findings show that very few students include a sustainable life style in their daily practices. The general response from students reveals the mammoth task that academics face in offering sustainable design modules, but the feedback also indicates that education can make a difference and assist in the ethical and moral development of students.

In a higher education teaching and learning environment design students are challenged to resolve problems, conceptualise solutions and apply critical thinking that will enable them to become responsible environmental citizens and sustainable designers. Their decision making process is driven by their moral value system and personal aspirations. If their individual or collective value system lack an understanding and awareness of environmental and social responsibility, then it becomes essential for the education process to inspire and encourage students to view the world “as social beings and world citizens whose future depend[s] on cooperation, peace, ecology, and equality” (Shor as cited in Stevenson 2007, p. 271).

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