

**İSTANBUL TECHNICAL UNIVERSITY ★ INSTITUTE OF SCIENCE AND TECHNOLOGY**

**SUSTAINABLE PRODUCT DESIGN EDUCATION:  
AN INTERNATIONAL REVIEW**

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**Programme : MSc Industrial Product Design**

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**İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ**

**SÜRDÜRÜLEBİLİR ÜRÜN TASARIMI EĞİTİMİ:  
ULUSLARARASI BİR DEĞERLENDİRME**

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**THESIS SUBMISSION EKİM 2009**





## **FOREWORD**

It was a long and difficult process until this thesis was completed and I would like to thank a few people who were there for me whenever I needed them. First of all, I want to say how grateful I am to have them as my family; İrfan Malya, Güler Malya, Ümit Malya. They need to be mentioned and thanked individually as they helped and supported me during my whole life and motivated me to face all difficulties upon which I stumbled. If they had not been there for me or I had been too far apart from them, neither this thesis nor I would be here now. I would like to thank my tutors in Middle East Technical University, Istanbul Technical University and Sheffield Hallam University. All tutors at METU, Industrial Design Department especially Naz Evyapan Börekçi, Gülay Hasdoğan, Aren Emre Kurtgözü who were great supports in my whole Bachelor life and helped me to become who I am. In addition, all tutors in Istanbul Technical University, Department of Industrial Product Design who also contributed to this study should receive my thanks. I would like to thank to Alpay Er, my advisor, as a huge support throughout my Master degree as well as in the writing of this thesis. If he was too busy, he still managed to find some time for me, and encouraged me during this complicated process as an honest guide. I would like to thank to Paul Chamberlain, Steve Bort, Fred Brown and Chris Rust for their contributions to this study during my exchange in United Kingdom at Sheffield Hallam University. Finally, I would like to thank all my friends, who make me feel so lucky and glad to have them. I did not want to write all their names because it would be a long list, but wanted to say thanks because wherever they were, they were always with me when I called upon them.

October 2009

Gülden MALYA

Industrial Product Design





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## **ABBREVIATIONS**

<b>C2C</b>	: Cradle to Cradle
<b>DfE</b>	: Design for Environment
<b>DEEDS</b>	: Design Education & Sustainability
<b>DESD</b>	: Decade of Education for Sustainable Development
<b>DfS</b>	: Design for Sustainability
<b>D4S</b>	: Design for Sustainability
<b>ESD</b>	: Education for Sustainable Development
<b>LeNS</b>	: Learning Network on Sustainability
<b>MA</b>	: Master of Arts
<b>MBDC</b>	: McDonough Braungart Design Chemistry
<b>MSc</b>	: Master of Science
<b>NGO</b>	: Non Governmental Organisation
<b>PSSD</b>	: Product Service System Design
<b>SDN</b>	: Sustainable Design Network
<b>SpD</b>	: Sustainable Product Design
<b>SPSDE</b>	: Sustainable Product and Service Design Education
<b>TD</b>	: Talloires Declaration
<b>ULSF</b>	: Association of University Leaders for a Sustainable Future
<b>WG</b>	: Working Groups

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# **SUSTAINABLE PRODUCT DESIGN EDUCATION: AN INTERNATIONAL REVIEW**

## **SUMMARY**

After the industrial revolution, industrial design started to rise as a profession; simultaneously the arguments concerning this profession have begun. Through all these arguments and conflicts two main issues have come up with regard to environmental and ethical concerns; sustainability and sustainable design. However the term is used, for example, green design, eco-design, socially responsible design, design for sustainability, etc. they all have the main concern in common, the reality of the impacts of “design”, within our world; regarding the word as a verb, as a noun, and as a huge concept. There is no doubt that the design action that occurs now, will affect a trace on the earth throughout the future with various degrees of impact.

Hence, the purpose of sustainability is to sustain the world and keep the impacts of all professions, industries and individuals as less as they could be. Here sustainable design, as a re-definition of the industrial design profession, has a key and creative role since it has a huge influence on what is produced, how it is produced and how it is used.

When sustainable product design education is stated as the topic of the research, the topic includes an enormous area which relates not only to product design but also architecture and material and industrial engineering for example. In order to deal with the topic it had to be narrowed. However, it is hard to make the topic narrow because of the inter-disciplinary nature of sustainable design. With regard to this, the limitation is decided according to the attainable area with a background of industrial design. Therefore the topic is limited into sustainable product design education that mainly focuses on education for industrial design as well as product and product-service-system design.

Here, in this thesis the aim is not only to express the importance of sustainable design among our lives, but also to articulate the reality, that education creates the basis of sustainable design at both an academic and professional level.

In order to achieve a clear picture of sustainable product education, the research that is done for this thesis is mainly focused on four phases of the subject. . Initially, the evolution of sustainable product design is researched. In the following phase, the history of sustainable product design education is traced; that is dated back to the doctrines of R. Buckminster Fuller, Victor Papanek and many other academics and professionals through the evolution of this discipline. The third one is the present situation of sustainable product design education that is focused on finding out the institutions around the world that taught the topic as a course, department or certificate programmes. These institutions are categorised chased individually. The fourth and the final phase is the future directions of sustainable product design education and future of sustainability issues in industrial design education.



Consequently, after placing findings from the survey in these three phases mentioned above and evaluation of this survey, the further research discussions and suggestions are covered in the conclusion part.

## **SÜRDÜRÜLEBİLİR ÜRÜN TASARIMI EĞİTİMİ: ULUSLARARASI BİR DEĞERLENDİRME**

### **ÖZET**

Sanayi Devrimi'nin ardından, endüstriyel tasarımın bir meslek olarak yükselişine bağlı olarak bu mesleğe ilişkin tartışmalar da başladı. Bu tartışmalar ve anlaşmazlıklar içinde çevre ve etik konular çerçevesinde iki ana konu; sürdürülebilirlik ve sürdürülebilir tasarım ortaya çıkmıştır.

Terimler farklı olarak yeşil tasarım, eko-tasarım, sosyal konularda sorumlu tasarım, sürdürülebilirlik için tasarım gibi, nasıl kullanılırsa kullanılsın, hepsinin ana teması, "tasarım"ın Dünyamız'a etkisi gerçeğidir. Burada "tasarım" kelimesi bir fiil ya da bir isim veya oldukça geniş bir kavram olarak kullanılabilir. Şüphesiz bugün gerçekleşen tasarım pratiği gelecekte izlenebilir küçük veya büyük izler bırakır.

Sürdürülebilirliğin amacı dünyanın korunması ve tüm mesleklerin, her tür sanayinin ve bireylerin dünyaya ilişkin olumsuz etkilerinin olabilecek en azda tutulmasıdır. Burada sürdürülebilir tasarım, endüstriyel tasarımın bir meslek olarak yeniden tanımlanması olarak, hangi ürünlerin üretileceği, bunların nasıl üretildikleri ve nasıl kullanıldıkları üzerinde varolan önemli etkisi ile, yaratıcı ve kilit bir role sahiptir.

Sürdürülebilir tasarım eğitimi araştırma konusu olarak belirlenirse, bu konu sadece ürün tasarımını değil, aynı zamanda, mimarlık, malzeme ve endüstri mühendisliği vs. gibi oldukça geniş bir alanla ilişkilidir. Bu konunun düzgün bir şekilde ele alınması için daraltılması gerekmiştir. Fakat sürdürülebilir tasarımın disiplinlerarası doğası nedeniyle, bu konunun daraltılması güçtür. Bu durum gözönüne alınarak konunun sınırları endüstri ürünleri tasarımı geçmişi ile ulaşılabilir şekilde çizilmiştir. Bu nedenle konu temel olarak endüstriyel tasarım, ürün ve ürün-hizmet-sistemleri tasarımına odaklanan, sürdürülebilir ürün tasarımı eğitimi olarak daraltılmıştır.

Tezin amacı sadece sürdürülebilir tasarımın hayatlarımızdaki önemini vurgulamak değil ayrıca eğitimin, sürdürülebilir tasarımın, hem akademik hem de profesyonel anlamda, temelini oluşturduğu gerçeğini belirtmektir.

Bu tez için yapılan araştırma, sürdürülebilir ürün tasarımı eğitiminin net bir resmini çizebilmek için konunun temel olarak üç safhasına odaklanmıştır. Birinci bölümde R. Buckminster Fuller'in öğretilerine kadar uzanan, Victor Papanek ve birçok akademisyen ve profesyoneli kapsayan sürdürülebilir ürün tasarımı eğitiminin geçmişi ve evrimi araştırılmıştır.

İkinci bölümde ise sürdürülebilir ürün tasarımı eğitiminin bugünü, dünyada bölüm, ders ya da sertifika programları seviyesinde bu konu üzerine eğitim veren kurumları bulmaya ve araştırmaya yoğunlaşarak ele alınmıştır. Bu okullar sınıflandırılmış ve bireysel olarak incelenmiştir. Üçüncü ve son bölümde sürdürülebilir ürün tasarımı eğitiminin gelecek yönelimleri ve sürdürülebilirlik konularının endüstriyel tasarım eğitimideki geleceğini konu almıştır.

Araştırmanın bulguları yukarıda bahsedilen üç bölümde anlatıldıktan sonra, son bölümde, araştırmanın değerlendirilmesi yapılmış, konuyla bağlantılı olası araştırma konuları tartışılmış ve araştırma verileri ışığında konuya ilişkin önerilerde bulunulmuştur.

## 1. INTRODUCTION

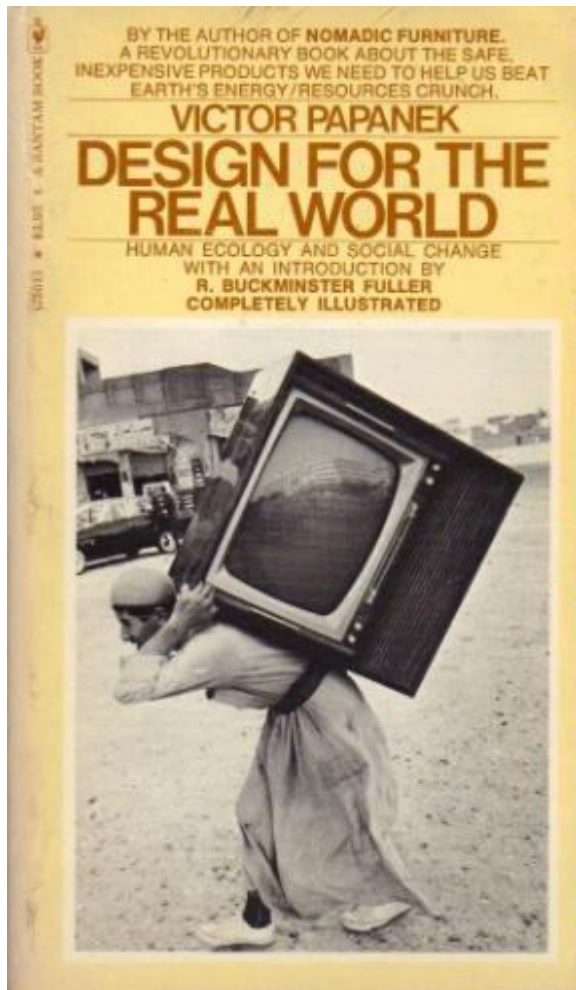
After the industrial revolution, industrial design has started to rise as a profession; the arguments concerning this profession have begun simultaneously. Through all these arguments and conflicts two main issues have come up with regard to environmental and ethical issues; sustainability and sustainable design. However the term is used such as green design, eco-design, socially responsible design, design for sustainability, etc. they all have the main concern in common, the reality of the impacts of “design”, upon our World; purposing the word as a verb, as a noun, and as a extensive concept. There is no doubt that the design action that occurs now has a trace through the future that will have affects in smaller or bigger scales.

Hence, the purpose of sustainability is to sustain the world and keep the impacts of all professions, industries and individuals as less as it could be. Here sustainable design, as a re-definition of the industrial design profession, has a key and creative role since it has a huge impact of what is produced, how it is produced and how it is used. As noted by US Congress, Office and Technology Assessment in 1992;

“Product design decisions directly or indirectly affect the energy usage and waste during production, usage and disposal of the products” (USCO, 1992).

According to this perspective, designers who have the power to create the goods we all use have a huge power on the sustainability issue. As Papanek noted in the first paragraph of his book “Design for the Real World” first published in 1971;

“There are professions more harmful than industrial design but only very few of them... Today, industrial design has put murder on mass-production basis. By creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become a dangerous breed...In this age of mass production when everything must be planned and designed, design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself.) This demands high social and moral responsibility from the designers” (Papanek, 1985).



**Figure 1.1:** The famous book “Design for the Real World” by Victor Papanek

Victor Papanek’s book “Design for the Real World” was written between 1963 and 1970 and first published in 1971 in Sweden and United States. This book has been translated into more than twelve languages and it became one of the most widely read and referred book about design by design students and academics all around the world (Papanek, 1997, pg. xv). It has created the influence for the new interest in the sustainable product design topic as being the one of the pioneer books of this field.

Moreover, the approach of Papanek’s book “Design for the Real World” had an influential affect on the both academics and professionals in design as its suggestion of the new concept of positive design towards sustainable future and society.

“In an environment which is screwed up visually, physically, and chemically, the best and simplest thing that architects, industrial designers and planners, etc., could do for humanity, would be stop working entirely. In all pollution, designers are implicated at least partially. But in this book I take a more affirmative view: it seems to me that we

can go beyond not working at all and work positively. Design can and must become a way in which young people can participate in changing society “(Papanek, 1997).

Another approach to gather attention towards sustainable design was stated in 1999 by Tony Fry, pointing out the results of the all decisions and actions of present which take their places in the future.

“We need to remind ourselves that the future is never empty, never a blank space to be filled with the output of human activity. It is already colonised by what the past and present have sent to it. Without this comprehension, without an understanding of what is finite, what limits reign and what directions are already set in place, we have little knowledge of futures, either or those we need to destroy or those we need to create. Without a knowledge of defuturing, from the perspective of Design, we have little comprehension of what designs, the agency of the already designed or the consequences of designing “(Fry, 1999).

Tony Fry, with his book, *“A New Philosophy; An Introduction to Defuturing”* has the intention to make reader active therefore, accept the responsibility of his actions, as well as find ways to take appropriate action accordingly (Fry, 1999).

The need of Sustainable vision for design in both environmental and social manner is also emphasized in the latter book *“Sustainable by Design; Explorations in Theory and Practice”* by Stuart Walker;

“In fact, it is obvious that, if the message given through the sustainable ‘myth’ is not taken and our behaviours do not change that will be the call for our own destruction. The message is not only related with preserving the environment but it also includes the ethical issues related to social equity” (Walker, 2006).

Another supportive perspective that explains the crucial role of design is noted by Chapman and Gant in 2007. It emphasizes that design, not only needs to take the lead to change the consumer demands but needs to change the marketed products as well.

“...after all, *sustainable consumption* is only really achievable when there are sustainable products and services for us to *consume* “(Chapman and Gant 2007).

Today, sustainability and design for sustainability have both become popular issues. Accordingly, there are various related organisations that gather people together who is interested in the fields such as service design, user-centred design, eco-design and slow design. In this context, some examples of these organisations are given below

with the categorisation of Chapman and Gant in five different fields (Chapman and Gant, 2007);

- Long established societies - Royal Society of the Arts UK
- Groups or initiatives with governmental sponsored organisations - Design Council UK
- Not-for-profit foundations - Eternally Yours Foundation NL, O2 EU, Greenpeace
- EU founded research projects - Emerging User Demands (EMUDE); Sustainable Everyday , Italy, Attainable Utopias UK
- Blogs, websites - Designboom, Treehugger....”

**Figure 1.2:** Various organisations related to sustainable design

In addition to the main points reported above, the years between 2005 and 2014 which were announced by United Nations as the “United Nations Decade of Education for Sustainable Development”. Today, in 2009, in the middle of this decade, the attention has been directed not just into sustainability and sustainable design but also into the topic of sustainability in education.

Here the aim of this thesis is in the light of design for sustainability as an emerging issue for more than three decades, to provide a clear overview of Sustainable Product Design Education.

### **1.1. Problem Definition and Limitations of the Subject**

Since sustainable design is a broad topic which has many specified areas, the topic of this research needed to be narrowed to develop the research on the details of a topic. Therefore, the limitation of the research is shaped according to the personal background, and interest which was mainly focused on product and service design perspective. As a result of this perspective the other related topics such as architecture, engineering or materials are excluded in the focus of this research. However, in order to provide a whole picture of sustainable design definition and history includes data about related topics as well. In the following chapters the

determined focus will be explored and the research is going to base only on “sustainable product design in higher education”. By the term higher education all Bachelor and Master Programmes are meant whereas certificate programmes are not taken into the consideration. In this perspective the lifecycle design, service system design and sustainable product design educations are included as they are chosen according to the level of relation to “sustainable product design education”.

## **1.2. Scope of the Research**

After noting the limitations of the topic in the previous part, here the scope of the research is defined. Initially, the history and evolution of sustainable design is going to be explored shortly. After this background information and introduction to the subject the importance of sustainable design education is going to be explained.

Following these introductory parts, the research is going to base on the historical perspective, the present situation and the future directions of Sustainable Product Design Education. While dealing with this topic the history and the present situation will be separated into two different parts. In the first part the topic is going to be on the historical perspective and will be supported by literature references and research findings. Later, in the second part, the present situation is going to be explored. In this part, supporting by the research findings, the topic is going to be discussed generally and in details among three countries; United Kingdom, Australia and India. This part provides details of the present situation about sustainable design education. In the third part future directions is going to be covered according to the research findings.

Sustainable product design is a broad topic which has many specified areas. Therefore this research focused on the product design perspective. As a result of this perspective the other related topics such as architecture, engineering or materials are excluded. However, in order to provide a whole picture of sustainable product design definition and history includes data about related topics as well.

The research is based only on “sustainable product design in higher education”. By the term higher education all Bachelor and Master Programmes are meant whereas certificate programmes are not taken into the consideration.



In this perspective, the fields of the lifecycle design, service system design and sustainable product design education are included as they are chosen according to the level of relation to “sustainable product design education”.

### 1.3. Aims of the Study

There are five main aims of this research which are articulated as below;

- To have a basic understanding of history and dynamics of sustainable product design
- To discuss and frame the importance of sustainable product design education
- To have an understanding of the integration progress of sustainability into product design curricula since 1970s at international scale
- To explore sustainable product and service design departments at international scale
- To indicate the possible future directions of sustainable product design education

**Figure 1.3:** Five main aims of the research

In order to achieve these aims the research will be divided into five main parts. Looking in details to these parts; initially, the history and evolution of sustainable design is going to be explored shortly. In this first part, the topic is going to be on the historical perspective and will be supported by literature references and research findings. After background information and introduction to the subject, the importance of sustainable product design education is going to be discussed. In the second part the discussion will be based on the finding from the related literature review. Subsequently, the research is going to base on the survey that is conducted to reach the rest of the aims. While analysing the results of the survey the rest three parts are going to be covered; tracing the integration progress of sustainability into product design curricula, identifying sustainable product and service design departments by providing details of the present situation about sustainable design

education and finding out the possible future directions of sustainable product design education.

In other words, during this research it has been tried to find the answer to this following question;

How was “Sustainable Product Design Education” in a historical perspective, how it is today and how it is going to be? In other words; “How did Sustainable Product Design Education evolved?”

#### **1.4. Structure of the Study**

The structure of the thesis contains six chapters. In the first chapter, as an introduction to the topic, aims and scopes of the research and structure of the study are defined clearly. As the sustainable design is a huge topic the limitations are important and underlined in this chapter.

Research methodology is discussed in Chapter 2 where methods are introduced and explained. Besides, in this chapter, the survey is also introduced and used methods are explained in details. In the last two parts of this chapter the results and evaluation of the survey is explained in details.

Chapter 3 is divided into five main parts. The initial two parts provides answers to the questions as what is sustainable design and why it is so important. Later on the third part includes an historical overview for sustainable product design. In the fourth part revised history of sustainable product design is introduced in four parts according to the findings through the literature review. The fifth and the last one is built on the different aspects of sustainable product design. Five different approaches of sustainable product design are discussed in part four.

Sustainable design education is presented in details in Chapter 4. The importance of the topic is articulated and the absence of the historical review of sustainable product design education is emphasized according to the literature review and the results of the related research. In the fourth part revised history of sustainable product design is introduced in four parts according to the findings. Besides, the integration progress of sustainability in product design education is going to be discussed in this chapter.

Chapter 5 is dedicated to note the results of the survey. This chapter divided into three parts in order to articulate the results and findings. The first part is dedicated to briefly explain the findings. Moreover, evaluation criteria are stated and evaluation of the collected information is included. The second part is dedicated to show the findings about history and present situation of sustainable product design education. In this part, present situation is divided into categories as countries. Three of these countries were chased and articulated individually. The end of this chapter is going to provide possible future explorations of sustainable product design according to the survey results, as an overview of collected options and predictions. Moreover, as a last part of this chapter, the research results for the answer of the research question are discussed.

In the end, Chapter 6 is the conclusion part where the assessment of the survey is made and sustainable product design education is overviewed according to the collected data. Future directions of sustainable product design and sustainability in industrial design education is discussed. Finally, further research topics and suggestions are mentioned.

## **2. RESEARCH METHODOLOGY**

### **2.1. Introduction**

After stating “Sustainable Design Education” as a topic for this study, the first phase started to explore the topic in details and it was tried to be narrowed down accordingly. During this process related basic literature research was done and key points were tried to be found. In the end of this process, in the end of 2008, the topic was narrowed down as focusing on the evaluation part of the subject. By stating the topic as “Evaluation of Sustainable Design Education”, the detailed research had begun.

### **2.2. Explanation of the Methods**

Initially, the project has begun with a wide literature review which is mainly based on related journals, recently published articles and books as well as reports and networks.

“... a literature review uses as its database reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports” (Cooper, 1988).

Bruce (1994) has defined six elements of a literature review and explained how they are understood in these conceptions as;

- a list - as a listing/collection of items representing the literature of the subject.
- a search - as the process of identifying relevant information/literature.
- a survey - as an investigation of past and present writing or research in one or more areas of interest.
- a vehicle for learning - as having an impact on the researcher.
- a research facilitator - as relating specifically to the research being, or about to be, undertaken.

- a report - as a written discussion of the literature drawing on investigations previously undertaken (Bruce, 1994).

After the basic literature review and collection of the related data, in order to gather further information about the current situation, universities and departments which were related to or pioneering sustainable product design education were investigated through important books, journals, articles, names, conferences and events. In view of the fact that it was a long process and it was hard to get in touch with these contacts by oneself would be harder, an alternative way of research was done.

During the research three email groups and 40 contacts were found that used to get in touch with possibly related contacts and institutions. An email has been sent to those contacts and three email groups after subscribing them on the 30<sup>th</sup> March 2009 (Appendix A.2).

One of these email groups is called O2 Mailing List, which is a private mailing list provided by Yahoo Mail Groups for the O2 Global Network. The O2 Network is an informal network which is founded in 1988 in order to connect people who are interested in sustainable design. The network uses primarily electronic media such as O2 mailing list and the O2 website to create a sharing platform for the members. The O2 mailing list has 1765 members around the world involved in industrial design, architecture, styling, graphic design, fashion, innovation and the arts, as well as people from academies, universities, public authorities, private companies and non-governmental organisations (NGOs) (Url-17, 2009).

The other mail list is called PHD-Design provided by 'JISCMail', The National Academic Mailing List Service, which is particularly designed for the further and higher education and research communities to collaborate within the academic community. (JISCMail.AC.UK) PHD-Design List is created for discussions of PhD studies and related research in Design and it has 1630 members around the world who are academics working in the field of Design Research.

The last list called SUSDESIGNTEACH List, provided by 'JISCMail', is another mail list which was created to share the techniques and materials for teaching sustainable design in a range of design disciplines such as architecture, product design, or interiors with many members working on Sustainable Design Teaching (Url-40, 2009).

In the email that was sent to these three groups, after the short introduction of the research topic which is related to "Sustainable Design Programmes" focused on

product design in Bachelors and Masters Level around the world, it was kindly asked for help to find those programmes in the residential country of the recipients. There were 23 personal replies from O2 mailing list, and 5 personal replies from the SUSDESIGNTEACH List, which include some suggestions to trace, some links, and some names. These contacts were later used to develop the research and in the process of spreading the survey. However most of the replies were more related to the courses other than programmes and they were an important source for the evolution of this research.

Subsequently, while trying to get an understanding of Sustainable Product Design Education in details as a part of the research, “Sustainable Product Design Education History” was traced. It was intended to trace the evolution of the subject; from the first involvement of as a part of the product design curricula until becoming an independent discipline in the higher education. Accordingly, during the research on sustainable product design education, the historical overview had become a part of the subject simultaneously. Therefore a detailed research had been done in both libraries and online sources such as online library catalogues and journals in order to trace some information on the topic. Although there were few documents about sustainable design history and some documents slightly related to sustainable education history there were not any direct sources explaining the evolution of sustainable product design education. As there were not any resources related to the topic, on the 16<sup>th</sup> April 2009, an email explaining the situation and asking for advice from the more experienced members of the members of these groups were sent to 50 related contacts and these email groups; PHD-Design List, SUSDESIGNTEACH List and O2 mailing list with an addition of IDFORUM List. The list called Industrial Design Forum, created in 1991 hosted by YORKU.CA, aims to provide a global electronic meeting place for all involved in industrial design, designers, design educators and design students with 552 members. All emails throughout the study can be found in the end of the thesis in Appendix A.2.

There were 20 replies from PHD-Design List, and 5 replies from SUSDESIGNTEACH List. In one of the answers from PHD-Design List, Ken Friedman, Dean of the Swinburne University of Technology, Australia stated that the reason of the ineffective research on the topic of history of sustainable product design education was because the field was relatively new (Friedman, 2009). Friedman had pointed out that although there is a deep history going back to people

like Buckminster Fuller and Victor Papanek, education and pedagogy were not definitely implanted in their work. At that phase of the research, it was directed to many important resources by this email.

On the other hand, after the email was sent, a discussion was started in the PHD-Design List about the topic. One of those emails was from Terence Love, explaining the wide perspective of the topic including more than 700 fields as stating “history of sustainable design education” (Love, 2009). As he has mentioned the topic was too wide as design was not identified in the subject area and was fairly hard to decide on where to start and deal with the outcomes and the subject was redefined and narrowed down accordingly.

In another answer David Durling, Associate Dean of Research at Birmingham Institute of Arts and Design, and previous Chair of the Design Research Society, has also pointed that the topic needed to be narrowed and add an important point as the invisible nature of sustainability issues in design curriculums (Durling, 2009). According to his more UK based point of view, as a new and popular topic sustainability had been more or less embedded in the design curriculums and, or design projects and or design research areas. He has mentioned about his first meeting with sustainability issues by reading Papanek’s *Design for the Real World* during his design masters at the Royal College of Art in the early 1970s. He has noted another important issue that the designers tend to have a bad image about never thinking about on issues of sustainability until quite recently. However, this is not true as people such as Papanek, Fuller, etc were the pioneers and there were many more visible or invisible followers since few decades. After mentioning few related names working on the field, he has described his opinion as what has happened in recent years was the more explicit embedding process of sustainability principles in core curricula of design departments.

In response to this email and my request, Ken Friedman has wrote another email noting that even the design education itself only dates back around 20th century as many of the fields and disciplines related to design date further by the education of fields but not in particular terms. So the majority of degree programs specifically described as "design programmes" were begun between 1980s and the middle of the 20th century with few exceptions (Friedman, 2009).

He has supported this point of view by his personal experiences in Norway in the late 1980s. Friedman has noted that the sustainable design education date back further

than the written documents but not with the particular title. He proposed that Buckminster Fuller and Victor Papanek were the first names to introduce sustainability into design education with their particular efforts. In this point of view Friedman described the reason of my ineffective research as the history of sustainable design education is relatively a new and nearly unwritten topic.

In the later two emails Terence Love and Ken Friedman both underlined how variable the sustainable education can be understood and handled according to different point of views.

Love has broadened the perspective of the study by pointing that only a small part designers' education are from the education programs called 'Design Programme'. So he has noted that by 'the history of sustainable design education' he refers to the history of the education that designers have gained to develop their knowledge and skills in design either they were educated themselves or were educated by others. By this extended point of view Love claimed that tracing history of sustainable design education would go further than some individuals and academic groups that were "increasingly fashionable in sustainability" space. In addition he underlined the misunderstood assumption of absent of sustainable thinking in design since its beginning and the heroic visions of people today by the invention of sustainability and sustainable design.

On his later email, Friedman has emphasized the variable possible understandings to the topic and noted neither his nor Love's perspective was wrong in this broadened vision.

Another supportive email was sent by Ann Thorpe, the author of *The Designer's Atlas of Sustainability* (Thorpe, 2009). In addition to the agreement to Friedman's emails, she has added the only correct assumption that the topic was based in product design. Thorpe pointed that the pioneers could be identified easily; however the evolution of the sustainable design education over past 15 – 20 years were harder to trace. After defining the topic she has suggested few resources and few methods such as interviewing with people have been teaching sustainable design over the past decades, looking at recent surveys and events.

Through all these emails there were few key points that came up and contributed to the development of the research. Initially, the need to draw clear limits to the topic was the beginning point of the next step on the research. Therefore, the topic was narrowed down from "design" to "product design" as a result of attainable and



achievable resources. However by stating product design, there were some important subjects which were also excluded. Subsequently, in order to keep the related topic together the subject was redefined as an extension of “industrial design, product design and product service system design”.

The last email on this debate was sent by Dr. Gavin Melles, Head of Industrial & Interior Design in Swinburne University of Technology. He suggested a number of documents and online resources which would not give the history that had been traced which would require a longer historical analysis (Melles, 2009). However he explained that after narrowing down the topic it would be possible to trace the historical data through a detailed research on the resources. Furthermore, it was found out both from the related research and from the emails, that there were not enough sources about this topic especially from last few decades. The topic rooted far back to doctrines of R. Buckminster Fuller and British Arts and Crafts movement as well as Bauhaus movement and its narrative. During this research experience, it was realised the absence of the sources related to historical review of this topic in the academic studies. Nonetheless, it was needed to have an historical review of the topic in order to have an evaluation of the topic history of sustainable product design education was also included in the main research question.

After stating the topic in a clear view, the topic was divided into four main phases. In the first phase the sustainable product design education was decided to trace in an historical perspective with its extends. Later in the second phase, sustainable product design education was stated as the topic to be researched through current situation in institutions. In the third phase sustainable product design education was defined to be traced through its historical overview and evolution. As a last phase the possible future directions of the relation between sustainability and product design education was planned to be explored.

In order to collect information on these four different categories, the emails were investigated in details for all suggested names, institutions, organisations and events. After these discussions and personal emails the research was extended through the pointed directions of these emails. Moreover, relevant literature review was supported with the resources from those suggestions.

However after a long process of research the questions that were lead to the study were still unanswered by the findings. In addition, as the general answers directed the

lack of sources on the history of sustainable product design the research was also decided to include this part of the topic in the possible extends. Eventually, there were more questions to be answered and it did not seem to be achievable in the limited time of the study.

Accordingly, the unanswered questions were decided to be asked to the collected contacts by a survey.

## **2.3. Survey**

### **2.3.1. Introduction to the survey**

As the major purpose of this research was to achieve the knowledge about sustainable product design education, after scanning the literature about the topic it was found out that there was not enough documentation on this topic, especially on the historical perspective and current situation. It was then decided to prepare a questionnaire according to gain needed knowledge and historical background information on this topic.

- 
- Investigation of related departments and universities (via internet search and emails to the related mail groups)
  - Collecting data from these institutions
  - Creating a network for future survey
  - Preparation of the survey
    - Questionnaire - Word Document
    - Online Questionnaire – Google Spreadsheets
  - Collection of the target contacts
  - Conduction of the surveys by questionnaires and if possible, by interviews
  - Spreading the survey via emails
  - Gathering data
  - Evaluation of the collected data
  - Exploration for the further directions for research

**Figure 2.1:** The plan of expected evolution of the survey

### **2.3.2. Evolution of the survey**

The expected evolution of the survey was planned in the beginning as noted above. Accordingly the important questions that needed to be answered were noted. In the development phase of the research the aims were based on the search for present situation in the institutions by conducting a survey on the related contacts. However, as the general answers directed the lack of sources on the topic the research was shaped accordingly and in the survey the historical part was also decided to be covered through questions. By the questions that were related to the history of sustainable product design education it was not expected to create a complete historical data about the topic as the data that would be obtained was going to be objective. However, the lack of sources made even subjective data important to get an understanding of the historical perspective to shade light on the present situation. In order to maintain a full historical overview of the topic, as Friedman, Love and Thorpe stated in their email, (Friedman, Love and Thorpe, 2009) a full bodied research needed to be done with personal interviews as well as detailed library and archive research to support the outcomes of the interviews. Unfortunately, neither given time nor accessible resources was enough to conduct such a research. In addition that was not the main aim of this research. But this would be the subject next study which should be done with the beginning of the findings of this research to shade light on the recent and unwritten history of sustainable product design education.

Following the reconsideration process of the research question and the aims of the research, the first questionnaire, which can be found in Appendix A.2, was prepared. However, in this questionnaire there were many open ended questions which made it not only too long to be completed for the respondents, but also too long to be evaluated as well. Therefore it was revised and reorganised into three parts. In the second questionnaire that can be found in Appendix A.3, the first part is provided to collect personal information. The second part is focused on gathering information about sustainable product and service design education in the institutions. The last part is focused on tracing historical information about the topic which is requested to be filled if the respondent has been working on the field more than 10 years. In the second part of this re-prepared questionnaire, in order to reduce the needed time for the answers, most of the open ended questions were replaced with multiply choice

questions. However, the reduced numbers of open ended questions are replaced in the third part which is expected to be filled by the experts on the topic.

Besides, a list called “Ten Important Contacts List” of ten specific contacts that have a deep background in sustainable product design education was prepared for a detailed further search on these contacts and their experiences. In order to gather detailed information closer contact was needed. Thus, interview requests were planned simultaneously to be sent to these contacts while sending the requests for participation in the survey.

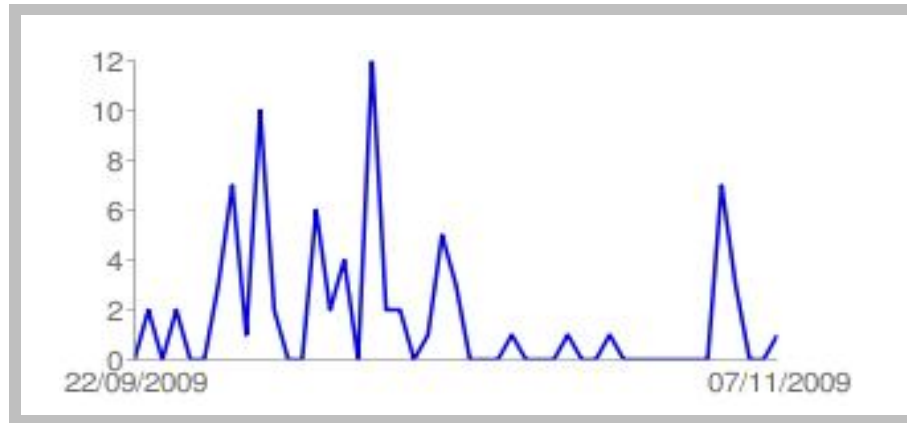
After the preparation of the questions was completed the next process had begun to find an easy and user friendly way of presenting the survey to the expected participants. As using MS Word document to be sent by email was time consuming and difficult both for the study and the participation process an alternative way was explored. Three online survey websites were found and compared in details. The Google Spread Sheets provided by Google, was chosen as the most effective, user friendly, reliable and accessible online survey software (Url-26, 2009).

### **2.3.3. Results of the survey**

Later, the survey was converted into the Google Spread Sheets and prepared accordingly. The second phase, the phase to distribute and spread the survey had begun shortly after this preparation. All related contacts were gathered together which were found during the research. In the beginning of September 2009, the first set of emails that explains the survey and stating the request to participate by the enclosed online link to the survey were sent to initially to four email groups which were explained in the previous part; PHD-Design List, SUSDESIGNTEACH List and O2 Mailing List and IDFORUM List. The related email can be found in Appendix A.6. Shortly after these emails, individual emails were sent to 150 related contacts including the course leaders, head of the related departments, authors of related articles and books. In addition to these personal contacts and lists another related organisation found as Design Education for Sustainability Working Group of CUMULUS and an email introducing the survey and asking for help to spread the survey was sent to the coordinators of this group. However, the first attention was relatively small and there was an email complaining an inconvenience about the software from Karen Frasier-Scott on the 30<sup>th</sup> September 2009 (Frasier-Scott, 2009).

For these reasons the problem was identified and the online questionnaire was revised. In view of the fact that almost every participant added their email addresses and asked for the results to be sent to their addresses, another question was added to collect emails from the participants who would like to see the results. After these revisions, another reminder email needed to be sent. In the second mail the revised survey was introduced and the expected time to complete the survey was added as well as the importance of the topic and the low response rate. After the second reminder email on the 9<sup>th</sup> October 2009, there was an increase in the response rate and there were 34 replies. However the expected response amount was approximately 200 participants. As a result the attempt to spread the survey was continued until the second week of October. On the 13<sup>th</sup> October 2009 Prof Peter Stebbing the Coordinator and Convener of the Cumulus Design Education for Sustainability Working Group replied with a list of 30 contacts that are important for the survey (Stebbing, 2009). By the second week of October after the last reminder explaining the survey is going to be finalised shortly and including the overview and online link which was sent to 159 related contacts and four email groups. The process to spread the survey was much longer than expected due to the low rate of responses. As a result, there was not enough time for the requests for interview through the “Ten Important Contacts List” as mentioned in the Part 2.3.2 Evolution of the Survey. Accordingly these contacts were added to the main list to whom the requests for participation were sent repeatedly. Therefore four of these contacts had already participated in the survey via internet. On the other hand, two of these had not answered to any of these emails neither via emails nor via email groups. Due to the time limitation and these processes, six emails were sent to the rest of the “Ten Important Contacts List”. Unfortunately, neither time nor the facilities were enough to organise a face to face interview with these contacts as they were all in far countries such as India, China and Australia. For these reasons, they were kindly requested to participate in an online interview at any convenient time and by any convenient software to provide the connection. Nonetheless, three of these had achieved to do so due to the limited facilities and tight schedule. Alastair Fuad-Luke has accepted to participate in the survey via internet, Ken Friedman has accepted to participate in the survey by answering few questions, and M.P. Ranjan has accepted to meet for an interview during his visit to Istanbul Technical University, Turkey for the 4th National Design Conference between 8th and 9th October 2009. As a result

an interview was planned to both collect information about the sustainable product design education in India and make a comparison between the case in India and the findings in other countries on the topic up to that date. Consequently an interview was conducted on 11<sup>th</sup> October 2009 in Istanbul with M.P. Ranjan for one hour and half minutes (Appendix A.7).



**Figure 2.2:** Number of daily survey responses

By 7<sup>th</sup> November 2009 the survey was completed by 78 respondents through the online survey and a face-to-face interview. Numbers of daily responses are shown in the figure above. It clearly displays the peaks after the emails were sent and the quite periods after a while until the next reminder was sent.

#### **2.3.4. Evaluation criteria**

The target of the survey was set as the professionals and instructors who has been teaching sustainable product design for a while. In order to maintain reliable information, especially on the historical perspective, course leaders, programme coordinators and department leaders were preferred respondents. Accordingly, the personal requests for participation which were sent to individual email addresses were addressed to these target contacts that collected during the earlier phase of the research. Although there were more than sixty contacts that were categorised as important professionals and academics, there was a low response rate within this group of contacts. In addition, in the beginning of the survey the expected participation was around 150 as a result of the high response rate to the emails that were sent previously to the email groups. However the response rate was relatively low in general and it took longer than expected to even reach this rate.

This low response rate has few possible reasons. One of them is the length of the survey. Even though the questions were revised various times and most of them were evolved into shorter and multiple question types and the expected time to complete it, was around ten to fifteen minutes, it was a long questionnaire. In the development process the questionnaire was divided into three main parts and the final part which was composed of three open ended questions were asked to be completed by only respondents who have more than five years of experience in this field. However it would have been better to separate this third part and sent to the respondents who has noted more than five years of experiences. Combined three parts were preferred because of the limited time. On the other hand, this combined long version of the questionnaire had a negative effect on the response rate as the potential respondents were discouraged by the length. Moreover, the last part which was expected to be completed by the respondents who worked more than five years in the field was not completed by the expected contacts. Event most of the respondents who had longer experiences did not completed these questions. As a result, it would have resulted in better quantity and quality if this last part had been separated from the main questions and asked individually to be completed by the potential contacts after they completed the basic questions.

In addition, the period of that questionnaire had been spread was a busy period for all academics as it was the beginning of the new semester and it also had a negative effect on the response rate.

Another difficulty was faced because of the method used to spread the survey. As explained before in addition to personal emails, requests for participation were also sent to the related four email groups. There were many related contacts that would not be found unless these group emails were sent. However as a result of these emails there were more than eleven responses which were not included in the target as they were not involved in teaching sustainable product design or they were relatively new in this field. Accordingly there were 55 responses which have taken into the evaluation of results due to the relevance of their answers.

As a final outcome, the difference between the results of interview and the results of the questionnaire clearly showed that in order to provide more information especially about the historical perspective and personal experience fields, personal interviews would had resulted in more information and better quality in the responses. However,

due to the time limitations, low responses to the efforts to communicate with important contacts and limited facilities made it unattainable to search for these questions via personal interviews. Therefore online questionnaire was a better and more attainable tool to use for this research. As a result of this method there were some limitations in the responses and the results were not used to generalise the answers but to provide an understanding of evolution of the sustainable product design education in a more detailed but less comprehensive scale.





### 3. SUSTAINABLE PRODUCT DESIGN

#### 3.1. What is Sustainable Design?

Designers who have the power to create the goods we all use have a huge power on the sustainability issue. As Papanek noted in the first paragraph of his book “Design for the Real World” first published in 1971;

“There are professions more harmful than industrial design but only very few of them... Today, industrial design has put murder on mass-production basis. By creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breath, designers have become a dangerous breed...In this age of mass production when everything must be planned and designed, design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself.) This demands high social and moral responsibility from the designers” (Papanek, 1985).

Design has both the guilt in the situation today as serving for the industry and the needs of the capitalist system as a profitable contradiction to the goods ignoring the effects of them mostly, but also it has the enormous power on the change of the conditions to help the world to get protected by changing the consumption behaviours to become more sustainable.

The need of Sustainable vision for design is emphasized in the book “*Sustainable by Design; Explorations in Theory and Practice*” by Stuart Walker;

“In fact, it is obvious that, if the message given through the sustainable ‘myth’ is not taken and our behaviours do not change that will be the call for our own destruction. The message is not only related with preserving the environment but it also includes the ethical issues related to social equity” (Walker, 2006).

The definition of “Sustainability” was noted in Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis - Version 2.2 in 1995 as “the ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time”.

“Sustainable” is defined as an adjective in *Cambridge Advanced Learner's Dictionary* and defined as;

1. able to continue over a period of time
2. Causing little or no damage to the environment and therefore able to continue for a long time

According to the World Commission on Environment and Development (Brundtland Commission) *Our Common Future*, (Chapter 2: Towards Sustainable Development, 1989); “Sustainable development” is defined as; “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Two main concepts that provides the base for Sustainable development was noted as;

- The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

A new vision for design is defined by Birkeland (2002) with a wider perspective. The details of this design are represented as;

**Table 3.1:** New vision for design in details (Birkeland, 2002, quoted in Bhamra, and Lofthouse, 2007)

<b>Responsible</b> – redefining goals around needs, social/eco equity and justice.
<b>Synergistic</b> – creating positive synergies; involving different elements to create systems change.
<b>Contextual</b> – re-evaluating design conventions and concepts towards social transformation.
<b>Holistic</b> – taking a life cycle view to ensure low impact, low cost, multi-functional outcomes.
<b>Empowering</b> – fosters human potential, self-reliance and ecological understanding in appropriate ways.
<b>Restorative</b> – integrates the social and natural world; recultivates a sense of wonder.
<b>Eco-efficient</b> – proactively aims to increase the economy of energy, materials and costs.
<b>Creative</b> – represents a new paradigm that transcends traditional boundaries of discipline thinking; to ‘leapfrog’.
<b>Visionary</b> – focuses on visions and outcomes and conceives of appropriate methods, tools, processes to deliver them.

### **3.2. Importance of Sustainable Product Design**

“In an environment which is screwed up visually, physically, and chemically, the best and simplest thing that architects, industrial designers and planners, etc. could do for humanity, would be stop working entirely. In all pollution, designers are implicated at least partially. But in this book I take a more affirmative view: it seems to me that we can go beyond not working at all and work positively. Design can and must become a way in which young people can participate in changing society“(Papanek, 1997).

