Special Issue on Social Responsibility Education and Practices

Planting Paper:
An Environmentally Responsible Design Project in an Art and Design Institution

Kağıt Dikimi:
Bir Sanat ve Tasarım Fakültesinde Çevresel Açıdan Sağduyulu Bir Proje

Amama Farooq, Yaşar University, Türkiye
Ali Hosseinzadeh Forsi, Yaşar University, Türkiye
Mine Ovacık, Yaşar University, Türkiye, mine.ovacik@yasar.edu.tr

Abstract: This study presents a graduate research project as a case study, conducted (by the third author) under a graduate course titled "Responsible Design 2" (RD2) at Yaşar University (Izmir, Turkey). It is proposed that organizing a tree-planting festival for/with art and design students as a pilot activity at the beginning of their education. The aim is to create awareness on the paper consumption in a local academic society by design act and activism, and to save trees for students' future paper consumption during their 4-year education as a part of ecological social movement by an institution. The purpose of this paper is to share this empirical practice-based research to contribute