It was stated by US Congress, Office and Technology Assessment, 1992, Green Products by Design, Washington DC: US Government Printing Office that the importance of product design decisions are mainly based on the either direct or indirect effect of them, on the energy usage and waste during the whole processes related to products such as production, usage and disposal of the products.

It is important to use the skills and abilities of designers in a way which helps people to have a better and equal life. As a duty they have to answer the demand and the industry requirement but it is important to state the real needs for all even disabled or poor, instead of demand and keep in mind the responsibilities to the nature and the world.

“Design must become an innovative, highly creative, cross disciplinary tool responsive to the true needs of men. It must be more research oriented, and we must stop defiling the earth itself with poorly designed objects and structures”(Papanek, 1997).

The common attempt in early sustainable approaches was to choose the side and do not consider the others. So as a designer when you choose to go on with sustainable issues that meant to ignore the need of the industry and demands of the day. Also the early approaches were interested in the product or production process or the energy usage but most of the examples were far from becoming real or considering the whole cycle of the products. As a result of these attempts ‘sustainability’ or ‘sustainable design’ was a high cost and distant issue for industry and the general customers. However as the evolution took place and the distant between industry and sustainable approaches became eventually closer ,by the help of environmental-protective consumer impacts, as some of the companies started to consider sustainability as an alternative way of making business and investing on it both in research and promoting it. However getting sustainability and sustainable design involved in the industry especially in developing countries is still complicate for

designers. In the end even we have seen many projects on paper many concepts many alternatives to change the current unsustainable products most of them are left on the paper or in experimental level and they are far from becoming produced or marketed.

In this context, Share Fence designed in 2001 by Next Architects the Netherlands, takes place in the collection of Droog Design. The concept behind this product was an important problem that consumption of many products that are used rarely. In this product thanks to the mobility of the pieces that are fixed on the fence tools which are used in gardening or repairing processes can be shared by two neighbours. Although, the concept has become a prototype it did not make itself as a real product yet.



**Figure 3.1:** Share Fence, by Next Architects, Droog Design Context; Less + More (Ramakers, 2002)

On the other hand few concepts which are produced and used so far in sustainable design can be seen as a part of the picture but missing the realities and scenarios.

The Sony ICF-B200 (Figure 3.2) was originally designed as a radio for emergency. The wind-up the radio needs no batteries and it can work with rotating the handle

with the help of power generator inside and thanks to a rechargeable Nickel Cadmium battery it can be used for around ten years. The main body of the product was not recycled. However, the parts were labelled for recycling. The key point in this product is while using a radio the needed energy is quite low compared to the energy needed to produce the product. From this perspective, on one side it does not require any batteries which have hazardous impacts on the environment, on the other side; the plastics and energy used to produce the product have still negative impacts for the environment (Datschefski, 2001). For these reasons, while designing a product all aspects should be reviewed and taken into consideration. After evaluation of these aspects by means of a Life cycle assessment tool, even it is hard to find out; the right decisions should be found and made by designers.



**Figure 3.2:** Sony wind-up radio, the total beauty of sustainable products (Datschefski, 2001)

As a result of the new technology which is fast the products become old even before they are purchased. The products are slower in the speed than the evolution of technology and that ends up with the enormous technology waste.

The gap between poor and rich becomes more and more distant as a result of the current system.

The system of today based on the resources which are finite, and sooner or later the resources that are needed such as oil will be exhausted. Natural systems, on the other

hand as an example of sustainability itself, have a balance in itself. The common rule of the natural systems is as it is a closed chain; nothing is wasted inside this circle. Each waste through an organism or a process is a supply of nutrition for others and it continues one by one until the chain is closed. The inspiration should be nature for the sustainable future of the world and the aim will be living in harmony with earth, nature systems and all people.

### **3.3. Historical Background of Sustainable Product Design**

Since the pioneers of this subject such as Carson (1962); Papanek (1971); Bonsiepe (1973) and Schumacher (1973), their books and work in the academics had contributed to the transition of sustainable design into universities as well as our lives.

In 1980s and 1990s authors such as Manzini (1990), Burall (1991), Mackenzie (1991) and Ryan (1993) contributed to this revival. However concerning these important contributions, there was not a straight acceleration on the interest for this topic.

On the one hand, the interest arose in some periods like after the OPEC Oil Crisis in 1973, or announcement of scientific facts about depletion of Ozone Layer, climate change and global warming (Fuad-Luke, 2004). On the other hand, the increase was not a constant one.

Eventually, the interest about sustainability and sustainable design has grown up steadily until the beginning of twentieth century. In these nine years time, the subject has arisen in a relatively wider and faster way.

### **3.4. Revised History of Sustainable Product Design**

The history and evolution of sustainability was categorised in three periods by Tracy Bhamra and Vicky Lofthouse in their book *Design for Sustainability; A Practical Approach* (2007). There was a similar historical overview of Alastair Fuad-Luke, *Eco-Design Handbook* (2006) which supplied a brief history about the early attempts. Besides, Pauline Madge, in her article; *Design, Ecology: A Historiographical Review* which published in *Journal of Design History* Volume 6, No.3 in 1993 gives a brief review about the history. Combining these historical

periods and reviews and referring to them, the history and evolution of sustainability is categorised by four periods in this study.

The first period includes the early attempts such as British Arts and Craft Movement. The second was, in 1960's and 70's with beginning of Green Movement and emerge of Non Governmental Organisations, which tried to change the regulations and policies, like Greenpeace and Friends of the Earth. The second one can be seen in 80's, after the economic crisis, environmental disasters such as Chernobyl and with the contributory efforts of NGOs the changes in legislations and standards related to the environment. The third one started with the new millennium, with the growth of anti-globalisation, anti-Americanism, the increasing international forums and conferences related to environmental issues and the collaboration of NGOs with companies and industries and the awakening of industry about the threats about pollution of the earth and needed precautions in a wider sense and scale (Bhamra and Lofthouse, 2007).

Looking in details of these four periods mentioned above, the first one is where sustainable design has its roots in an older history such as in British Arts and Crafts Movement. The second one is started in 1960s with Packard (1963); Papanek (1971); Bonsiepe (1973) and Schumacher (1973) as they had pointed the reality of the unsustainable now and future, warning about threats, criticising the modern way of life, consumption, production and design as well as proposing new approaches for these. The following period between 1980s and 90s authors such as Manzini (1990), Burall (1991), Mackenzie (1991) and Ryan (1993) had called for more radical changes in the system and lifestyles. Besides, in this period, the green consumer revolution can also be seen as an important milestone. This period made design for sustainability became eventually more widespread and has continued to emerge in the beginning of the new millennium until today (Bhamra, and Lofthouse, 2007).

#### **3.4.1. First period; early attempts**

As Alastair Fuad-Luke in his book *Eco-Design Handbook*, 2006 supplied a brief history about this period, the very early roots of sustainable design can be dated before Industrial Revolution when the local production was settled and local craftsmen were using the resources nearby. Beginning of the nineteenth century and continuing in twentieth by the innovations and industrialisations residents of rural



areas started to move into cities. British Arts and Crafts Movement (1850-1914) was the first to realise the environmental degradation related to these changes. The creators of the movement emphasized the reduced quality of the new mass produced goods the environmental damage they were caused during their production and usage. These notice lead them to search for new methods to decrease this impact and contribute to the production. The cognition of the movement was not so high by the society related to various reasons, although, the movement had an important role leading for the modernist movements such as Bauhaus, De Stijl, etc in Europe (Fuad-Luke, 20006).

The economy of material and energy use were strongly linked with functionalism and modernism , for example, Marcel Breuer between 1920- 24 created “flat packed” chairs that have standard components and can be packed flat so they could be easy to transport and reassemble also were durable and inexpensive. In many ways the products can be seen an example of a well thought sustainable products. The other frontiers can be noted such as Frank Lloyd Wright, John Ruskin, William Morris, Charles Eames, Eero Saarinen, and Richard Buckminster Fuller in the middle of 20<sup>th</sup> century. Richard Buckminster Fuller- term “dymaxion” used for products that gave maximum human benefit from minimal use of materials and energy (Fuad-Luke, 2006).

Between 1945 and mid 50s most of the Europe suffered from shortages of materials and energy supplies and that encouraged the design attempt “less is more”. In the 50’s Europe new small cars, economical to build and fuel-efficient, were launched by big companies such as Fiat and Citroen as a contrast to the USA’s huge ones such as Cadillac and Chevrolet.

So these early attempts were not as highly recognised and gained attention internationally as the latter ones however they are important as the pioneers and influences of the following more global and popular ones.

### **3.4.2. Second period: 1960s - 1970s**

Two early awakening calls were the books *Design for the Real World*, (Papanek, 1971) and *The Limits to Growth*, (Donella, Meadows, Randers, and Behrens, 1972).

The hippie movement in 60s had themes of back to nature and a critical attempt for the consumption. “The Whole Earth Catalogue” was a source book of self-

sufficiency advice and Do-it-yourself design books arise. Alternative technologists encouraged the application of appropriate levels of technology to the provision of basic needs such as fresh water, sanitation, energy and food for populations in developing countries. In Europe, young designers experimented alternative systems of design (Fuad-Luke, 20006).

Rachel Carson's book (1962) "*Silent Spring*" about the demolishing effects of pesticide use on animals is linked by most of the books as the start of the environmental movement. Non-Governmental organisations as Friends of the Earth 1969 and Greenpeace 1971 were formed and drew public attention into environmental issues in this period. Victor Papanek's book "*Design for the Real World*" was also first published in 1971 in Sweden in United States. The book was written between 1963 and 1970. It has been translated into more than twelve languages and it became one of the most widely read and referred book about design by design students and academics all around the world (Papanek, 1997, pg. xv).

Small is Beautiful: A Study of Economics as if People Mattered by E.F. Schumacher was published in 1973 and supported the recognition of the environmental and ethical problems in economical manner criticizing the impacts of the development. In 1973 the OPEC crisis occurred and lead to the discussions about limits of growth.

There were many warnings started long time ago such as Rachel Carson's book (1962) "*Silent Spring*" about the demolishing effects of pesticide use on animals or 1973 The Club of Rome, the report "*Limits of Growth*" which predicted the enormous population growth and exhaustion of fossil fuels. However these warnings were somehow ignored by most of the population on the earth and people have continued to poison the earth and fill the land with lots of rubbish and as the precautions were not taken ecosystems were destructed and many species have destroyed (Fuad-Luke, 2004).

As recognition of the environmental damage is not limited with boundaries in 1972, the members of the European Union (European Economic Community) consented that a common trans-national policy was a requirement in Europe. The European output of legislation and regulatory measures to fight environmental degradation has been productive since this agreement. These regulations passed by the European Council is immediately effective for all members of the union however the directives

does not have the same effect until they are included in national law of the members (Fuad-Luke, 2004).

### **3.4.3. Third period; 1980s - 1990s**

In 1980's the recognition of the environmental issues increased by international commissions and organisations. There were many positive steps taken in the way to sustainable future as the scientific researches proved the reality about the pollution in the planet and the results of them. The most important events can be summarised as;

1980 – The World Conservation Strategy was released by The International Union for the Conservation of Nature and Natural Resources (changed into World Conservation Union)

1981 – The World Health Assembly –adopted a Global Strategy for “Health for All” by the year 2000.

1982 – The United Nations World Charter for Nature was published.

1983 – The United Nations General Assembly established the World Commission on Environment and Development WCED

1985 – The World Meteorological Society, UNEP and International Council of Scientific Unions reported after their meeting that underlines the increase of CO<sub>2</sub> and green house gases in atmosphere and a warning for “global warming”. The same year “the hole in ozone layer” was discovered.

1987 – World Commission on Environment and Development - Brundtland Report (Our Common Future)

1987 – Montreal Protocol on Substances that Deplete the Ozone Layer was adopted

1988 – The Intergovernmental Panel on Climate Change

1988 – Henstock M.E. – Design for Recyclability

Dated in 1987, Brundtland Report (Our Common Future) was not only related to environmental but also social, economical and cultural issues. “Sustainable Development” term was used for the first time in this report. As referenced in so many authors on the topic such as Bhamra, and Lofthouse (2007), Thorpe (2008), Vezzoli and Manzini (2008), after definition of Sustainable Development, green design and environmental movement gained momentum. In the report

“Sustainable development” was described as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Walker (2006) defined three interrelated areas that sustainable development addresses as;

- Environmental stewardship
- Social equity and justice
- Economical issues

In 1997 the Kyoto Protocol was signed by delegates to the UN Framework Convention on Climate Change Third Conference of the Parties. And in 1999 Dow Jones Sustainability Indexes were launched as the First Global Sustainability Index.

In Rio de Janeiro, the United Nations Conference on Environment and Development (Earth Summit), Brazil was held in 1992 where governments of 172 states were gathered by the recognition of the serious environmental problems of the planet. . In this summit The Rio Declaration on Environment and Development was set with a series of principles describing the rights and responsibilities of states. In addition, a complete proposal for global action was published which is called Agenda 21. Through this proposal, guiding principles for the sustainable forest management were set and The UN Framework on Climate Change (UNFCCC) and the UN Convention on Biodiversity were authorized. The conference also set basics for establishment of a commission to produce annual progress reports called the UN Commission for Sustainable Development (UNCSD). Besides the importance of the practical action was emphasised by the adoption of the Precautionary Principle that states ‘lack of full scientific certainty shall not be used as a reason for postponing the cost-effective measures to prevent environmental degradation’ (Fuad-Luke, 2004).

1993 – The First Meeting of UN Commission on Sustainable Development

In 1990s there were many researchers and academics who published books and articles related to sustainable design which shows the increased interest and improved research on the topic. The most important names and books can be noted as;

1990, Manzini E. - The New Frontiers: Design Must Change and Mature

1991, MacKenzie D. – Green Design: Design for the Environment

1991, Burall P. – Green Design, 1996, Design for the Environment: Product Life Cycle Design Guidance Manual

1993, Nigel Whiteley – Design for Society

1994, Cooper T. - Beyond Recycling- Eco Design

1995, Papanek V. – The Green Imperative: Ecology and Ethics in Design and Architecture

Even though the history of sustainable design rooted far more before 20<sup>th</sup> century, the demand emerged from companies to collaborate and participate did not appeared until 1990s. In the early 1990s when big companies for instance Philips, Electrolux, IBM and Xerox began to encourage the sustainability issues taking place in their focus the change has gained momentum among other companies. However in reality looking from a practical designer's point of view, the sustainable design is not concerned in most of the design briefs. Therefore, it is difficult for designers to create more responsible designs both in environmental and social manner and engage in design for sustainability issues in their practical professional life (Bhamra and Lofthouse, 2007).

#### **3.4.4. Fourth period: after 2000, the new millennium**

Many products which are consumed and used for improving the quality of lives make huge negative impacts on environment; such as cars and electronic devices (Fuad-Luke, 2004).

“Ever since the early years of the 20<sup>th</sup> century, when mass-produced consumer goods started to become widely available, products have been promoted as ‘new’ and ‘leading edge’ based on two major features – aesthetics and technology. The first encompasses the latest in fashions, styling and colours and is the primary focus of the industrial designer. The second includes such things as functional attributes and gadgetry and is informed more by aspects of engineering. Neither has given us a lasting and meaningful material culture. Rather, they have contributed to the unsustainable, inherently damaging characteristics of our current design and production approaches” (Walker, 2006).

And it should be noted that without a responsible designer there would not be any responsible design in existence (Findeli, 2001).

However by the beginning of the new millennium, sustainable design has gained momentum with the help of the discoveries of the threads among the environment are increasing both in numbers and danger. As Yang and Giard noted the contradictory relation between design and environmental sustainability as "industrial designers can be both the cause of the problem and the source of solutions" has been widely recognized (Yang and Giard, 2001). Sustainable design and design for environment have been one of the most important research topics among academia. In addition they have been gradually included in the design project as either topics or criteria.

However, as the interest and demand on sustainability and sustainable design has become increasingly popular they have become fashionable issues. As Chapman and Gant pointed that, sustainability as a trend would have the contradictory result as making sustainable design a short-lived fashion.

“...At first glance this new and enlightened market situation appears wholly positive, and in many respects it is. However, without a considered and informed response to these emergent problems and opportunities, we are in danger of turning sustainability into nothing more than a passing trend rather than a deep cultural shift that makes sustainability sustainable “(Chapman and Gant, 2007).

### **3.5. Different Approaches of Sustainable Product Design**

The diversity of the approaches can be seen obviously referring to the table of Helen Lewis as she made it in her book *Design + Environment* as an overview of the terms in use associated with sustainable design. The terms are determined as “buzzwords that in some way define or refer to environmentally sensitive product design”.

**Table 3.2:** A palette of buzzwords (Lewis, 2001)

Design for environment
Ecological design
Environmental design
Environmentally oriented design
Ecologically oriented design
Socially responsible design
Sustainable product design
Sustainable product development
Green design
Life-cycle design
Dematerialisation
Eco- efficiency
Biodesign

As Lewis also underlined after noting these terms the list can be lengthened more and more as the new concepts and areas are introduced.

**Table 3.3:** Differentiation of environmental design philosophies (Bhamra and Lofthouse, 2007)

<b>Green Design</b>	Green design focuses on single issues, for example the inclusion of recycled or recyclable plastic, or consideration of energy consumption.
<b>Ecodesign</b>	Environmental considerations are considered at each stage of the design process.
<b>Design for Sustainability</b>	Design that considers the environmental (for example resource use, end of life impact) and social impact of a product (for example usability, responsible use).
<b>Sustainability</b>	Sustainability is considered to be more of a direction than a destination that we will actually reach.

As mentioned above, there are many different terms and concepts that are used related to this topic. As the interest and conceptions have changed through the periods terms has also evolved and increased in numbers. Considering all different concepts, definition, terms and the confusions through them, it was decided to basically reorganise and restate different dimensions of sustainable product design.

From this perspective, sustainable product design has been divided into four different areas according to their core philosophies and main focus. These four areas which are going to be explained in details in the following part are listed below;

**Table 3.4:** Four Different Approaches of Sustainable Product Design

<b>Service oriented approach</b>
<b>Life cycle approach (Cradle to grave approach)</b>
<b>Design for the need (Socially responsible design)</b>
<b>Design for environment approach</b>

### **3.5.1. Service oriented approach**

In order the focus to move from product-base to a base of satisfaction of real defined needs a complete change in system and understandings should be achieved. Changing the perspective of people, moving the centre of attention from product itself to the whole lifecycle of the product, from the raw materials to the retirement and exposal, makes great change in the current lives of people. The first needs brave designers and business enterprises and the second requires public acceptance and support as well as a global strategy.

Looking through ownership of the products, the need to own products has a huge impact on the concept of sustainability, as products are consumed in some cases for single or rare usage even there is no need to buy them. Giving an example, as also As Fuad-Luke wrote in “The Eco-design Handbook” (Fuad-Luke, 2002), in developed world, do-it-yourself culture makes each household to buy special tools and products such as electric drills and screwdrivers or huge machines such as lawnmower which are rarely needed and used, but kept for a long time just in case of the need. Referring to these examples the reality is consumers feel the need to buy an



object to use it. However, considering once more that in these cases which the products are used rarely, borrowing the products for a period seems more easy and logical. The actual need is here, the service that products serve so that it is obviously clear that a radical change; the shift from a product-ownership approach into a service-based one is required. Accordingly this shift would help to achieve sustainable future.

### **3.5.2. Life cycle approach**

The growing industries make the consumption speed increase and as a result of this, in inverse proportion, the life of products in the lives of people decreased. Before the consumption society arose the decisions took longer to take and the products that are bought were important and new for a longer time. However as the consumption trends are leading to the motto “consume more” just like the change in trends of eating outside from restaurants to fast food, take-away and deliveries, the act of buying become easier and the time that the new perception decreased. That also led to fast discard of products and the increase in waste people produce. On the other hands the durable or long lasting goods such as antiques have still an important place in lives of people. The connection or the value of the products makes it still possible to sustain products in somehow, someway. That is why just creating a durable product is not enough anymore to sustain a product.

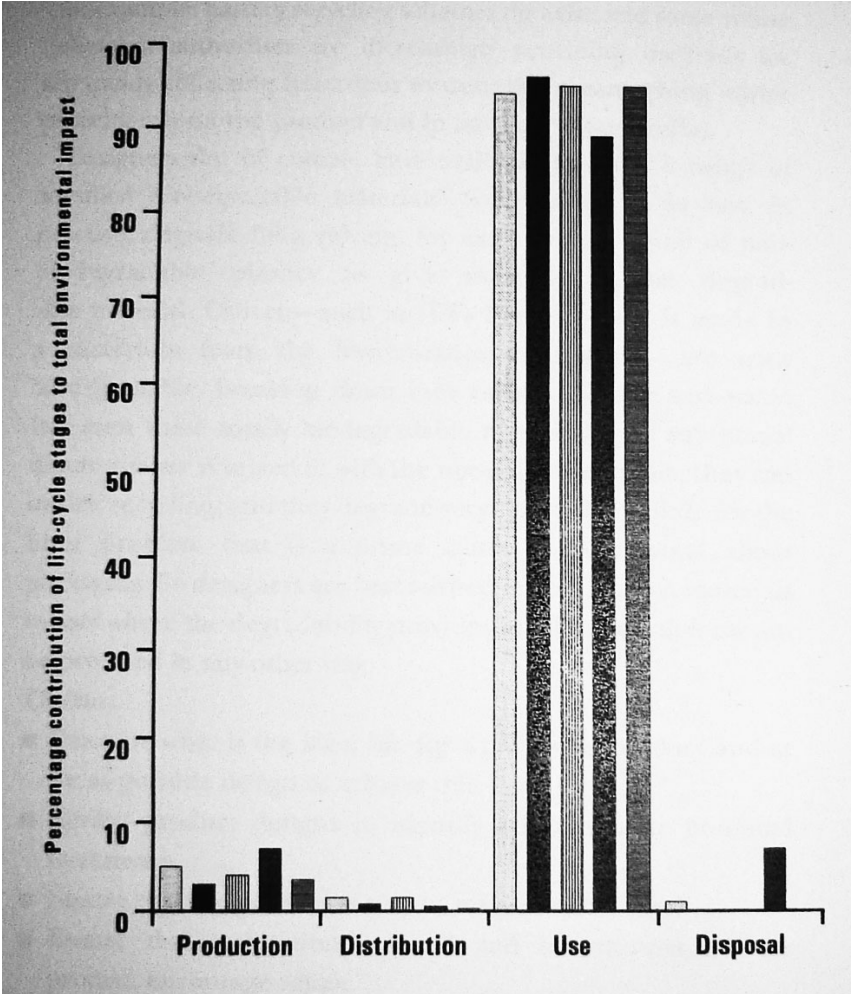
Trying to understand the whole lifecycle of a product the discussion should start with the raw materials, production methods continuing with usage and the retirement and exposure process. Looking in this cycle trying to locate design it can be seen that design takes place before and during the process. The power of design related to the creative nature of the profession as well as the place it stands and its huge role on the decisions of the products how they are going to be. Once the product is produced the damages would be huge and costs huge amounts both money and effort to prevent the earth from them if there is any way back for protection. Also, creating the consumer and product connection, the role of design, is not only to predict and create the scenario but to give information to the user and educate him as well.

Life-time stand guaranteed products have disappeared recently and consumers are motivating constantly to consume more and more. So the issue is not only making products as durable as possible but it is far more complicated than that. In the

previous century where consumption has not become a habit or hobby products which had life-time guarantee were made by big brands and they really kept for a long time almost a lifelong. However now with the constant renovations in technology and living in consume motivated, oriented, society durability is not an issue alone to keep a product.

The importance of tools like life cycle assessment (LCA) can be seen within this subject. Assessing the lifecycle of a product the decisions to make it more sustainable can be made as a detailed research about the scenario of it. Some products such as washing machines consumes more energy during their usage however some has a critical energy waste while production such as moulded glass bottles which are made by long processes that require high levels of energy. On the other hand, some has a short life through the usage phase for instance; plastic cutlery, therefore the exposal or reuse is important such as packaging. Therefore, since there is not one optimum decision or model to use in every product, for each product the strategies to make it as sustainable as possible should be prepared according to the detailed research about the product.

**Table 3.5:** Cradle-to-grave assessment of environmental impacts caused by washing machines (Burall, 1996)



The example above clearly shows the importance of lifecycle assessment in order to identify the environmental impacts of the products (Burall, 1996). The lifecycle assessment graphic of a washing machine displays the enormous majority of the impacts takes place during the usage phase of the life of machine.

Most of the previous attempts for greener products were concentrated on the production methods and disposal strategies however recently the need to examine products and their lifecycle in details is seems as a better way of understanding the most important phases of products individually. As there is no one way to make products more sustainable analysis of their lifecycles helps to see the phases which needs more attention which is in some products the usage phase however in some of them production techniques or materials gain more importance. So better the strategy fits with the characteristics of the products more the benefits are gained.

This approach can also be noted as Cradle to Grave Approach;

“There are many concepts within Cradle to Cradle. Some label it as being eco-effective vs. eco-efficient: doing the right things vs. doing things right. Intelligent Materials Pooling (IMP) is at the heart of this redesign process. Without going into the details, IMP requires either a biological or technical nutrient cycle. The tedious chemical analyses done within each IMP step involves the trial and error of scientific processes that could end up as a dead end. However, each dead end provides useful information for the next iteration. Two companies are leading these efforts: EPEA and MBDC founded by Dr. Michael Braungart and William McDonough to put Cradle to Cradle principles into business practice” (Url-15, 2009).

The decisions made to buy a product have many considerations which change from person to person, even though price is most of the time an important factor. Trying to decide on a product to buy even the product is environmentally friendly most of the people would not choose it to buy if it is more expensive than the other competitive. So the price of a product should be well thought and the message that the product is more sustainable should be clear enough for consumers. On the other hand if a successful sustainable product, the only reason that it is bought should not be its sustainability but also its other properties should take part and be competitive with the other alternatives.



**Figure 3.3:** Herman Miller - Mirra Chair

Herman Miller has strict standards for Sustainable Design in all his product range. The Mirra chair adheres to the McDonough Braungart Design Chemistry (MBDC) Cradle to Cradle Design Protocol. It is certified to MBDC Cradle to Cradle Gold and Silver, depending on configuration. Mirra is GREENGUARD certified and can contribute to LEED certification. Mirra is 96 percent recyclable, with 42 percent recycled content. It contains no PVC and is made of a minimal number of parts and

is easily disassembled for recycling. The chair is also easy to take apart to recycle locally. Latitude fabric back upholstery is 100 percent recyclable (Url-13, 2009).

The work has done in recent years prove the huge interest in the topic and the diversity of them shows sustainability, as a enormous subject, is arising in both fashionable and vital way. The interest on the issue is not because the circle is getting narrow but because of the popularity of it.

Design which can be simplified as a problem solving activity seems to be the source of the problems instead of solving them since the 20<sup>th</sup> century.

As a designer while considering the environmental problems and sustainability during the design process of a product it cannot be ignored the situation of the world. The products belong to the material culture and the new product also has to compete with the others all in technology, fashion and trends.

The amount of objects we own started to increase and the products for very specific usage has become to be seen around. Even some are accepted as useful tools for people to easy their lives the costs of that ends up huge damage in the environment. Even the products we use everyday can be replaces by services without consuming new products but all around the advertisements, trends, big malls etc. there to promote consumption. In order to change the way people perceive products into services would be a long and difficult process.

### **3.5.3. Design for need**

In many books, and articles it is said that design has an important role in achieving sustainable development. However the designers are not super heroes to save the world alone, it would be too much to expect that. The responsibility they have is obvious but to ask them to save the world alone would be unfair and amusing. The reality is power of designers are originated from their crucial role on the products before they are started to be produced.

That makes them the key point in sustainability issues. But it does not mean that the system is ready to change completely and only designers will start it with such small decisions. The whole change process is much more related to the politics, economics, industry and global legislation. So the role of designer is not too small to be ignored but not too big to compare with politicians as well.

This approach can also be noted as socially responsible design; everybody as a consumer has a responsibility and power to change the current products or systems but a designer, besides its regular role as a citizen, can change how the product is produced, what it is made of or what happens after it is retired.

Consume more is the current motto of all shops, advertisements, and shopping malls. However the economic growth the growing capacity of buying does not make people happier than before. The increase in economic well being does not lead in happiness but on the contrary it ends up with dissatisfaction and unhappiness.

Paul Burall in his book “Product Development and the Environment” quoted from an Austrian psychologist, Leonard Oberascher, who explains that:

“A general tendency of today is that the functional value or usefulness of a product becomes gradually less important to the consumer. He seldom buys a product only because of its functionality or price but because of its symbolic value. By purchasing a product he acquires a piece of image, hoping that the products aura will shed some light on his personality. Hence industrial products more and more fulfil the role of cultural symbols” (Burall, 1996).

What L. Oberascher suggests is that ownership of a product symbolizes the consumers place in the society. So that the products are not only bought in order to satisfy the basic needs of the consumer. However as Judith Williamson also stated in her book *Decoding Advertisements* (1978) that; “We are made to feel that we can rise or fall in society through what we are able to buy” (Williamson, 1978).

The products are consumed according to express the identity and the role of the consumer’s in the society. That is the way consumers become individuals and at the same time individuals became consumers in order to shape and express the identities. This perspective is highly against the aimed sustainability as putting the consumption in the core of the lives of individuals. Keeping this perspective in mind, here it is vital to realise that sustainability is not only related with the consumption of the product however the usage or the time that the product is kept is also very important. In this manner, the reality arose that sustainability of the product is not only provided but a long life or warranty or by repairs but it requires for the product to fulfil the “social and emotional needs” of the user during its usage (Burrall, 1996).

### 3.5.4. Design for environment

This approach mainly focuses on the environmental issues and takes environmental problems and environmental impacts as a core topic for design processes. Basically, Design for environment (DfE) aims to reduce the impact of product design on the environment of a product or service considering the whole life cycle of the product by going further than usage of recycled materials or proper packaging.

Design for Environment, is described by minimizing the impact of products on the environment by proposing this as the main concern in the design phase (Giudice, et al, 2006).

Design for Environment (DFE) has evolved during the last decade and became a more proper dimension by including industrial ecology in the design process and targeting conservation and re-usage of the earth's limited resources . The topic extended to the effective consumption of resources such as energy and materials as well as waste minimisation (Billatos and Basaly, 1997, quoted in Giudice, et al, 2006).

Looking in details of the approach, it can be seen that Design for Environment is far more complicated than simply reduction of environmental impacts. In fact, DFE provides a close connection to two disconnected tasks; product development and environmental management which is an important connection that was absent in the previous production processes. Billatos and Basaly noted four key points in order to overview the basics of Design for Environment. These four points are;

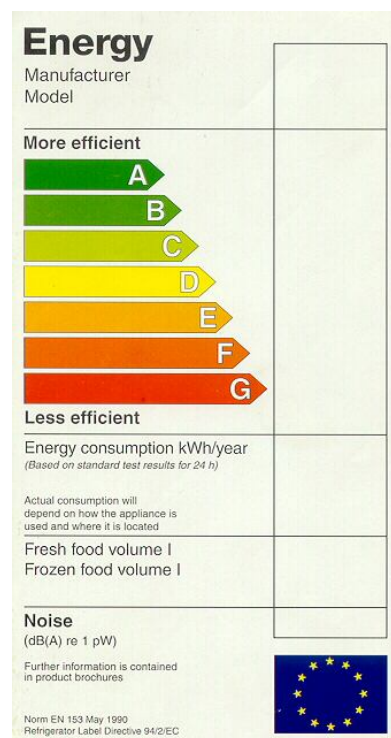
**Table 3.6:** The Four Basic Points of Design for Environment (Billatos and Basaly, 1997)

<ul style="list-style-type: none"><li>• Reduction of scrap and waste , allowing a more efficient use of resources and a decrease in the volumes of refuse, and more generally, a reduction in the impact associated with the management of waste materials.</li></ul>
<ul style="list-style-type: none"><li>• Optimal management of materials , consisting of the correct use of materials on the basis of the performance required, in their recovery at the end of the product's life and in the reduction of toxic or polluting materials.</li></ul>
<ul style="list-style-type: none"><li>• Optimization of production processes , consisting of the planning of processes that are energetically efficient and result in limited emissions.</li></ul>
<ul style="list-style-type: none"><li>• Improvement of the product, with particular regard to its behaviour during the phase of use, to reduce the consumption of resources or the need for additional resources during its operation.</li></ul>



**Figure 3.4:** The German Blue Angel, Since 1978

Eco-labelling Schemes were one of the consequences of Design for Environment approach and led by The German Blue Angel scheme which was established, in 1978, that covers more than 4,000 products. There are other countries such as Canada, The Netherlands that have their own schemes.



**Figure 3.5:** An example of the European Union Ecolabel

The European Union has established its own scheme in 1993 in order to promote manufacturers towards making products that has less damage to the environment, and to present consumers the information about the environmental impacts of the products independently (Mackenzie, 1997).





## **4. SUSTAINABLE DESIGN EDUCATION**

### **4.1. Importance of Sustainable Design Education**

“Sustainability” is not a new issue design however integration of sustainable design into education narrative is relatively late. Even though, since five decades dating back to 1960s the attempt to include sustainable design into curriculums of design programmes had arisen. In fact, product design decisions directly or indirectly affect the impacts of products in the environment and in our lives, sustainable product design education is a really significant and vital topic that needs to be explored and improved.

Hence, the purpose of sustainability is to sustain the world and keep the impacts of not only design but all professions, industries and individuals as less as it could be. Here sustainable product design education as a part of this purpose refers to a re-definition of the industrial design education and profession.

In October 1990, an early attempt to define and promote sustainability in higher education was made by the creation of the Talloires Declaration (TD) as a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities. The declaration was created by the Association of University Leaders for a Sustainable Future (ULSF) whose aim is to support sustainability as a critical focus of teaching, research, operations and promote this at colleges and universities in globally (ULSF, 2008).

By January 2008, over 360 university presidents and chancellors in more than 40 countries have signed The Talloires Declaration. Ten principles of the declaration can be seen in details below; in Table 4.1.

**Table 4.1:** Talloires Declaration (ULSF, 2008)

<b>The Talloires Declaration:</b>
<b>1. Increase Awareness of Environmentally Sustainable Development</b>
<b>2. Create an Institutional Culture of Sustainability</b> <i>Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability.</i>
<b>3. Educate for Environmentally Responsible Citizenship</b> Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields <i>to ensure that all university graduates are environmentally literate</i> and have the awareness and understanding to be ecologically responsible citizens.
<b>4. Foster Environmental Literacy For All</b> Create programs to develop the capability of university faculty to <i>teach environmental literacy to all undergraduate, graduate, and professional students.</i>
<b>5. Practice Institutional Ecology.</b>
<b>6. Involve All Stakeholders</b>
<b>7. Collaborate for Interdisciplinary Approaches</b> <i>Convene university faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.</i>
<b>8. Enhance Capacity of Primary and Secondary Schools</b>
<b>9. Broaden Service and Outreach Nationally and Internationally</b> <i>Work with national and international organizations to promote a worldwide university effort toward a sustainable future.</i>
<b>10. Maintain the Movement</b>

As a result, today in the middle of United Nations “Decade on Education for Sustainable Development” 2005-2014, it had been clearly promoted in various platforms such as the Talloires Declaration, different conferences, and reports that sustainable product design education has a key and creative role since it has a huge impact of what is produced, how it is produced and how it is used.

## 4.2. Integration of Sustainability in Product Design Education

In the report called “*Design & Sustainability. A Scoping Report for the Sustainable Design Forum*” was prepared by Julie Richardson, Terry Irwin and Chris Sherwin in 2005, the barriers for design educationalists through sustainable design education were identified as following key points.

**Table 4.2:** Barriers for design educationalists (Richardson et al, 2005)

- Low level of student demand
- Low level of HE institution interest, understanding &/or perceived importance, therefore little support
- Low level of business demand
- Low level of government support to encourage demand/curriculum change
- Broad and specialist skill set (30 listed skills)
- No or poor track record of graduate employment as sustainable designers
- Lack of stature for design in the marketplace
- Sustainability currently not seen as part of mainstream design education
- Lack of appropriate tools/models and/or formal knowledge sharing network to aid students/ practitioners
- Lack of skilled lecturers/ tutors
- Lack of entrepreneurial know-how
- SPD (Sustainable Product Design) requires lifelong learning
- Knowledge exchange network poor beyond specialist individuals and centres
- Poor eco-literacy in school students

In November 2005, a report was prepared by Dawe, Jucker, and Martin, for The Higher Education Academy working on 24 Centres of the Academy called “Sustainable Development in Higher Education: Current Practice and Future Developments”. In this report barriers and solutions to embedding education for sustainable development (ESD) in higher education were identified as in the table below.

**Table 4.3:** Barriers and Solutions to Embedding ESD (Dawe et al, 2005)

<b>Barrier</b>	<b>Solution</b>
Crowded curriculum	1. Create space through a rigorous review of existing curricula
Irrelevance	2. Development of credible teaching materials which are fully contextualised and relevant to each subject area
Limited staff awareness and expertise	3. Significant investment in staff development and capacity building
Limited institutional commitment	4. Develop a credible business case for HE institutions, setting out triple bottom line benefits

A survey was conducted via email questionnaire in 2007, among the members of Bureau of European Design Associations (BEDA), to determine the status of sustainable practice. According to this survey as the answers to the following question shows the lack of sustainable design education at universities has seen as an important barrier to sustainable design practice.

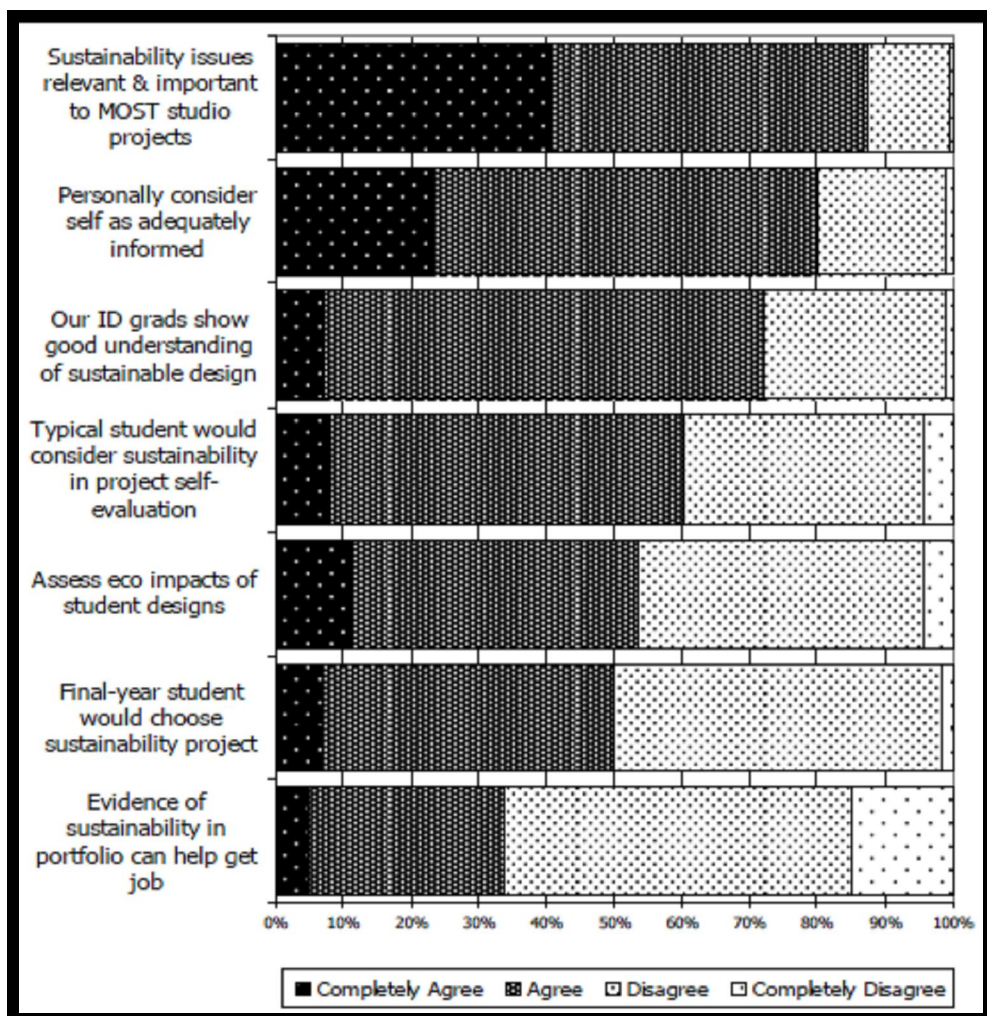
“Question 3. As a professional designer, what do you believe are the greatest barriers to the better practice of sustainable design? Lack of knowledge of designers?; Lack of knowledge of clients?; Lack of training in design schools?; Other barrier/s? “

Only 49% of more than 300 respondents from 14 member countries believed that lack of design knowledge was a barrier; while, 71% believed that lack of client knowledge was a barrier; and 63% believed that lack of training in design schools was a barrier (DEEDS, 2007).

DEEDS, Design Education & Sustainability which was a research project seeking to proactively and openly integrate sustainability into design education and design industry in the EU between 2006-2008, accordingly identifies “improved training at design schools in higher education as one of three key issues towards sustainable development (DEEDS, 2007).

A recent worldwide survey was conducted to outline the situation about sustainable design education in the curriculums of universities in 2007 by Mariano Ramirez Jr

from University of New South Wales, Sydney, Australia. As there were 262 industrial design course leaders from 221 schools replies were found suitable for assessment, it was a wide scaled and significant survey. There are few key points that are highly related to this research came out of this survey. According to the results; more than half of respondents considered themselves as being interested or very interested in teaching sustainable design (Ramirez, 2007). The same rate of respondents was agreed that design for sustainability should be either partially or fully integrated into design studio courses.



**Figure 4.1:** Views of respondents on sustainable design education (Ramirez, 2007)

The stated beliefs of the 72 percent indicated that their Industrial design graduates demonstrate a reasonable understanding of sustainable design issues and strategies. However, many of them emphasized the difficulty in integrating sustainability into their already full industrial design curricula while having other needed-to-be-covered

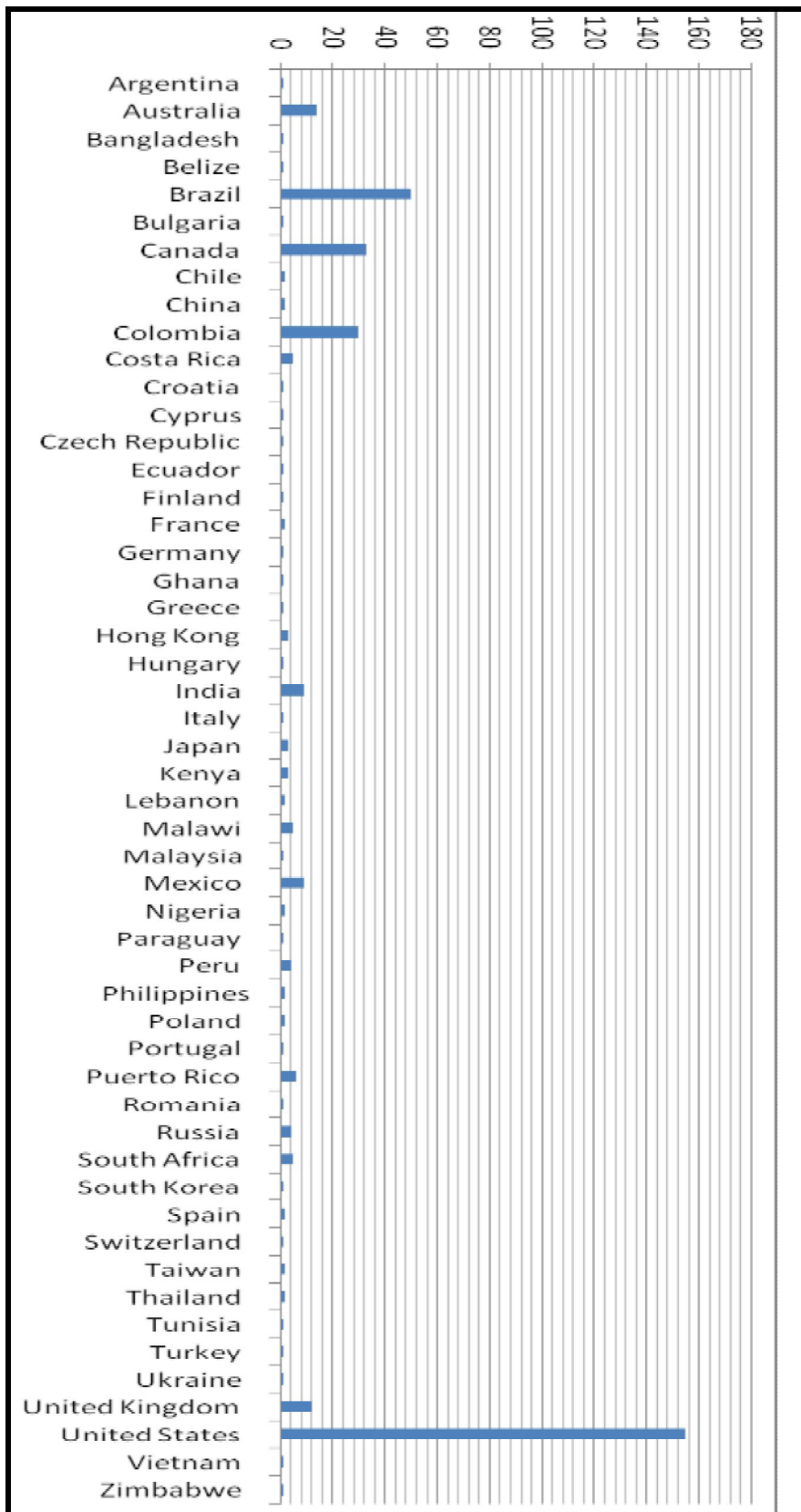
competencies were in the queue for a well-grounded design education. In order to maintain a short overview of the results the graphic is demonstrated below in Figure 4.1.

### **4.3. Sustainable Product Design Education**

In order to obtain an international review on sustainable product design education the importance of the topic in different countries were traced and various organisations and networks were found as a result of this research process.

To begin with, the distribution of 360 universities that have signed The Talloires Declaration can be seen in the following graphics which is adapted from the website of the Association of University Leaders for a Sustainable Future (ULSF).

**Table 4.4:** The distribution of the universities that signed The Talloires Declaration (ULSF, 2008)





As a result of the research there are nine important projects are found and each of them are going to be explored in details. These nine projects are varied and listed below;

- The Sustainable Design Network
- Toolbox for Sustainable Design Education
- The Demi Project
- Deeds
- ICIS
- Lens Network
- Cumulus Network
- The Designers Accord
- Okala Guide

**Table 4.5:** The main objectives of SDN

The main objectives of SDN are to
<ul style="list-style-type: none"> <li>• explore and confirm the industrial and academic benefits of understanding sustainable design.</li> <li>• provide consistent definitions and methodologies of sustainable design.</li> <li>• identify and group complementary and synergistic research approaches and tools in order to create a framework for analysing the various issues of sustainable design.</li> <li>• establish working research partnerships and to define and prepare a research framework and content that will effectively combine and enhance the strengths of current research and allow the identification of future research requirements.</li> <li>• prepare and propose future research projects which will test and apply the identified theories and models with industry as the ultimate beneficiary.</li> </ul>

The Sustainable Design Network is an inter-industry, inter-university, multi-disciplinary research network addressing issues of Sustainable Design. The network aims to integrate the work of engineering design, industrial design, manufacturing, management and environmental management. This UK based network which is coordinated by Dr. Vicky Lofthouse from Loughborough University, has 230 members from academia, industry and the public sector provides a mechanism to transfer knowledge and experience between academia and industry (Url-55, 2009).

Toolbox for Sustainable Design Education has been created by Dr. Tracy Bhamra and Dr. Vicky Lofthouse from the Department of Design and Technology at Loughborough University in 2004 and funded by the Learning and Teaching Support Network. It has been created to provide guidance for lecturers in engineering and design who work on integration Sustainable Design in undergraduate and postgraduate engineering and design courses. It was created to help lecturers while creating lectures to teach sustainable design in both undergraduate and postgraduate level. It was composed of 8 blocks as shown in the table below and these suggested blocks provide opportunity to form lectures in different lengths and density according to the existing curriculum (Url-23, 2009).

**Table 4.6:** Toolbox for sustainable design education

8 BLOCKS OF THE TOOLBOX	EACH BLOCK CONTAINS
Introduction to Sustainability	A list of subjects that can be included
Key concepts of S.D.	A brief description of why the subject is important for students
Systems thinking	Powerpoint presentation slides
Sustainable Development	A range of activities which vary in time requirements and group size requirements
Intro to Sustainable Design	Links to reading material
Journey to Sustainable Design	Links to useful resources for developing Lecture material
Methods & Tools	
The Project	

The DEMI Project (Design for the Environment Multi-Media Implementation) was developed by researchers at Goldsmiths College in London and funded by the UK’s Teaching Learning Technology Programme (TLTP). The aim of the project was to explore and enlarge the UK Government’s Sustainable Learning Agenda for higher design education and develop a learning experience that integrates sustainable thinking into design curricula. The outcome of the project is the DEMI website ([www.demi.org.uk](http://www.demi.org.uk)) that provides a wide range of information on design for sustainability. It works in six sections; DEMI principles, Design for sustainability, environmental issues, materials and products, sustainability concepts and gallery. DEMI was used by several British Universities particularly as a tool for teaching sustainability (Url-56, 2009).

DEEDS (Design Education & Sustainability) was a research project in order to find ways to integrate sustainability explicitly into both design industry and design education and in the European Union. It was started in October 2006 and continued for duration of two years and completed by the end September 2008 (Url-22, 2009).

**Table 4.7:** The main aims of DEEDS project

<p>The main aims of DEEDS project were to:</p> <ul style="list-style-type: none"> <li>• meet the increasing demand by consumers, producers and governments for new design thinking and practice by training educationalists and professionals in responsible, sustainable design</li> <li>• introduce new thinking in the process of designing e.g. Low Carbon Design or design for a low-carbon economy</li> <li>• encourage design innovation</li> <li>• future-proof design education and the design profession. The design world is changing. DEEDS helps manage and encourage change towards more sustainable practices</li> </ul>
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DEEDS had developed both training modules for the design professionals, and implement educational modules for design teachers and students. The target of the project was providing knowledge on sustainability and sustainable design for practising designers as well as design teachers and design students.

DEEDS was a collaboration of ;

- Project Leader- ICIS (International Centre for Creativity, Innovation and Sustainability), Denmark
- Academy of Fine Arts Poznan, Poland
- BEDA (Bureau of European Design Associations), Brussels, Belgium
- SERI (Sustainable Europe Research Institute), Germany
- University of Brighton, UK

ICIS (International Centre for Creativity, Innovation and Sustainability) is a special educational centre working in the area of design and architecture in order to provide educational programmes and modules for educators, academics, practitioners and other for design and sustainability. Karen Blincoe, the initiator and director of DEEDS, is also the founder and director of the International Centre for Innovation and Sustainability (ICIS) Denmark. ICIS was participated in EU programmes, worked with Scandinavian and British educational institutions as well as the Danish government and international design industry. The centre is part of a Icograda, the International Council of Graphic Design Associations, ISCID (the International Council of Industrial Design Associations) and IFI (the International Federation of Interior Architects) (Url-57, 2009).

The Learning Network on Sustainability (LeNS) is a three years project between 2007 and 2010 funded by the Asia Link Programme, EuropAid, European Commission, involving 7 design schools in Europe and Asia. It was performed as a collaboration of Asian and European universities for the curricula development on Design for Sustainability focused on product-service system innovation. The aim of the network is to provide a mutual understanding of cultures, by promoting a new generation of designers and design educators in order to contribute effectively to the transition towards a sustainable society by curriculum development (Url-58, 2009).

In order to encourage a collective disciplinary ground on Design for Sustainability, a series of exchange activities between the partner institutions was provided by the network. A modular and adaptable e-learning package for teaching sustainable

design was also designed by LeNS Network, in order to provide guidelines for the curriculum development for institutions and educators.

Politecnico di Milano INDACO Department is the coordinator of the network and there are six more partners of LeNS;

- King Mongkuts Institute of Technology Ladkrabang, Dept. Industrial Design, Thailand
- University of Art and Design Helsinki, School of Design, Finland
- Delft University of Technology, Industrial Design Engineering, The Netherlands
- Indian Institute of Technology Delhi, India
- Sritshi School of Art, Design and Technology, India
- Tsinghua University, Academy of Arts & Design, Industrial Design Dept., China

Member institutions and departments of LeNS Network can be found in Table 4.5. As it can be seen in the table below, the network has various members all over the world and provides a multi cultural sharing platform for both design students and design teachers.

**Table 4.8:** Members of LeNS Network

<b>ITALY</b>	Politecnico di Milano INDACO Department, Faculty of Design
<b>NETHERLANDS</b>	Design Academy Eindhoven
<b>NETHERLANDS</b>	TU Delft Delft University of Technology
<b>FINLAND</b>	TaiK University of Art and Design Helsinki
<b>SWEDEN</b>	Lund University The International Institute for Industrial Environmental Economics
<b>PORTUGAL</b>	INETI Instituto Nacional de Engenharia, Tecnologia e Inovação
<b>BRAZIL</b>	University of São Paulo USP School of Architecture and Urban Planning
<b>BRAZIL</b>	Universidade Federal do Paraná
<b>INDIA</b>	Shritshi School of Art, Design and Technology
<b>CHINA</b>	Tsinghua University, Academy of Arts & Design, Department of Industrial Design,
<b>CHINA</b>	Jiangnan University School of Design - DESIS research Center
<b>KOREA</b>	Ewha Womans University, Shinchon
<b>TURKEY</b>	Istanbul Technical University Department of Industrial Product Design
<b>THAILAND</b>	King Mongkut's Institute of Technology Department of Industrial Design
<b>HONG KONG</b>	Hong Kong Polytechnic University School of Design
<b>AUSTRALIA</b>	University of New South Wales Faculty of the Built Environment Industrial Design Program
<b>AUSTRALIA</b>	Swinburne University of Technology Faculty of Design

Cumulus Network, International Association of Universities and Colleges of Art, Design and Media, was founded in 1990 by The University of Art and Design in Helsinki (TAIK) and the Royal College of Art in London, in co-operation with Danmarks Designskole, Gerrit Rietvelt Academy, Universität Gesamthochschule Essen and Hochschule für Angewandte Kunst in Wien. In 2001, the network was

transformed to Cumulus Association. It has been developing joint MA programmes, workshops, projects and conferences. In addition, it has published documentations of the discussions and seminars in conferences. The association has grown in size from 6 to 140 members from 41 countries which represent both the European and overseas Universities by 2008 (Url-44, 2009).

The aim of the association is to build a dynamic and flexible academic forum that gathers educational institutions from all over the world. Main activities of Cumulus are jointly organized MA programmes, conferences, seminars and workshops, once a week newsletters and working groups.

The working groups are either permanent or one time groups, initiated by members. These groups organise meetings periodically. There are 14 permanent and occasional Cumulus Working Groups (WG); to name few; Art Education WG, Digital Culture Working Group, Cumulus Industrial Design WG, Sustainability Working Group, Design Education for Sustainability. The objectives of this working group are summarised in the table below (Url-44, 2009).

**Table 4.9:** Objectives of Design Education for Sustainability Working Group of Cumulus

The Objectives of Design Education for Sustainability WG of Cumulus
<ul style="list-style-type: none"> <li>• identify appropriate knowledge (about human behaviour and attitude change, the environment, resources and sustainable design practice)</li> </ul>
<ul style="list-style-type: none"> <li>• exchange strategies, practice and experiences for teaching design for sustainability.</li> </ul>
<ul style="list-style-type: none"> <li>• propose and collect new practices for design education</li> </ul>

Since design education plays a key role in adapting design to become ecologically compatible and contribute to developing a sustainable culture, Design Education for Sustainability Working Group has recently launched by Cumulus, in order to support the transformation of design education through a sustainable vision. The general aim

of the group is to establish sustainability as a core component of the design curriculum alongside form and function, aesthetics and ergonomics, etc.

The Designers Accord was founded in 2007 as an international coalition of designers, educators, and business leaders who works for providing positive environmental and social impact. By 2009, it has 27 educational and 28 corporate adopters. It provides a participatory platform for the members to share experiences and resources about design in environmental and social aspects. The main aim of Designers Accord to make sustainability a mainstream component in all aspects of design practice and production by achieving four goals that stated below (Url-59, 2009).

- Increase awareness in the creative community as a supporting network.
- Graduate the next generation of design thinkers and leaders  
by providing a toolkit to bring sustainability into undergraduate and graduate design programs
- Codify best practices to achieve the greatest impact
- Influence policy by bringing the power of systems thinking to policy discussion.

On the 23<sup>rd</sup> and 24<sup>th</sup> of October 2009, The Designers Accord has gathered 100 individuals who have presented 56 universities for the “Designers Accord Global Summit on Design Education and Sustainability” in San Francisco, USA. The summit was shaped as two days of discussion, planning, and action around the topic of design education and sustainability. The participants have encouraged discussing, challenging, and conceiving of a new path for undergraduate and graduate design programs to integrate sustainability. The key aim of the summit is to create a toolkit of best practices and methods for integrating sustainability into design programs all over the world and publish this toolkit as a free online resource and distribute it to academic institutions (Url-59 2009). The summit was expected to have a radical impact on the design community by articulating all aspects of integrating sustainability into design education, reshaping the perception the roles, responsibilities, and opportunities of the designers. Unfortunately, the outcomes of



the summit have not been published so far. Therefore the results of the summit should be included as an important resource for integrating sustainability in design education in the following studies.

Okala Guide was developed by Philip White, Louise St. Pierre, Steve Belletire, Eastman Chemical and Whirlpool with the support of IDSA/EPA Partnership. The guide was designed to provide course modules which can be easily integrated into the existing design curriculums. Even just in North America over 60 design schools requested the guide to use the materials in the curriculum development. It was not only created for design students but also design practitioners and design teachers. The guide includes various important sources and information such as updated Lifecycle Impact Assessment methods, global climate change values, design guidelines for disassembly and recycling. Okala Guide was designed to provide convenient guidelines so that it can be ordered online from the website of The Industrial Designers Society of America (IDSA) in the Ecodesign Section (Url-60 2009).

## **5. RESULTS OF THE STUDY**

As mentioned in the last part of Chapter 2, the target respondents of the survey was set as the professionals and instructors who has been teaching sustainable product design for a while. In order to maintain reliable information, especially on the historical perspective, course leaders, programme coordinators and department leaders were preferred respondents. Although there were more than sixty contacts that were collected since the early phases of research and categorised as important professionals and academics, there was a low response rate within this group of this contacts. In addition, expected overall participation was around 150 in the beginning of the survey subsequent to the high response rate to the emails that were formerly sent to the email groups. But the response rate was comparatively low in general and it took longer than expected to even achieve this rate.

The reasons for this low response rate was discussed in details in Chapter 2. One of these were the timing of the questionnaire as it had been spread was a busy period for all academics as it was the beginning of the new semester and it also had a negative effect on the response rate.

Another one of these were the length of the survey as a result of the combined third part which was composed of open ended questions to be completed by only respondents who have more than five years of experience in this field. Even though the questions were revised and evolved into shorter and multiple choice question types, it was a longer questionnaire than expected. Therefore, it would have been better to separate this third part and sent to the respondents who has noted more than five years of experiences in the development process. However combined three parts were needed to be chosen because of the limited time. Accordingly, this combined long version of the questionnaire had a negative effect on the response rate as the potential respondents were discouraged by the length. Moreover, event most of the respondents who had longer experiences did not completed the third part as a result of the long open ended questions.

As a result, it would have resulted in better quantity and quality if this last part had been separated from the main questions and asked individually to be completed by the potential contacts after they completed the basic questions.

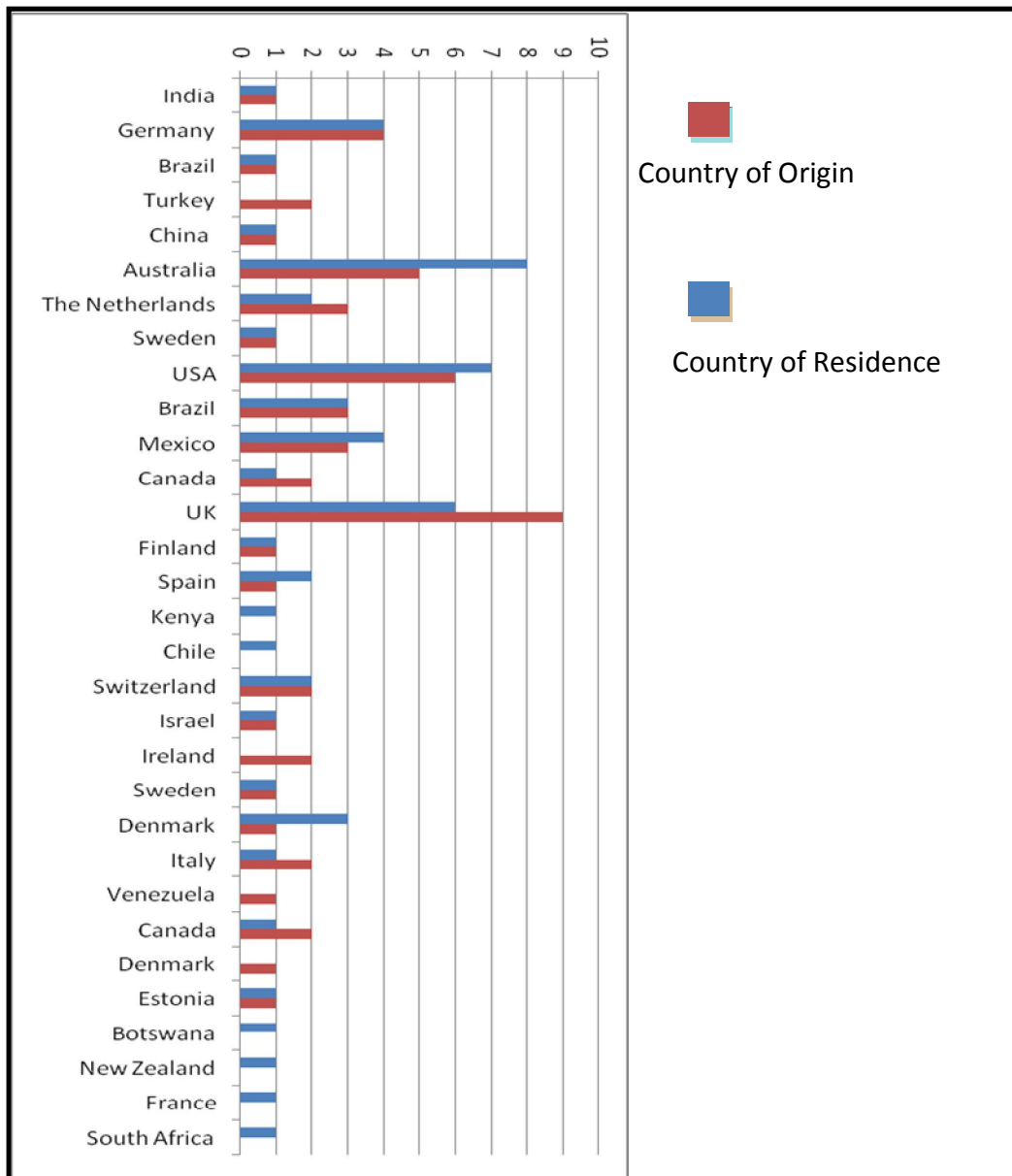
Another difficulty was faced because of the method used to spread the survey. As explained before in addition to personal emails, requests for participation were also sent to the related four email groups. There were many related contacts that would not be found unless these group emails were sent. However as a result of these emails there were more than eleven responses which were not included in the target as they were not involved in teaching sustainable product design or they were relatively new in this field. Accordingly there were 55 responses which have taken into the evaluation of results due to the relevance of their answers.

As a final outcome, the difference between the results of interview and the results of the questionnaire clearly showed that in order to provide more information especially about the historical perspective and personal experience fields, personal interviews would had resulted in more information and better quality in the responses. However, due to the time limitations, low responses to the efforts to communicate with important contacts and limited facilities made it unattainable to search for these questions via personal interviews. Therefore online questionnaire was a better and more attainable tool to use for this research. As a result of this method there were some limitations in the responses and the results were not used to generalise the answers but to provide an understanding of evolution of the sustainable product design education in a more detailed but less comprehensive scale.

## **5.1. Findings**

As Pauline Madge explained in her article “Design, Ecology, Technology: Historiographical Review” in 1993 while trying to give historical information about ecological issues in the design agenda, most of the attainable documents and resources were referring to either United Kingdom or America. Madge has explained this pattern as underlining these countries as “the pioneers of environmentalism and therefore of design and ecology” (Madge, 1993).

**Table 5.1:** Country of origin and residence of the participants



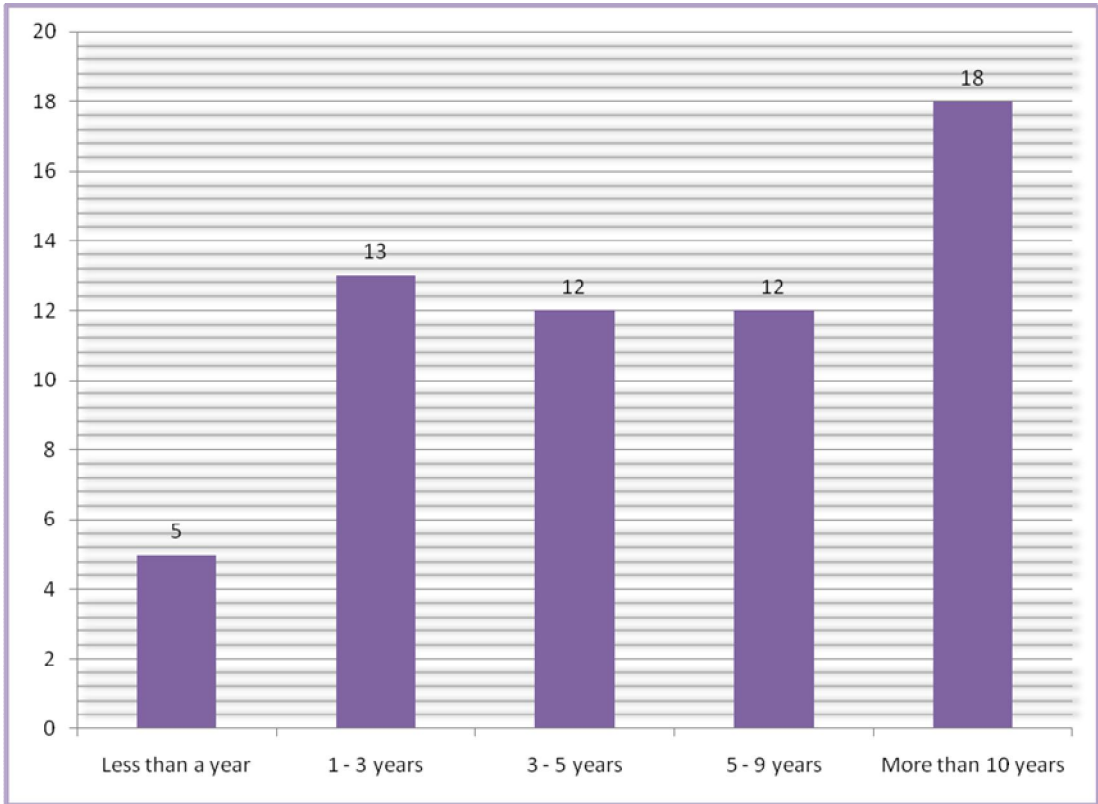
Here, in this study, there is a similar pattern in both referred resources and contacts not only because of English usage as the communication language but partly a result of the leading profile of these countries in sustainable design. Moreover, related profile of the literature that was written in and can be read in English. Accordingly, the country of origin and residence of the participants were mainly located in either Europe and United Kingdom, or Australia and United States. Similar pattern was displayed in the previous part by Table 4.4, illustrating the distribution of the universities that signed The Talloires Declaration. However the expected pattern was

also followed by a variety of countries such as India, Estonia, Kenya, Canada, etc. therefore the results were also various accordingly.

**5.1.2. Evaluation of collected information**

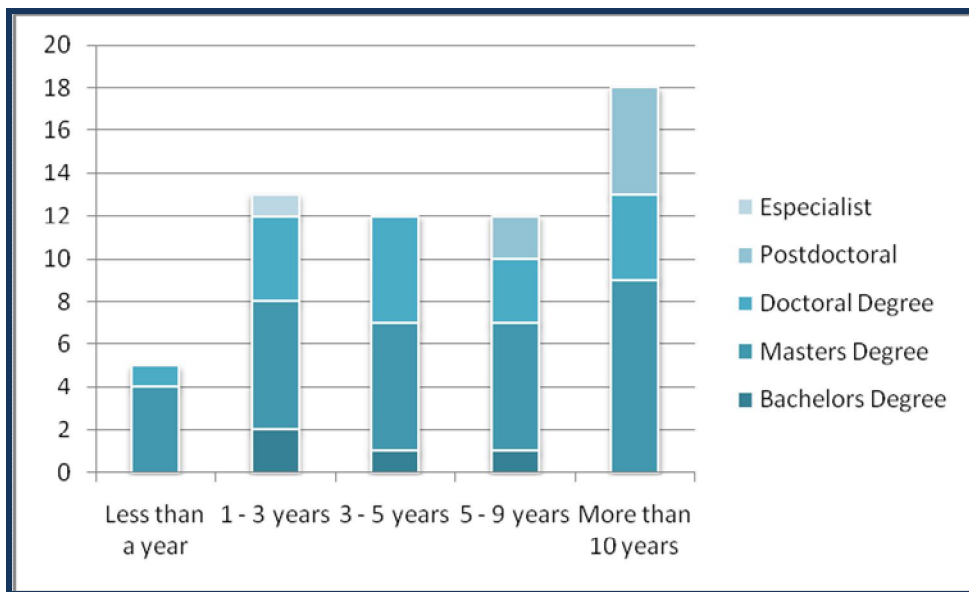
The evolution and future of sustainable product design education is expected to be researched in details with the results of the survey. In order to achieve this, professionals and academics who have been working on this field for a while was chosen as the target group of respondents. However as explained in the previous part, the survey was spread by both the individual request emails and request emails sent to the related four email groups. Accordingly there were 78 respondents but 18 of those were either not responses from the contacts which were not directly involved in the target group. Therefore 60 respondents were selected according to their relation to the topic. Besides, as shown in the Figure 5.2, there were 5 respondents who has had been working in sustainable product design education for less than a year.

In order to obtain more reliable information in the responses of the questions about historical perspective, these 5 respondents were excluded in the evaluation processes of those types of questions.



**Figure 5.1:** How long have you been working in sustainable product and service design education?

Respondents were from various educational backgrounds such as marketing, social science and psychology, architecture, electrical engineering, car mechanics etc. Nevertheless most of them were from various design backgrounds such as graphic design, industrial design, product design, furniture design and sustainable design. Most of the respondents were either lecturer or professor in the field of design and sustainable design. Additionally there were some respondents who were both teachers and researchers in sustainable design.

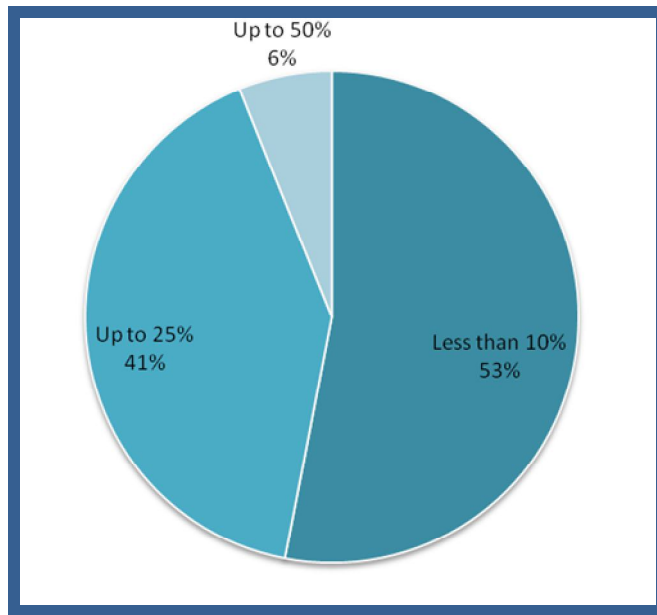


**Figure 5.2:** Distribution of the participants according to their experiences

In the Table 5.2, the distribution of participants was shown according to their academic progress and their experience levels in sustainable product design education. In table, it can be obviously seen that the more experiences the respondent has, the higher degree he or she has completed. Therefore, there were 9 masters’ degrees, 4 doctoral and 5 post doctoral degrees among the respondents who has been working for more than 10 years in the field. There was one specialist who has been working in the field for 1-3 years.

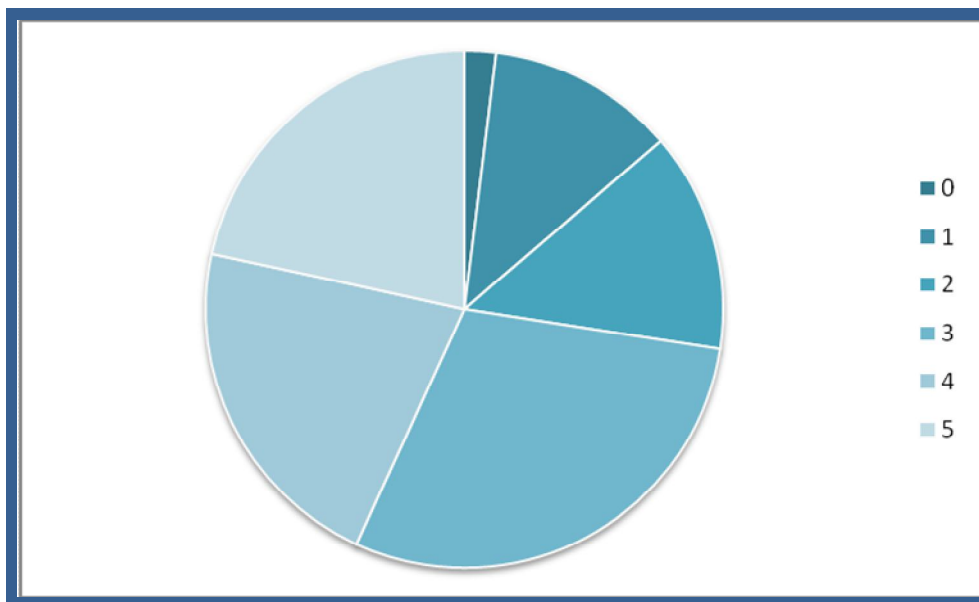
## 5.2. Sustainable Product Design Education

On the Figure 5.3 below, the division of the responses to the question about the ratio of the courses focused on sustainable product and service design in the curriculum of the departments. According to the 26 the responses, the ratio of the related courses within their departments is less than 10 percent.



**Figure 5.3:** What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?

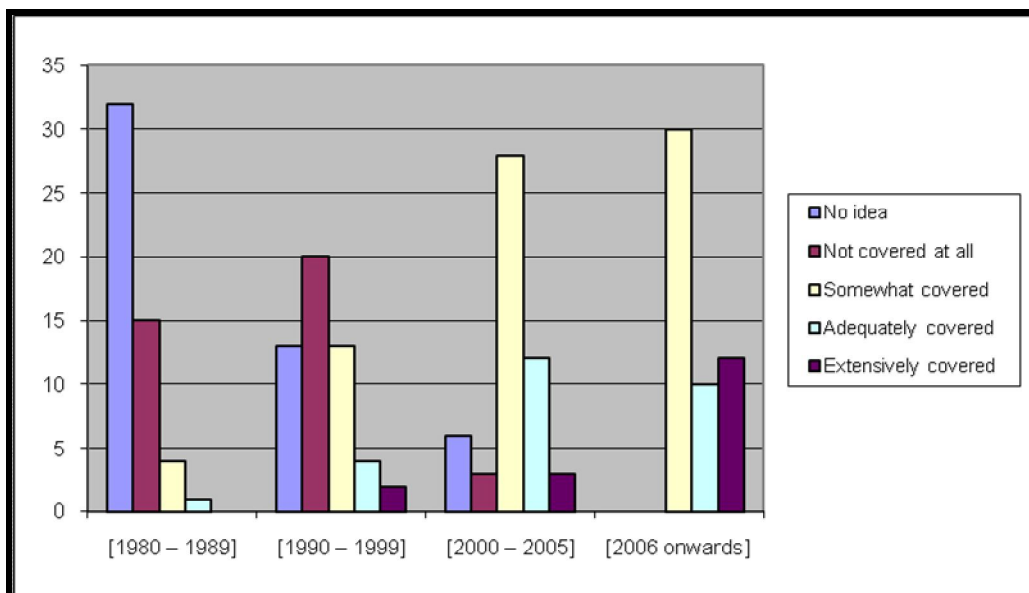
On the other hand, 20 respondents noted that the ratio of the related courses within their departments is up to 25 percent. Only 3 of the respondents have chosen that within their departments the related courses are up to 50 percent among the overall curriculums.



**Figure 5.4:** How important are sustainability issues in the overall vision of your department?

However, as shown in the figure above, in a subsequent question where the importance of sustainability issues in the overall vision of the departments were asked to the participants 22 of the them has chosen the highest value as 4 and 5. The

middle values as 3 and 2 were chosen by 22 of the respondents. On the other hand, the lowest values were chosen by only 7 of the respondents. The previous question and this one was prepared in order to compare the reality among the departments and the expected ratio of importance of sustainability issues in the curricula. As the comparison was displayed by the two figures above, there are two different patterns that were reached through the responses. These two different patterns can be understood by two diverse ways. In a way, it can be said that sustainability is seemed to be more important in the theoretical platforms in departments such as the vision of the departments. Whereas, in practice the ratio of courses focused on the topic is relatively small. That can be identified as the difference of theory and practice. In another way, it can be said that the sustainability issues are increasingly involved in the overall vision of the departments but it is more likely to be covered within the present courses in the curricula rather than separate courses.



**Figure 5.5:** How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)?

While making the explanation results of another question should be taken into the consideration. The responses of the question “How would you evaluate the coverage of sustainability issues in the curriculum of the department?” by the categorisation in decades was shown in the figure above. As it can be clearly seen that almost half of respondents were too young to answer the questions about 1980s and 1990s. However, a pattern can be read through the graph. In the first two decades most of the answers displays that sustainability issues either “not covered at all” or



“somewhat covered”. On the other hand there were just 7 participants who claimed that sustainability was adequately covered in 1980s and 1990s.

On the contrary most of the recipients claimed that between 2000 and 2005 sustainability was covered either adequately or to some extent. In the last period that shows 2006 and onwards the pattern continues in a more extended demonstration. There were not any respondents that claimed sustainability issues are not covered in the curriculum in this period. However the majority stated that sustainability issues have been covered in a wider way since 2006 onwards; as 30 of the responses somewhat, 10 adequately and 13 extensively in the curricula.

As mentioned in the section three, integration of sustainability into education is an emerging issue. Declaration of 2005 to 2014 as the United Nations Decade of Education for Sustainable Development by United Nations is a clear indicator for the increase of interest on this topic. Another indicator is the Talloires Declaration, which is an environmental literacy plan with over 350 signatory universities from 40 different countries (ULSF, 2009).

The 2002 Johannesburg Summit extended the vision of sustainable development and emphasized the role of education on this process. Furthermore the Decade of Education for Sustainable Development was proposed. As a result, in December 2002 the United Nations General Assembly announced the United Nations Decade of Education for Sustainable Development (DESD) for the period between 2005-2014 (UNESCO, 2004).

The fundamental vision of the Decade of Education for Sustainable Development was stated by UNESCO in 2004 as: “A world where everyone has the opportunity to benefit from education and learn values, behaviour and lifestyles required for a sustainable future and for positive societal transformation” (UNESCO, 2004). It was clearly emphasized by UNESCO that sustainable development needs to become a central priority in determining areas of educational research and development; since the distance between research and practice on the topic is significant.

The main four objectives for the DESD are stated by UNESCO are;

**Table 5.2:** The objectives for the DESD (UNESCO, 2004)

<ul style="list-style-type: none"><li>• Facilitate networking, linkages, exchange and interaction among stakeholders in ESD;</li></ul>
<ul style="list-style-type: none"><li>• Foster an increased quality of teaching and learning in education for sustainable development;</li></ul>
<ul style="list-style-type: none"><li>• Help countries make progress towards and attain the millennium development goals through ESD efforts;</li></ul>
<ul style="list-style-type: none"><li>• Provide countries with new opportunities to incorporate ESD into education reform efforts.</li></ul>

Accordingly, it was noted by Geli and Junyent that higher education has a significant role in the society as supporting the transformation progress towards a sustainable present and future (Geli and Junyent, 2008). They have underlined the fact that “A decisive factor for achieving a culture of sustainability is university training for future professionals.”

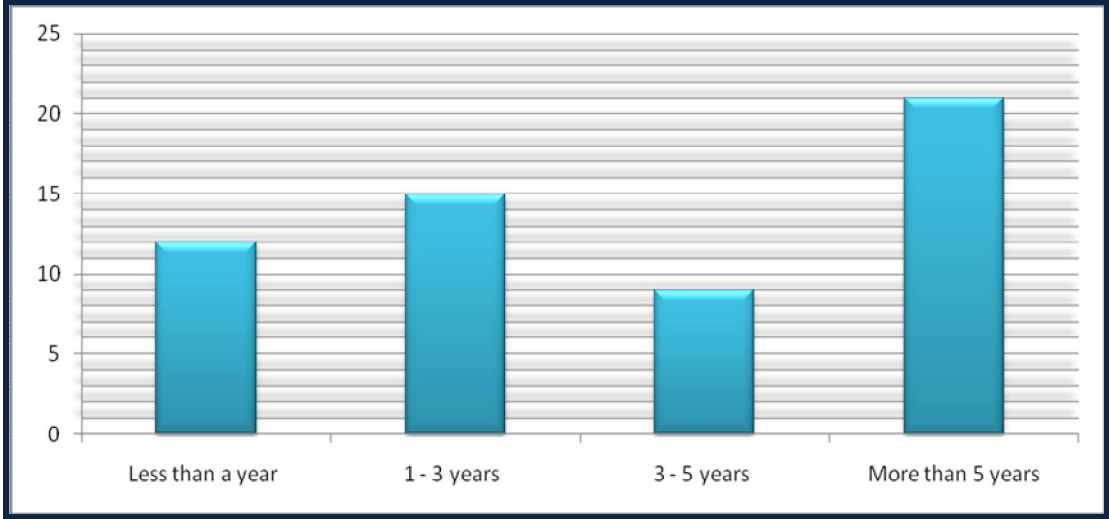
Through the last decade, there were several international and national events which highlighted the importance of education for sustainability in the area of education, particularly higher education and university studies.

Students, in other words the future professionals, have to be trained in their individual fields by combining environmental and sustainable issues. Subsequently they would be able to handle their professional work from the sustainability vision (Geli, et al 2008).

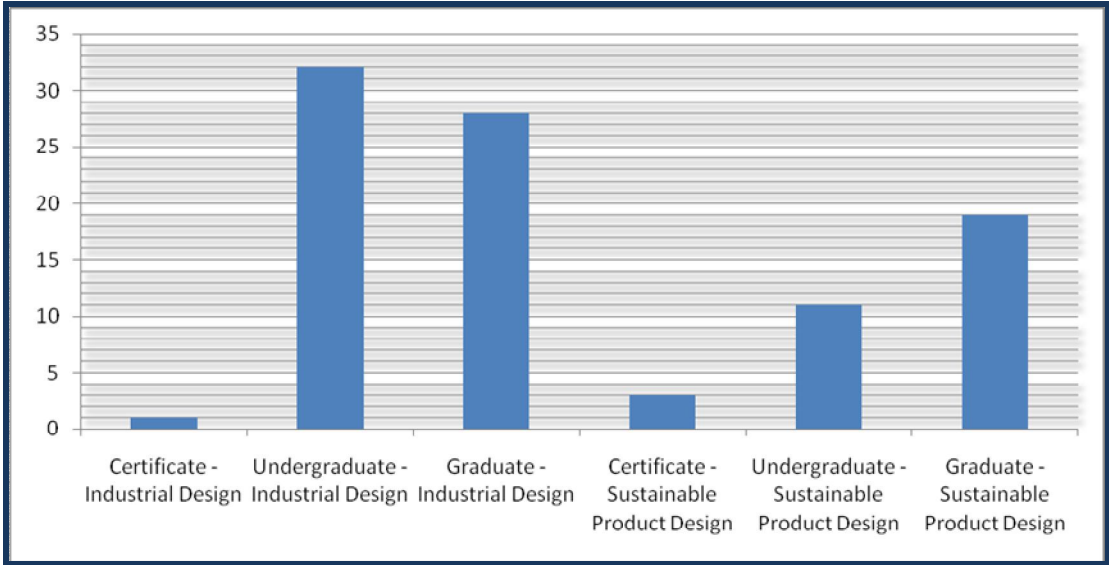
However, in order to achieve this transformation, not only integration of sustainability issues into the curricula but also innovation and organisational change is required (Tilbury et al, 2004).

As another proof for this debate can be found in the Industrial Designers Society of America (IDSA) association of Industrial Design professionals, with more than 3,300 worldwide members, had established an “Ecodesign Section” in 2001 by transforming the Budd Stienhilber initiated eco committee in 1989. This section has introduced the Okala Guide on ecological design that is not only a practical toolkit

for Industrial Design professionals but also the modules of the guide were designed to be easy to incorporate into existing product design classes for design students (IDSA, 2007).



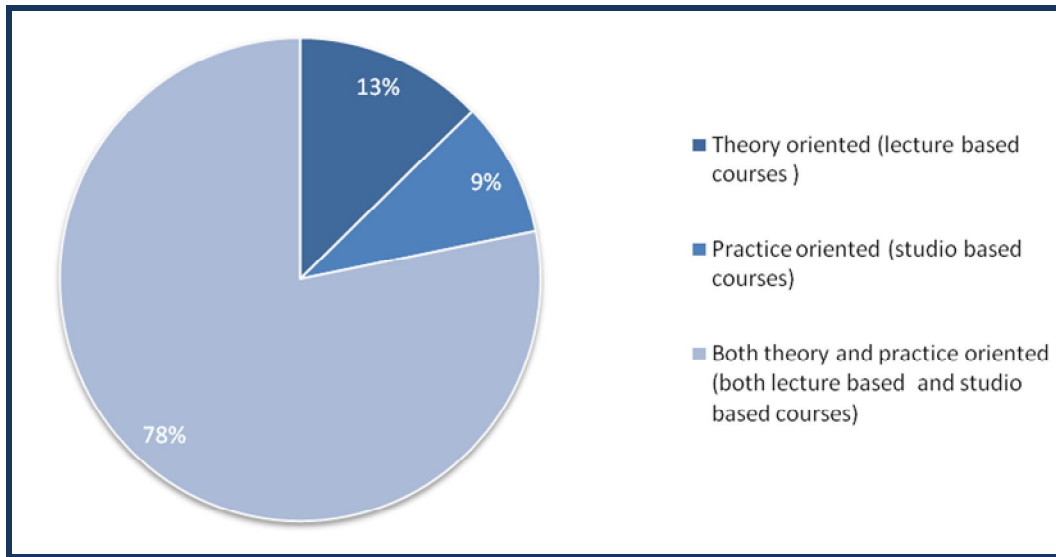
**Figure 5.6:** How long have you been teaching in the department you are currently involved?



**Figure 5.7:** At what level-department combinations do you teach sustainable product and service design courses?

Participants were asked about their level-department combinations that they teach sustainable product and service design courses and they were allowed to choose more than one option if necessary. Most of the participant articulated that they teach sustainable product and service design within undergraduate or graduate industrial design departments. On the other hand, thirty four participants articulated that they

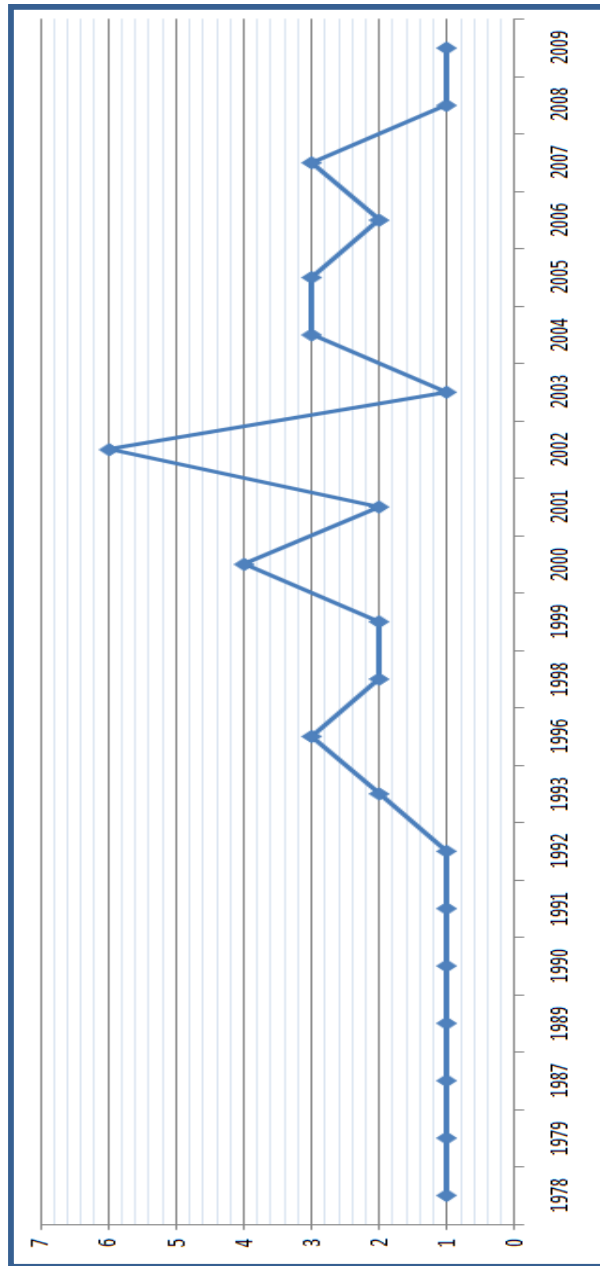
teach in sustainable product design departments in different levels. Even though the ratio of the industrial departments is more than sustainable product design departments, the results show the increasing number of sustainable design departments. In the Figure 5.6, it can be seen that the majority of the participants have teaching in their departments for more than three years. However as sustainable product design departments are relatively new it is not surprising to see 27 participants have been teaching in the same departments less than three years.



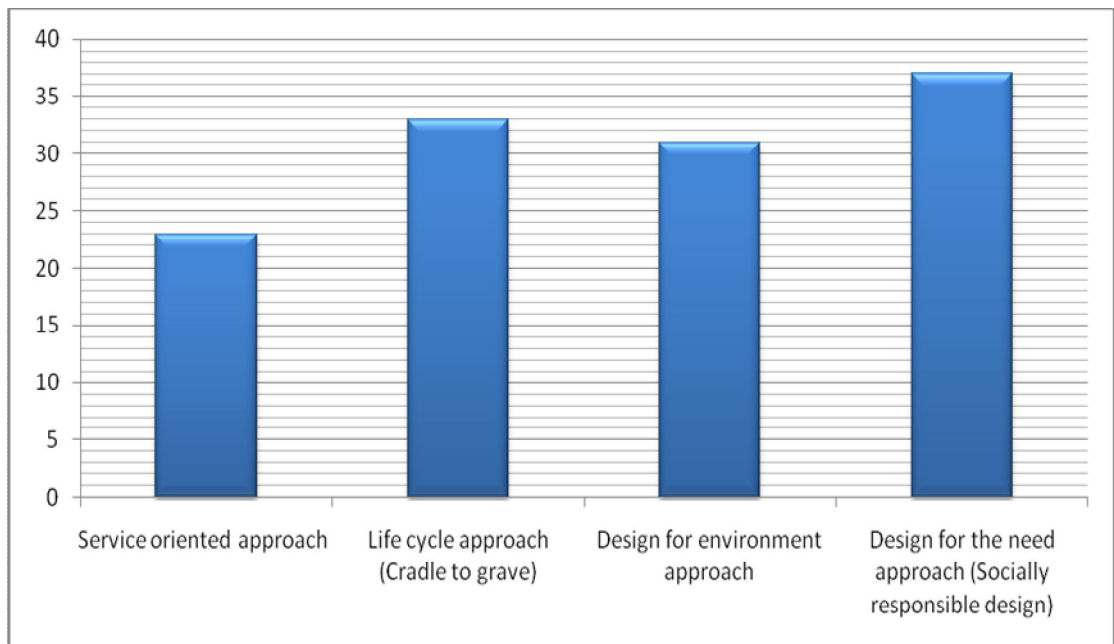
**Figure 5.8:** How would you describe your work in sustainable product and service design education?

When participants were asked to describe their work 78 percentage of them noted that they give both theory and practice oriented courses. This question was important to see the ratio of the theory oriented courses to practice oriented courses on the topic. However most of the participants defined their work in both fields and only 9 percent noted that they give studio based courses.

Participants were also asked about their first involvement in sustainable product and service design education. The aim of this question was to display the pattern of the interest in the field of teaching sustainable design over few decades. In the figure below the peak in the interest between 1992 and 2008 can be identified easily. This is, especially after 2000, the same period as sustainable design had become an increasingly popular issue among the society and designers. However, the figure also displays the constant interest was started in the late 1970s.

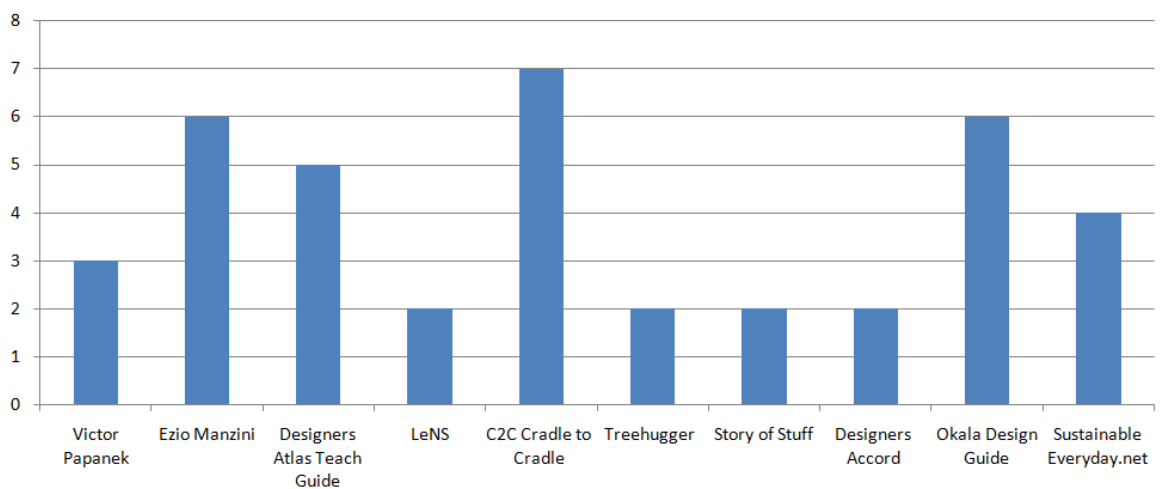


**Figure 5.9:** What was your first involvement in sustainable product and service design education?



**Figure 5.10:** How can you categorise the approach of your department/course on sustainable design among these options?

In the figure above, the results of the question “How can you categorise the approach of your department / course on sustainable design among these options?” were displayed. However as the question was too short to explain these approaches and participants were allowed to choose more than one option, the results are reasonably similar to each other and difficult to identify. Even though design for need and life cycle approach approaches are the most chosen options among the others, possibly because of the description as socially responsible design and cradle to grave.



**Figure 5.11:** Can you name three important sources you use to form the educational practice in your department/ courses/ studios?

When participants were asked to name three important sources you use to form the educational practice in your department/ courses/ studios there is a various pattern which can be seen in the figure above. Most of the sources are authors and famous books on the topic. Especially Cradle to Cradle is the most popular one among others. However prepared guides are not so popular with the exception of Okala Design Guide. On the other hand websites and networks are also sources that participants use to form their courses. Accordingly in the Figure 5.12, the chosen collaboration tools were shown below. Although the sources that were used by participants were relatively similar, tools to communicate and collaborate with other institutions and educators are not so similar among the participants. There were many different suggestions and general answers but the most a specific network was identified as O2 with a relatively small amount of responses. Accordingly, as the communication and experience exchange is important on this relatively new field, it can be said that there are various platforms but there is a lack of specific platform for sustainable product design educators.

O2	12
MAIL GROUPS	6
LINKEDIN	5
LENS NETWORK	4
DESIGNERS ACCORD	2

**Figure 5.12:** What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?

**Table 5.3:** What motivated you towards working in sustainable product and service design education?

Victor Papanek Paul Hawken Ezio Manzini R. Buckminster Fuller William McDonough, Michael Braungart (Cradle To Cradle) John Thackara Tony Fry Carlo Vezzoli Victor Margolin Gui Bonsiepe Edwin Datchefski Schumacher David Stairs John Chris Jones John Wood Alastair Fuad-Luke Karen Blincoe Dorothy Mackenzie Vance Packard Ursula Tischner Cameron Tonkinwise
O2 International Eternally Yours

In another question, searching for the motivation of the participants towards working in sustainable product and service design education, most of the responses were related to the personal background and experiences. However there were key names and their books which were shown in the table above. O2 network and Eternally Yours were also seen influential by the participants. On the other hand most of the responses articulated the environmental and social crisis as well as scientific facts about the environment as a motivator for them as well as authors and their books.



**Table 5.4:** Found Courses in Sustainable Product and Service Design

COUNTRY	INSTITUTION	COURSE TYPE	COURSE TITLE
SWITZERLAND	UNIVERSITY OF ART AND DESIGN OF GENEVA	BACHELOR	SUSTAINABLE DESIGN
		MASTER'S PROGRAMME	RESPONSIBLE DESIGN
FINLAND	AALTO UNIVERSITY	MASTER'S MINOR STUDY PROGRAMME	CREATIVE SUSTAINABILITY
SPAIN	THE EUROPEAN INSTITUTE OF DESIGN	MASTER'S PROGRAMME	MASTERS IN SUSTAINABLE DESIGN
NETHERLANDS	FACULTY OF INDUSTRIAL DESIGN ENGINEERING DELFT UNIVERSITY OF TECHNOLOGY	SUBPROGRAMME OF THE LIFE CYCLE ENGINEERING & DESIGN (LCED) PROGRAMME	DESIGN FOR SUSTAINABILITY (DFS) PROGRAMME
ITALY	POLITECNICO DI MILANO, THE SCHOOL OF DESIGN	MASTER OF SCIENCE	MASTER OF SCIENCE IN PRODUCT-SERVICE-SYSTEM DESIGN
ITALY	POLITECNICO DI TORINO	MASTER OF SCIENCE	ECO-EFFICIENT PRODUCT DESIGN
FRANCE	L'ÉCOLE DE DESIGN NANTES ATLANTIQUE	MASTER'S PROGRAMME	ETHICALLY RESPONSIBLE INNOVATION
SWEDEN	LUND UNIVERSITY	MASTER'S PROGRAMME	MA INDUSTRIAL DESIGN
SWEDEN	BLEKINGE INSTITUTE OF TECHNOLOGY	MASTER'S PROGRAMME	SUSTAINABLE PRODUCT-SERVICE SYSTEM INNOVATION (MSPI)
IRELAND	INSTITUTE OF TECHNOLOGY CARLOW	CERTIFICATE PROGRAMME	CERTIFICATE IN SUSTAINABLE DESIGN INNOVATION
JAPAN	TOKYO ZOKEI UNIVERSITY FACULTY OF DESIGN AND FINE ARTS	MAJOR	SUSTAINABLE PROJECTS MAJOR
USA	THE SAVANNAH COLLEGE OF ART AND DESIGN	MASTER OF ARTS	DESIGN FOR SUSTAINABILITY
		BACHELOR OF FINE ARTS	SERVICE DESIGN
		MASTER OF FINE ARTS	SERVICE DESIGN
AUSTRALIA	GRIFFITH UNIVERSITY, QLD COLLEGE OF ART	MASTER'S PROGRAMME	MASTER OF DESIGN FUTURES
AUSTRALIA	THE UNIVERSITY OF SOUTH AUSTRALIA	MASTER'S PROGRAMME	MASTER OF SUSTAINABLE DESIGN
AUSTRALIA	UNIVERSITY OF TECHNOLOGY, SYDNEY	MASTERS BY RESEARCH PROGRAMME	MASTERS BY RESEARCH IN SUSTAINABLE FUTURES

**Table 5.5:** Research Centres on Sustainable Design

COUNTRY	INSTITUTION	RESEARCH CENTRES
<b>UK</b>	LOUGHBOROUGH UNIVERSITY DEPARTMENT OF DESIGN AND TECHNOLOGY	SUSTAINABLE DESIGN NETWORK
<b>UK</b>	BOURNEMOUTH UNIVERSITY	SUSTAINABLE DESIGN RESEARCH CENTRE
<b>UK</b>	KINGSTON UNIVERSITY FACULTY OF ART, DESIGN & ARCHITECTURE	THE SUSTAINABLE DESIGN RESEARCH CENTRE
<b>UK</b>	UNIVERSITY COLLEGE FOR THE CREATIVE ARTS AT CANTERBURY, EPSOM, FARNHAM, MAIDSTONE AND ROCHESTER	THE CENTRE FOR SUSTAINABLE DESIGN
<b>UK</b>	LONDON COLLEGE OF FASHION	THE CENTRE FOR SUSTAINABLE FASHION
<b>NETHERLANDS</b>	FACULTY OF INDUSTRIAL DESIGN ENGINEERING DELFT UNIVERSITY OF TECHNOLOGY	DESIGN FOR SUSTAINABILITY
<b>AUSTRALIA</b>	RMIT, MELBOURNE	CENTRE FOR DESIGN -THE SUSTAINABLE PRODUCTS AND PACKAGING PROGRAM
<b>AUSTRALIA</b>	UNIVERSITY OF TECHNOLOGY, SYDNEY	INSTITUTE FOR SUSTAINABLE FUTURES
<b>ITALY</b>	POLITECNICO DI MILANO, THE SCHOOL OF DESIGN	DESIGN AND INNOVATION FOR SUSTAINABILITY
<b>KOREA</b>	AJOU UNIVERSITY	ECO- PRODUCT RESEARCH INSTITUTE

Twenty five programmes on sustainable product design education were found as a result of this research. However, seventeen of these were in UK and eighteen of these were in other parts of the world. As shown in Table 5.3 above, most of the programmes are in Europe and Australia. Accordingly, one of the following parts the situations in Australia and UK are going to be explored. A similar pattern can also be seen in the Table 5.4 by the research centres. However the results would be a result of the language and time limitations and relatively attainable countries. In addition it

should be noted that Italy, Holland and Sweden have also distinguishing characteristics in this area and needs to be explored in details.

### **5.2.1. United Kingdom**

Since the popularity of industrial design occupation has been rising globally, the understanding of the occupation is not as high as the popularity. For this reason students who are enrolled to the design courses have high expectations such as to become a star designer before the beginning of the university.

In their paper “Developing Industrial Design Education: A British perspective” which published for National Education Conference UK in 2004, Weightman and McDonagh stated;

“In the UK there has also been a growing realisation there that the creative industries are a vital part of the economy. The creative industries are taken to include design and manufacturing but in all its aspects – products, fashion, interiors, architecture – as well as music, art, literature, film, media, computer programs and computer games. A grudging acknowledgement that Britain was no longer a manufacturing nation with a captive market in the Commonwealth has finally led to an acceptance of a future based on the provision of intellectual services to a wider market in Europe and the world at large ”(Weightman and McDonagh, 2004).

Since the production processes of the industry had moved to the other overseas countries, the new attempt in Britain was to make the use of creative industries as a supporting element for economy. Weightman and McDonagh underlined the fact that creative products and skills such as design and music from Britain were exported and this export now plays an important role in UK’s economy. Two important examples of British designers transported to the USA was also noted as; Jonathan Ives at Apple and Gerry McGovern at Lincoln-Mercury. Accordingly the education especially in the fields of arts and design is a key element for the British economy.

As Paul Burall mentioned in his book, Green Design:

“Between 1986 and 1989, there was a rise from 8 percent to 30 percent in the number of people in Britain who believed that environmental problems should be the top priority for government. Nevertheless, the whole subject was still seen by most politicians, economists and opinion-formers in countries such as Britain or United States as being largely irrelevant when compared with such traditional priorities as unemployment,

urban regeneration and defence, while manufacturers remained generally unaffected by the environmental debate” (Burall, 1991).

UCAS is the organisation responsible for managing applications to higher education courses in the UK. The organisation tries to help students to find the right course. It also organises conferences, education fairs and conventions across the UK and produces a wide range of publications. These are all aimed at helping students to make informed decisions about higher education and to guide them, their parents and advisers through the application process (UCAS, 2008).

In education self based self oriented, experience based learning the students are directed to do research and learn on their own.

The amount of lectures is very light comparatively and the reduction of the courses and less lectures more time for student himself and it is up to him how to use this time and organise himself.

The sustainable design issues are not remarkable in BA curriculums as the lectures are not as much as before, sustainability problems are not mentioned in the existing lectures. The subject can be mentioned in material lectures or some management lectures however the project targeted to improve the consciousness of the students

Even there are not specially set projects for environmental issues some students tend to come up with related project if they are asked to set project by themselves. The competitions are also encouraging elements for these projects.

Environmental and socially responsible design has not been specifically encouraged through design education and training in the previous decades. However, projects such as DEMI, and the leading work of Goldsmiths College, Loughborough University and the Centre for Sustainable Design, as Toolbox for Sustainable Design in order to help other lecturers integrate sustainability into product design curriculum and develop sustainable design courses have pioneered to change this situation (Bhamra and Lofthouse, 2007).

Research in the field of design for sustainability is now well established, though it can still be considered a new area. Most of the developed nations now have some form of active research into design for sustainability, covering issues such as: implementation of legislation, eco-innovation, corporate social responsibility,

product service systems, eco-redesign, impacts of user behaviour, design for disassembly and reverse manufacturing.

As a result of the research for undergraduate courses in UK under the title of industrial design there are 108 courses founded. However the number of related subjects are shown in the table above. As each subject has its own courses for 2009 the number of courses in design is easily be seen as enormous. According to the search for sustainable design courses the results are shown in the Table 5.4. The development which can be easily seen in this table is the disappearances of limits between the education and other subjects and disciplines.

However, there are just three subjects related to sustainable design in the Table 5.4, which are : Environmental Design, Sustainability Product Design and Sustainable Design. 3 in 108 is a relatively small ratio and can give an overview of the situation in the country.

**Table 5.6:** Table of Subjects for Undergraduate Design Courses in UK For 2009

Advertising Design	Engineering Design	Music Design Technology
Architectural Design	Engineering Product Design	New Media Design
Architectural Design Technology	Environmental Design	Newspaper Design
Architecture Design Management	Environmental Engineering Design	Packaging Design
Art	Exhibition Design	Performance Design
Art Design	Fabric Design	Power craft Design
Audio Systems Design	Fashion Design	Printed Textile Design
Automotive Design	Fashion Design Management	Product Design
Automotive Engineering Design	Fashion Design Menswear	Product Design Development
Automotive Product Design	Fashion Design Promotion	Product Design Engineering
Broadcast Design	Fashion Design Tailoring	Product Design Innovation
Building Design	Fashion Design Technology	Product Design Management
Building Design Management	Fashion Design Women's wear	Product Design Manufacturing
Business Software Design	Fashion Knitwear Design	Product Design Technology
Business Systems Design	Fashion Textiles Design	Product Design Visualisation
Ceramics Design	Film Design	Production Design
Civil Engineering Design	Floral Design	Promotional Design
Clothing Design	Food Product Design	Retail Design
Combined Crafts Design	Footwear Design	Retail Design Management
Communication Design	Furniture Design	Road Vehicle Design
Communications Systems Design	Garden Design	Secondary Design
Computer Systems Design	Garment Design	Secondary Design Technology
Computer-aided Design	Graphic Communications Design	Set Design
Computer-aided Engineering Design	Graphic Design	Ship Design
Computer-aided Product Design	Graphic Information Design	Software Design
Computing Game Design	Heritage	Software Product Design
Computing Interactive Design	History Of Art Design	Sound Design
Computing Software Design	History Of Design	Spatial Design
Construction Design	Imaging Design	Sport Design
Consumer Product Design	Industrial Design	Sport Equipment Design
Contemporary Furnishing Design	Industrial Design Engineering	Sport Product Design
Contemporary Textiles Design	Industrial Product Design	Structural Design
Corporate Design	Information Design	Surface Decoration Design
Costume Design	Information Systems Design	Surface Design
Creative Costume Design	Innovation Design	Surface Pattern Design
Creative Design	Integrated Industrial Design	Sustainability Product Design
Creative Digital Design	Integrated Product Design	Sustainable Design
Creative Product Design	Interactive Design	Technology
Design Crafts	Interactive Information Design	Technology Design
Design Engineering	Interactive Multimedia Design	Television Design
Design Futures	Interactive Software Design	Television Production Design
Design Glass	Interior Design	Textiles
Design History	Internet Systems Design	Textiles Design
Design Management	Jewellery Design	Textiles Design Studies
Design Marketing	Knitwear Design	Textiles Furnishing Design
Design Metals	Landscape Design	Theatre Design
Design Model Making	Leisure Boat Design	Three Dimensional Crafts Design
Design Of Garden Art	Leisure Design	Three Dimensional Design
Design Pattern	Lighting Design	Three Dimensional Design Crafts
Design Practice	Marketing Design	Three Dimensional Design Studies
Design Studies	Materials Design	Transport Design
Design Technology	Mechanical Design	Transport Design Futures
Design Visualisation	Mechanical Design Engineering	Two Dimensional Design
Digital Design	Mechanical Engineering Design	Typography Design
Digital Systems Design	Mechatronics Systems Design	Typography Graphic Design
Digital Three Dimensional Design	Media Design	Urban Design
Drug Design	Menswear Design	Video Game Design
Editorial Design	Microelectronic Design	Virtual Design
Electronic Computer Aided Design	Model Design	Virtual Reality Design
Electronic Design	Moving Image Design	Visual Communications Design
Electronic Media Design	Multimedia Design	Visual Information Design
Electronic Product Design	Multimedia Design Technology	Womenswear Design
Electronic Systems Design	Multimedia Systems Design	Yacht Design

On the other hand, instead of becoming a part of bachelor or masters degree in design like in other cases, sustainable design seemed to be another issue which can be taught in different departments in UK. The evolution of sustainable product design education has been in a phase of becoming a new discipline in both undergraduate and graduate levels in UK. As one of the results of the research the departments and universities currently teaching sustainable product and service design was shown in the tables below. In Table 5.7 the emphasis on the topic in UK with 15 different universities and 17 different courses can be seen easily.

**Table 5.7:** Found Courses in Sustainable Product and Service Design in United Kingdom

COUNTRY	INSTITUTION	COURSE TYPE	COURSE TITLE
UK	ASTON UNIVERSITY ENGINEERING & APPLIED SCIENCE	BSc	SUSTAINABLE PRODUCT DESIGN
UK	LIVERPOOL JOHN MOORES UNIVERSITY	BSc (3FT/4SW Hon)	SUSTAINABLE DESIGN
UK	LOUGHBOROUGH UNIVERSITY DEPARTMENT OF DESIGN AND TECHNOLOGY	MA/MSc (1 year full-time)	SUSTAINABLE PRODUCT DESIGN
UK	CRANFIELD UNIVERSITY	MSc/MTech/PgDip/PgCert)	INNOVATION AND DESIGN FOR SUSTAINABILITY
UK	BOURNEMOUTH UNIVERSITY	(MSc/PD)	SUSTAINABLE PRODUCT DESIGN
		(3FT Hon BSc)	SUSTAINABLE DESIGN
		(Top Up - 1FT Hon BSc)	SUSTAINABLE GRAPHICS AND PACKAGING
UK	KINGSTON UNIVERSITY FACULTY OF ART, DESIGN & ARCHITECTURE	MASTER'S PROGRAMME	MA BY RESEARCH IN SUSTAINABLE DESIGN
UK	MIDDLESEX UNIVERSITY LONDON	MASTER'S PROGRAMME	MA SUSTAINABLE DESIGN
UK	QUEEN MARY, UNIVERSITY OF LONDON	MENG	SUSTAINABLE DESIGN & MANUFACTURING
UK	THE UNIVERSITY COLLEGE FOR THE CREATIVE ARTS AT FARNHAM	BA (Hons)	PRODUCT DESIGN SUSTAINABLE FUTURES
UK	LANCASTER UNIVERSITY	MASTER'S PROGRAMME	MASTERS IN SUSTAINABILITY, INNOVATION & DESIGN
UK	THE UNIVERSITY OF HUDDERSFIELD	BA (Hons)	PRODUCT DESIGN: SUSTAINABLE DESIGN
UK	LONDON COLLEGE OF FASHION	MASTER'S PROGRAMME	MA FASHION AND THE ENVIRONMENT
UK	GOLDSMITHS, UNIVERSITY OF LONDON	MASTER'S PROGRAMME	MA DESIGN FUTURES
UK	UNIVERSITY OF BRIGHTON	(3FT/4SW BSc Hons)	SUSTAINABLE PRODUCT DESIGN WITH PROFESSIONAL EXPERIENCE
UK	UNIVERSITY OF HUDDERSFIELD	BA(Hons)	PRODUCT DESIGN: SUSTAINABLE DESIGN



### **5.2.2. India**

As mentioned in the methodology chapter, an interview with Prof. M. P. Ranjan, Head of the Centre for Bamboo Initiatives in Faculty of Design at National Institute of Design, India was arranged to gather information about the situation in India. During the interview the questions that were prepared for questionnaire were discussed with the comparison of India and the other countries. Prof Ranjan has contributed with his own experiences and suggested related documents to provide an understanding of the situation in India. However the results of the survey that were discussed in the previous part had a relatively different profile than the results that were found about India. Accordingly during the interview the evolution of sustainability in product design education is going to be discussed in the case of India on the basis of the interview with Prof. Ranjan, his book; “Katlamara Chalo: A Design for Development Strategy” (2007), his articles and “40 Years of NID” by R.K. Banerjee.

The origin of National Institute of Design is dated back to 1958, when Charles Henry Eames, an American designer was invited to write a report about India and this report was a very visionary document which talks about the needs of the country and the aspirations of the nation. The report was not only about the socio-economic condition but also about issues of quality and value that suggested what should or could be done.

National Institute of Design was established in Ahmedabad in 1961 by the Government of India as an autonomous national institution for advanced training, research and service in product design, visual communication, architecture, structure and planning and allied fields. It was supported by the Ford Foundation, Gujarat Government, Ahmedabad Municipal Corporation and Industry. The expenditure for running the Institution is met from Government of India grants and professional design fees.



**Figure 5.13:** First Building of National Institute of Design Ahmedabad

In 1961 by the establishment of the institute three programmes came up. The first programme, communication design, was started 1964, which is basically graphic design. The next one was product design programme which was started in 1966 broadly covering industrial design. These two of them were both postgraduate programmes. The educational programme in product design, which was the first one in India, was started under the guidance and direction of the late Hans Gugelot of Ulm. The course took many elements from the educational programme in product design at Hochschule fur Gestaltung, Ulm.

In 1968, the digital design programme was started as the third programme. All of these three programmes were based on learning by doing, action oriented and hands on studio experiences.

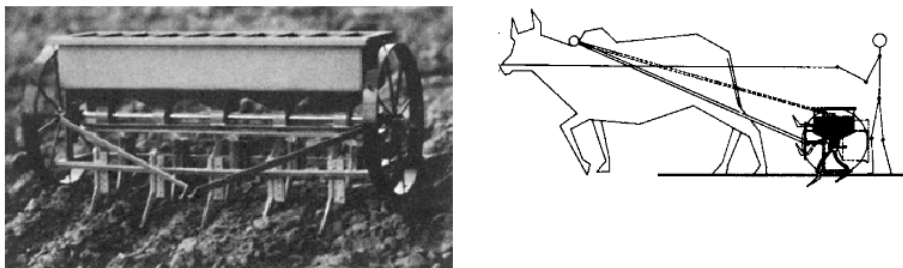
Since the establishment of the institute the industry and school had close relations and the school had started to make project as having the biggest design office in India at that time. Throughout 60s, 70s and 80s the institute has continued to develop the relation between the industry and design and numerous projects were done in collaboration and handled by the students of the faculty. This co-existing relationship had kept the faculty and the students in the practical design projects.

By the help of the Ford foundation the equipment and facilities were literally well established with an open vision of the founders to gather whole faculty with many departments under one roof and provide a participatory and shared environment for all departments. Accordingly it had become a highly interdisciplinary faculty in itself in 1960s.

As NID was a government founded institute, since the foundation of the faculty the topics for projects were chosen from either the demand of industry in India or the demand for people such as family welfare or family planning. During the design education all projects briefs were selected to project the concerns of Indian society and culture which can be made and used eventually. Therefore in 1970s numerous exhibitions were designed and held by the faculty.

The main concern for the country was poverty and development issues around 1970s. Therefore real life projects were set in order to extend the vision of the society for using the limited technology that is exported from UK in creative ways to serve the needs of people. Some examples of topic of design projects can be given as coal burning stoves, milk delivery system or agricultural instruments.

In Figure 5.14 redesign of farm equipment is shown. In the product main concerns are the material economy, mass production and human engineering. The product can sow seeds and put fertilizer into the soil simultaneously.



**Figure 5.14:** Redesign of a farm equipment (NID, Product Desing, 1967)

As a review of these projects the difference can be identified in both the definition of the problem and the design approach. It can be said that sustainability was already integrated into product design curricula in 1960s in NID in India.

However even today, sustainability cannot be seen in the official curriculum of the department. It had been a part of the education since the beginning and continues to be a fundamental part both in lectures and projects practically. Even though there is not any specific courses or department design approach in India is based on the sustainable design approaches in over all terms.

Furthermore, as the majority of the first batch of product design graduates had involved in the faculty as lecturers the faculty has evolved within its own approach and techniques.

Since 1974 the product design students of NID were encouraged to go to the villages and suburbs to experience the design problems there and develop participatory solutions and designs accordingly. As Prof. Ranjan explained, after the students were decided on their projects they were moved to the villages where the project has the potential and develop the product there (Ranjan, 2009). The idea of these projects was to experience the environment and interact with the real world, economics and end users while developing the products. During these projects cultural connections were also traced and potentials of the crafts were researched. As a result of these researches possible engagements of crafts and potential markets were identified for further product development projects. In other words, in 1970s projects towards the real world applications were encouraged rather than following the trends of Europe as a result of the urgent complex social, political and economic issues of country.

The Institute in 1979, NID was host to the first United Nations meeting on design, the UNIDO (United Nations Development Organisation)-ICSID(The International Council of Societies of Industrial Design) Meeting. About 130 delegates and participants from 35 countries gathered for this ten-day meeting which was coordinated by Helene de Callatay, former Chief Executive of ICSID. Planners, teachers, social workers, administrators, designers and students from all over the world, including Victor Papanek, have participated in this revolutionary meeting. After this meeting National Institute of Design had gained international recognition.

When the motivation and influence of his interest in sustainable product design was asked, Ranjan was pointed the ICSID conference, authors such as Papanek, Beer in 1970s and workshops that were made in NID with visiting lecturers like Manzini and Tachkara in 1990s and 2000s. He has claimed that communication between NID product design department other countries and other departments were also provided with these workshops and conferences. In addition to these, exchange programmes also provide both students and lecturers the opportunity to exchange the experiences and learning methods.

Throughout 1980s and 1990s the same approach of the department had continued and various case studies were made and several projects had been done by students, designers and academics. Most of them have aimed to focus on the potential of the villages by related projects to solve the design problems of the country and people.

Thus projects related to food solutions, urban food production system, harvesting system, food recycling, water in agriculture, water in public use, etc. were done by the students both in graduate and undergraduate level. As a result sustainable design was integrated in all approaches such as design for need, design for environment, life cycle design and service system design in various projects according to the extends of the projects.

When the approach of the department on sustainable product design was asked to Ranjan, he had underlined the interdisciplinary and cooperated nature of the department and explained that all approaches were included in the department’s policies. As the relation between the society, industry, environment and design were connected in coordinated way during the preparation of the curriculums he has noted that sustainability was never a separate issue for the department since the beginning (Ranjan,2009).



**Figure 5.15:** Workshops in Katlamara in India during the development of the Bamboo Project (Ranjan, 2007)

One of them called Bamboo Project that was developed by Prof. Ranjan, had started around 1995 after the long research and studies on the area. In his book “Katlamara

Chalo” (2007) Prof. Ranjan explained the development and the outcomes of the project in details.

Basically the project was aimed to create products made of attainable materials with least technology and methods in order to produce furniture in the villages by the residents and distribute them for the other users with a reasonable price. During the project Bamboo was chosen as the material and in order to reduce the production costs and labour the simplest production and assembly techniques were researched.



**Figure 5.16:** The products of Bamboo Project in Trade Fair at ITPO, New Delhi 2006 (Ranjan, 2007)

Consequently various types of furniture have been designed and produced within this project which affected the local residents, industry, product design students and users beneficially.

A recent activity from the National Institute of Design was creation of five posters among sustainability. In November 2008 at New Delhi the “Sustainability for Tomorrow's Consumers: India Innovation Charette” was organised as part of the India Economic Summit 2009 during the World Economic Forum. In the Charette, there were diverse groups of participants both business and sustainability experts designers and design students. This mixed group all worked together in order to define three main areas for sustainability. These three areas were defined as;

Business Case for Sustainability, Innovation for Tomorrow's Business, and Building the Framework Conditions. After the the discussions and workshop sessions six key themes that were emerged from these three areas;

**Table 5.8:** Key themes from workshop sessions at the Design Charette at New Delhi

<ol style="list-style-type: none"><li>1. <b>ENGAGE CONSUMERS:</b> co-create and close the loop</li><li>2. Move from stuff to <b>VALUE BUSINESS MODELS:</b> consume right, not less</li><li>3. Embrace <b>OPEN SOURCED</b> innovation: leverage copy left</li><li>4. <b>INTEGRATE</b> to deliver innovation: collaborate along the value chain</li><li>5. <b>REDEFINE THE CORE:</b> meta-morph and reinvent</li><li>6. Leverage <b>EMERGING TECHNOLOGY:</b> put science at work</li></ol>
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In order to take these themes more tangible and visual, the National Institute of Design (NID) proposed a two day workshop, 'Visualising Sustainability for Davos 2009' and organised a workshop accordingly. The outcomes of this workshop were developed and finalised as five posters by three faculty members and five students from NID. These posters were presented at the "Sustainability for Tomorrow's Consumers" Governors Meeting Session, in January 2009. The posters were designed to be used in universities and business environments to provide a visual review of the related themes on sustainability.

Poster on the theme of

1. Co-Creation for Sustainability
2. Dematerialisation for Sustainability
3. Essence Making for Sustainability
4. Innovating the Value Chain for Sustainability
5. Using Emerging Technologies for Sustainability

These five posters which are important demonstrations of the sustainability perspective from the National Institute of Design (NID) can be found in the Appendix 8 (Url-61, 2009).

### 5.2.3. Australia

As noted in the beginning of this chapter, during this research about sustainable product design education there were few countries which distinguished among others both because of the language limitations and the pioneer profiles of them on the topic. One of these countries was Australia. Accordingly, in Table 5.3 three departments of sustainable product design in Australia were found as a result of the research. In addition to the departments, a survey searching for the answers of questions as “Is ecological sustainability now sufficiently integrated within industrial design academic programs?” and “how has the design education community responded to this challenge for responsible and sustainable solutions?” in the case of Australia was found. The survey was conducted by Mariano Ramirez, a lecturer in the Industrial Design Program at the University of New South Wales (UNSW) in Sydney, Australia. Ramirez had a Master of Industrial Design at UNSW, and studied Sustainable Technology and Product Development at the Technical University of Delft in the Netherlands.

In view of the fact that the questions in Ramirez’s survey were quite similar to the ones that were traced in this research, the case of Australia can be seen through this survey. There were twelve Australian universities that participated in this survey in 2006 which are shown in the table below.

**Table 5.9:** List of Participant Australian Universities (adapted from Ramirez, 2006)

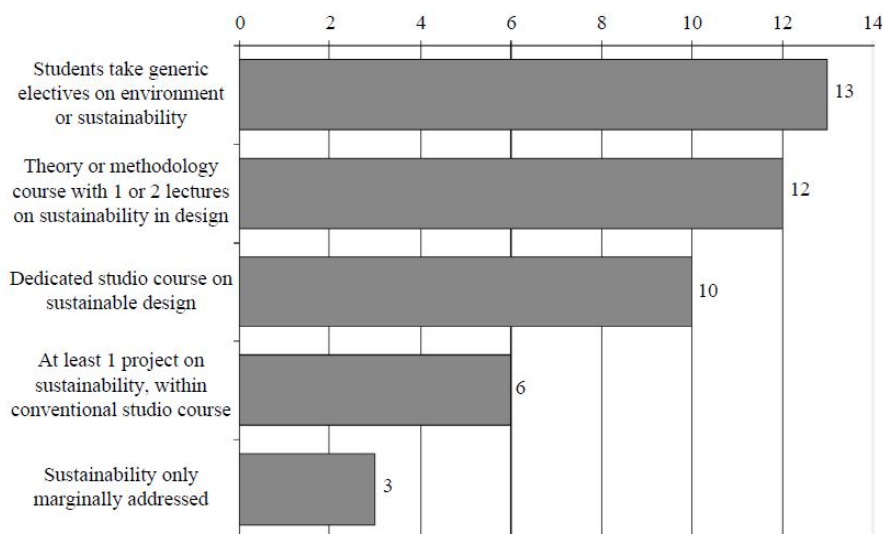
Curtin University
Griffith University
Monash University
Queensland University of Technology
Royal Melbourne Institute of Technology
Swinburne University of Technology
University of Canberra
University of New South Wales
University of Newcastle
University of South Australia
University of Technology, Sydney
University of Western Sydney



In the survey each university had been represented by at least one respondent and the respondents included 10 program leaders.

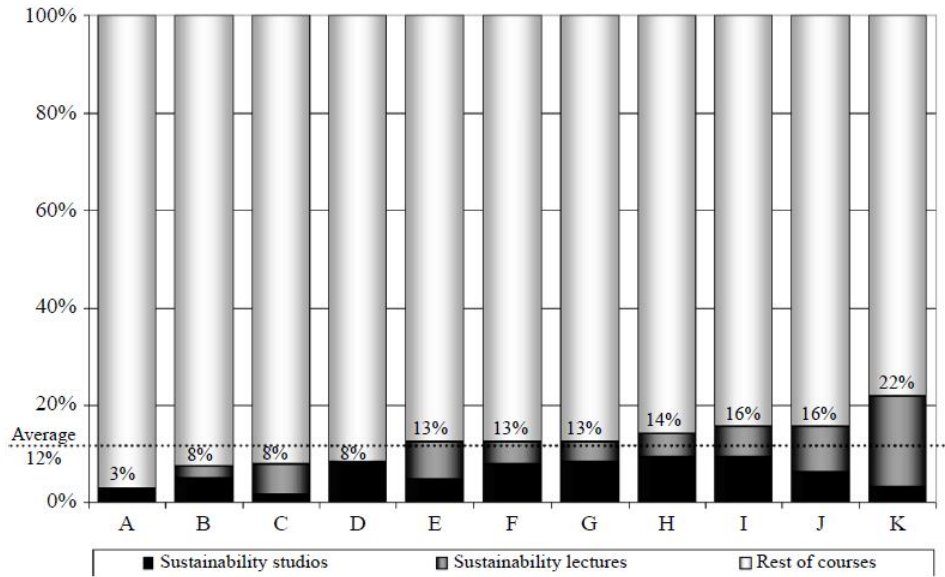
However, a similar pattern of low response rate was also seen in this survey. This similar low rate of response can be a general result as the lack of time and interest in surveys or a result of the same chosen method; online questionnaire.

In one of the questions participants were asked to note how sustainability was incorporated into their design programs. In the responses, 38 and 50 per cent of participants noted that the students learn sustainability either through non-design electives on the environment or sustainable development, through sustainability modules within their design theory or methodology courses, or through dedicated sustainability design studio courses. In other words, majority of the respondents pointed out the specific elective, theory and studio courses of sustainable design courses in their curriculum.



**Figure 5.17:** Sustainability in Australian Industrial Design Curricula (Ramirez, 2006)

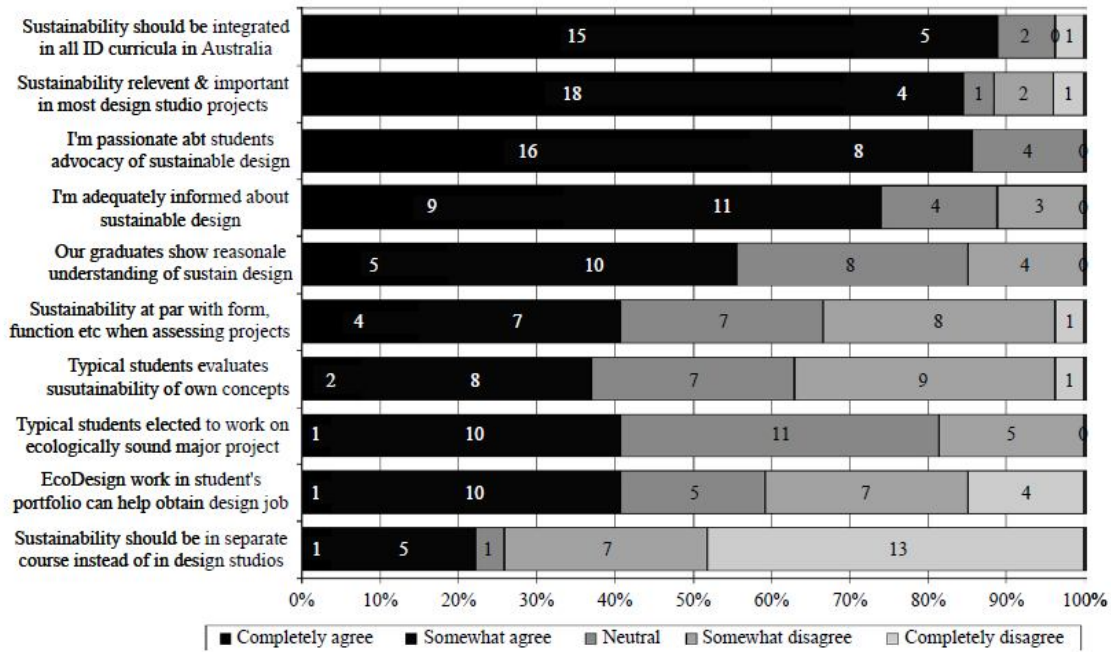
A calculation was created by Ramirez in order to show the portion of credit points of courses with sustainability content in participated universities. The results of this calculation can be seen in Figure 5.16. The poor ratio of sustainability studios among the curriculum shows the progress of the universities in the transition towards integration of sustainability into the design curricula (Ramirez,2006).



**Figure 5.18:** Portion of credit points of courses with sustainability content in participated universities

Half of the respondents their students took electives on sustainability issues from other faculties and the other half noted that one or two design theory courses were included in their curriculum. Ramirez noted that these lectures improve the student's awareness about sustainability issues by demonstrations of the thread for the future of the planet. On the other hand, as these courses do not contain any design activity without any design activity this mass of information does not include the display of the potential applications of this knowledge combined with their design education (Ramirez, 2006).

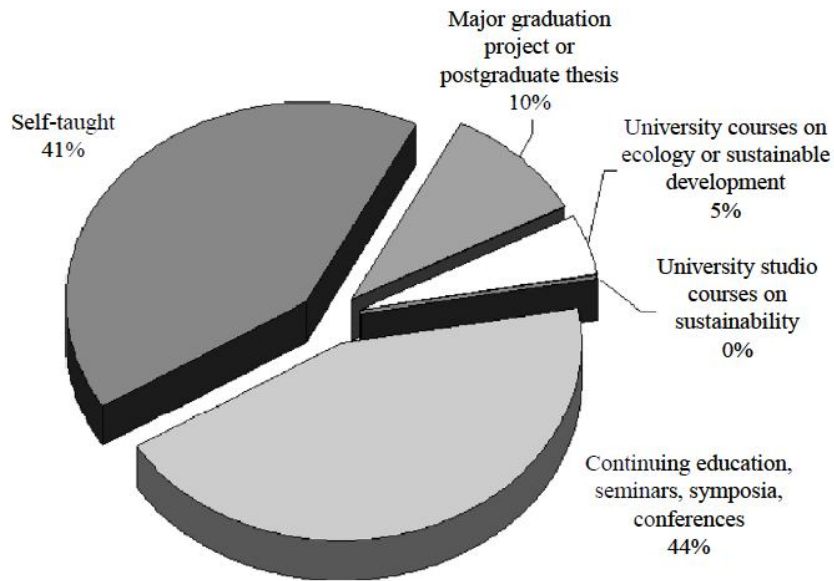
As one of the results of his survey Ramirez, articulated that descriptions of the courses are either too general or not up to date and searching sustainability in the curriculum by regarding these descriptions was not enough to provide realistic information. Accordingly, especially in the studio courses even the content of the courses would change and include sustainability issues within the projects, the description would remain the same.



**Figure 5.19:** Academic opinions on sustainable industrial design education

Academic opinions on sustainable industrial design education were shown in the figure, above clearly visualise that the intensions of the participants is supporting the integration of sustainability into design curricula. However most of the participants are either neutral or disagreed when asked about Ecodesign work in student’s portfolio can help obtain design job. In other words the participants are aware of the importance of integrating sustainability into design curricula and working on it but on the other hand they note that in the practical life this knowledge would not help design graduates to get a job.

As another result of the survey Ramirez has displayed the answers from Australian ID academics about how they educate themselves on sustainable design in the graphic shown below.



**Figure 5.20:** Modes of teacher education on sustainable design

Accordingly, it can be seen easily the majority of the teachers have educated themselves in the sustainability issues either by seminars and conferences or self initiated activities.

As noted by the other studies, lack of academic staff training and lack of time for education, had been the most common obstacles against integrating sustainability themes into design education (GSDEP and FFTF, 1999; Metropolis, 2002; Yang and Giard, 2001). The Australian Academy of Design identified one of the main issues about integrating ecodesign into design education as the shortage of expertise, training resources and curriculum substances (Ryan et al., 1991).

Therefore another issue come up with the educating the educators who are needed to play the key role during the transformation process of the design curricula.

Another problem in Australia was identified by Ramirez as the absence of a cooperative relationship between industrial design programs and sustainability research centres in universities.

By 2004, Ramirez noted in his study that in two universities; University of Technology, Sydney and University of Western Sydney, students could earn a sustainable design degree sub-major or minor by enrolling in a stream of sustainability-related electives (Ramirez, 2006).

In addition to the two programmes by 2009 University of South Australia and University of Technology, Sydney, University of Western Sydney also offers sustainable design units within masters' programmes (UniSA, 2009; UTS, 2009; UWS, 2009). This increase in the number of specific courses in Australia in five years time may not be seen much however, regarding the integration progress of sustainability into design curricula, it would definitely show the increase in the interest in sustainable product design education in general level.

### **5.3. Future Directions for Sustainable Product Design Education**

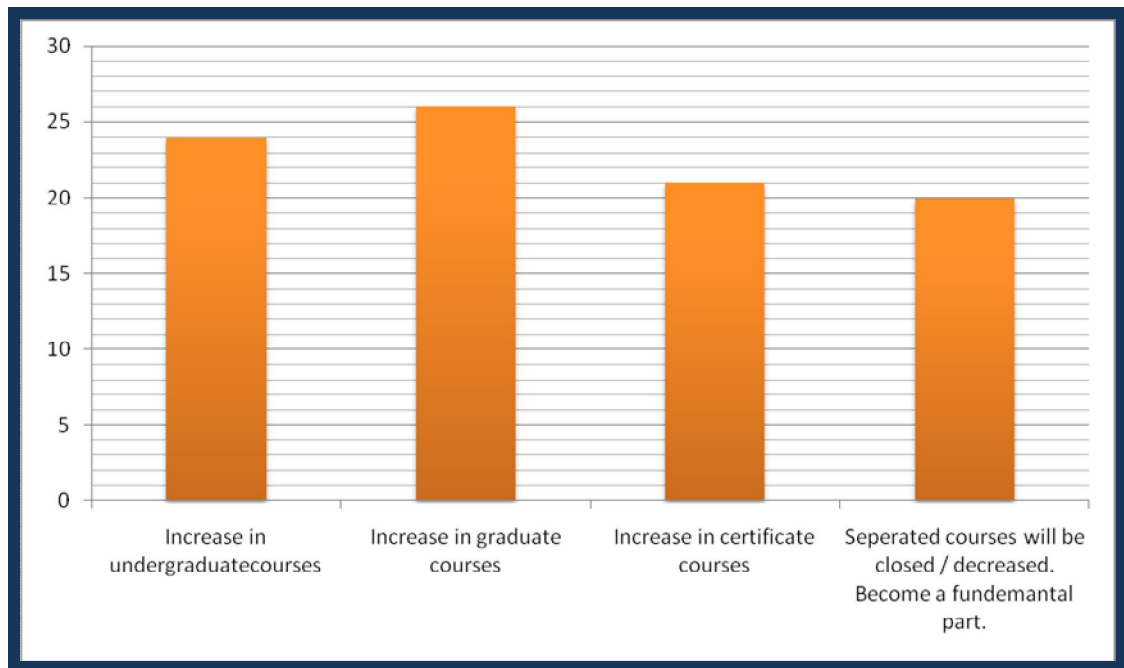
The third and the final phase are the future directions of sustainable product design education and future of sustainability issues in industrial design education. Throughout this research the answer of this question was traced; Sustainable design education; how it was, how it is and how it will/ would/ should be?

In order to provide opinions of the participants the future of sustainable design product design education was asked by a multiple choice question. The participants were encouraged to choose their answer from the list below and they were able to choose more than one answer if needed.

- There will be an increase in the number of sustainable product design certificate courses.
- There will be an increase in the number of sustainable product design degrees in undergraduate level.
- There will be an increase in the number of sustainable product design degrees in graduate level.
- Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.
- Other

The expected results were the same as the majority of the responses have chosen that there will be an increase in the number of sustainable product design in either undergraduate, graduate or certificate courses. In addition twenty participants have chosen the option that the separated courses courses will be closed or decreased in number; as sustainability will be a fundemantal part of the product design curriculae.

**Figure 5.21:** In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?



With regards to the results, it can be said that the number of courses in sustainable product design is going to increase in all levels. At the same time the level of integration of sustainability issues into product design curricula would also increase. However in the further future, the expected directions are shown in the last option of the last question; the seperate sustainable design courses will be closed as sustainability will become a fundemantal part of all design curriculums.

#### 5.4. Conclusions

After the industrial revolution, industrial design has started to rise as a profession; simultaneously the arguments concerning this profession have begun. Through all these arguments and conflicts two main issues have come up with regard to environmental and ethical concerns; sustainability and sustainable design. Sustainable design underlines that the design action that occurs now has a trace through the future that will have affects in smaller or bigger scales.

The purpose of sustainability is to keep these impacts on the environment of all professions, industries and individuals as less as it could be. Relatively, sustainable product design, as a re-definition of the industrial design profession, has a key role since the huge creative impact of this profession among what, how is produced or used.

#### **5.4.1. History and dynamics of sustainable product design**

Here in this study an overview through the history and dynamics of sustainable product design was aimed to be presented by the related findings from literature review. In Chapter 3, this overview was given with definitions and importance of the topic in the initial two parts, historical background information in the third and the fourth part and the identification of the different approaches to sustainable product design in the last part of the chapter. By these five main parts a basic understanding of history and dynamics of sustainable product design was provided.

When sustainable product design education is stated as the topic of the research, the topic includes an enormous area which relates not only product design but also architecture, material and industrial engineering, etc. In order to deal with the topic it was narrowed according to the attainable area with a background of industrial design. Therefore the topic was limited into sustainable product design education that mainly focuses on education for industrial design as well as product and product-service-system design.

#### **5.4.2. Importance of sustainable product design education**

Although in order to achieve the transformation through sustainable product design, it is vital to understand the importance of education that creates the basis of the sustainable design in both academic and professional level. Accordingly the importance of sustainable product design education was outlined in the first part of Chapter 4 by presenting supporting findings from literature review.

#### **5.4.3. Integration of sustainability into product design curricula**

After noting the importance of the educational approach to the topic, sustainable product design education was started to be explored. During the early phases of research it was found that there was a lack of sources on sustainable product design education history. Even though there were numerous events, organisations and work

on the topic, the historical perspective was still in the untouched area. Accordingly the historical research questions were included in the study. It was clear that in order to write a proper history on this area, a detailed research that would contain many face to face interviews with a supportive deep literature review was needed to be done. However due to the limited time and facilities it was not possible to do such a detailed survey. On the other hand, as there were few of documents on the topic all possible information that would come through the research was expected to be useful to provide an overview and display further research areas and opportunities. Accordingly the final two parts of Chapter 4 was dedicated to provide a basic historical overview of sustainable product design education and understanding of the integration progress of sustainability into product design education. Though related results from literature review and survey was presented. Although the results of the research were not enough to write the whole historical analysis of the topic, an introduction and basic information that collected through the study was displayed in these two parts.

One of the main concerns about tracing sustainability in the historical review is while tracing the subject in the curricula it may not give the proper results. Since the sustainability issues may have been integrated without registering the topics in official documents but mentioned in the lectures or included in the studio lectures as a project. Even the absence of sustainability in the official curriculum of departments does not mean that it is not mentioned but it can be practically embedded in the curriculum by some lectures and projects. Accordingly in order to trace sustainability integration in product design education just contextual research and tracing official course outlines and lectures in curricula is not enough. Therefore personal contacts and interviews both with academics and students are fundamental to provide the historical background of sustainability in product design education.

#### **5.4.4. Sustainable product and service design departments**

Subsequently, the present situation of sustainable product design education was explored through the institutions around the world that taught the topic as a course, department or certificate programmes. In Chapter 5, results of the survey were explained in details in order to explore sustainable product and service design departments at international scale. It was intended to provide a more international evaluation of the topic. However the related results of literature review and survey



were limited to three countries that were explained in details. As a result of the attainable language and the pioneer profile of the country; two of them are United Kingdom and Australia. In addition to these, the case of India was given in details as a consequence of the opportunity of a face to face interview.

#### **5.4.5. Future directions of sustainable product design education**

The final phase of the research was related to the future guidelines of sustainable product design education and future of sustainability issues in industrial design education. In the final part of Chapter 5 possible future directions of sustainable product design education were discussed according to the related literature review and survey results.

### **5.5. Further Research Discussions and Suggestions**

Since the industrial revolution, design has begun to emerge as a profession eventually. However the peak of the profession can be seen in 19<sup>th</sup> century. Now looking through the beginning of 21<sup>st</sup> century we can see the industrial design profession as a highly fashionable, popular and flashing issue in just few hundred years time. As far as the expected star designers such as Karim Rashid, Ross Lovegrove, etc. appear in the scene the popularity began to rise and recently it is obvious to see that design has a very important role as a way of exposing identities. After the pop age which has changed the view of people completely, the idea of expressing identity and personality became a vital issue for almost everyone. Even people who refuse to be part of it, has a style of their own, which expresses their opinions. So more or less, design became a topic that nobody can ignore in this century.

As far as the emerging environmental issues have taken place on the agenda of the world the attention moved slightly from design to sustainable design. Accordingly, instead of taking design as an enemy towards environment the attempt has change into efforts to evolve the profession as a supporting force even reinvention of the profession has been proposed. However the first attempt which claims the change into green design or eco-design can be seen now in two different ways. One was the idea of green design became as a dull picture because of the product which were preventatives of green design were not fashionable and not even close to the common aesthetic requirements. The other was to see just a very small frame in the picture of

the role of the product and changing just one or two elements were thought to make it green. We can find many examples which the products are designed to last for more than ten years but the fashion and trends were not even taken into consideration or even the changing technology was ignored so the product cannot be updated. As another example there are many examples that maybe the energy source which is used to run the product has been change into a greener way such as sun or mechanical human force however the materials which are used are not recyclable or even highly toxic or fast broken built-in batteries for durable products. Therefore the missing part was huge in all these kind of the approaches.

The reality which can be seen easily just looking around in a critical perspective that even now all designers would stop designing as well as the companies stop to produce for instance tables; the tables around the world would be much more than the population of the world and obviously much more than the need. However it does not mean that this is the solution because the need for people to consume and renew the products is not an issue to solve by this way.

It was the easy was to suggest stop design and ignore what will happen next. We can imagine that few designer will quit their jobs and stop to design and even few companies would stop to produce however in developing countries where they are trying to catch up with the others will not agree to stop so that they will go on to design and produce. As a result even with good intentions we would stop designing but it will not help to change the situation.

Recently it is started to be understood the reality of the danger against the environment and the planet. As the vital issues for humankind such as global warming, extinction of species, depletion of the ozone layer, etc. became “popular” issues they were even themes of numerous advertisements, events and movies such as ”An Inconvenient Truth” directed by Stern Review in 2006 or an animation movie “Wall-E” by Andrew Stanton.

As the negative effects of the current lifestyles became more visible with huge environmental crisis and problems, it is not as easy as before to ignore the reality of the threat. Therefore people are getting more and more integrated into these issues and taking more active roles in the society as individuals or as NGO members.

Although recycling or consuming less or consuming responsibly was not drawing a large attention in the previous era, the percentage of people that wonders about environmental issues has increased continuously especially in this decade.

As a result of the popularity of sustainability issues, sustainable product design has also become fashionable. Although the increase in the attention on the topic is encouraging, the threat has also become almost impossible to ignore for the planet.

Accordingly, the transformation through sustainable product design is vital for not only designers or users but for the industry as well. At this point understand the importance of education is essential. Education is the vital factor that creates the basis of the sustainable understanding and sustainable design in both academic and professional level.

“Perhaps there should be no special category called 'sustainable design'. It might be simpler to assume that all designers will try to reshape their values and their work, so that all design is based on humility, combines objective aspects of climate and ecological use of materials with subjective intuitive processes, and relies on cultural and bio-regional factors for its forms” (Papanek, 1995).

In the end, as Papanek stated, sustainability is a fundamental issue which should not be separated or integrated into neither design practice nor design education. Therefore it is expected that in the near future this transformation process will be completed and there would not be a need for design to have an adjective like 'sustainable'.

The integration progress of sustainability into product design education was started almost forty years ago. Through this long evolution in the recent decade sustainable product design departments were started to be established. According to the respondents the progress will continue with an increase in the number of sustainable product design departments. However to separate a product design discipline as sustainable and not sustainable is the aim that is expected to achieve.

Accordingly it should be underlined that understanding the evolution of sustainable product design education is going to provide a further vision through the future directions and progress of the topic. Therefore the importance of the topic, an overview of the past and present situation of sustainable product design education was provided as detailed as possible. However, in this study the limited time and facilities was an obstacle to provide detailed historical perspective on this topic.

A detailed research including several face to face interviews with a supportive deep literature review was needed to be done. Therefore here in this study, it was intended to provide ground information and research extensions for the subsequent researchers on the historical part of the topic.

Besides the survey results displayed that the topic has a extensive potential for further research areas and opportunities.

In addition as an outcome of the survey the communication tools that was used by the researchers and practitioners was not properly overlapped within the respondents. As there are numerous researchers and practitioners it is a fundamental issue to communicate and share experiences in proper and extended platform.

However due to the limited time and facilities it was not possible to do such a detailed survey. On the other hand, as there were few of documents on the topic all possible information that would come through the research was expected to be useful to provide an overview and display further research areas and opportunities. Accordingly the final two parts of Chapter 4 was dedicated to provide a basic historical overview of sustainable product design education and understanding of the integration progress of sustainability into product design education. Though related results from literature review and survey was presented. Although the results of the research were not enough to write the whole historical analysis of the topic, an introduction and basic information that collected through the study was displayed in these two parts.

Subsequently, the present situation of sustainable product design education was explored through the institutions around the world that taught the topic as a course, department or certificate programmes. In Chapter 5, results of the survey were explained in details in order to explore sustainable product and service design departments at international scale. It was intended to provide a more international evaluation of the topic. However the related results of literature review and survey were limited to three countries that were explained in details. As a result of the attainable language and the pioneer profile of the country; two of them are United Kingdom and Australia. In addition to these, the case of India was given in details as a consequence of the opportunity of a face to face interview.

Therefore in the view of this study a further research should be done to trace the historical overview of sustainable product design education and the evolution of the topic should be traced. Accordingly the evolution of sustainable product design education would provide a resource for all researchers and academics who work in this field.

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## **APPENDICES**

**APPENDIX A.1 :** Departments and Universities in United Kingdom

**APPENDIX A.2 :** Emails – I

**APPENDIX A.3 :** Questionnaire I

**APPENDIX A.4 :** Questionnaire II

**APPENDIX A.5 :** Online Questionnaire

**APPENDIX A.6 :** Emails – II

**APPENDIX A.7 :** Text of the Interview with M. P. Ranjan, 2009

**APPENDIX A.8 :** Posters of Sustainability for Davos 2009

**APPENDIX A.9 :** Responses of the Questionnaire, 2009

## **APPENDIX A.1: Departments and Universities in United Kingdom**

### **Aston University, Birmingham- Sustainable Product Design (3FT/4SW Hon BSc)**

#### **Course Overview**

Environmental issues form a central element to this design programme creating the opportunity to practise design that enables ‘good’ enterprises to grow and flourish. Sustainability in the design, manufacture, usage and eventual disposal of products is becoming a legal and ethical requirement in 21st century industry and this programme aims to reflect these issues within a design framework.

### **Bournemouth University - Sustainable Design (3FT Hon BSc)**

#### **Course Overview**

On completion of this course you will have a thorough understanding of global environmental and social concerns, and will be well-equipped for a successful career as a professional design engineer.

Sustainable design has become increasingly important to the area of product design as environmental impact and resource consumption issues are growing concerns.

The course covers mechanical and electronic engineering, as well as human factors and provides a strong appreciation of business issues such as management and the market place.

Strong industry links and an optional work placement will enhance your employment prospects. We strongly encourage students to take a work placement, as it is invaluable in helping to make an informed decision about your future career pathway. Students are supported throughout the placement experience, and are assisted in finding a placement, as well as given advice and techniques on how to perform well at interviews.

Recent placements have taken place both in the UK and abroad, and have included; Matsushita Electric UK Ltd, Parkegate Engineering Consultants Ltd, Bourne Steel Ltd, Bluebird Engineering Ltd, Robert Bosch Ltd, Bertrandt UK Ltd and Wessex Water.

After completing the course you will be well prepared for a career as a design engineer within a wide choice of industries. In particular you may choose to enter the advanced technology, aeronautical and automotive industries. Alternatively, you may choose to continue your studies with us and gain a masters degree and professional qualifications.

Within the School of Design, Engineering & Computing teaching development and research has been funded externally by the Royal Academy of Engineering.

#### **Learning and Tutorial Support**

Students within the course experience a higher than average staff contact to support their learning. You will normally expect to receive 18 hours per week under direct supervision within lectures, seminars, tutors and laboratory sessions.

In addition, tutors are normally available for help during other non time-tabled times. This high level of support is aimed to give you the best start into your academic life. You are obviously expected to spend additional time in your study outside these contact hours.

### **Course Content**

#### **Year 1 - Level C**

- Product Design- Sustainable theme
- Sustainability & the Built Environment
- Mechanical Design Principles
- Electronic Design Principles
- Materials, Processing and Practical Skill

#### **Year 2 - Level I**

- Product Design- Sustainable theme
- Engineering Management
- Mechanical Design Applications
- Electronic Systems Design
- Materials and Manufacturing

#### **Year 3 - Placement - optional**

Industrial Placement - minimum 40 week duration

#### **Year 4 - Level H**

- Individual Project- Sustainable theme
- Sustainable Design
- Technology and Innovation
- Engineering Product Commercialisation

### **Bournemouth University - Sustainable Graphics and Packaging (Top Up - 1FT**

#### **Hon BSc)**

#### **Course Overview**

This top-up degree is designed to enable both recent Foundation degree graduates and current practitioners of design to advance their core knowledge and specialist skills to a higher level; to improve the effectiveness of designers within industry a) in capability and understanding of sustainable graphics and packaging; and b) in awareness through critical appraisal of the leading edge of their field, and how to maintain that awareness.

This course is based on best current and future graphics and packaging development and design practice and an awareness, understanding and integration of sustainable development issues. It aims to encourage future oriented thinking and creativity within the design profession and enable students to integrate environmental, social and economic aspects into their design practice.

Students will be able to consolidate, extend and apply their knowledge and understanding, (both manually and through computer aided design) to enable them to deal with complex and inter-related issues both analytically and creatively.

The course also aims to develop further students' critical awareness of major issues in design practice, hence increasing their value to current and potential employers.

### **Year 1- Level H**

- Environmental and Technological Developments
- Graphics and Packaging Futures
- Managing Design Innovation
- Major Project

### **Study and Learn**

Top-up degrees offer you the opportunity to 'top up' your Higher National Diploma (HND), Foundation degree or equivalent overseas qualification and gain full UK undergraduate Honours degree status in just one year of full-time study.

Partner Colleges and BU provide ongoing support for students taking a Top-up degree.

Wherever you study you can expect:

- Study support through your tutor and careers service
- Smaller class sizes
- Specialist facilities
- An easier transition from college to university
- Courses linked to the world of work, recognised and valued by employers
- Each of our Partner Colleges has its own style and personality so please visit them to learn more.

### **Bournemouth University - Sustainable Product Design (MSc/PD)**

#### **Course Overview**

An optional 12 month placement is available on this programme.

Awareness, understanding and integration of sustainable development issues within the design process are the underlying issues of this course.

Meeting the needs of the present generation, without compromising the ability of future generations to meet their own needs is the challenge for designers.

Sustainable development addresses issues that include economic growth and employment, social progress for all, protection of the environment and prudent use of natural resources. This is a complex and multidisciplinary subject, therefore advanced techniques are embraced to facilitate and communicate relevant case studies throughout the units.

The research undertaken as part of the Individual Masters Project will give you an opportunity to explore your particular area of interest in greater depth.

The School of Design, Engineering and Computing is active in research and enterprise and has a well established base in Sustainable Design and Design Simulation. All members of the teaching team are members of either The Sustainable Design Research Centre or Design Simulation Research Centre and accordingly are active in research and publication within these fields or in associated enterprise.

### **Taught Units/Modules**

- Research Methods (20)
- Business Innovation and Enterprise (20)
- Design for Waste Minimisation (20)
- Sustainable Product Design (20)
- Design Management (20)
- Interlocking Nature of Sustainability (20)
- Project (60)

### **University of Brighton - Sustainable Product Design with Professional Experience (3FT/4SW BSc Hons)**

#### **Course Overview**

There is considerable concern over the effect of mankind on the ecological environment. This course equips students with an ability to design products that meet consumer needs but which have a considered and minimised environmental impact. Graduates are prepared for the vital and growing field of sustainability.

Studies include a range of technical, communication and professional subjects, with an emphasis on modern practice, such as computer-mediated design, rapid prototyping, and the need to consider global issues. There is a particular emphasis on understanding our environment, and the knowledge of how people and products effect the environment.

Technical studies during year 1 include engineering fundamentals through to knowledge of materials and manufacturing processes. Professional studies cover the fundamental issues of the design process and the generic skills that designers require. Communication skills developed include physical models, presentation and graphical models using a variety of software packages. Environmental subjects include a study of the global condition and environmental hazards.

The second year builds on the knowledge gained in year 1. Technical studies develops more advanced engineering knowledge including for example rapid prototyping and



electronics; Professional Practice develops the individual skills necessary to manage the design process. Communication studies enable greater value to be obtained from design software including for example advanced CAD, simulation and knowledge exchange; Environmental studies looks specifically at product lifecycles and sustainable development.

Year 3 comprises an optional but highly recommended industrial placement. The final year enables students to focus on a personal area of interest and its relevance to their intended career.

## 6. SYLLABUS

Years 1 and 2	Year 3	Final year
Technical Studies	Optional industrial	Minor and Major Projects
Environmental Studies	placement	Professional Practice
Professional Practice		Options
Communication		

## 7. CAREER AND PROGRESSION OPPORTUNITIES

The cross-disciplinary approach equips graduates to meet the demand for design and innovation in a wide variety of industrial professions. Extensive project work enables students to experience and practise this design process as a holistic activity. Engagement with real industrial problems, events and competitions is also encouraged.

The industrial placement year provides an opportunity for students to practise their learning commercially and to consider their career direction. Students undertaking the placement graduate with the Sustainable Product Design with Professional Experience BSc(Hons).

**University College for the Creative Arts at Canterbury, Epsom, Farnham, Maidstone, Rochester - Product Design: Sustainable Futures (3FT Hon BA)**

*Course Overview (based at Farnham, Surrey)*

Product designers play a key role in influencing the environmental and social impact of a product and can contribute positively to a sustainable future. This degree course combines two important disciplines: product design and the emerging field of sustainability.

You will be introduced to creative and sustainable design tools and methods, whilst being challenged to research, experiment, analyse and question current practices. You will develop your design skills, including sketching, computer modelling and design management, and gain an understanding of the context in which sustainable design exists and of the factors influencing design practice.

With essential skills, knowledge and experience, you will become an effective advocate for environmental strategies and sustainable product development within a wide range of industries.

### Stage 1

You will be introduced to the foundations of product design practice, developing design skills in creativity, sketching and presentation, design software tools, and model making materials and processes. Through design projects and short research exercises, you will be introduced to design and sustainability, 2D computer-aided design and design research methods.

### Stage 2

You will tackle advanced design and sustainability methods, strategies and tools. Design projects of increasing sophistication will reflect professional design practice. You will also undertake a work placement to gain valuable professional experience.

### Stage 3

A structured and supportive learning environment will enable you to work on your major project and focus on your dissertation.

## *Syllabus*

STAGE 1	Unit Title	Credits	Weeks
semester 1	<a href="#">Understanding Products</a>	30	15
	<a href="#">Creative Dialogue</a>	15	15
	<a href="#">Design Discourse 1: Historical and Critical Contexts</a>	15	15
semester 2	<a href="#">Design Projects 1</a>	30	15
	<a href="#">Design and Sustainability</a>	15	15
	<a href="#">Design Discourse 2: Object Analysis</a>	15	15
<b>STAGE 2</b>			
semester 3	<a href="#">Design Projects 2a</a>	30	15
	<a href="#">Sustainable Design: Technology, Strategies &amp; Assessment</a>	15	12
	<a href="#">Design in Context</a>	15	15
semester 4	<a href="#">Design Projects 2b &amp; Work Placement</a>	30	15
	<a href="#">Design Business and Management</a>	15	15
	<a href="#">The Uses of Things: Design, Consumption and Identity</a>	15	15
<b>STAGE 3</b>			
semester 5	<a href="#">Design Projects 3</a>	30	15
	<a href="#">Sustainable Futures</a>	15	15

semester 6	<a href="#">Dissertation</a>	15	15
	<a href="#">Major Project</a>	30	15
	<a href="#">Major Project: Addressing Sustainability</a>	15	15
	<a href="#">Design and Creative Enterprise OR</a>		
	<a href="#">Language and Practice of Design OR</a>	15	15
	<a href="#">Aesthetics and Experience</a>		

## *Unit Descriptors*

### **Stage 1**

**Understanding Products:** This unit introduces you to the fundamentals of product design practice. You will be introduced to elements and principles of design and product design processes - research, idea generation, concept realisation and development. You will gain an understanding of product design practice and the strategic role of product design in design and development of manufactured goods. You will be introduced to the modes of practice, historical contexts and product design literature.

**Creative Dialogue:** This unit introduces you to basic product design skills such as two-dimensional and three dimensional presentation techniques including: sketching, marker rendering and model making. This unit is closely connected with and supports the 30 credit unit Understanding Products - where you will be required to apply presentation skills.

**Design Discourse 1: Historical and Critical Contexts:** This unit introduces design discourse as a framework by which changes in design practice might be better understood. With a focus on design history since the time of the Industrial Revolution, the unit will detail a number of contexts in order to examine the possible relationships between form and meaning. Through an analysis of the production and consumption of specific objects, materials and environments, and with the aid of key texts to develop an appreciation of both historical and theoretical practices, an account will be given of the rapport between social, cultural and economic determinants and the values to be found within a variety of creative practices. From this, students will independently develop a specific case study in order to evaluate the relationship between theory and practice.

**Design Projects 1:** This studio unit will build on the practical experiences you gained in semester 1 and provide an introduction to studio units in general which make up a large part of the following semesters. The unit is based on a practical learning approach, using a series of design briefs and workshops to explore the design process. Each brief focuses on different capabilities that will help you develop as a designer.

**Design and Sustainability:** This unit is a general introduction to the concept of sustainable development as the framework for your design practice in the semesters that follow. It provides an overview of design and sustainable development in terms of ecology, economy and culture. For each of these three areas, we will explore the question "what do we want to sustain and how can design help?" In addition, the unit

develops your ability to research aspects of sustainability that will be relevant to your design work.

**Design Discourse 2: Object Analysis:** Framed within the parameters of design discourse, this unit gives an account of the variety of contexts by which design might be better understood. Taking as its starting point the belief that objects and images need to be studied both specifically and in relation to their social, cultural and economic environments, the unit offers a series of contextual and practical research tools that will allow for detailed and involved analysis to be applied to the evaluation of designed objects. Fundamental to object analysis is the role of the case study as a means by which to account for the possible relationships between production, mediation and consumption.

## **Stage 2**

**Design Projects 2a:** This unit builds upon practical experiences you gained during the design projects completed in stage 1 of your studies. A series of design projects will be undertaken and will be of variable duration and focus. You will be introduced to materials and manufacturing technologies. Products will be analysed in terms of materials, construction, fastenings, finishing, design considerations for manufacture and environmental issues. Included in this review will be an assessment of current and emerging practices, including rapid prototyping.

**Sustainable Design: Technology, Strategies and Assessment tools:** This unit builds upon the knowledge in sustainability gained in year 1. You will be introduced to tools and strategies utilised in the field of sustainable development with a focus on tools and strategies that are directly applicable to sustainable product design. Relevant eco-design and sustainability strategies, such as alternative materials and technologies, are investigated and applied in assessment tasks.

**Design in Context:** This unit addresses a number of theories and dialogues with regard to the production and consumption of design and material culture within both past and contemporary settings. Envisioning design as primarily a social activity, fully illustrated lectures will introduce a number of debates that touch on such issues as style, gender, cultural appropriation, globalisation and display in order to convey an image of designed objects and environments as important producers of meaning. During the unit, students will choose from a range of essay questions that reflect the theoretical underpinnings of design practice, and seminars will serve as a platform for further debate.

**Design Projects 2b and Work Placement:** In this unit you will be required to consider product design practice with regard to business environments and undertake a work placement or work placement project. Practical design projects in this semester challenge you to further integrate appropriate criteria for sustainability as well as more traditional design criteria (human factors, technical factors, aesthetics) within the constraints of the business environment for design.

**Design Business and Management:** This unit explores how product design relates to the business functions and operations within companies of different sizes, culture and sectors. Among the topics covered include: the supply chain, branding, marketing, consumerism, market research, the information economy and related topics.

**The Uses of Things: Design, Consumption and Identity:** This unit focuses on a number of contemporary contexts in order to examine the variety of meanings and identities that can be constructed within what has come to be defined as a consumer society, with the emergence of a range of design professions at its core. Consumer behaviour provides the context by which a range of critical and theoretical constructs will be examined. Seeking to locate issues of modernity, post-modernity and taste within a broader discussion of social change, the unit examines the evolution of 'meaning' and 'lifestyle' within recent design discourse, and draws on a range of contemporary critiques of a society based on the promotion of insatiable desire in order to consider possible futures for design practices.

### Stage 3

**Design Projects 3:** This unit has two stages. In the first stage you will respond to a design competition brief and in the second stage you will concentrate on a path finding project that will help you prepare for your major project in semester 6.

**Sustainable Futures:** This unit further extends the research, analysis and design skills taught during the previous two years of study. It introduces 'design' as a mechanism for evolving solutions to future needs. You will be required to undertake a design research project investigating and presenting future scenarios. These scenarios will be based on a time horizon of about twenty years.

**Dissertation:** This unit consists of a period of self-directed research on a subject that is related to the historical, theoretical, critical concerns of your discipline or professional area. The unit enables you to develop a range of research skills appropriate to your chosen topic. Through the development of a clearly defined extended essay you will be expected to articulate a clear and cogent argument in a piece of writing that conforms to academic conventions and that demonstrates an understanding of the subject area through analysis and evaluation.

**Major Project:** This is the final design unit of your course of study and represents the culmination of skills and knowledge through a significant individually negotiated design project. It is an opportunity for you to develop your own identity within product design by demonstrating your design, management and communication skills through a single design project. You may choose the relative proportions of theory and practice in your major project according to your project topic, interest and possible future career path.

**Major Project: Addressing Sustainability:** This unit, a companion to the *Major Project*, requires you to reflect on how your major project addresses sustainability. Your documentation will show a deep understanding of the issues of sustainability (such as ecological, economic or cultural sustainability) and how they relate to your project. You will identify the likely stakeholders as well as assess the environmental performance of your major project design solution.

**Design and Creative Enterprise:** This unit will consider the role of the creative practitioner and the notion of the creative entrepreneur in the broader context of design

activity and the creative industries. It will provide an opportunity to consider one's own personal development, cultural capital, and market opportunity. Individual perspectives will be placed into the political and economic context of the creative market and the culture of design enterprises that operate within it.

**The Language and Practice of Design:** This unit provides an opportunity for students to reflect on their studio practice and develop critical debate about the language and context of that practice. Students will locate their study within the subject/theme of practical work on the course and use the opportunity of this unit to develop a clearly articulated and theoretical discourse about the language and practice of design.

**Aesthetics and Experience:** Intended as a forum for those students who wish to pursue the critical and theoretical aspects of design and its history, this unit focuses on a number of culturally significant texts which demonstrate a variety of positions with regard to the aesthetic experience. From the indulgences of Oscar Wilde and the Aesthetic Movement to the strictures of modernism, the hegemony of art to the death of the author and beyond, the unit explores the concepts of value and significance accorded by language.

### ***The University of Huddersfield - Product Design: Sustainable Design (3FT Hon BA)***

#### **Course Overview**

This course raises the awareness of the environmental implications of a product designer's practice.

You are taught the core techniques associated with traditional product design such as creative thinking, problem solving, aesthetics and appreciation of technology. We also introduce the tools and methods available to the practitioner to ensure the environmental impact of a design is carefully considered and minimised.

Emphasis is put on the complete lifecycle of a product proposal, from raw material extraction to end of life disposal. On graduation, you should be capable of producing product solutions that not only meet the expectations of the consumer and manufacturer in terms of desirability, suitability for purpose and commercial validity, but also promote a minimal adverse effect to the environment.

You will develop a range of skills which include sketch drawing, physical model-making and computer aided design skills, together with dedicated technical and contextual input.

#### **Placement**

An optional supervised 48-week placement forms the sandwich part of the course in **Year 3**. The course team will assist you to find a suitable placement in a design or related environment. A salary is normally paid. Most placements are UK-based, but opportunities exist for work experience in Europe and elsewhere.

(3 years full-time / 4 years sandwich – 12 students)

## Entry Requirements

Additional requirements for this course are normally one of the following:

- Successful completion of a Foundation course in Art and Design.
- A minimum of 200 points gained in A levels including two 6-unit (A2) awards.
- A minimum of 200 points gained in Advanced Vocational Certificate of Education (AVCE) double awards.
- An EdExcel/BTEC National Diploma in a relevant subject.

In addition to the above, conditional offers will be made based on the quality of your portfolio during a portfolio review.

Other suitable experience or qualifications will be considered.

## Course Structure

### Year 1

- Creative Thinking Projects
- Ergonomics
- Visual Techniques
- Computer Aided Design
- Business Design Interface
- Design for Manufacture
- Material Culture

### Year 2

- Design Projects
- Design for Manufacture
- Sustainable Design Issues
- Work Placement Preparation
- Advanced Computer Aided Technology

### Year 3 Sandwich

- Optional 48 week supervised work placement

### Year 3 Full-time/Year 4 Sandwich

- Minor Design Project
- Major Project Research Planning
- Major Design Project
- Major Project Report

## **Liverpool John Moores University - Sustainable Design (3FT/4SW Hon BSc)**

### Course Overview

Sustainable Design is a new and rapidly growing area of design. Sustainability, 'meeting the needs of the future without compromising the ability of future generations' is critically relevant to product development. Designers assess product life-cycle issues from manufacture to in-use energy consumption and end-of-life analysis. Understanding these issues in terms of waste allows the designer to assess total environmental impact. Solving these environmental problems is a great challenge to human ingenuity.

The BSc (Hons) Sustainable Design programme is designed to produce a graduate technologist with a wide range of skills in modern computer-aided design and production technologies, essential engineering principles, materials and processes and an understanding how they impact the environment over the full product life-cycle. This emerging sector offers a wide range of exciting employment opportunities. Successful students might be expected to enter careers as product designers, technical representatives, technicians and project managers with companies developing environmentally responsible technologies.

### **Entry requirements**

240 UCAS tariff points, including specific requirements as shown in the Application and Selection section of the fact file.

## **University of Plymouth - Design Ecologies (3FT/4SW Hon BA/BSc)**

### **Course Overview**

BA/BSc Design Ecologies is a trans-disciplinary programme that operates across social, environmental and technological design practices. Through digital and analogue processes students use cutting edge technologies to creatively explore emerging concepts of the material world, such as the 'new' im/materiality offered by bio-engineering and nanotechnologies. The course draws on contemporary theory and practice offered by interaction and sustainable design, augmented reality, physical computing, media art and 'design science'. In an age when process replaces product, industry requires individuals who understand a wider web of relationships to develop strategic ecological design solutions.

### **Course highlights**

Students have access to cutting edge design, manufacturing and visualisation facilities such as a suite of rapid prototyping machines, atomic force and scanning electron microscopy, and a full dome Immersive Vision Theatre.

The course is immersed in world-class research context through the dynamic activities of staff, postgraduate students, international artists and researchers.

### **Entry requirements**

240 points including two A levels or one 12-unit Vocational A level. Remaining points can be made up as you wish. International Baccalaureate: 26 points. Applicants must demonstrate a commitment to new media/digital production or interactive arts. Other qualifications (eg Access Courses) may be acceptable, please enquire.

### **Duration**

4 years full time including the optional professional work placement



## **Year 1**

A foundation in the software and hardware skills that underpin physical digital media production and practice.

Here you will be introduced to the main themes and skills necessary for sustainable design, innovative manufacturing, interactive media design and production

Design and theory workshops develop your strategies and production for art and technology.

Subjects include rapid prototyping technologies, practical electronics, interaction design, 3D modelling, immersive environments, animation, data visualisation, web design, media theory and production, programming skills, and media business skills.

Taught applications include Adobe CS Suite, Macromedia MX Suite, 3D modelling (Blender/3D Studio Max).

## **Year 2**

Develop creative strategies to construct new products, processes and forms, such as wearable technologies, smart and interactive materials, surfaces, objects and environments.

Develops creative strategies to engage with the evolution of new media that can be used to manifest social, cultural, scientific, engineering forms.

Nurture critical skills in the study of contemporary and historical practices that inform the production of designed forms.

Receive a solid grounding in a range of production techniques to support the development of new and exciting forms.

Human-Computer Interaction, Interaction, Sustainable and reflexive design expand creative approaches to designing new art forms.

European study trip to a digital art festival and your own exhibition help develop your critical skills.

In this year you will engage in the real thing - collaborative projects with external organisations.

## **Year 3**

The optional placement year in this four-year programme provides a critical opportunity for students to work in an industrial context, working on 'real world' projects in 'real world' environments.

The Design Ecologies course offers an optional integrated placement year (salaries range

between £12,000 and £18,000). The placement year provides a critical relationship between the course and its associated industries.

As well as the long list of new media companies already employing placement students from the BA/BSc Digital Art and Technology course, the Subject Group has strong links with international architects, researchers, organisations dealing with smart materials, augmented environments, wearable and mobile technologies (Will Alsop, Woods Bagot, Hewlett-Packard, Laboral, Hexagram), as well as more traditional engineering companies expanding into innovative manufacturing.

Many students will find themselves in demanding but exciting placements that push their skills to the limits

#### **Year 4**

Wide-ranging options tailor your entry to the workplace or postgraduate study.

Acquire advanced skills in the creation of new material and immaterial products, 3D models, data visualisation, atomic force and scanning electron microscopy, interactive design, mobile and locative media through a student lead project. A wide range of final year options enables you to tailor the course to suit your particular needs.

Options include 4D, sound practice, production of space, design for entertainment systems; narrative and digital form, programming for entertainment systems, Pervasive Computing, Mobile, Personal and Satellite Communication, Scripting for Digital Media.

#### **Student placements**

The optional placement year in this four-year programme provides a critical opportunity for students to work in an industrial context, working on ‘real world’ projects in ‘real world’ environments. This provides a critical relationship between the course and its associated industries and ensures that Design Ecologies and associated courses play pivotal roles in the evolution of these industries. The Faculty of Technology has an established Industrial Placements Unit that assists students find an appropriate placement and monitors their progress with academic staff visits.

***Queen Mary, University of London - Sustainable Design & Manufacturing (4FT Hon MEng)***

The information for the course has not announced yet.

***Cranfield University - Innovation and Design for Sustainability***

***MSc/MTech/PgDip/PgCert***

#### **Course Overview**

Suitable for graduates from a wide range of disciplines. A design or engineering background is not essential; the important consideration is an interest in sustainable development and a desire to think differently in order to achieve sustainability. The part-

time option will allow practitioners to enhance their professional development within their current employment.

Takes you on to positions where a knowledge and experience of sustainability, innovation and environmental management are essential attributes in reframing individual and organisational success. These include careers as environmental and sustainability managers, ecodesigners, design managers, environmental and design consultants, researchers and educationalists.

Innovation and Design for Sustainability is the holistic consideration of the environmental, social and economic impacts of products, processes and systems. It is about rethinking our material world now and in the future.

This course aims to address the emerging business and social agenda for sustainable development. Uniquely, it does this through a focus on the specification of our living environment, creativity and innovation. Students are encouraged to pose questions in relation to the global context of production (resource use) and consumption (waste). The impact of this 'imbalance' on business processes is explored. Sustainable solutions and the methods of evaluating options to these issues are then explored.

Students are introduced to environmental management processes and specific ecodesign tools including life-cycle analysis and the principles of carbon footprinting, together with a range of environmental legislation that impact on design and business activities. This equips students with the requisite technical knowledge and skills to achieve more sustainable interventions.

The MSc comprises eight one-week assessed modules, a group project and an individual project. Students undertaking the Postgraduate Diploma (PgDip) complete the eight modules and the group project. Postgraduate Certificate (PgCert) students complete six modules.

The group project provides students with the opportunity to take responsibility for a consultancy-type project, while working under academic supervision. Success is dependent on the integration of various activities and working within agreed objectives, deadlines and budgets. It addresses a real-life design for sustainability problem and develops and refines students' organisational, management and team working skills. For part-time students a dissertation usually replaces the group project.

The individual project provides students with the opportunity to demonstrate their ability to carry out independent research, think and work in an original way, contribute to knowledge, and overcome genuine problems in water management. Many of the projects are supported by external organisations.

***Modules:***

The modules include lectures and tutorials, and are assessed through written examinations and assignments. These provide the tools required for the group and individual projects.

- Principles of Sustainability
- Project and Contract Management

- Environmental Regulation in Practice
- Environmental Economics
- Designing for Sustainability
- Whole System Design
- Evaluating and Communicating Sustainability
- Innovation

### ***Entry requirements***

Candidates must possess, or be expected to achieve, a 1st or 2nd class UK honours degree or equivalent in a relevant discipline. Other relevant qualifications, together with considerable experience, may be considered.

***1 year full-time, 2-3 years part-time, 20 students***

### **Middlesex University London - MA Sustainable Design**

#### **Course Overview**

In a world faced with the prospect of increased population, diminishing resources, climate change and continued disparity of opportunity, can design make a difference to effect change? MA Sustainable Design seeks to foster in its students, a questioning approach to the type of issues which face the planet in the 21st century and to which design may respond and make a useful and valuable contribution. The programme offers you the opportunity to undertake a systematic and comprehensive major design project, which addresses issues of sustainability, identifying new types of problems and ways of solving them. The course attracts graduates, practicing designers and mid-career professionals from a variety of design and allied disciplines. Whatever your background is, our intention is to provide you with a creative and energetic working environment for the exploration, development and cross-fertilisation of design ideas.

#### **Special features:**

- Students are encouraged to work with real issues
- Wide range of subject matter and responses possible
- Students are free to work across traditional subject disciplines
- Dedicated studio and facilities

#### **Programme Content:**

The objective of the programme is to foster a reflective approach to the design process, within which you develop a personal design project. Any conclusions you arrive at can be wide ranging and may be in the form of three dimensions, two dimensions, time-based (video/animation), photography or may be in a written form (eg creating policy).

Your final work would be in a form that is most suitable for your project. Your work is supported by regular seminars and one to one tutorials. Regular talks by visiting professionals from a range of design, research and environmental disciplines provide an

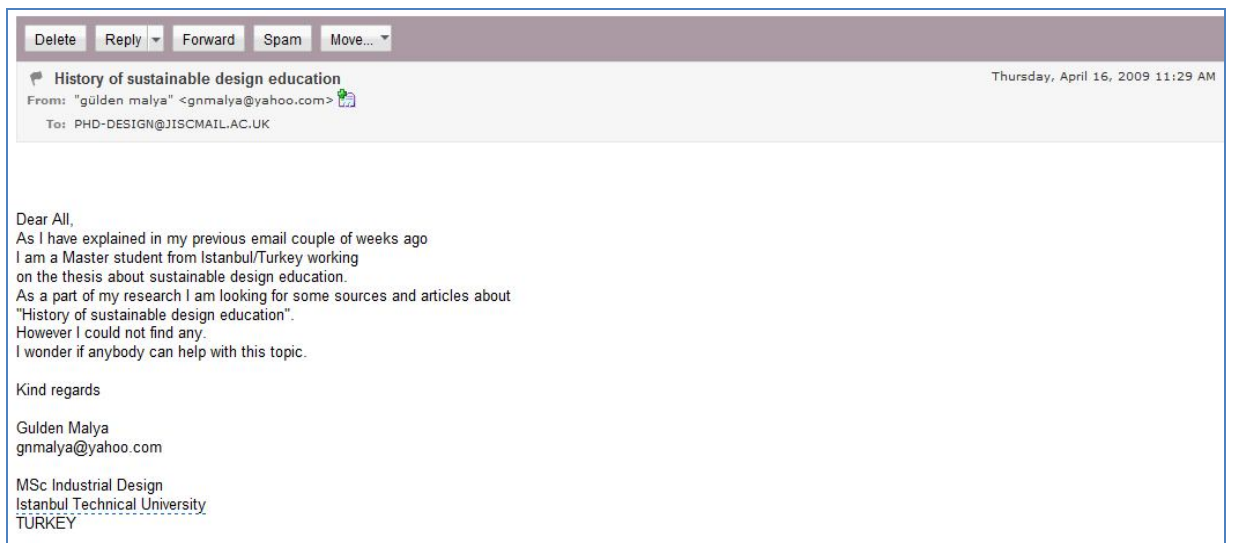
important opportunity for you to appreciate your work in a wider context and to meet postgraduate students from across the university.

The remaining quarter of the curriculum addresses issues common to all design disciplines including research, communication, methodology and professional practice. These aspects of the programme are discussed at regular weekly seminars, which provide a forum for discussion and debate, shared with students from related design specialists.

## APPENDIX A.2: Emails - I



**Figure A.2.1:** Email; Sustainable Design Education Research



**Figure A.2.2:** Email; History of Sustainable Design Education

Delete Reply Forward Spam Move...  
Sustainable Design Education  
From: "Ken Friedman" <KenFriedman@GROUPWISE.SWIN.EDU.AU>  
To: PHD-DESIGN@JISCMAIL.AC.UK  
Thursday, April 16, 2009 4:36 PM

Hi, Gulden,

The reason you have not found much is that the field is new in many regards. While there is a deep history going back to people like Buckminster Fuller and Victor Papanek, there are few accounts of the actual education and pedagogy embedded in their work.

There are some places to look, however. Fuller's World Design Science Decade produced a significant number of reports. They are hard to find, but a good librarian can track them down. At one point, I had half a dozen of them in grainy but readable xerox copies. As your librarian.

If you read Fuller's great work, Critical Path, you'll get some overviews.

Read Papanek's work and follow the traces there. If you look for Papanek's students, you'll get some good stories. Many are now senior designers or professors, even university presidents such as Yrjo Sotamaa, just retired from the presidency of University of Art and Design Helsinki UIAH.

This requires some research of your own. I'd suggest you write some letters, see if you can do some telephone interviews, perhaps get support from your university to make a few first-hand visits. If you can gather this information to develop a good thesis, it could become the foundation of a terrific doctoral project.

Prof. Ezio Manzini at Politecnico di Milano should be able to offer you some good clues.

Another key figure is Prof. Chris Ryan of the VEIL project at University of Melbourne. He's been involved in sustainable design education in Australia and in Europe.

Swinburne University is a good source of expertise. Prof. Frank Fisher is a central figure in the field. He was the first Australian Environmental Educator of the Year in 2007-8. His current project involves helping us to integrate sustainability into all aspects of our curriculum, an important goal for Swinburne Design over the next five years. Simon Jackson, Denis Smitka, and Katherine Bissett-Johnson all have good information. If you visit our web site at

<http://www.swinburne.edu.au/design/>

you can find all of them.

The Designers Accord is another great source of information on contemporary and recent sustainable design education. Visit their web site at

<http://www.designersaccord.org/>

If you browse around, you'll find many resources that help. This includes the list of educational adopters, the newsletters, and the group resources. You might also track down Robyn Waxman. She's organizing the Designers Accord Education Summit, and she'll be able to connect you to a wealth of resources.

Another valuable resource is the on-line journal Design Philosophy Papers. You'll find it at

<http://www.desphilosophy.com/dpp/home.html>

Editor Marie Willis is an expert on sustainability education and Contributing Editor Tony Fry is one of Australia's experts on the subject. While the journal focuses on sustainability as a main framework of design philosophy, many of the authors and editors are experts in sustainable design education.

You might also contact Dr. Cameron Tonkinwise at Parsons The New School for Design. In addition to contributing to DPP, he has developed several programs focusing on sustainability.

Of the 1,500 subscribers to PhD-Design, I hope there are others who can add a few suggestions. I'll send you all the emails you need off-list.

Best regards,

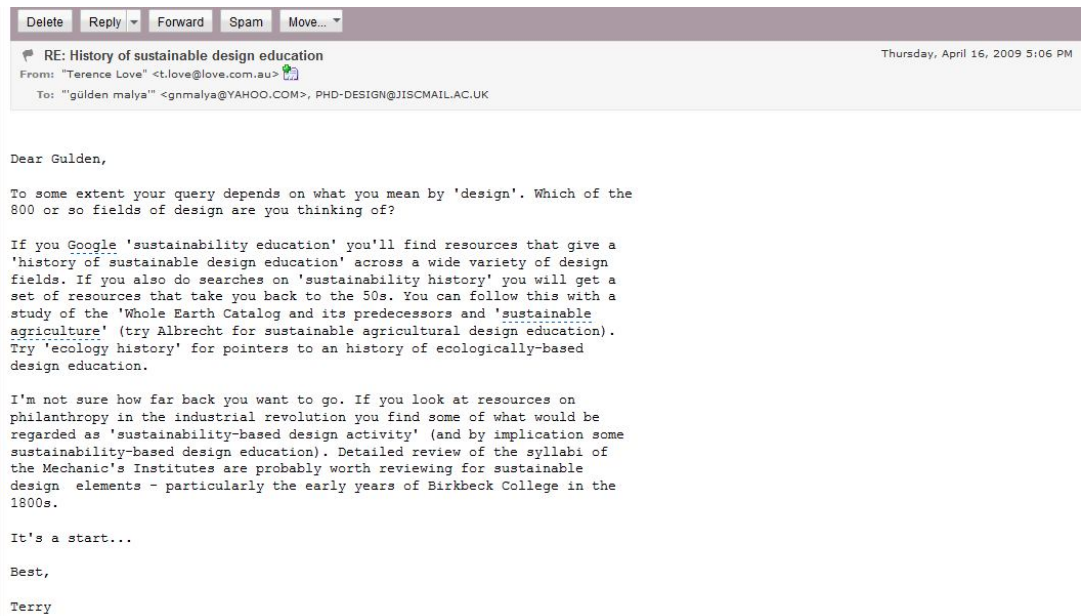
Ken

Ken Friedman, PhD, DSc (hc), FDRS  
Professor  
Dean

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Melbourne, Australia

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[www.swinburne.edu.au/design](http://www.swinburne.edu.au/design)

Figure A.2.3: Email; Ken Friedman - I



**Figure A.2.4:** Email; Terence Love – I



Delete Reply Forward Spam Move...  
 Re: History of sustainable design education  
 From: "David Durling" <intuitive@MAC.COM>  
 To: PHD-DESIGN@JISCMAIL.AC.UK  
 Saturday, April 18, 2009 6:32 PM

On 16 Apr 2009, at 3:06 pm, Terence Love wrote:

- > To some extent your query depends on what you mean by 'design'. Which of the
- > 800 or so fields of design are you thinking of?
- > If you also do searches on 'sustainability history' you will get a
- > set of resources that take you back to the 50s.

As Terry rightly points out, it's not hard to find resources about the history of sustainability in its broadest sense. It also matters how 'design' is defined. Just limiting a search to architecture alone will produce a great deal of information.

I am not going to attempt to list a lot of resources, as without some parameters I'm not sure where I would start or finish. I will make a some observations, though these are more from art/design than any of the other 700+ fields that Terry mentions, and with more of a UK focus.

I was wondering if there is now ANY design course that pays no attention to sustainability? I would have thought that the great majority have been quietly teaching these matters to a lesser or greater extent for many years. The more obvious candidate courses are perhaps 3D/industrial design and interior architecture, but many more courses have been touched by these issues, including crafts, textiles, graphics etc. in various ways. One of my Middlesex colleagues (Phil Shaw, a graphic designer) did his PhD in what one might now regard as sustainable printing inks. Much has been published about the sustainable use of natural materials in textiles, and we have seen information on the use of bamboo for a variety of purposes on this list from time to time. I met someone recently from University of Northampton who is conducting research into sustainable practices in leather tanning - this apparently is trying to rediscover pre-industrial techniques and utilise them in modern ways (though admittedly there was a lot of urine used in the old days, not so acceptable today).

Having given an introductory talk on two occasions recently at 'design for low carbon' events, I too had traced the beginnings of the modern sustainable design movement broadly to the Fuller/Papanek era, and had contrasted their respective approaches to the situation I experienced as a student and then a young designer. I first read Papanek -- especially Design for the Real World -- during a design masters at the Royal College of Art in the early 1970s. We were still in the shadow of the 1960s at that stage, an era with a tendency to want to make more things disposable. O the joy of minimalist plastic cutlery that broke before you could get the food to your mouth, and cardboard furniture that slowly collapsed under the weight of only slightly corpulent teenagers!

'Design for low carbon' is of course not necessarily the same as sustainable design. Design for low carbon is both proactive and specifically focused.

Leaving aside the silliness of some of those designs, there were many debates about the sustainability of such processes, and many students who had a clear sense of just how unsustainable these practices were. Incidentally, while the Papanek message appealed to rationality -- and certainly affected my own underlying thinking -- from a commercial designer viewpoint there was little traction to his argument. As soon as one looked at many of the design 'solutions' that were proposed, one's heart sank at the commercial naivety of it all. On the other hand, Bucky Fuller was clearly an outstanding designer as well as a visionary (well, I exclude the Dymaxion car). He gave a rare London lecture which I had the great pleasure of attending -- it was one of the few occasions when I have known I was in the presence of a very great man.

In furniture design there has long been concern about sustainability, both through the imperatives of commercial efficiency gains, and arising from the consciences of designer-makers. Perhaps the best known work in the crafts was the John Makepeace initiative at Hooke Park in the early 1980s, which sought to research forest thinnings and train cohorts of knowledgeable craftsmen. It also produced some innovative wooden buildings by top architects and engineers at that time.

In fashion, perhaps an area of conspicuous consumption, there is the ethical consumption project at London College of Fashion.

Some of the more interesting work from the art/design community comes about at the boundary of urban regeneration schemes and fine art, for example in coastal erosion areas, watersides, or reclamation of previously industrial sites. One of my colleagues, Simon read, has recently led a low impact saltmarsh protection scheme in Suffolk, and I have seen many excellent examples of this kind of work throughout the UK.

I am surprised that Martin Charter has not been mentioned. He has for many years run a sustainable design centre (now at University of the Creative Arts) and many international conferences.

I'm dredging my memory here, and I'm sure there are many other initiatives that I have not mentioned or about which I know nothing.

I was a little confused about this debate when it started, until I realised that I was receiving messages from two discussion lists where exactly the same question had been asked, and two different groups has answered. This leads me to point out a couple of resources. One is Ann Thorpe and her excellent Designer's Atlas of Sustainability (<http://www.designers-atlas.net>) and the Sustainable Design Teaching discussion list that she runs <http://www.jiscmail.ac.uk/SUSDESIGNTEACH> where further resources may be found in recent discussions. The other group that interests me is at Loughborough University in design/technology, who are producing materials, for example <http://www.informationinspiration.org.uk/> and <http://www.lboro.ac.uk/research/susdesign/LTSN/introduction/Introduction.htm>

Designers sometimes get a bad press on this list, and it often seems that they have never thought about issues of sustainability until quite recently. This is wrong. A few voices claiming vision for sustainable design does not negate the considerable contributions made by many for years past, some of whom are mentioned above.

In working with art and design communities over the years, I have long been struck by a strong sense of human ecology -- in the sense of our relation to the environment -- which is often part of the mindset of student designers and artists, and doesn't take much teaching effort to bring out. Apart from the vocal few, perhaps what has happened most in recent years is more explicit embedding of sustainability principles in core curricula, better resources for tutors, and the urgency for change being made more public by folks like Al Gore and David King.

I was also wondering how list members are coping with reducing personal carbon? Has anyone got below 5 tonnes. 10 tonnes? More?

David  
 On a sunny Sunday afternoon in The Fens.

.....  
 David Durling FDRS PhD <http://durling.tel>  
 .....

Figure A.2.5: Email; David Durling



Dear All,

Reflecting on Terry's comments, one must always wonder where to parse a phrase. I had read Gulden's query on the [history of sustainable design education] as a search for the specific literature on the history of sustainable design education rather than a search through all history for sustainability practices in design.

Design education itself only dates back -- depending how you define it -- to some relatively recent date, probably in the 20th century. To be sure, many of the fields and disciplines we define as design fields date back much farther, as do institutions that teach the skills, professions, and disciplines of these fields. The vast majority of degree programs specifically designated as "design" programs began at some point between the middle of the 20th century and the 1980s. There are notable exceptions, but they are few. The relatively recent history of the field explains, in part, is why so many people that need to hire designers are still confused about what designers are, what they do, and what uses they serve.

When I got to Norway in the late 1980s, for example, there were only a couple of schools where one could study design under that term, primarily the "kunsthåndverk" academy in Oslo and the parallel lines at the art academy in Bergen. None of the universities offered design courses, though some specific lower schools offered courses that would map onto design. At that time, many people in business and industry thought that design was essentially a fancy name for advertising and that one could hire any advertising agency to design something -- if one did not simply employ a cousin or spouse who had once studied art. The major challenge facing designers in Norway at that time was educating the businesses and industries that ought to use professional design services to improve products and services.

Many will recognize this scenario in different guises, and that is why so many design councils and design centers are still active in design promotion today.

Now that's the long way around in saying that if most professional design education is only a few decades old, sustainable design education cannot be older, despite the durable history of sustainable design practices. If we're talking about sustainability practices, they go back farther still.

Back in the 1980s, for example, I had the thrill of reading Wendell Berry's *Gift of the Good Earth*. Part of Berry's book recounts how the Amish way of farming, rooted in ancient practices, restores the soil and health of land. When Amish families buy worn out, broken down farms, they restore the land with patient care and nurturing love -- love is the right word, rooted in a simple yet profound reverence for all living things as a manifestation of their theology. The history of the Amish and other Plain Peoples dates back to the 1600s, and their explicit rules on farming, technology, and other matters of sustainability have been part of their ordered life since that time. The Amish way also emphasizes maintaining sustainable communities through specific cultural practices, also written and explicit. So they've got some kind of sustainability education and acculturation built into their world view -- dating back well prior to Bucky Fuller. But it's not sustainable design education.

For that, I proposed Buckminster Fuller and Victor Papanek for their explicit efforts to introduce sustainability into design education, and it is this history of sustainable design education that is both relatively new and nearly unwritten. That's why Gulden has not found much. It's an interesting field, and a great opportunity for an enterprising scholar -- or several. I imagine we could find a place in our doctoral program for someone who wants to work on a topic like that, and possibly even fund it.

Reading David's note, I realized with some embarrassment that I should indeed have mentioned Martin Charter. The Center for Sustainable Design has been making vital contributions for many years, and the web site is rich in resources.

<http://www.cfsd.org.uk/>

Ann Thorpe's Design Activism network and newsletter are another important source, along with her books and research projects

<http://designactivism.net/>

As to the conversation between Gunnar and David on the industrial production of liquids by human beings, any visitor to Australia can you who to blame. It is neither engineers nor managers. It is the brewers.

Yours,

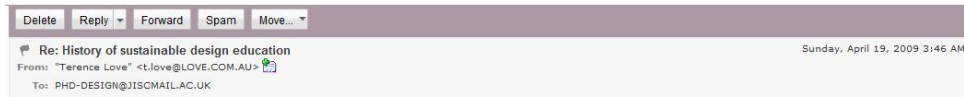
Ken

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Dean

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Figure A.2.6: Email; Ken Friedman- II



Hi Ken,

The reality is that most design education exists outside design programs called Design. Most design (even the 'Art and Design' version of design) isn't called 'Design' unless you want to insist on a primarily western-centric (read 'english-centric') picture of commercial art. For example the Finnish word for Design - my understanding is it translates as 'hand craft', i.e. making rather than design.

One way of viewing design education is to see it in terms of the learning necessary to improve an individual's design activity. The term Design is used in a wide variety of disciplines and people are taught how to design (regardless of what it is called). 'Design education' has a long tradition outside the units and courses specifically labeled 'Design'. This point can be developed in many ways, including the reality that many designers have and still do gain their design education by a wide range of approaches including autodidactically. Education programs called 'Design Program' are a relatively small part of designers education, and a relatively ineffective part of design education according to several graduate destination studies I've seen.

Gulden asked about 'the history of sustainable design education' - for me this is an aspect of the history of the education that designers have gained to develop their design knowledge and skills. The underlying logic is 'if there is design being done' then somehow and in some way the designer learned (educated themselves or was educated by others) to do that and hence some form of design education happened.

This gives a much more complete context to answer Gulden's question about the history of sustainability in design education. It enables the possibility of answering Gulden's question by taking some of the bias and overemphasis off those individuals and academic groups that were better at public promotion in this increasingly fashionable 'sustainability' space. It offers some insights into the depth of the understanding and design activity in relation to sustainability that has existed since perhaps design first was undertaken by humans. It also gives an opportunity for some humility to reconsider the widely held simplistic assumption that the period from the industrial revolution to the present was absent of sustainable thinking and that we are now heroes for inventing sustainability and saving the world.

Best wishes,  
Terry

Figure A.2.7: Email; Terence Love – II



Dear Terry,

Well, true enough. As I said, it depends on how you parse the phrase -- and on how you interpret design. I tend to interpret design in a the broad, Herbert Simon tradition, but I did read the query in terms of Gulden's question in the narrower sense. Of course, Buckminster Fuller is hardly narrow, but I was focusing on the locus of inquiry as I understood it.

FYI, kunsthandverk also means "hand craft," or -- more precisely "art hand work."

Anyhow, thanks for this reply. I understand it, and I can't say I disagree. The interesting aspect of Gulden's query is that one can quite reasonably answer as you have done here, as David did, and as I did, despite the somewhat fuzzy zones where the answers do and do not overlap and the equally fuzzy zones where they diverge.

Warm wishes on a chilly autumn evening in Dunedin, New Zealand.

Ken

Figure A.2.8: Email; Ken Friedman - III

Delete Reply Forward Spam Move... Monday, April 20, 2009 11:56 AM

☛ sustainable design education  
 From: "A.B.Thorpe" <A.B.Thorpe@OPEN.AC.UK>  
 To: PHD-DESIGN@JISCMAIL.AC.UK

Hello All,  
 David points out that this discussion has been going on in two lists, and I have made some comments over on SUSDESIGNTEACH (I list these resources FYI below). I agree with Ken that this topic requires some original research, and that the area of interest is probably the teaching of sustainability in design programs (I believe the interest was in product design). And yes, the pioneers are somewhat well established, but I guess Gulden and some of the rest of us are interested in what happened after the origins--how sustainable design education evolved over the past 15 or 20 years.

A way to approach such research, as Ken suggests, is to interview those of us who have been teaching sustainable design over the past decades (myself only one decade) to find out what our courses have offered, and why. One way to find a range of sources is to look at surveys on sustainable design education and to look at how resources aimed explicitly at teaching sustainable design have been taken up.

In terms of resources, the "Okala: Learning Ecological Design" guide is an interesting example because it was done in conjunction with the Industrial Designers Society of America (IDSA) and they have tracked the requests for the guide they've had from higher education institutions. In addition, the authors, Philip White (Arizona State University), Louise St. Pierre (Emily Carr Institute of Art and Design) and Steve Belletire (Ball State University), have now produced two editions of the guide (2004 and 2007), suggesting they may have a sense of evolution in the field from the interactions they've had around the two editions.

Part of the question about the history must be about the content -- what is taught? For example the content of the teaching guide(2007) I produce for my book differs from guides like Okala (or Lewis and Gertsakis' "Design + Environment" 2001) because although my guide looks at bigger picture questions surrounding ecological design, I include heavy doses of economic and cultural aspects of sustainable design. My own view is that these later two important and difficult components are still relatively new to sustainable design but steadily gaining ground. Another part of the question, arguably a much more difficult part, must also be about the best ways to teach these subjects.

The value of surveys (e.g. Metropolis) is their snapshot view of what's going on at a particular time, as well as leads for interviews (Metropolis listed all respondents). IDSA has an "environment" special interest group which may have its own survey results on the field of sustainable design education. My suspicion is that many of the universities that offer courses on sustainable design have conducted their own surveys, if only to clarify their own "position" relative to the "competing" universities. These types of informal surveys are of course not published, but you might find out about them through an interviewing process.

FYI previous resources mentioned:  
 - Metropolis ran a survey on sustainable design education and reported the results in the August 2003 issue, an online version of the results is here  
<http://www.metropolismag.com/story/20040301/sustainable-design-2003-school-survey>

- A good survey of ecological design in architectural education was done under the auspices of the AIA's Committee on the Environment, "Ecology and Design: Ecological Literacy in Architecture Education" 2006  
<http://www.aia.org/practicing/groups/nc/AIAS074665>  
 I haven't seen anything comparable for industrial design

- Anne Chick had an article in the International Journal of Art and Design Education vol 19 no 2, 2000 "Preparing British Design Undergraduates for the Challenge of Sustainable Development" -- I imagine there must have been a few related articles since then in this journal. There is also the annual international conference on design education which must have had a few tracks on sustainability.

Best,  
 Ann Thorpe

cc to SUSDESIGNTEACH

.....  
 Dept of Design, Development, Environment & Materials  
 Open University, Walton Hall, Milton Keynes, MK7 6AA, United Kingdom

Bartlett School of Architecture, University College London  
 Wates House, 22 Gordon Street London WC1H 0QB, United Kingdom

[ann@designers-atlas.net](mailto:ann@designers-atlas.net)  
 .....  
 book: The Designer's Atlas of Sustainability ([www.designers-atlas.net](http://www.designers-atlas.net))  
 & blog: <http://designactivism.net>  
 discussion list: SUSDESIGNTEACH

-----  
 The Open University is incorporated by Royal Charter (RC 000391), an exempt charity in England & Wales and a charity registered in Scotland (SC 038302).

Figure A.2.9: Email; Ann Thorpe

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**Re: sustainable design education** Monday, April 20, 2009 12:26 PM  
 From: "Gavin Melles" <GMelles@GROUPWISE.SWIN.EDU.AU>  
 To: PHD-DESIGN@JISMAIL.AC.UK

Hi everyone

In addition to what has been said one could go and look at (1) the classic texts addressing sustainable design on the small and big scale, e.g. McLennan, J. F. (2004), *The Philosophy of Sustainable Design; Sustainable Design*  
 By Daniel A. Vallero, Chris Brasier; Design for sustainability by Janis Birkeland ... (2) accept that depending on scale - landscape design, industrial design, architecture the principles and issues will vary; (3) do an analysis of institutions currently offering major programs in sustainable design, e.g. University of Texas, Carnegie Mellon, TU Delft ... what do they see as important; (4) interview and maybe survey people; (5) look at professional and government definitions, e.g. <http://www.sustainability.vic.gov.au/www/html/1645-design-forsustainability.asp>; <http://www.designcouncil.org.uk/en/About-Design/Business-Essentials/Sustainability/>. This won't give you the history you're looking for but this in itself would require a very thorough historical analysis I suspect taking a very long time. Limiting oneself to a specific discipline, e.g. architecture might make the whole project easier, in a sense, but then think about how the term sustainable will have been redefined over the years with economic, technology and other historical and social changes. So a history will be a history of shifting definitions and applications. One will see, whatever you do, that the term is used everywhere as it is would be impolitic to not do so in the current climate.

A few texts perhaps not mentioned so far straight off google scholar  
 A new generation of designers: perspectives for education and training in the field of sustainable ...

C Vezzoli - *Journal of Cleaner Production*, 2003 - Elsevier  
 ... All rights reserved. A new generation of designers: perspectives for education and training in the field of sustainable design. ...  
 Cited by 14 - Related articles - Web Search

[PDF] ▶The critical role of higher education in creating a sustainable future

AD Cortese - *Planning for higher education*, 2003 - [auburn.edu](http://auburn.edu)  
 ... Anthony D. Cortese Page 3. Planning for Higher Education 17 The Critical Role of Higher Education in Creating a Sustainable Future ...  
 Cited by 41 - Related articles - View as HTML - Web Search - BL Direct - All 9 versions  
 Rethinking design education for the 21st century: theoretical, methodological, and ethical ...

A Findeli - *Design Issues*, 2001 - MIT Press  
 ... design could not only contribute to a sustainable natural world ... most too simple:  
 some kind of moral education must be included in the design curriculum, so ...  
 Cited by 28 - Related articles - Web Search - BL Direct - All 6 versions

[BOOK] *Tomorrow by design: a regional design process for sustainability*  
 PH Lewis - 1996 - John Wiley & Sons Inc  
 Cited by 34 - Related articles - Web Search - Libraries Australia

Environmental education and sustainable development: a further appraisal - [lakeheadu.ca](http://lakeheadu.ca) [PDF] ...  
 L Sauv  - *Canadian Journal of Environmental Education (CJEE)* - [jee.lakeheadu.ca](http://jee.lakeheadu.ca)  
 ... 7 Environmental Education and Sustainable Development: A Further Appraisal ...  
 This environmental education for sustainable development ...  
 Cited by 62 - Related articles - View as HTML - Web Search - BL Direct - All 4 versions

Major challenges to engineering education for sustainable development - [mit.edu](http://mit.edu) [PDF]  
 NA Ashford - *International Journal of Sustainability in Higher Education*, 2004 - [emeraldinsight.com](http://emeraldinsight.com)  
 ... alike - remain major problems in both research and education. ...  
 Table IA sustainable development agenda. Table IIDimensions of policy analysis and design. ...  
 Cited by 20 - Related articles - Web Search - BL Direct - All 8 versions

[BOOK] *Green architecture: a guide to sustainable design*  
 MJ Crosbie - 1994 - american institute of architects press  
 Cited by 18 - Related articles - Web Search - Libraries Australia

[BOOK] *Sustainable urban design: an environmental approach*  
 R Thomas - 2003 - [books.google.com](http://books.google.com)  
 ... supporting quality in the desinstitutions. The authors of Sustainable Urban Design form part of an ...  
 Cited by 25 - Related articles - Web Search - Libraries Australia

Dr Gavin Melles  
 Head, Industrial & Interior Design  
 Swinburne University of Technology  
 Office: +613 92146851  
 Mobile: +61 (0)414374368  
 Skype: gavin.melles

**Figure A.2.10:** Email; Gavin Melles

### APPENDIX A.3: Questionnaire I

Here, below you will find a questionnaire of 12 questions which is a part of the research of my Master Thesis. The questionnaire is divided into three parts. The first part is provided to collect personal information. The second is focused on gathering historical information about sustainable product and service design education. The last part is based on the current situation in the sustainable product and service design education in the institutions and the future directions. If you have any further information or comments please feel free to add after you finish the questions.

Thanks for your time, interest and contribution.

---

#### **Part I:**

Please explain your personal details and background information below.

*Your Name (optional):*

*Sex: Female*  *Male*  *Age:* .....

*Country of Origin:* ..... *Country of Residence:* .....

*Educational Background:*

*Undgraduate ( )* ..... *Field:* ..... *Year:* .....

*Master ( )* ..... *Field:* ..... *Year:* .....

*PhD ( )* ..... *Field:* ..... *Year:* .....

*Others* .....

#### **Part II:**

1. Please briefly explain your professional experiences in sustainable product and service design.
2. What was your main motivation when you started to work in sustainable product and service design education? Please explain briefly.
3. Please briefly explain about your first involvement in sustainable product and service design education, by specifying where, when, and how?
4. What is your current position at the moment? Please explain in details, such as the university, faculty, department, position, course, project, organisation etc.
5. Can you tell about the history of the programme/ course you are currently involved?

6. In your opinion, what were the critical events in the history of sustainable product and service design education?

**Part III :**

1. Can you explain the structure of the programme/ course you are currently involved? Where possible please refer to web links for more details.

2. Do you collaborate with other people, universities or organisations? Can you give details about them and the work that you work on? Where possible please refer to web links for more details.

3. Do you share your experiences and techniques with other institutions or professionals? If your answer is yes can you explain how you share these?

4. What are the important sources you use to form the educational practice in your department/ courses/ studios? ( such as; books, websites, published tools, methods or procedures)

5. Do you have any specific future plans about sustainable design and sustainable product and service design education?

6. What do you think about the future sustainable product and service design education and the future of sustainability in industrial design education?

---

**Further Information / Comments**

## APPENDIX A.4: Questionnaire II

Here, below you will find a questionnaire of 12 questions which is a part of the research of my Master Thesis named; “An Evaluation of *Sustainable Product Design Education*”. The questionnaire is divided into three parts. The first part is provided to collect personal information. The second part is focused on gathering information about sustainable product and service design education in the institutions. The last part is focused on tracing historical information about the topic. If you have any further information or comments please feel free to add after you finish the questions.

Thanks for your time, interest and contribution.

---

### **Part I:**

Please explain your personal details and background information below.

*Your Name (optional):*

*Sex: Female*  *Male*  *Age:* .....

*Country of Origin:* ..... *Country of Residence:* .....

*Educational Background:*

*Undgraduate ( )* ..... *Field:* ..... *Year:* .....

*Master ( )* ..... *Field:* ..... *Year:* .....

*PhD ( )* ..... *Field:* ..... *Year:* .....

*Others* .....

*Current position(s), please explain in details (such as the university, faculty, department, course, project, organisation etc.):*  
.....

---

### **Part II:**

1. How long have you been working in sustainable product and service design education?  
(If your answer is D or E you are kindly requested to continue to Part III, after completing Part II)
  - a) Less than one year
  - b) 1-3 years
  - c) 3-5 years
  - d) 5-10years
  - e) More than 10 years
2. What was your main motivation when you started to work in sustainable product and service design education? Please name one or more and explain shortly.

Book:  
Person:  
Event:  
Other:



3. What was your first involvement in sustainable product and service design education?

*University* : .....  
*Department* : .....  
*Started by:* .....  
*How long* : .....  
*Course / Details* : .....

4. Regarding your resident country during 1980's, please select the percentage of courses focused on sustainability in industrial/product design departments.

Country.....

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50
- f) No comment

5. Regarding your resident country during 1990's, please select the percentage of courses focused on sustainability in industrial/product design departments.

Country.....

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50
- f) No comment

6. Regarding your resident country between 2000 and 2005, please select the percentage of courses focused on sustainability in industrial/product design departments.

Country.....

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50
- f) No comment

7. When was the programme you are currently involved established?

*Year* : .....

8. How long have you been teaching in the department you are currently involved (related to sustainable product and service design)?

- a) Less than one year
- b) 1-3 years

- c) 3-5 years
- d) More than 5 years

9. How many courses do you have currently in your department related to or focused on sustainable product and service design? Please circle one of the below.

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

10. How many of these courses are must courses?

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50

11. How many of these courses are studio based courses?

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50

12. How would you evaluate the courses focused on sustainable product and service design among the curriculum of your department?

- a) Less than %10
- b) %10
- c) %25
- d) %50
- e) More than %50

13. How would you describe your work in sustainable product and service design education?

- a) Theory oriented (theoretical courses)
- b) Practice oriented (studio based courses)
- c) Both theory and practice oriented (both theoretical and studio based courses)
- d) Other; please explain .....

14. Can you name three important sources you use to form the educational practice in your department/ courses/ studios? (Such as; books, websites, published tools, methods or procedures)

- a) .....
- b) .....
- c) .....

15. Do you collaborate about your courses and/or projects with other institutions, universities, professionals?

- a) Yes (please go to question 16)
- b) No (please go to question 17)

16. How do you collaborate with other institutions, universities, professionals? Please give name/links to the chosen option(s)

Email groups: .....

Networks: .....

Work groups: .....

Websites: .....

17. How can you categorise the approach of your department/course on sustainable design among these options? Choose more than one if required.

- a) Service oriented approach
- b) Life cycle approach (Cradle to grave approach)
- c) Design for the need (Socially responsible design)
- d) Design for environment approach
- e) Other ....

**Part III :**

**Figure A.8.1:** Can you tell shortly about the history of the programme you are currently involved?

**Figure A.8.2:** Can you explain the structure of the programme/ course you are currently involved? Where possible please refer to web links for more details.

**Figure A.8.3:** Please shortly explain your professional experiences in sustainable product and service design.

**Figure A.8.4:** In your opinion, can you name three critical events in the history of sustainable product and service design education?

- .....
- .....

- .....

**Figure A.8.5:** Do you share your experiences and techniques with other institutions or professionals?

- a) Yes (please go to 6)
- b) No

**Figure A.8.6:** If your answer is yes, please select and name how do you share these?

Email groups:.....  
Networks: .....  
Work groups: .....  
Websites: .....

---

**Further Information / Comments**



## APPENDIX A.5:

## Online Questionnaire

<http://spreadsheets.google.com/viewform?formkey=dGwyTFVpbkhtZ2Q5X3B6bHQwU1RxbkE6MA..>

Questionnaire on Sustainable Product Design Education

<http://spreadsheets.google.com/viewform?formkey=dGwyTFVpbkhtZ...>

---

# Questionnaire on Sustainable Product Design Education

---

Here, you will find a short questionnaire which is an important part of my research for the Master Thesis named; 'An Evaluation of Sustainable Product Design Education'. If you are involved in this area, teaching Sustainable Product and/or Service Design courses, I hope you would find few minutes to participate in this research.

The questionnaire is divided into three parts. The first part is provided to collect personal information. The second is focused on gathering information about sustainable product and service design education in the institutions. The last one is focused on tracing historical information about the topic. The results will be send to your email address if you would like to receive them.

Gulden Malya  
MSc Industrial Design  
Istanbul Technical University

**Part I:**

Please explain your personal details and background information below

---

***Your Name (Optional)***

---

***Gender (Optional)***

- Male
- Female

---

***Country of Origin***

---

***Country of Residence***

---

***Academic Progress***

Please select the level you have most recently attained or currently working towards, regardless of their relevance to sustainable design education

- Bachelors Degree
- Masters Degree
- Doctoral Degree
- Postdoctoral
- Other:

---

***Educational Background***

Please list the degree(s) you received, indicating the institution, field and the completion year.

---

***Current Position(s)***

Please indicate the university, faculty, department, course, project, organisation etc.

---

***Email adress (Optional)***

If you would you like to receive the results

**Part II:**

Sustainable Product and Service Design Education

---

***At what level-department combinations do you teach sustainable product and service design courses?***

Please check all that apply

- Certificate - Industrial Design
- Undergraduate - Industrial Design
- Graduate - Industrial Design
- Certificate - Sustainable Product Design
- Undergraduate - Sustainable Product Design
- Graduate - Sustainable Product Design

---

***How long have you been working in sustainable product and service design education?***

(IF YOUR ANSWER IS MORE THAN 10 YEARS PLEASE CONTINUE TO PART III, AFTER COMPLETING PART II)

- Less than a year
- 1 - 3 years
- 3 - 5 years
- 5 - 9 years
- More than 10 years

---

***What motivated you towards working in sustainable product and service design education?***

Please name the most influential people, books, events, etc.

---

***What was your first involvement in sustainable product and service design education?***

Please indicate the institution, position and year



**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)?**

Please answer for the following periods, based on your observations in the industrial/product design department(s) you were involved during that time.

	No idea	Not covered at all	Somewhat covered	Adequately covered	Extensively covered
1980 – 1989	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1990 – 1999	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2000 – 2005	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2006 onwards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

(Related to sustainable product and service design)

- Less than a year
- 1 - 3 years
- 3 - 5 years
- More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design?**

Please answer separately for each type of course below

	0	1	2	3	4+
Studio based must courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Studio based electives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lecture based must courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lecture based electives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

*What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?*

- Less than 10%
- Up to 25%
- Up to 50%
- More than 50%

---

*How would you describe your work in sustainable product and service design education?*

- Theory oriented (lecture based courses )
- Practice oriented (studio based courses)
- Both theory and practice oriented (both lecture based and studio based courses)
- Other:

---

*Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?*

(Such as; books, websites, published tools, methods or procedures)

---

*What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?*

Please list and give links to E-mail Groups - Networks - Workgroups - Web Portals or Any other collaboration tools/organizations that you are involved in.

---

*How can you categorise the approach of your department/course on sustainable design among these options?*

Choose more than one if required

- Service oriented approach

- Life cycle approach (Cradle to grave)
- Design for the need approach (Socially responsible design)
- Design for environment approach
- Other:

---

*How important are sustainability issues in the overall vision of your department?*

0 1 2 3 4 5  
Not important ● ● ● ● ● Very important

---

*In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?*

Choose more than one if required

- There will be an increase in the number of sustainable product design certificate courses.
- There will be an increase in the number of sustainable product design degrees in undergraduate level.
- There will be an increase in the number of sustainable product design degrees in graduate level.
- Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.
- Other:

### Part III:

IF YOU HAVE BEEN WORKING IN SUSTAINABLE PRODUCT AND SERVICE DESIGN EDUCATION FOR MORE THAN 10 YEARS YOU ARE KINDLY REQUESTED TO ANSWER THE FOLLOWING QUESTIONS.

---

*Please give a short history of the programme/course you are currently involved*

Where possible please refer to web links for details

---

*Please shortly explain your professional experience in sustainable product and service design.*

Important points of your more than 10 years of experience in the area.

---

*In your opinion, can you name **THREE** critical events in the history of sustainable product and service design education?*

**Thanks for your time, interest and contribution.**

Gülden Malya

---

*Further Information / Comments*

Submit

---

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## APPENDIX A.6: Emails – II

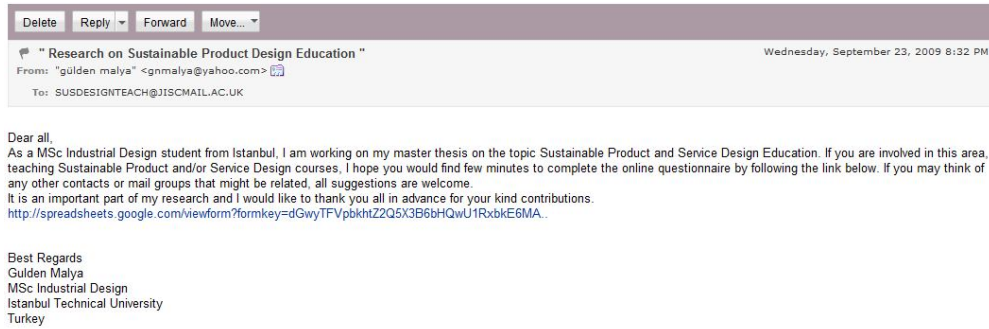


Figure A.6.1: Email; Spreading the survey –I

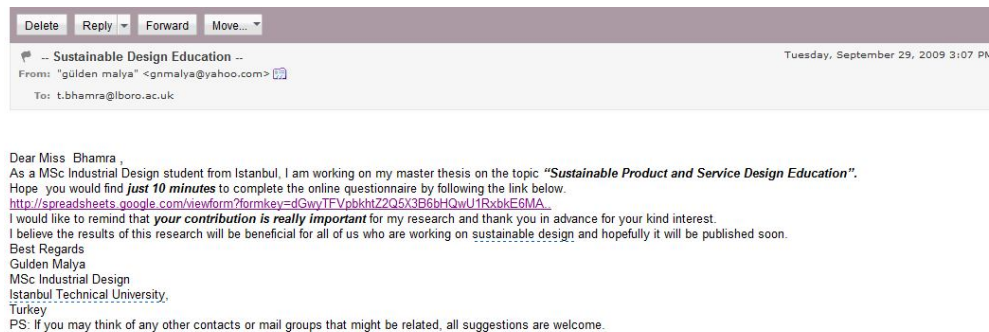


Figure A.6.2: Email; Spreading the survey – Individuals

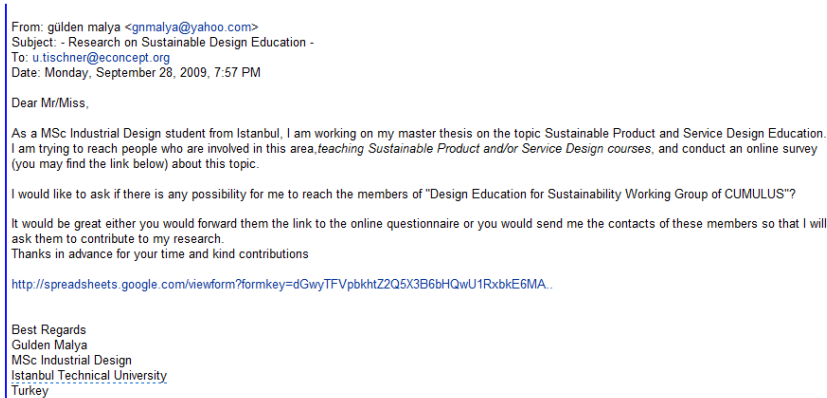


Figure A.6.3: Email; Spreading the survey – Cumulus



Dear All,

As there was a limited amount of participation, I needed to remind you about the online questionnaire which is a part of my master thesis on the topic **"Sustainable Product and Service Design Education"**. I believe the results of this research will be beneficial for all of us who are interested in or working on sustainable design education, so **your contribution is really important**.

Hope you would find **just 10 minutes** to complete the **short online questionnaire** by following the link below.  
<http://spreadsheets.google.com/viewform?formkey=dGwyTFVpbkhtZ2Q5X3B6bHQwU1RxbkE6MA..>

Thank you all in advance for your kind interest.

Best Regards  
 Gulden Malya  
 MSc Industrial Design  
 Istanbul Technical University,  
 Turkey  
 PS: Apologise for the repetition.

**Figure A.6.4:** Email; Spreading the survey - II



Dear Gulden,

Yes I am very busy at the moment but here is a list of international colleagues who are interested in Sustainability.

Good luck with your researches

Peter

- Please don't print this e-mail unless you really need to

Prof Peter Stebbing  
 Basic Design  
 ERASMUS Coordinator for  
 European Institutional collaboration  
 & Student Exchange  
 HFG Cumulus Coordinator & Convener  
 of the Cumulus Working Group  
 Design Education for Sustainability  
 Tel: +49 7171 602 655  
 Fax: +49 7171 602 672  
 e-mail [stebbing@hfg-gmuend.de](mailto:stebbing@hfg-gmuend.de)  
 Hochschule fuer Gestaltung  
 Rektor-Klaus-Strasse 100  
 D-73525 Schwabisch Gmuend  
 Germany

**Figure A.6.5:** Email; Spreading the survey –List of suggested contacts



Dear All,

At first, I would like to thank to all who has answered my questions and apologise for my insisting emails in your mailboxes recently. However, as I believe this research will be important for all who is working on or interested in this subject, I was worried about the limited participation. The research is going to be finalised shortly. So as a last reminder, I will kindly ask one more time, for all who is involved in sustainable design education, to answer *the revised short version of the survey* by following the link below:  
<http://spreadsheets.google.com/viewform?formkey=dGwyTFVpbkhtZ2Q5X3B6bHQwU1RxbkE6MA..>

Thank you all in advance for your contributions.

Best Regards  
 Gulden Malya  
 MSc Industrial Design  
 Istanbul Technical University,  
 Turkey

**Figure A.6.6:** Email; Spreading the survey –III

**APPENDIX A.7:** Interview with Prof. M. P. Ranjan 11/10/2009, Istanbul, TR

Prof M. P. Ranjan, Faculty of Design, National Institute of Design, India

Head, Centre for Bamboo Initiatives at NID

G- Basically what I do is trying to trace what has been done about sustainable design in terms of education.

R- And also looking at the background of schools

G- Yes I am trying to do that.

R-You may need some contextual information before you can put sustainability into a interpretation.

G-The thing is even you just trace the names of the courses or just the departments you can trace the projects for example which are basically focused on sustainable design it is hard to trace them through the curriculum of industrial design departments .It is very hard to do that so that is why I am trying to connect people to get in touch who teaches sustainable design.

R- Maybe they are not even called sustainability. They are called another thing but the concepts are the same and they are pretty much embedded into the programme.

G-Yes, that is why it is a little complicated. Basically I am trying to ask people about how long have they been teaching sustainable design, what are their motivations, what made them study or teach sustainable design. Let's say sustainable design mainly about this subject. In fact and at what level they teach the subject and what kind of departments are they involved in? Is it a kind of just industrial design department or is it product design or is it just a kind of design?

R-OK let me tell you a little about the school. The school that I teach named the Ahmadabad National Institute of Design. It was set up in 1961 by the government of India and originally the school was little back to 1958 when Charles Henry Eames, an American designer was invited to write a report by the prime minister of India that time Gavular Nero and their report is very visionary document which talks about the needs of the country and the aspirations of the nation. Not just looking at the socio-



economic condition but also issues of quality and issues of value in terms of what should be done and also what could be done. So that is the origin of the school.

Since it was started in 1961 gradually 3 programmes came up. The first programme which was started 1964, was communication design, which is basically graphic design but it was called before communication design in those days. The next programme started in 1966 was product design programme which broadly covers industrial design. They were both postgraduate programmes. Then the third programme started in 1968 which forms the third broad area was the digital design programme.

Individual communication design programme we have many sub programmes within; graphic design, photography, animation, film making, exhibition design. These are the sub programmes. So exhibition design, graphic design both are defined as NWD projects. All of it was learning by doing, action oriented, hands on experiences. The first exhibition was done by the school. At that time, they also had the biggest design office in the country. Not all the faculty but in the office and by teaching and working together and that means there were hundreds of projects going on through the years 60s, 70s,80s. All the projects were done by the school but handled by the faculty and students also worked on it. So that means there were many hundreds of projects. It was a massive growing kind of design organisation. Besides being a school, so it is a co-existing kind of thing. The entire faculty was kept in practice.

So we need to keep this in mind, then the next programme, started in 1969, was the phonetics design programme. We had a ceramic design, first postgraduate programme started around the same time. Laboratories and facilities were all set down with the help from Ford foundation, large grants were given. So the equipment and that kind of facilities were literally well class because of the kind of vision that the founders had, the institute was under one roof which had all these disciplines and with open doors that means you cannot like going to one department you can not going to another. But it was highly interdisciplinary, so right in the beginning 60ths itself there were many interesting projects looking at application of design in real situation. Such as; there was a communication design workshop on family welfare and family planning. Then by Bob Gill who came in the early 60ths I think 66 did a workshop how do you make communication for descent people on population

management, welfare family planning, kind of things. So it was a big issue or India. We had a number of concerns taken up and were done. The other one on logical studies was done, Look at class and even living traditions of the country. These very first projects were done by the ethnographers and anthropologists who came in the institution from London and worked with the designers. I am talking about that because they were the indicators of what needed to be done and after the first bench of students who joined the postgraduate programme I was in that group. I joined programme in 69 and then in 72, I joined to faculty. So in this case with many of the departments; graphic design, digital design, product design the first large number of students were absorbed into faculty as teachers. So there was exhibition design which was not a discipline at that stage but it was a class discipline activity that means many disciplines got together to produce this exhibition. Numbers of exhibitions were done by the time into the 70ths about 30 or 40 different exhibition large ones. Also the government found it easy to give such projects to institute because it is a government founded institute. Now this kind of cross-disciplinary work brings along with it certain insights if you do not get only in the verticals and only look at individually so i think that is a backdrop against which education programmes were doing. And the other context is also situation in the country. There was a lot of poverty and a lot of development issues were taken up. Projects were intended with the development in the early 70s when working with intermediate technology were coming from UK and we were doing life projects in India like coal burning stoves without smoke; these are projects done in the early 70s. It is difficult to say but projects that have been done like milk delivery system with combination of bicycles, vehicles thing like that working with cooperation 1974 we worked with cooperative milk federation Emule become world biggest dairy cooperation but the whole process of sustainability in 1974 we have task design a symbol, visual identity but in that process we also involved in the product design part, milk rending machine, milk carrying containers, track systems create the whole system. Dr. Kudient was in charge of activity but I was familiar to do branding and give a visual identity to the firm. But along we were also talking about advising them we need to take on this kind of role I design the milk container for personally in 1974.

The first course started than the graduate programme 1970 the first undergraduate programme in design in India

Sustainable design was already on the table at that time.

G-When was it officially started to talking about?

R- Even not today we do not have an official dictate... we are always doing it and we will continue to do it. We have a label on it or not, but there are courses that we have offered already in 1970 since the undergraduate programme was started. I think in 1972 the first undergraduate foundation programme started typical Bauhaus tradition; composition, colour, drawing, materials, basic design the whole box but the faculty in India Culture this not well enough. You need to have more you need people to real issues on the ground the problem facing and what we are doing. so one course in that time called Minority Exportion students go into the field in the city and actually draw, draw live in the city, they sit in the city and draw and make this formal drawings situations, contexts, come back and build a structure.....that course evolved when by the time 1974 or 75 it moved out of the city into the village. Students went as a group to village and stayed there for 2 weeks, did drawings live there and they had discussion in the evening come back. The idea is looking at all the access of environment we were looking at multi model interaction of mini modalities on to understand the all context the social, the economic, the production, the relationship between education and occupations, activity of other people, their involvement to ground, the famine every culture all of them put together came back to the sense of understanding so package to real world. so I would imagine that is the very first engagement with real world economics and real world flow of information and culture, that course called in minor group exportation and went on by the names minor group perception different teachers came in group of teachers went through them so not one teacher then they came back. And all the other courses got influenced by that exposition.

On the other side in the digital design discipline the search for cultural connection was also taking place they were going out into the field to study crafts and the crafts studies also have a complement of sustainability because they are looking at how do you make, basically they are open perspective taken up because you want to bring occupations to people bring livelihoods to people and then to make sure it is not just that kind of thing it is something they can build from and sustain itself so it was dawn through design and product diversification .. community .. you understand tools, capability the sources of materials and potential markets and then come back

in design it was never a theoretical engagement it is always a practical engagement but resulting in products and testing of products so in 1975 a major project was done which is also which is a case study.

G-What was the motivation behind all these kind of understanding of sustainability?

R-A lot of interactions, a lot of debates and discussions were happening in the faculty for instance in 1975 pointing in that direction visible from outside it encouraged more projects towards in the direction of real world application in the sense that reality on the ground rather than making hypothetical nice models--nice European magazines beautiful products, cars foam models--of course we love those drawings what those it do for girls who is going to school. What does it do for a man in the village? What does it do to a girl who is now entering into maturity she hasn't got an education but her body is changing she doesn't understand it how do you then communicate to her and so on real issues on the ground and then looking at the crisis that country is facing the population grow, uncontrolled grow, poverty on one side, absent of access to education, absent of access of many other things all these become very complex social, political and economic issues. These became the foundation on which all the design programmes. Every course would be evaluating basically how would contribute to those questions that is sustainable thinking and that is the beginning. We are talking about even 1970s. It is still heartbreaking. I don't know any place in the world actually doing these kinds of things very consciously and we are debating at the moment. It is 60 faculties at that time. Meetings going on every year 2 meetings, 2 days full day meetings records of those meetings have never been published. They are intensive meetings discussing all these issues. It comes back into the classroom then class gets modified. what is offered in the class has changed it is reoriented---in 1979 there is another major event which has been documented---UNIDO (United Nations Development Organisation) ICSID (The International Council of Societies of Industrial Design) conference on development in 1979. Victor Papanek attended that meeting at my school so did many members were existed in 79 many member of the UNIDO of the United Nations. All were sitting there it was conducted by the school. It was coordinated by Helene de Callatay, former Chief Executive of ICSID. In I designed the auditorium for that event. I got an opportunity as a young designer. There were 14 more case studies.

G- What was the aim of the conference?

R- Design for development. The first ever design for development conference in the world that brought together many people in the event for the first time. It was absolutely revolutionary kind of event and we were there. We had people from Israel we had people around the world; Germany, America, thoroughly international conference historical reports of our school some of these are unpublished reports.

G-How did the design education evolved through 80s and 90s?

R- In 79, I got engaged directly in the issue of sustainability because I started to do---project. My first project into the field was in 77. In 78, I went to Japan as part of a world class consume meeting. How they were using it not in a traditional sense but also looking how---going forward. Then in 79 we facilitated with our own project proposal. 79 field work started, 81-82 search finished. 86 booked published shows future directions what we intended to do. There is another book Katlamara Caluk Book that shows one project done underground using material. Model was developed in 95 current projects going on.

Complete life cycle management using an actual material with the same intension there happened in 1975.

What we had done was-MULE case study- entering into the village helping to people find out all the linkages with their life and their product and how they can do it and developing that both social exploitation as well as material and other exploitation and cultural issues are also so the lessons that you learnt from Acebace case was that there is huge complexity in time to manage one idea there and the other we have to connect all the dots. The same procedure applied into the Bamboo story because if you apply and do something intentions make it sustainable. At one level you have to eliminate materials which would require other kind of processes and access maybe difficult and so on. So in Acebace the first little my students have done this project and later on she became my colleague on the project. She worked with me on Bamboo project which is documented in diploma project.

Acebace project it was not a student project, it was a lager institutional project there is a school of management, a school of design getting together to do a project to find out whether design and management can be introduced to village, level and to create a university this called rural university project, Ela and rural university project all together it was led by student project. In the first cycle it was a student diploma

project in the second cycle it was a professional project in the third cycle more students more faculty involved. 1975 to 2005 they have many cycles. Very sustain involvement people in the field and they were calling us to come in when they needed help. Our principal leader of the project his stated principal was that he should become dispensable in the process of engagement so a new taken development project this is a case setting model so that you can become completely dispensable. So you don't will dependencies so if you will dependencies, the word sustainable would not be used in this context. intentions are very much better than one to be self sufficient, self confident and self motivated to be able to go forward even though they were in poverty, without education, illiterate then they can learn without going to university and without getting a degree and PhD. but the ultimate tool was through learning and learning by doing and that was what was established the same model have been applied for the number of projects in the class so we went on to do this. This is diploma project and this could bring students into engagement with real things and they find out the answer from there. That was 1975-76 graduation projects.

People they had the students they became the members of the association that association then came make in later years a commission design has to go in so they had been self confident and believe that in similar things there were many other events happened. So in many classes similar things have been tried on. Once something successful in another thing then the group of people in textile class do the same thing...other product industry ...bamboo.

Over the years we did many other projects. This product one of the first product for instance model have done sustainable hook without using any other material it is entirely bamboo. Just one pieces of bamboo very limited to access. For the sake of people put in a hundred leader into a business, you can start a business that is all you need can think of do it if he has the motivation -if he not he regrets starting- once started does not stop again. A kind of encouragement that it is a highly saleable. These kinds of things in 1975.76 Acebace project.

In 1978 I did another project which was the turn wood into toys project for a south Indian village, intention was to bring design into that village and to help again the same kind of people. people is different, different area, different language, different situation, different pulses, different material but principals are the same that is can

you find out what to market, where to market, what kind of thing, what feature ---- also the similar kind of constraints were taken up for instance when I did the toy I did everything is one species of wood. Single machine work which is the simplest of production. This is the bullet that means to kneel. A piece of wood, bamboo stick and a rock; that is it. And they are ready you can do very primitively faster than rapid prototyping. He sits down with his knee two pieces of wood lie down on his side. He picks it up put this thing and put it together. It is so simple. With the skill associated with that products.

This one shows the range of products that we actually delivered we went on much more complex product but all of them have the same principal. No metal, very simple joints. It is very manageable by that person and that is the criteria---ideal products that will be needed in local area and also export to market to other countries. That is the plantation which is now taken off. We also built an institute to train such people. It is not just bring the products we go to the larger layer educating, training, building up, and practical it is not building the theory, this is building the activity and demonstrating it can work-if you don't have credibility nobody asks you. It has to work if you fail twice then you are not able to convince anybody. Step by step. Then you get machines you can make more complex products. We took it to trade fairs. This the another project again bamboo but by laminated bamboo boards this time. 40 students have done their thesis in bamboo.

All the senior level projects over the last ten years. We have sponsored. We were able to travel to the field, go to different parts of the country, cover the cost of travel, stay, material, experimentation and they have come back and made products and those products have gone back into the field they are in production. They have been made. The students are not only giving lectures but they actually experiencing in the field. Very difficult to understand this context, need to face the reality itself in the field and experience it.

G-We have talked about the conference, what else can you talk about the critical events?

R-The conference was major event. There were too many after that too many. Since 2000 we have DRE international conference run by the school at the international level. Industrial design into the industry into government that is always going on that

is another channel. I think major events are earlier internal faculty meetings. I have my own notes in two days meeting I have 60-50 pages notes. It happens normally 2 or 3 days before the beginning of a semester. Many of the issues what will we teach this year, what were the problems of last year, how was it done, which other courses went very well, which not well, what are the strategies this year, which courses shows a new directions. Then people go back into the classrooms and try new things. Every 6 months we have cycle of such meetings. Feedback loops about what is happening.

Then we have student meetings. Many students quite actively involved in entire student community meet in the faculty. They may complain about courses, if there is a pressure group within the students. There are disciplined meetings, quite democratic in that sense but also is managed by people politics, many other dimension. It moves the education in certain direction the feedback loop very visible one but unfortunately not documented.

G- According to your observations how can you tell about sustainability issues in the department? Has it been increased or remained constant?

R- It has increased now much more because many departments actually offer formal courses in sustainability. Last 6-7 years it is more popular. We had Manzini coming here and doing workshop at school. John Tackara is coming and doing workshop. I coordinated Tackara 's workshop in 1999 and 2000 he came. Doors of Perception. He and his group came to India. They were looking at a platform to start doors India, DOORS EAST they called. Before that was done at school. It was an elective workshop but many students chose it. It was a week intensive workshop.

G-Besides that what kind of studio works, like hands on works about sustainable design, which has lifecycle understanding, about the theoretical origin, did you have as a course?

R-We did a number of courses. In product design there have been number of courses. number of individual teachers were taken special interest in the subject for instance last year teacher came here from Turkey. He teaches a course sustainability, talks green design, eco design, eco system and different systems theory have been taught since 1975-76 on the most influential book came in that time 77-78 Stafford Beer, Platform for Change: A Message from Stafford Beer, John Wiley & Sons Inc,



London, 1975. His work in building a complete national economic model for a sustainable economy. First experiment in the world, ...material, aesthetic, function, technical first order of design...science, economy, society, linguistic means semiotics second order of design, political, cultural oriented third order of design...dealing with entire culture not with of economic situation.

Around the same time Papanek is also talking about Design for Real World, not yet talking about sustainability, elements of those arguments are there in 77-78 Papanek came by.

G- Collaborate with other institutions how do you exchange your experience

R- Besides Provin Nana. There is another teacher who has been involved with ---- and working with him Cacan Niva. Many other teachers did that connection.

G-Any official connection with the any other department

R-We have a agreements with 23 universities in the world and we have exchange programmes with the students and faculty exchange. On the sustainability partially connected but not directly connected. But in terms of subjects taken up. Now for instance one of the main platforms for sustainability issues--is with our association with RMIT in MELBA. Complete bench of product design students last 3 years every year they have gone there. All the projects are sustainable. car shading systems, opposite of carnivores you have local eaters local food, build web-sites, build print material, solve transportation issues, food issues with students from RMIT they also came to and took projects with India all these not clearly documented but they are happening.

G-Are these mostly about students and exchange?

R-We are constantly working on it energy issues, more efficient products but also system of managing industrial processes, domestic equipments.

G-How can you exchange your experiences as a teacher about sustainability with the other teachers they have any collaboration any exchange?

R- Yes, we have, with workshops. Manzini had come there and done 2 workshops. "Doors of Perception" is another one. Exchanges have happened every year. People go and attend doors east was sponsored. You need to come there and meet people. Go over the files. We have publications for instance I involved in structure in

1989.all the thesis, projects of that year have publishes as a book and every year after that it has been published. For the first 7-8 years I was involved along with my wife and some of colleagues.

It is European school system. It is all about the country we don't fit in the European format. We have a complete autonomy to change the course overnight. For instance I have been teaching directing my course for sustainability. This year we have 4 courses and this is a 2 week course and a formal course on which students have introduced to look at the concept of water and to understand it. This is postgraduate cross-disciplines course.

Industry, water in agriculture, water in public use, water hot spot in India from satellite mapping.

This is for the basic design course in foundation, for undergraduate students.

Projects related to food solutions, urban food production system, harvesting system, food recycling...

G-How can you categorise the approach of your department on sustainable design among the options which is life cycle approach, design for environment approach,...

R- It covers all of them and covers each one quite in depth. They are not separate. It has always been part of the world. Since 70s it is always there. It is not something new. School has always been talking about it.

G- It is a bit weird talking about integrating sustainability in industrial design education because it should be already there.

R-It should be there it is not there you are doing something fundamentally wrong.

G-What do you think about the future, how it is going to evolve?

R-This is one blog you can through if you wish it is called design concepts and concerns and the other one is my other blog Design for India which also has a lot of content. Agriculture and harvesting system World economic forum you can find Keywords that I use strategic design management.

G- Finally, for example we have about 10 courses just in UK just on specifically about sustainable design, sustainable product design or some in other countries. What do you think how is going to happen next. Do you think there are going to have more

departments on sustainable design or more in graduate level? How is going to evolve according to you ?

R-School will create courses to respond to demand which is coming up both industry as well as from research and from the students. So I would imagine that more and more offerings will come out of that but my own feeling in that sometimes those things become more slogan type of work not very deeply. Finally the quality will only come by both side start looking critically to what offered and demand will improve the quality by competition and reputation. I have no idea about global education evolves but I know about my school. Design for business, design for people, design for society, design for good government. I was invited to London to speak about design cities of the future.

G-In my point of view, as well, if you are missing sustainability in design education that means you have a kind of problem in the basic. So I am surprised about how many departments I have found just about sustainable design, sustainable manufacturing, and innovation.

# APPENDIX A.8: Posters of Sustainability for Davos 2009

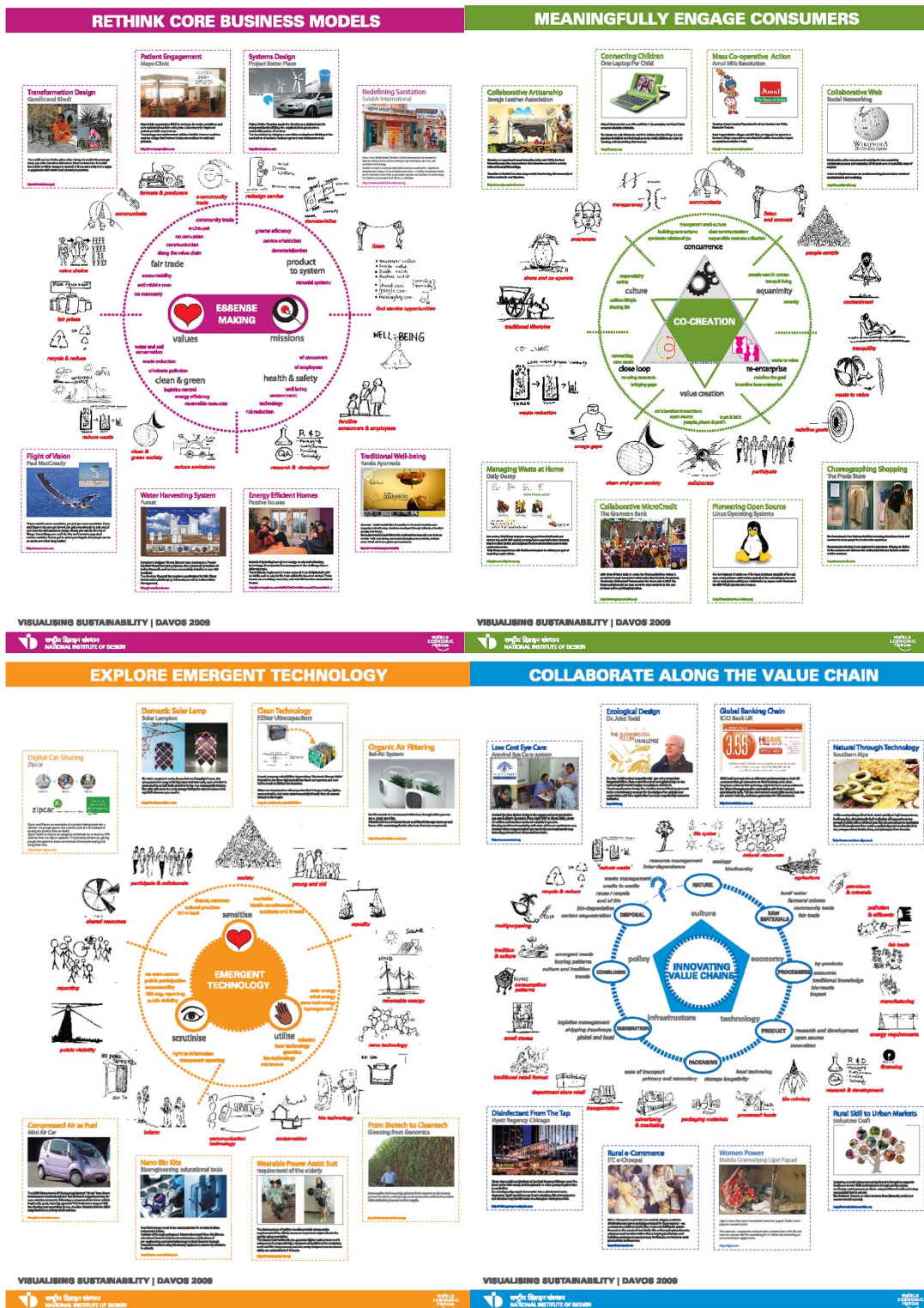


Figure A.8.1: Posters of Sustainability for Davos 2009 - IV

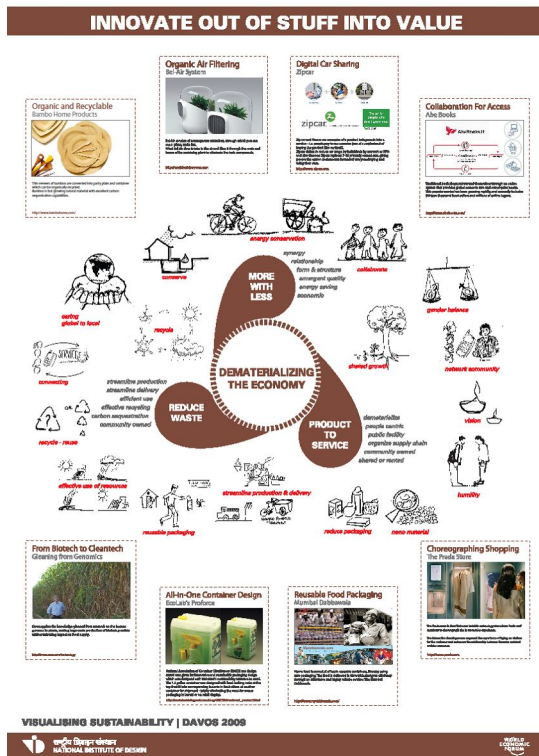


Figure A.8.2: Posters of Sustainability for Davos 2009 - V

## ***Questionnaire Results - Participant 1***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Male

**Country of Origin:** germany

**Country of Residence:** germany

**Academic Progress:** Masters Degree

**Educational Background:** psychology, philipps university marburg

**Current Position(s):** research staff, wuppertal

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Undergraduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

Less than a year

**What motivated you towards working in sustainable product and service design education?**

education, parents, green party

**What was your first involvement in sustainable product and service design education?**

1st sustainable summer school, wuppertal, The Wuppertal Institute

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2000

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

The Wuppertal Institute

eco rucksack

co2 footprint

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

The Wuppertal Institute, bmbf, CSCP - Center on sustainable consumption and production, ecosign - Akademie für Gestaltung,

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 2***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Male

**Country of Origin:** Germany

**Country of Residence:** Germany

**Academic Progress:** Doctoral Degree

**Educational Background:** Dipl.-Ing., Aerospace Engineer, Space Systems Institute, University of Stuttgart

**Current Position(s):** PhD student and Junior System Engineer, Faculty of Science, Technology and Communication, University of Luxembourg, "Wave-constrained Design Methodology for Space products"

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

Less than a year

**What motivated you towards working in sustainable product and service design education?**

own experience in professional life

**What was your first involvement in sustainable product and service design education?**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

**When was the programme you are currently involved established?**

2009

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**



Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Pahl, Beitz "Engineering Design"

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

PHD-DESIGN@jiscmail.ac.uk; Design Society; uni.lu

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level.

## ***Questionnaire Results - Participant 3***

### ***Part I***

**Your Name (Optional):** Susiane

**Gender (Optional):** Female

**Country of Origin:** Brazil

**Country of Residence:** Brazil

**Academic Progress:** Masters Degree

**Educational Background:** Master Design

**Current Position(s):** UFPE

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

Less than a year

**What motivated you towards working in sustainable product and service design education?**

My graduation degree

**What was your first involvement in sustainable product and service design education?**

at university, in 2002

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2004

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

books

websites

methods

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

e-mail groups

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 4***

### ***Part I***

**Your Name (Optional):** Lu Wanqing

**Gender (Optional):** Female

**Country of Origin:** Shanghai China

**Country of Residence:** Wuxi China

**Academic Progress:** Masters Degree

**Educational Background:** master degree, industrial design,

**Current Position(s):** JiangNan University, Industrial Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

Less than a year

**What motivated you towards working in sustainable product and service design education?**

深泽直人 · Donald A. Norman 《Emotional Design》

**What was your first involvement in sustainable product and service design education?**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 5***

### ***Part I***

**Your Name (Optional):** uchil

**Gender (Optional):**

**Country of Origin:** india

**Country of Residence:** india

**Academic Progress:** Masters Degree

**Educational Background:** 2009

**Current Position(s):** doctoral student

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

Less than a year

**What motivated you towards working in sustainable product and service design education?**

climate change

**What was your first involvement in sustainable product and service design education?**

bicycle design

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Practice oriented (studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

forums, conferences

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level.

## ***Questionnaire Results - Participant 6***

### ***Part I***

**Your Name (Optional):** wilma van boxtel

**Gender (Optional):** Female

**Country of Origin:** The Netherlands

**Country of Residence:** Australia

**Academic Progress:** Bachelors Degree

**Educational Background:** The Design Academy Eindhoven The Netherlands, graduated in Industrial Product Design in 1988

Marketing NIMA A Eindhoven The Netherlands 1991

Cert IV TAA (Training and Assessment) Certificate to teach in VET sector Vocation Education Training) Perth Austra

**Current Position(s):** Curtin University Perth Humanities Department - Product/Furniture/Jewelry Design and Interior Architecture

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

I am trying to work sustainable all my life as I love nature and want to keep everything as healthy as possible. Therefore i work with natural materials and are really focussed on everything going on around me. Since becoming the o2 Liaison for Western Australia in 2007 I've set up my own blog [www.o2wa.blogspot.com](http://www.o2wa.blogspot.com) with all kind of info on sustainability. I've also set up the Perth Green Drinks in 2007. I am lecturing at Curtin Unviersity since 2005 and end of 2007 was asked to set up the sustainable design unit.

The C2C concept is one of the best for product design.

**What was your first involvement in sustainable product and service design education?**

I set up the unit Sustainable Design and lectured it for 3 semesters now to second year students design at Curtin Univeristy, first and second semester in 2008 and first semester in 2009. It would be a unit for only the first semester of the year, but because of the popularity at the start we had to do not only two classes at the first semester but also an extra class in the second semester.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

No idea



**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

I established it myself end 2007, early 2008

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

DfE

C2C

Product Life Cycle analysis

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2, Green drinks, LinkedIn, local sustainable groups, building environment, production environment

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

**Further Information / Comments**

Hi Gulden,

I would be very interested in the outcome of this research. Is it possible to get to read your results?

Kind regards, Wilma

## ***Questionnaire Results - Participant 7***

### ***Part I***

**Your Name (Optional):** idil gaziulusoy

**Gender (Optional):** Female

**Country of Origin:** Turkey

**Country of Residence:** New Zealand

**Academic Progress:** Doctoral Degree

**Educational Background:** B.Sc. Petroleum Engineering, METU, 2000

M.Sc. Industrial Design, METU, 2003

**Current Position(s):** PhD student in University of Auckland, Civil and Environmental Engineering Dept, Sustainability Engineering Programme

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Because we all need to work towards creating a sustainable future for human society... Sustainability through design is my passion; design being a particular way of thinking and acting and I take it very broadly now (than I did 5 years ago).

**What was your first involvement in sustainable product and service design education?**

METU, Part-Time lecturer for 3rd year elective "Environmental Considerations in Product Design", 2004

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

My current program is not directly relevant but METU ID where I did my M.Sc. and thought, was established 30 years ago.

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Ann Thorpe's <http://www.designers-atlas.net/teach-guide.html>

New Business for Old Europe

Product Service Systems as Sustainable Solutions

System Innovation for Sustainability 1etc.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Not specifically for education related purposes but:

I am a member of O2 mailing list, it's linkedin group

I established a professional network for Turkish professionals working in the field of sustainable design/production/consumption <http://O2Tukiye.ning.com>

I try to give presentations in Turkish design schools whenever I'm in Turkey to increase awareness, motivate young researchers to research in this area and to inform faculty members about new developments.

The particular issue about collab is not how we collab with other designers/design institutions but how we collab with other disciplines to solve complex problems and transform our society...

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

I don't have predictions but I hope that sustainability will be integrated into any type of design education. I am not a big fan of "sustainable product design" as a term. I prefer design for sustainability. There cannot be any product sustainable out of its socio-technical context. We simply cannot talk about sustainability of products but the socio-technical system they're a part of. I hope university education will evolve towards embracing transdisciplinary since disciplinary education is hindering endeavours towards establishing a sustainable society (causes reductionist thinking)

**Further Information / Comments**

Good on you Gulden! All the best with your research. Inform me about your findings.

## ***Questionnaire Results - Participant 8***

### ***Part I***

**Your Name (Optional):** Martin Willers

**Gender (Optional):** Male

**Country of Origin:** Sweden

**Country of Residence:** Sweden

**Academic Progress:** Bachelors Degree

**Educational Background:** Bachelor, Industrial Design, Umeå universitet 2005 – 2009

Diploma, Entrepreneurship education, Umeå universitet 2006 – 2006

Bachelor, Visual Communication, University of South Australia 2003 – 2004

Diploma, Engineering - Virtual Reality, Nackademin

**Current Position(s):** CSO Designmeaning.com

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Important for the planet. Design needs to grow into something aiming for true human meaning.

**What was your first involvement in sustainable product and service design education?**

02nordic

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1989

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

designersaccord.com

thenaturalstep

cradle to cradle

papenek

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

through national design organisations, svenskform.se, SVID.se, sverigesdesigner.se

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

**Further Information / Comments**

please email the results of your work

## ***Questionnaire Results - Participant 9***

### ***Part I***

**Your Name (Optional):** Jen van der Meer

**Gender (Optional):** Female

**Country of Origin:** usa

**Country of Residence:** usa

**Academic Progress:** Masters Degree

**Educational Background:** BA Trinity College, MBA HEC

**Current Position(s):** NYU, Adjunct Professor, ITP, If Products Could Tell Their Stories, a Model of Sustainable Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Ray Anderson, Interface Inc. and his books.

Paul Hawken.

The continued creation of products of poor quality and deeply negative social and environmental impact is what motivates me the most.

**What was your first involvement in sustainable product and service design education?**

Guest Lecture at NYU. 2004.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

There is no official sustainability programme, only courses

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Book: Exposed, by Andrew Schapiro

A Hitchhiker's Guide to LCA.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

[www.designersaccord.org](http://www.designersaccord.org)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), systems thinking

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in graduate level.



## ***Questionnaire Results - Participant 10***

### ***Part I***

**Your Name (Optional):** Jairo da Costa Junior

**Gender (Optional):** Male

**Country of Origin:** Brazil

**Country of Residence:** Brazil

**Academic Progress:** Especialist

**Educational Background:** Bachelors Degree - Industrial Design (UNIVALI),  
Especialist Degree - Graphic Design (UNIVALI)

**Current Position(s):** Teacher - Faculdades Barddal de Belas Artes

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

90 percent of the world's population is living below the standards of quality of life, consuming less than the environment available to them. Design is devoted mainly to the 10 percent consume inadequately the earth's resources. Who most deserves our attention? This is mais motivation.

**What was your first involvement in sustainable product and service design education?**

Teaching Ecodesign for Industrial designers e Sustaineble for architctures.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

Industrial Design - Graphic and Industrial Designers education.

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

In my classes I always try to have at least three features:

Powerpoint presentation.

Multimedia presentation.

And supporting documentation.

This material is based on books, movies, websites, tools, etc..

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

This has not been applied.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

**Further Information / Comments**

Congratulations! Good Work! Good questions!

## ***Questionnaire Results - Participant 11***

### ***Part I***

**Your Name (Optional):** Ulla Käs

**Gender (Optional):** Female

**Country of Origin:** Germany

**Country of Residence:** Germany

**Academic Progress:** Masters Degree

**Educational Background:** Master Industrial design, May 2000, Master of Environmental Education, April 2006

**Current Position(s):** Teacher for Design, mainly focused at sustainable design, design basics, Kunsthochschule Berlin Weissensee, ZGK Konstanz

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design, Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Our common future

**What was your first involvement in sustainable product and service design education?**

Kunsthochschule Berlin Weissensee, Teacher, 2006

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1993

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

MIPS, Wuppertal Institut für Klima, Umwelt und Energie, Okala design Guide, The Beauty of sustainable design, The designers Atlas of sustainability

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2, xing, linkedin

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in graduate level.

**Further Information / Comments**

I look forward to the results!Best Regards Ulla Käs

## ***Questionnaire Results - Participant 12***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Male

**Country of Origin:** Netherlands

**Country of Residence:** Germany

**Academic Progress:** Masters Degree

**Educational Background:** Industrial Design Engineering

**Current Position(s):** TU Eindhoven lecturer/coach, head Theme Virtues & Values

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

econcept.org, Han Brezet TU Delft

**What was your first involvement in sustainable product and service design education?**

student TU Delft, 2000

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2009

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

iso 14062

www.econcept.org

new business for old europe, ed. Tukker, Tischner

c2c

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2, linkedin

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), c2c

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

## ***Questionnaire Results - Participant 13***

### ***Part I***

**Your Name (Optional):** Denis Smitka

**Gender (Optional):** Male

**Country of Origin:** Australia

**Country of Residence:** Australia

**Academic Progress:** Masters Degree

**Educational Background:** BA in Industrial Design, RMIT Melbourne

**Current Position(s):** Lecturer, Swinburne University, Industrial Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Personal beliefs & the recognition of the effects of global warming i.e. draught & carbon emissions

**What was your first involvement in sustainable product and service design education?**

Swinburne University

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

Many years ago i.e > 25 years

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

Practice oriented (studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the focus on sustainability with in all subjects



## ***Questionnaire Results - Participant 14***

### ***Part I***

**Your Name (Optional):** dave

**Gender (Optional):** Male

**Country of Origin:** mexico

**Country of Residence:** mexico

**Academic Progress:** Masters Degree

**Educational Background:** industrial designer

**Current Position(s):** professor of biomimetics UNAM

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

janine benyus, ezio manzini

**What was your first involvement in sustainable product and service design education?**

master in industrial design

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2006

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

www.dott.com

Schumacher College, UK

www.biomimicryinstitute.com

http://biodsign.wordpress.com

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

networks, journals

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

just start teaching ecodesign

then sustainable design

now natural and holistic design

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

ecodesign

global warming

spiritual approaches of today

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 15***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Female

**Country of Origin:** can

**Country of Residence:** uk

**Academic Progress:** Doctoral Degree

**Educational Background:** MA, BA

**Current Position(s):** UofBrighton

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Fuller, Schumacher, Thackara, Hawkens, Shiva, Braungart, Batson, Tufte

**What was your first involvement in sustainable product and service design education?**

n/a

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

n/a

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

<http://www.sd-commission.org.uk/publications.php?id=914>

<http://www.wattzon.com/>

<http://arts.brighton.ac.uk/stibbe-handbook-of-sustainability>

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

ning, working groups, email list

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

## ***Questionnaire Results - Participant 16***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Female

**Country of Origin:** Turkey

**Country of Residence:** Turkey

**Academic Progress:** Masters Degree

**Educational Background:** Bachelor, ID, METU, 2005. M.Sc., ID, METU, 2009

**Current Position(s):** Res. Assist., ID, METU

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

**What was your first involvement in sustainable product and service design education?**

TuDelft, 2007, ms student

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1979

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Practice oriented (studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

none yet

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), lifespan approach including post use scenarios

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

## ***Questionnaire Results - Participant 17***

### ***Part I***

**Your Name (Optional):** Anne Schiffer

**Gender (Optional):** Female

**Country of Origin:** Germany

**Country of Residence:** England

**Academic Progress:** Doctoral Degree

**Educational Background:** BA (hons) Design; Leeds Metropolitan University, Design, 2008

**Current Position(s):** Leeds Met, disability support

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

My father, design tutors

**What was your first involvement in sustainable product and service design education?**

Leeds Met, module tutor for 1st year students, 2009

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 50%

**How would you describe your work in sustainable product and service design education?**

I'm not a tutor, but my research (doctoral study) will most likely have some influence on course work

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**



## ***Questionnaire Results - Participant 18***

### ***Part I***

**Your Name (Optional):** Dan Lockton

**Gender (Optional):** Male

**Country of Origin:** United Kingdom

**Country of Residence:** United Kingdom

**Academic Progress:** Doctoral Degree

**Educational Background:** BSc Industrial Design Engineering, Brunel University, 2004; MPhil Technology Policy, University of Cambridge, 2005

**Current Position(s):** PhD researcher, Brunel University, School of Engineering & Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

1 - 3 years

**What motivated you towards working in sustainable product and service design education?**

Victor Papanek, Buckminster Fuller. Also, I enjoyed Environmentally Sensitive Design course as an undergraduate myself.

**What was your first involvement in sustainable product and service design education?**

Helping with assessment (teaching assistant) on Environmentally Sensitive Design course for design students at Brunel, 2007

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Extensively covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Extensively covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

Around 1987 for Brunel's undergraduate design degrees in the ir modern form, but there was background in craft and design technology teaching courses.

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Lofthouse & Bhamra's work at Loughborough - 'Design for Sustainability: A Practical Approach' book.

My own work on design for sustainable behaviour - the 'Design with Intent toolkit'.  
The Cambridge Materials Selector software (now called CES EduPack).

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

O2 mailing list; Design & Behaviour mailing list (<http://designandbehaviour.com>);  
Sustainable Design network (<http://www.sustainabledesignnet.org.uk>), etc

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 19***

### ***Part I***

**Your Name (Optional):** Timo Rissanen

**Gender (Optional):** Male

**Country of Origin:** Finland

**Country of Residence:** Australia; USA from January 2010

**Academic Progress:** Doctoral Degree

**Educational Background:** Bachelor of Design (Fashion & Textiles), University of Technology Sydney

**Current Position(s):** Lecturer - Fashion Design, University of Technology Sydney; Faculty of Design, Architecture & Building, School of Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

A family interest that goes back more than 20 years

**What was your first involvement in sustainable product and service design education?**

University of Technology Sydney, sessional teaching staff, 2004

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1988

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Fletcher, K. 2008 Sustainable Fashion & Textiles. Design Journeys.

Thorpe, A. 2007 The Designer's Atlas of Sustainability

Hethorn, J. & Ulasewicz, C. 2008 Sustainable Fashion: Why Now?

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Conferences, email groups, direct email, skype

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

## ***Questionnaire Results - Participant 20***

### ***Part I***

**Your Name (Optional):** Carl Hastrich

**Gender (Optional):** Male

**Country of Origin:** Australia

**Country of Residence:** Canada

**Academic Progress:** Bachelors Degree

**Educational Background:** Finishing Bachelor in Industrial Design.

Started this in Australia, Swinburne National Institute of Design. Worked for several years in Toy Design, then moved to Canada, where I am finishing my degree at Ontario College of Art and Design

**Current Position(s):** Sessional Lecturer - Ontario College of Art and Design, Faculty of Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

My first hand experience with manufacturing in China through Toy Design. Janine Benyus, Amory and Hunter Lovins, Paul Hawken, William McDonough, Michael Braungart, John Thackara

**What was your first involvement in sustainable product and service design education?**

Ontario College of Art and Design 2005

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

Biomimicry - 2004.

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

[www.asknature.org](http://www.asknature.org)

[www.worldchanging.com](http://www.worldchanging.com)

Biomimicry Design Process

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

We have tried everything, but nothing has ever worked long term, due to lack of support.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae., It will become a norm within design process.

## ***Questionnaire Results - Participant 21***

### ***Part I***

**Your Name (Optional):** Carlos Jimenez

**Gender (Optional):** Male

**Country of Origin:** Spain

**Country of Residence:** Spain

**Academic Progress:** Doctoral Degree

**Educational Background:** Bachelors Degree in Fine Arts (specialization in Design).  
University of the Basque Country (Spain). 2002

Certificate in Pedagogical Aptitude. (CAP). Universidad Complutense de Madrid  
(Spain). 2003

Advanced Studies in Design (DEA - equivalent to current

**Current Position(s):** Director of the Department for Product and Interior Design.

ESDi Sabadell Design School (adscrit centre to University Ramon Llull). Barcelona.

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

BOOKS:

- Victor Papanek. "Design for the Real World: Human Ecology and Social change".

- Gui Bonsiepe. "Diseño de la Periferia" (Peripheral Design?).

- Ezio Manzini. "Artifacts".

Later on, different books arrived, such as "Cradle to Cradle" and others...

PERSONAL:

I come from the countryside where my family have lived from the "primary sector" for generations, closed to the natural cycles.

**What was your first involvement in sustainable product and service design education?**

2005. ONG: "Eco-Union: Professionals for the environment". Barcelona. 2005. I was responsible for Ecodesign chapter. ([www.eco-union.org](http://www.eco-union.org))

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1989 (General programme). 2003 (more or less, Ecodesign issues).

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

BOOKS:

- Victor Papanek. "Design for the Real World: Human Ecology and Social change".
- W. McDonough & M. Braungart. "Cradle to Cradle".
- Rieradevall & Vinyets. "Ecodesign and Ecoproducts".

WEBSITES:

- [www.resseny.blogspot.com](http://www.resseny.blogspot.com)
- [www.worldchanging.o](http://www.worldchanging.o)

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

- [www.o2.org](http://www.o2.org)
- [www.o2spain.org](http://www.o2spain.org)
- etc.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level., Sustainable product design



courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

**Further Information / Comments**

Hi Gülden Malya!

It's Carlos Jimenez, from ESDi Design School ([www.esdi.es](http://www.esdi.es)) in Barcelona. We met at Lancaster last June. Hope your research project is going Ok! Good luck and you can count on me if you need it.

Best Regards,

Carlos

## ***Questionnaire Results - Participant 22***

### ***Part I***

**Your Name (Optional):** Mugendi M'Rithaa

**Gender (Optional):** Male

**Country of Origin:** Kenya

**Country of Residence:** South Africa

**Academic Progress:** Doctoral Degree

**Educational Background:** Bachelors in Design; Masters in Industrial Design; Postgraduate Diploma in Higher Education & Training; Doctorate in Universal Design.

**Current Position(s):** Cape Peninsula University of Technology; Faculty of Informatics & Design; Dept of Industrial Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design, Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

Ezio Manzini; John Thackara ('In the Bubble'); Carlo Vezzoli; Victor Margolin; Adrienne Viljoen; Ivan Illich ('Tools for Conviviality'); & David Stairs (Designers without Borders).

**What was your first involvement in sustainable product and service design education?**

Cape Peninsula University of Technology; Senior Lecturer; 2005

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

2005

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Creative Communities for Sustainable Lifestyles < [www.sustainable\\_everyday.net](http://www.sustainable_everyday.net)>; Network on Design for Social Innovation and Sustainability (DESIS); Learning Network on Sustainability (LeNS); Doors of Perception.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Network on Design for Social Innovation and Sustainability (DESIS); Learning Network on Sustainability (LeNS)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

N/A

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Changing the Change conference 2008 in Turin, Italy.

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

N/A

**Further Information / Comments**

Good work - I wish you every success!

## ***Questionnaire Results - Participant 23***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Female

**Country of Origin:** Chile

**Country of Residence:** Australia

**Academic Progress:** Doctoral Degree

**Educational Background:** Industrial Designer, Metropolitan Technological University, Chile, 2003; Certificate in English for Professional Purposes, Metropolitan Technological University, Chile, 2003.

**Current Position(s):** PhD Student in HCI in Public Spaces, University of Technology Sydney, Faculty of Design Architecture and Building

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

The need of lifting the quality of our design professionals, aware of their environment (both the natural and the built one) and with a responsible attitude.

**What was your first involvement in sustainable product and service design education?**

Metropolitan Technological University, Chile, 2001

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

2004

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Field Studies / Ethnography

Papers (Journals and Conferences)

Websites (NGOs, Governmental, news, blogs)

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Online freeware collaboration and networking tools (apart from email communication: messenger, facebook, blogs); Skype and/or Oovoo; Shared desktop softwares.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level.

## ***Questionnaire Results - Participant 25***

### ***Part I***

**Your Name (Optional):** Juliane Münch

**Gender (Optional):** Female

**Country of Origin:** Germany

**Country of Residence:** Germany

**Academic Progress:** Masters Degree

**Educational Background:** German Diplom at school of arts and design Kassel 1995

**Current Position(s):** own business (CEO)

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Certificate - Industrial Design, Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

it was simply a job to earn money after studies..

today I teach industry and craftsmen to do good product- & service- & businessdesign

**What was your first involvement in sustainable product and service design education?**

Prof Jonas at Burg Giebichenstein - University of art and design Halle as Student in 2001

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1990s

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

<http://www.sociovision.de/loesungen/sinus-milieus.html>

[http://de.wikipedia.org/wiki/Christopher\\_Alexander](http://de.wikipedia.org/wiki/Christopher_Alexander)

[http://www.allworth.com/Brigitte\\_Borja\\_de\\_Mozota\\_s/208.htm](http://www.allworth.com/Brigitte_Borja_de_Mozota_s/208.htm)

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

[www.designresearchnetwork.de](http://www.designresearchnetwork.de)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Systemdesign: <http://141.51.12.168/wp/>

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

it is fundamental part of design lessons - but no specific courses.. it is taught by doing design projects..

## ***Questionnaire Results - Participant 26***

### ***Part I***

**Your Name (Optional):** Corminboeuf

**Gender (Optional):** Male

**Country of Origin:** Switzerland

**Country of Residence:** Switzerland

**Academic Progress:** Masters Degree

**Educational Background:** Industrial design Heaa 1997 - old degree between BA and MA, Sustainable development CAS 2005

**Current Position(s):** Geneva University of art and design, design faculty, all department, course of methodology in BA and MA, course of sustainable design in BA, course of responsible design in MA, research in sustainability

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Certificate - Sustainable Product Design, Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

personal experiment

**What was your first involvement in sustainable product and service design education?**

La Chaux-de-Fonds University of design, Swiss, teacher, 2002 to 2005

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2007

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**



0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Yes course of ETHZ

Own experiment

Sustainable network in the close area

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Collobartion with all Geneva and Lausanne University, website under in construction

[Http://head.hesge.ch/durable](http://head.hesge.ch/durable)

**How can you categorise the approach of your department/course on sustainable design among these options?**

ethic and self reflexion

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundemantal part of the product design curriculae.

## ***Questionnaire Results - Participant 27***

### ***Part I***

**Your Name (Optional):** Michal Eitan

**Gender (Optional):** Female

**Country of Origin:** Israel

**Country of Residence:** Israel

**Academic Progress:** Masters Degree

**Educational Background:** Business and Sociology - Hebrew University, Jerusalem  
Israel, MA, Urban Planning, Technion Israel

**Current Position(s):** Beztalet Academy of Art and Design, Jerusalem, Lecturer,  
entrepreneurship in Sustainable Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

natural Capitalism, Cradle to Cradle,

**What was your first involvement in sustainable product and service design education?**

Betzalel Academy of Art and Design, lecturer, 2006

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2006

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Practice oriented (studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Websites, Books, Confereneces

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 28***

### ***Part I***

**Your Name (Optional):** Enda O'Dowd

**Gender (Optional):** Male

**Country of Origin:** Ireland

**Country of Residence:** Ireland

**Academic Progress:** Masters Degree

**Educational Background:** BSc. (Polymer Technology) Athlone IT Ireland; MSc (Engineering Product Design) Bournemouth University UK

**Current Position(s):** Lecturer

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

Ireland's explosive economic growth has clearly shown the move from rural agricultural society to consumer society

**What was your first involvement in sustainable product and service design education?**

Teaching eco-properties of materials

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1976

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Cradle to Cradle

The Natural Step

CES Eco audit tool

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

linked in

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 29***

### ***Part I***

**Your Name (Optional):** Ricardo Sosa

**Gender (Optional):** Male

**Country of Origin:** Mexico

**Country of Residence:** Mexico

**Academic Progress:** Doctoral Degree

**Educational Background:** PhD Design (USYD 2005)

**Current Position(s):** Professor

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

crisis

**What was your first involvement in sustainable product and service design education?**

design studio

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2000

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Okala, Lunar guide, Ecuador Constitution

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

web (google docs)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

Started as an innovation course and has developed into a social innovation course...

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

One yet to happen: when sustainability is integrated into all design studios and theoretical courses

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

share the results!

## ***Questionnaire Results - Participant 31***

### ***Part I***

**Your Name (Optional):** Eric Benson

**Gender (Optional):** Male

**Country of Origin:** USA

**Country of Residence:** USA

**Academic Progress:** Masters Degree

**Educational Background:** BFA Graphic/Industrial Design University of Michigan,  
MFA Design University of Texas

**Current Position(s):** Assistant Professor of Graphic Design University of Illinois

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

Cradle to Cradle, realizing the negative impact of my work on the planet/people, Paul Hawken

**What was your first involvement in sustainable product and service design education?**

University of Texas 2007

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**



0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Design is the Problem - Nathan Shedroff

www.re-nourish.com

Method: using what is around you to create

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Facebook, E-mail groups

**How can you categorise the approach of your department/course on sustainable design among these options?**

none

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

There is no program only me teaching the students about sustainability.

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

OKALA -IDSA

Publishing of Cradle to Cradle

Walmart's Sustainability Index

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 32***

### ***Part I***

**Your Name (Optional):** Valerie Casey

**Gender (Optional):** Female

**Country of Origin:** Ireland

**Country of Residence:** USA

**Academic Progress:** Masters Degree

**Educational Background:** MED Yale University 04; BA Swarthmore College 94

**Current Position(s):** Founder and ED, Designers Accord

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

3 - 5 years

**What motivated you towards working in sustainable product and service design education?**

Paul Hawken. Also influenced by my work as a professional designer.

**What was your first involvement in sustainable product and service design education?**

CCA, Adjunct Faculty, 2007

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

2006

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Werbach's PSP

Natural Step

Presidio Model

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Designers Accord network

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

## ***Questionnaire Results - Participant 33***

### ***Part I***

**Your Name (Optional):** Steve Belletire

**Gender (Optional):** Male

**Country of Origin:** USA

**Country of Residence:** USA

**Academic Progress:** Bachelors Degree

**Educational Background:** BFA 1971 University of Illinois

**Current Position(s):** Professor-Industrial Design Southern Illinois University  
Carbondale

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

R. Buckminster Fuller; Cradle to Cradle-William McDonough; Victor Papanek-  
Design for the Real World and The Green Imperative; My own 26 years (Prior to  
academic appointment in 1997) in consulting design and the realization that life  
cycle planning and thinking was absent with regard to environmental impacts-

**What was your first involvement in sustainable product and service design education?**

SIUC 1999-Associate Prof.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

1959

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Okala-Learning Ecological Design (I am Co-author)-Sustainable Minds LLC website I write for this site)- a variety of readings from major books on sustainable design and development-

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

I give workshops at design conferences and at corporate/consulting design offices- Give public presentations at trade show and product-based organizational meetings and gatherings. Already mentioned collaborations with Sustainable Minds LLC and with my Okala Co-Authors Louise St.Pierre and Philip White.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach, Emphasis on life cycle thinking

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

No weblinks-but I have integrated most ecodesign content into a 300 level ID studio course on materials and processes-At the 400 level we attempt to maintain this integration in all studio projects-We also integrate principles and methods in a variety of c

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Publication of Rachel Carson's Silent Spring-The creation of the US EPA-A realization in the early 21st century by major corporations they must develop strategies that support a 'triple bottom line'

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

Already answered

**Further Information / Comments**

You may contact me at for follow-up information as I would like to receive some summary outcome findings from your study-Thank-you!

## ***Questionnaire Results - Participant 34***

### ***Part I***

**Your Name (Optional):** Emiliano Godoy

**Gender (Optional):** Male

**Country of Origin:** Mexico

**Country of Residence:** Mexico

**Academic Progress:** Masters Degree

**Educational Background:** BA in Industrial Design, Universidad Iberoamericana, Mexico City

MA in Industrial Design, Pratt Institute, New York

**Current Position(s):** Professor, Centro de Diseño Cine y Televisión, ID department, Mexico City

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

After working in this field since the mid nineties I wanted to help in incorporating these topics in industrial design courses. Amongst the most influential people were Oscar Hagerman, a Mexican architect and designer, Debera Johnson, chair of the ID department at Pratt, and lectures I heard of Ezio Manzinni.

**What was your first involvement in sustainable product and service design education?**

Pratt Institute, New York, co-teacher of a sustainable design studio with Debera Johnson and Erika Doering

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2004

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Natural Capitalism, Paul Hawken et. al.

Worldchanging: A Users Guide for the 21st Century, Alex Steffen, et. al.

Massive Change, Bruce Mau, et. al.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

We establish an email group of every generation and use that as the primary tool for information exchange. I also encourage students to joining newsletter of places like Treehugger, Worldchanging etc., and also O2 and Design 21SDN

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

0

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in graduate level.

**Further Information / Comments**

I would love to know the results of this study, would you be able to share this with us?



## ***Questionnaire Results - Participant 36***

### ***Part I***

**Your Name (Optional):** Aguinaldo dos Santos

**Gender (Optional):** Male

**Country of Origin:** Brazil

**Country of Residence:** Brazil

**Academic Progress:** Postdoctoral

**Educational Background:** Car Mechanic (SENAI, Brazil, 1984), Civil Engineering (UFPR, Brazil, 1992), MSc on Civil Engineering (UFRGS, Brazil, 1995), PhD on Operations Management (Salford, UK, 1999), Postdoctored on Sustainable Design (Politecnico di Milano, Italy, 2009).

**Current Position(s):** Professor at the Design Department (UFPR)

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

The values I got from my family provided the foundation. My friend Carlo Vezzoli has helped me to understand the design role on a sustainable society and how to achieve that.

**What was your first involvement in sustainable product and service design education?**

research project on recycling (2002)

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

2005

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Carlo Vezzoli, Ezio Manzini and Arnold Tukker

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

LENS - the Learning Network on Sustainability ([www.lens.polimi.it](http://www.lens.polimi.it)).

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 37***

### ***Part I***

**Your Name (Optional):** David Bergman

**Gender (Optional):** Male

**Country of Origin:** USA

**Country of Residence:** USA

**Academic Progress:** Masters Degree

**Educational Background:** BA, Yale Unive 1978, M.Arch, Princeton Univ 1981

**Current Position(s):** adjunct faculty, Parsons the New Scvhool for Design, sustainable design courses in Prodcut Design Dpet., Architecture and Interiors, and in Design+Management

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

**What was your first involvement in sustainable product and service design education?**

Parsons, adjunct faculty, approx 2000

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

NA

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Natural Capitalism

Design + Environment (decreasingly)

Okala (for LCA)

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

O2 (o2ny)

Facebook

**How can you categorise the approach of your department/course on sustainable design among these options?**

combination

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 38***

### ***Part I***

**Your Name (Optional):** Norma Menezes

**Gender (Optional):** Female

**Country of Origin:** Brazil

**Country of Residence:** Brazil

**Academic Progress:** Masters Degree

**Educational Background:** 2 graduations and 1 master degree, from federal universities in rio de janeiro, brazil

**Current Position(s):** department of industrial design, visual communication, teaching green graphic design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

The most concerning part for a sustainable world lies on visual communication and its contents. Though we've been doing good efforts in a technical area, the ads and consumption "isms" of the post modern era, doesn't help very much on turning the game for a sustainable world.

That's why I believe the education of a graphic designer should have this concerns and methods as its main principals.

Hoping having helped on your research,

Best regards,

Norma Menezes, MSc Arts & Design

[www.puridesign.com.br](http://www.puridesign.com.br)

[norma@puridesign.com.br](mailto:norma@puridesign.com.br)

**What was your first involvement in sustainable product and service design education?**

1989 at the Caribbean. When I returned to Brasil in 1991 I came exclusively to hence force these principals in our academic and markets world. What I believe is that in the recent past year, people are using the ism of a consupcion era to make sustainability another fashionism. It seems it all lies on the difference between eco efficiency and eco effectiveness.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

We have a research on sustainable processes for the small and medium industries in rio de janeiro city and I teach fez disciplines on this issue, but we haven't stablished any department to deal with it yet.

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Cradle-to-cradle, McDonough & Baungart

Green Graphic Design, Brian Dougherty

Saber Ambiental, Enrique Leff

Critical Path, Buckminster Fuller amongst many many others

I use my oe]wn methodology to be published soon.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Rede Brasil de Design Sustentável

Justa Trama

Sustainable Everyday Project

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

I cant believe in none of those yet but maybe in brasil we could point the first one. I'd rather be on a developed country. Brasil is killing itself!

### ***Part III***

**Please give a short history of the programme/course you are currently involved**  
As I said my programme and publications already registered are available at my  
cnpq/lattes curriculum.

## ***Questionnaire Results - Participant 39***

### ***Part I***

**Your Name (Optional):** Richie Moalosi

**Gender (Optional):** Male

**Country of Origin:**

**Country of Residence:** Botswana

**Academic Progress:** Doctoral Degree

**Educational Background:** Phd Industrial Design, Queensland University of Technology, 2006

**Current Position(s):** Senior Lecturer, University of Botswana, Department of Industrial design & Technology

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

The love of our environment. Ezio Manzini

**What was your first involvement in sustainable product and service design education?**

University of Botswana, lecturer, 2002

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

Creative communities for sustainable lifestyles

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1



**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Datschefski, E, 2001, The Total Beauty of Sustainable Products, Rotovision, ISBN 2-88046-545-1 Gregory

Papanek, V. (1991), Design for the Real World: Human Ecology and Social Change. London: Hudson. ISBN

Schumacher, E. F. (1993), Small is beautiful: Econ

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Design for Social Innovation and Sustainability

(DESI) network

LeNS <<http://www.lens.polimi.it/>>

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level.

## ***Questionnaire Results - Participant 40***

### ***Part I***

**Your Name (Optional):** miles Park  
**Gender (Optional):** Male  
**Country of Origin:** australia  
**Country of Residence:** australia  
**Academic Progress:** Doctoral Degree  
**Educational Background:**  
**Current Position(s):**

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

many, tony fry, vance packard, victor papernak

**What was your first involvement in sustainable product and service design education?**

Society for Responsible Design, secretary - 1990

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

1989

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

<http://www.storyofstuff.com/dvd.html>

<http://www.designers-atlas.net/>

<http://www.teach-in.co.uk/>

<http://extra.shu.ac.uk/productlife/index.html>

<http://www.designvic.com/sustainabilitykit.aspx>

to name a few

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

prefer personal email

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

It will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

20 years of industrial design at UNSW

<http://www.fbe.unsw.edu.au/>

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Climate change, Unsustainable Consumption and Neo-conservatism and the religious right.

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

some question ambiguous - so may skew your comparative analysis

## ***Questionnaire Results - Participant 41***

### ***Part I***

**Your Name (Optional):** Olof Kolte

**Gender (Optional):** Male

**Country of Origin:** Sweden

**Country of Residence:** Sweden

**Academic Progress:** Masters Degree

**Educational Background:** RCA London, Furniture Design, 1998

**Current Position(s):** School of Industrial Design, Lund University, Master education, direction Sustainable Design, Name of direction: Man & Nature

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

Edwin Datchefski, London doing a workshop at RCA, 1996, Geography of noware, James Howard Kunstler, No Logo N.Klein, Fast food Nation E.Schlosser, The Omnivors Dilemma M. Pollan, Guns Germs and steel and Collaps J.Diamond

**What was your first involvement in sustainable product and service design education?**

2002, Packaging design project for Master students

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

1998

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Books mentioned above

no specific method or procedure, general understanding of the earths systems and our impact (now and historically) on these systems

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

<http://www.vtpi.org/> stockholm environmentatl institute, IIee Lund

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Silent Spring, 1974 Oil crises, 9-11

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 42***

### ***Part I***

**Your Name (Optional):** Arne Remmen

**Gender (Optional):** Male

**Country of Origin:** Denmark

**Country of Residence:** Denmark

**Academic Progress:** Postdoctoral

**Educational Background:** M.A. social science and psykology

**Current Position(s):** Professor, Department of Development and Planning, Aalborg University

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

**What was your first involvement in sustainable product and service design education?**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 43***

### ***Part I***

**Your Name (Optional):** Tara Andrews

**Gender (Optional):** Female

**Country of Origin:** Australia

**Country of Residence:** Australia

**Academic Progress:** Masters Degree

**Educational Background:** B.Arts 1994, B. Design 2001, M.Design Research 2007

**Current Position(s):** University of Western Sydney, Lecturer Industrial design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

Tony Fry and Cameron Tonkinwise

**What was your first involvement in sustainable product and service design education?**

University of Technology, Sydney, casual tutor 2003

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

don't know

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**



Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Theory oriented (lecture based courses )

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Abby Lopes' Design for Sustainability Guide (website)

Ezio Manzini - all of his work especially Sustainable Everyday

Cradle to Cradle

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Society for Responsible Design, Sustainable Education email group, phd design discussion group

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

## ***Questionnaire Results - Participant 44***

### ***Part I***

**Your Name (Optional):** Martin Boulton

**Gender (Optional):** Male

**Country of Origin:** NZ

**Country of Residence:** NZ

**Academic Progress:** Doctoral Degree

**Educational Background:** BA Hons 3D Design Falmouth College of Arts UK., MA Art & Design AUT Auckland NZ, currently EdD in Sustainable Design Pedagogy, University of Auckland

**Current Position(s):** Dept of Design Unitec, Programme Director - Product & Furniture Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Certificate - Industrial Design, Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

My undergraduate course at Falmouth. Studying under Alastair Fuad-Luke and others, Karen Blincoe O2 group...

**What was your first involvement in sustainable product and service design education?**

Falmouth College of Arts 1998-2001

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

1980's

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Design Activism website/book Anne Thorpe

Eco-it streamlined LCA from Netherlands

Centre for Design RMIT Australia - Greenfly streamline LCA online.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

KAREN network - high speed internet

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

**Further Information / Comments**

Good luck with your thesis

## ***Questionnaire Results - Participant 45***

### ***Part I***

**Your Name (Optional):** Erik W. Thomassen

**Gender (Optional):** Male

**Country of Origin:** Netherlands

**Country of Residence:** Netherlands

**Academic Progress:** Masters Degree

**Educational Background:** Ir. IO TU Delft, 1989

**Current Position(s):** Lecturer (see LinkedIn)

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

5 - 9 years

**What motivated you towards working in sustainable product and service design education?**

Parents, Eelco Rietveld,

**What was your first involvement in sustainable product and service design education?**

The Hague Univ., Teacher, 2000

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

n.a.

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

C2C, Ecoscan, LiDS

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

LinkedIn, exchange programme

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved just changed job...**

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

-Introduction of system change thinking

-Conference "Let's Cradle"

...

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 46***

### ***Part I***

**Your Name (Optional):** Leslie Speer

**Gender (Optional):** Female

**Country of Origin:** USA

**Country of Residence:** USA

**Academic Progress:** Masters Degree

**Educational Background:** Bachelor of Science, Industrial Design (BSID), California State University, Long Beach, 1983

Master of Design (MD), Product Design, Innovation, and Management, Middlesex University, 2006

**Current Position(s):** San Jose State University, Assistant Professor, School of Art & Design, Industrial Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

I started working and teaching sustainable design thinking and strategy in 1992 when I participated and co-organized an ICSID Interdesign. I have integrated it into my practice and my teaching since then. As the industry and the available materials have matured I have been able to include more and more into my courses and projects that my students do. Now I include it in all thinking and project work that my students do. Some of the most influential people have been: Jay Baldwin, Steven Skov Holt, Ursula Tischner (and her book Sustainable Solutions), Victor Papanek (The Green Imperative), Paul Hawken (Blessed Unrest; The Ecology of Commerce), Philip White, and all indigenous cultures around the world.

**What was your first involvement in sustainable product and service design education?**

ICSID, Co-organizer of an Interdesign, 1992

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Extensively covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

1950's

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 50%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

1) Okala Curriculum developed by the IDSA (Philip White, Louise St. Pierre, Steve Belletaire) (includes readings, lectures, films, and exercises)

2) Blessed Unrest (Paul Hawkin)

3) World Changing website

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

O2 (<http://www.o2-usa.org/>)

Designers Accord (<http://www.designersaccord.org/>)

IDSA ([www.idsa.org](http://www.idsa.org))

Design for the Other 90% (<http://other90.cooperhewitt.org/>)

Wiser Earth (<http://www.wiserearth.org/>)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

I have been teaching at SJSU for three years (just started my fourth year). Prior to this I taught at CCA (California College of the Arts) and was one of the originators of sustainable design thinking at that institution back in 1995. We developed courses

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

- 1) Paul Hawken's publishing of *The Ecology of Commerce*
- 2) Al Gore's movie
- 3) The development of the Okala Curriculum in the USA

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

I speak and present at IDSA conferences every year. I publish articles about what I do in the classroom and in industry. I also collaborate with organizations (NGO's) and industry (multi-national corporations) on project both inside and outside of my clas

**Further Information / Comments**

Good luck!



## ***Questionnaire Results - Participant 47***

### ***Part I***

**Your Name (Optional):** Tracy Bhamra

**Gender (Optional):** Female

**Country of Origin:** UK

**Country of Residence:** UK

**Academic Progress:** Postdoctoral

**Educational Background:** PhD Design for Disassembly, Manchester Metropolitan University 1995

MSc Manufacturing Systems Engineering, Bradford Univeristy, 1992

BSc Manufacturing, Manchester Polytechnic, 1991

**Current Position(s):** Reader in Sustainable Design, Design & Technology, Loughborough University

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

General interest in environmental issues all my life and when I was looking for a PhD research area realised I could combine my experience with my interest. After finishing my PhD I stayed in academia and began teaching, as there were not many experts in the area there were lots of teaching opportunities

**What was your first involvement in sustainable product and service design education?**

Research Officer at Cranfield University 1996

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

1970s

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Research from our group which covers methods and tools.

Book Design for Sustainability: A practical approach

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Sustainable Design Network

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable Design will be further integrated into all design courses rather than seen as a separate subject

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

In 1999/2000 an optional module on Sustainable Design was introduced into the Industrial Design undergraduate degree programme at Loughborough University. I was a lecturer at Cranfield University but visited to give the lectures. When I joined the department

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

Wrote a book, established this toolbox

<http://www.lboro.ac.uk/research/susdesign/LTSN/Index.htm>

Meet with others via Sustainable Design Network

## ***Questionnaire Results - Participant 48***

### ***Part I***

**Your Name (Optional):** Nicola Morelli

**Gender (Optional):** Male

**Country of Origin:** Italy

**Country of Residence:** Denmark

**Academic Progress:** Postdoctoral

**Educational Background:** Architecture, Università di Napoli, Italy

PhD, Politecnico di Milano, Italy

**Current Position(s):** Associate professor, School of Architecture and Design,  
Aalborg University

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Artefatti, Ezio Manzini, gave me the first inspiration to start a PhD in Industrial Design on this theme and collaborate with Prof Manzini in his courses on Environmental perspectives

**What was your first involvement in sustainable product and service design education?**

Guest lecturer, Politecnico di Milano, 1993

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

Industrial Design

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Ezio Manzini, Luisa Collina, and Stephen Evans, (Ed.), Solution Oriented Partnership. How to Design Industrialised Sustainable Solutions (Cranfield: Cranfield University. European Commission GROWTH Programme, 2004)

Richard Normann, Service Management :

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Service design.wikispaces.com

www.servicedesignresearch.com

nicomorelli.wordpress.com

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for the need approach (Socially responsible design), User centred approach

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainability will be an integral part of design teaching, without dedicated courses

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

At the moment I'm not involved in sustainability courses. I just teach service design and strategic design. Sustainability is part of my teaching

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

The German law on Packaging

The Kyoto protocol

Chernobyl

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

Besides the above mentioned wikies and blogs I just use conferences as an opportunity to discuss this. Otherwise a cup of coffee...

## ***Questionnaire Results - Participant 49***

### ***Part I***

**Your Name (Optional):** Maria Elena Peña

**Gender (Optional):** Female

**Country of Origin:** Venezuela

**Country of Residence:** Mexico

**Academic Progress:** Masters Degree

**Educational Background:** Master of Industrial Design, Pratt Institute. 1992

Técnico Superior en Diseño Industrial, Caracas 1989

**Current Position(s):** o2 Mexico, Tecnológico de Monterrey

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

On 1990, I used to design ABS cases for electrodomestic products. Was at that time when I started to worry about where my designs would end up after their life cycle. On the Master studies I focused on garbage in New York city. There were few people involved in these interests. Wendy Brawer helped me to get more information. Any Design course I teach is focused on Sustainable Design, even if it is, Methodology, Furniture Design. Also every project I am involved is a Sustainable Design project, if the client asks for it or not.

**What was your first involvement in sustainable product and service design education?**

Universidad de las Americas, Puebla 1996

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

This semester I am not teaching

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Practice oriented (studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Story of Stuff, The Bridge methodology, Cradle to Cradle

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2 Global Network, Core77, o2spainI do not have the other links now.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

1

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

It is a needs oriented course. To solve real problems, with well applied materials.

Looking to reuse and reduce but no recycling.

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 50***

### ***Part I***

**Your Name (Optional):** Frank FISHER

**Gender (Optional):** Male

**Country of Origin:** Australia

**Country of Residence:** Australia

**Academic Progress:** Masters Degree

**Educational Background:** BEng(Elec)(Hons) UMelbourne, 1965; BA(Geog)(Hons) UMelbourne, 1976; MEnv,St. ULund, 1975

**Current Position(s):** Professor of Sustainability, Faculty of Design, Swinburne U.

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Thought it'd be most effective there & recognised a need to be effective in the late 1960s.

**What was your first involvement in sustainable product and service design education?**

Lecturer in Environmental science, Monash U., 1978

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2004

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

40 years of experience & reading.

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

All possible ...

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

Sorry don't know what you mean - but the only profound change was in 1979 when we (I!) had to begin teaching about systems thinking and the social construction of environmental degradation and transformation.

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

What is critical?

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

I don't teach in design as such so could not respond to some questions.



## ***Questionnaire Results - Participant 51***

### ***Part I***

**Your Name (Optional):** Rainer Züst

**Gender (Optional):** Male

**Country of Origin:** Switzerland

**Country of Residence:** Switzerland

**Academic Progress:** Doctoral Degree

**Educational Background:** Dr. sc. techn. ETH

**Current Position(s):** docent at ETH

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

own experienecs 20 years ago in industry and private

**What was your first involvement in sustainable product and service design education?**

ETH Zurich

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Extensively covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Extensively covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

2000

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

books, brochure with examples, practical cases

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

we have an experiences group with about 30-40 experts from industry and university

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

integrated in already existing topics / lectures

### ***Part III***

**Please give a short history of the programme/course you are currently involved**  
starting point was investigation from Opitz (1969); he shows clearly the link between planning processes (design) and the use of material and energy (for materials, production, ...). He only focussed on manufacturing; we extend the view over all product l

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

CIRP: founding of the life-cycle-engineering group in Aix-en-Provence (F)  
and currently new laws and standards, like EuP in EU...

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

I'm not sure if everybody understands the same under "ecodesign"....

## ***Questionnaire Results - Participant 52***

### ***Part I***

**Your Name (Optional):** Dr. Joseph Chiodo

**Gender (Optional):** Male

**Country of Origin:** UK/Canada

**Country of Residence:** Canada

**Academic Progress:** Postdoctoral

**Educational Background:** Dip.I.D. (Fanshawe), MA in I.D. MMU, Ph.D.Brunel,  
Post Doc at Brunel 1990 to 2003

**Current Position(s):** CEO of ADR Ltd.

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Personal stewardship in contrast to politicians and others talking. Victor Papanek.

**What was your first involvement in sustainable product and service design education?**

Fanshawe, Canada, peer tutor, 1987

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

I only 'visit' as a lecture giver now.

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

visiting lecturer

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Patent database websites

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

email, forums

**How can you categorise the approach of your department/course on sustainable design among these options?**

Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**  
www.activedisassembly.com

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

This is too vague of a question, sorry.

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 53***

### ***Part I***

**Your Name (Optional):**

**Gender (Optional):** Female

**Country of Origin:** Canada

**Country of Residence:** Finland

**Academic Progress:** Doctoral Degree

**Educational Background:** MA, University of Art and Design Helsinki, 1999

**Current Position(s):** researcher and tutor/lecturer, University of Art and Design Helsinki, School of Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

concern with overconsumption, interest in 'vintage' culture and reusing materials

**What was your first involvement in sustainable product and service design education?**

University of Art and Design Helsinki, co-coordinated lecture series, 2000

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

?

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

www.lens.polimi.it - the LeNS project and materials on teaching sustainable product-service systems

futures research methods such as scenario-building

www.sustainable-everyday.net

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2 global network, Helsinki Green Drinks, o2 Finland, Ornamo (Finnish Designers' Association)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Design for the need approach (Socially responsible design)

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in graduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**  
currently involved in course-based or project-based teaching

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Kyoto Declaration, popularity of e.g. John Thackara as speaker and author of In the Bubble, Manzini's Changing the Change conference

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 54***

### ***Part I***

**Your Name (Optional):** Karen Blincoe

**Gender (Optional):** Female

**Country of Origin:** Denmark

**Country of Residence:** Denmark

**Academic Progress:** Masters Degree

**Educational Background:** Sustainable design

**Current Position(s):** Director

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Certificate - Industrial Design, Undergraduate - Industrial Design, Graduate - Industrial Design, Certificate - Sustainable Product Design, Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

O2 International

**What was your first involvement in sustainable product and service design education?**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**



## ***Questionnaire Results - Participant 55***

### ***Part I***

**Your Name (Optional):** Philip White

**Gender (Optional):** Male

**Country of Origin:** usa

**Country of Residence:** usa

**Academic Progress:** Masters Degree

**Educational Background:** bsme 1985, master 3-D design 1990

**Current Position(s):** Assistant Professor, School of Design Innovation and School of Sustainability, Arizona State University

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

studied with papanek, have been busy with it throughout my life

**What was your first involvement in sustainable product and service design education?**

1979, with Papnek

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

this is an unclear question, sorry

**How long have you been teaching in the department you are currently involved?**

3 - 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Okala (I am primary author), hitch hiker's guide to LCA, design + environment

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach, any use of the term "sustainable" must explicitly address social equity

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

Although I have only taught for 5 years, I have been involved in ecodesign more or less continuously since my studies with Papanek in the late '70's. My work with Okala is to integrate the science of LCA into the design process. At ASU, this has required a

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Papanek, Okala and an acceptance of the LCA practice by the design professions.

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

gracias

## ***Questionnaire Results - Participant 56***

### ***Part I***

**Your Name (Optional):** Guy Julier

**Gender (Optional):** Male

**Country of Origin:** UK

**Country of Residence:** UK

**Academic Progress:** Postdoctoral

**Educational Background:**

**Current Position(s):** Leeds Met Uni, Design

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Ezio Manzini, climate change

**What was your first involvement in sustainable product and service design education?**

same as above

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

2002

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

sustainable everyday

Edwin Datchefski

John Thackara

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

web, email

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

2

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved** see [www.designatleeds.co.uk](http://www.designatleeds.co.uk)... we are a broad based course... all projects are driven by 'issues and contexts'... students determined their most appropriate intervention in response to a given problematic.

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Design for Need, 1970s

Appropriate Technology, 1970s

PSS, 1990s

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 57***

### ***Part I***

**Your Name (Optional):** Carlo Vezzoli

**Gender (Optional):** Male

**Country of Origin:** Italy / Finland

**Country of Residence:** Italy

**Academic Progress:** Masters Degree

**Educational Background:** Master degree in Managerial Engineering (Politecnico di Milano); Diploma in Fine Arts (Accademia di Brera - Milano)

**Current Position(s):** Carlo Vezzoli is responsible of "Design and system Innovation for Sustainability " research unit, and Professor of "Design for environmental sustainability" and "System design for sustainability" at Politecnico di Milano University. He currently coordinat

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Manzini Ezio, Tischner Ursula

**What was your first involvement in sustainable product and service design education?**

Politecnico di Milano, Faculty of Architecture, Course "Environmental requirements for industrial product", 1996

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Less than 10%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Vezzoli C. 2007. System design for sustainability. Theory, methods and tools for a sustainable "satisfaction-system" design. Rimini: Maggioli editore.

Vezzoli, C., and Manzini, E. (2008), Design for environmental sustainability, Springer, London.

United

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Web portal: [www.lens.polimi.it](http://www.lens.polimi.it)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave), System and service oriented approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

[http://guida.design.polimi.it/guida/2009/index.php/CDL/menu/5\\_1134\\_2\\_scelta](http://guida.design.polimi.it/guida/2009/index.php/CDL/menu/5_1134_2_scelta)

[http://guida.design.polimi.it/guida/2009/index.php/CDL/menu/1\\_1100\\_3\\_scelta](http://guida.design.polimi.it/guida/2009/index.php/CDL/menu/1_1100_3_scelta)

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 58***

### ***Part I***

**Your Name (Optional):** M Strachan

**Gender (Optional):** Male

**Country of Origin:** UK

**Country of Residence:** Australia

**Academic Progress:** Masters Degree

**Educational Background:** Industrial Design

**Current Position(s):** Lecturer

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

1987 European Year of the Environment

**What was your first involvement in sustainable product and service design education?**

Teaching: Goldsmiths University, visiting lecturer 1993

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

2007 Design Systems & Services

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

2

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 50%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Principles of Sustainability (as opposed to tools and methodologies) i.e. a mind set (Systems/user/environmental thinking) coupled with practical means of putting ideas/developments into practice.

User-centred Design/Systems & Services methodologies evolve

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

Many e.g. VEIL (Victorian Eco Innovation Lab)

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainability will be embedded in all courses/subjects

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

Honours Studio (4th Year) combined research & practice 2003 onwards. Major social/sustainability themes. Approx 48 students per annum.

Design Systems & Services (a University wide elective) established at the beginning of 2007 - a 3rd year multidisciplinary

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Victor Papanek

The rise of User-Centred Design in Systems & Services Design within a sustainability framework.

Global warming debate around the time of Al Gore's film: 'An Inconvenient Truth' - a perceptible shift in opinions

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**



## ***Questionnaire Results - Participant 59***

### ***Part I***

**Your Name (Optional):** Liz Davis

**Gender (Optional):** Female

**Country of Origin:** GB

**Country of Residence:** France

**Academic Progress:** practice-based research degree

**Educational Background:** combined BEd. & BA in design 68 - 72 (unfinished) now the Roehampton university/london Institute Chelsea College of Art& design 2001 practice-based research (master 2) urban design & local development Institut d'Aménagement régional Université d'Aix Marse

**Current Position(s):** Academic advisor ,Head international studio, Programme leader MEDES. (Paris), Ensci-Les Ateliers Paris

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

**What was your first involvement in sustainable product and service design education?**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

As this (Ensci-Les Ateliers) is a generalist design (transdisciplinary) programme all students have the chance to join a project orientated towards sustainable products and services, including social innovation. There have also been attempts at programmin

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

In 1982 we dsigned les Ateleirs as a new kind of design school where creative intelligence was at the service of any project context - beyond the material product - equally at ease in the context of , for example, improving local government services as

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 60***

### ***Part I***

**Your Name (Optional):** Kärt Summatavet

**Gender (Optional):** Female

**Country of Origin:** Estonia

**Country of Residence:** Estonia

**Academic Progress:** Doctoral Degree

**Educational Background:** Diploma (MA), Estonian Academy of Arts, metal art, 1982-1987; Doctor of Arts (PhD), University of Art and Design Helsinki, 1998-2005

**Current Position(s):** University of Tartu, Viljandi Culture Academy, Department of Research, senior researcher; University of Tartu, Viljandi Culture Academy, Project “Handicraft for Job”, head of product development; Estonian Academy of Arts, Faculty of Design, project “New E

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Certificate - Sustainable Product Design, Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Prof Kaljo Põllu (Estonia) study trips to Fenno-Ugric people in 1983 and 1984; Fieldwork and my own PhD thesis, supervisor PhD Ildiko Lehtinen (Finland)

**What was your first involvement in sustainable product and service design education?**

Estonian Academy of Arts, contractual teacher, 1991

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

Media and Design Doctoral Programme 2005-2008

**How long have you been teaching in the department you are currently involved?**

1 - 3 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

0

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

international projects "Remembering the Future" 2005-2006, "New European Identities" 2007-2009; product development project "Handicraft for Job" 2004-2007, "Handicraft for Job 2" 2009-2011; two international HERA projects  
all of them are initiated or co-c

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

projects and workgroups

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach, Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

5

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design certificate courses., There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level., Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

I have very specific programmes and approach of sustainable design and research (tradition, inspiration, innovation)

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

## ***Questionnaire Results - Participant 61***

### ***Part I***

**Your Name (Optional):** Alastair Fuad-Luke

**Gender (Optional):** Male

**Country of Origin:** UK

**Country of Residence:** UK

**Academic Progress:**

**Educational Background:** BSc Hons Environmental Science 1978 University of Southampton, UK

**Current Position(s):** Proprietor, Fuad-Luke, [www.fuad-luke.com](http://www.fuad-luke.com) and just commenced as Programme Leader for MA Entrepreneurship for Creative Practice at Plymouth College of Art

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

I am motivated because I believe design praxis in a holistic framework like sustainability offers new opportunities and livelihoods in a more equitable world. Influential people - I have no heroes but find the recent expansion of design thinking applied to positive social impacts and reduced environmental impacts fascinating (see my five innovators in Thames & Hudson's new book 'Sixty Innovators' published Nov 2009). I guess the people I mention in my book Design Activism are quiet influential people in their own spheres of influence. Employing landscape architects in my ecological landscape design business in the 1980s revealed how applied design thinking can make a real difference.

**What was your first involvement in sustainable product and service design education?**

1999 contributing to two new BA Hons courses (3D Design and Spatial Design) where I embedded the 'green/eco-line' in teaching Historical & Cultural Studies at Falmouth College of Art, Cornwall, UK (now University College Falmouth)

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Somewhat covered

**When was the programme you are currently involved established?**

It is a new MA course validated in July 2009 by the Open University, UK

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Somewhat covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

**How would you describe your work in sustainable product and service design education?**

Theory and practice by lectures and within the studio focused, where possible, on real life places, communities, manufacturers and people. I mix didactic with dialectic and dialogic teaching and learning.

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

I give two books, two web sites and two other references:

Fuad-Luke, A (2002,2004,2009) The Eco-design Handbook, London:Thames & Hudson

Fuad-Luke, A (2009) Design Activism: Beautiful Strangeness for a Sustainable World, London: Earthscan.

The co-design lo

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

none at the moment, although I am on LinkedIn and am setting up a new network for creative practitioners in the South-West of England

**How can you categorise the approach of your department/course on sustainable design among these options?**

**How important are sustainability issues in the overall vision of your department?**

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

design thinking that addresses sustainability will become an essential core skill within the next 10 years on all design courses - by necessity

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

The course I currently lead is a new Masters programme, Entrepreneurship for Creative Practice, at Plymouth College of Art, [www.plymouthart.ac.uk](http://www.plymouthart.ac.uk), that was only validated by the Open University in July 2009 and will start in January 2010.

Better to refer

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Vance Packard's trilogy of books exposing the unsustainable game plan of the consumer economy - all written in the 1950s - The Waste Makers, The Status Seekers and The Hidden Persuaders

John Elkington of SustainAbility creating the concept of the Triple

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

I've omitted a few questions since I haven't been part of a formal teaching team on a sustainable design BA/MA course since Sept 2007.

## ***Questionnaire Results - Participant 62***

### ***Part I***

**Your Name (Optional):** Cris de Groot

**Gender (Optional):** Male

**Country of Origin:** UK

**Country of Residence:** NZ

**Academic Progress:** Postdoctoral

**Educational Background:** PhD, 2000. Birmingham. Phenomenology of Technological Objects

**Current Position(s):** Senior Lecturer, Product Design, Dept. of Design & Visual Arts, Unitec. New Zealand

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Industrial Design, Graduate - Industrial Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

O2, John Chris Jones, Buckminster Fuller, Papanek, John Wood, Eternally Yours

**What was your first involvement in sustainable product and service design education?**

Lecturer on MA Design Futures program, Goldsmith's (London), 1998.

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Not covered at all

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Adequately covered

**When was the programme you are currently involved established?**

2002

**How long have you been teaching in the department you are currently involved?**

More than 5 years

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

3

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**



1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Adequately covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

greenfly online

RAT

eternally yours

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

**How can you categorise the approach of your department/course on sustainable design among these options?**

Service oriented approach , Life cycle approach (Cradle to grave)

**How important are sustainability issues in the overall vision of your department?**

4

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

Sustainable product design courses will be closed / decreased in number as sustainability will be a fundamental part of the product design curriculae.

### ***Part III***

**Please give a short history of the programme/course you are currently involved** product design was previously a 'major' pathway within a multi-disciplinary degree. It switched in 2002 to become a stand-alone degree. It is now merging back into a revised version of that multi-disciplinary degree.

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

Papanek's publication

Al Gore's movie

the coming GABI plug-in for Solidworks

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

**Further Information / Comments**

## ***Questionnaire Results - Participant 63***

### ***Part I***

**Your Name (Optional):** Joanna Lambert

**Gender (Optional):** Female

**Country of Origin:** UK

**Country of Residence:** UAE (previously Spain)

**Academic Progress:** Masters Degree

**Educational Background:** BA Hons Ecodesign, MREs Manufacturing Sustainability and Design

**Current Position(s):** Sustainable Innovation consultant

### ***Part II***

**At what level-department combinations do you teach sustainable product and service design courses?**

Undergraduate - Sustainable Product Design, Graduate - Sustainable Product Design

**How long have you been working in sustainable product and service design education?**

More than 10 years

**What motivated you towards working in sustainable product and service design education?**

Dorothy macKenzie, Anita Roddick, My school design teacher who set us a project to design an environmentally friendly airfreshener (when I was 14) and I haven't looked back since. My Ecodesign teacher, Pip Goggin.

**What was your first involvement in sustainable product and service design education?**

Surrey Institute of Art and Design (now UCA University for the Creative Arts)

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1980 – 1989]**

No idea

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [1990 – 1999]**

Somewhat covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2000 – 2005]**

Adequately covered

**How would you evaluate the coverage of sustainability issues in the curriculum of the department(s)? [2006 onwards]**

Extensively covered

**When was the programme you are currently involved established?**

**How long have you been teaching in the department you are currently involved?**

Less than a year

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Studio based electives]**

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based must courses]**

1

**How many courses do you have in your department related to or focused on sustainable product and service design? [Lecture based electives]**

Extensively covered

**What is the ratio of the courses focused on sustainable product and service design within the curriculum of your department?**

Up to 25%

**How would you describe your work in sustainable product and service design education?**

Both theory and practice oriented (both lecture based and studio based courses)

**Can you name THREE important sources you use to form the educational practice in your department/ courses/ studios?**

Treehugger.com for case studies

Natural Capitalism, Victor Papanek's books

WBCSD website for business case studies

I also always use Lifecycle thinking as a key concept. (5 stages) But I keep it really simple and intuitive. (Most lifecycle analysis tools I

**What means do you use to collaborate with other institutions, educators and professionals about your courses and/or projects?**

o2mailing list, o2spain Barcelona group (with ning, facebook and linkedin), Linked in groups - about 7 or 8 sustainability based groups), conferences.

**How can you categorise the approach of your department/course on sustainable design among these options?**

Life cycle approach (Cradle to grave), Design for the need approach (Socially responsible design), Design for environment approach

**How important are sustainability issues in the overall vision of your department?**

3

**In your opinion, how is the relation between sustainability issues and product design education going to evolve in the future?**

There will be an increase in the number of sustainable product design degrees in undergraduate level., There will be an increase in the number of sustainable product design degrees in graduate level.

### ***Part III***

**Please give a short history of the programme/course you are currently involved**

I am not currently involved in any, but in the past I have taught on:

Surrey Institute of Art and Design - BA Sustainable Futures Course

Goldsmith's College - BA Ecodesign course

Cranfield University - MRes Sustainability and Design

Elisava Escuela superior

**In your opinion, can you name THREE critical events in the history of sustainable product and service design education?**

In my opinion, sustainable product design was too slow to take off in the nineties because it grew and advanced in academia only. This meant that there was a lot of work in the philosophical aspects of it, and also the other extreme, the hard nitty gritty

**How do you share your experiences and techniques about teaching sustainable product design with other institutions or professionals?**

## **CURRICULUM VITAE**

**Candidate's full name:** Gülden MALYA



**Place and date of birth:** İzmir / Turkey 08/01/1983

**Permanent Address:** 9073 Sok. No: 1/6 Yeşilyurt / İzmir

### **Attended Universities:**

- |             |   |
|-------------|---|
| 2006 - 2009 | Istanbul Technical University (ITU) – Turkey<br>MSc Industrial Design   |
| 2007 - 2008 | Sheffield Hallam University – UK<br>MA Industrial Design - Erasmus Exchange Programme                           |
| 2000 - 2005 | Middle East Technical University (METU) – Turkey<br>Faculty of Architecture, Department of Industrial<br>Design |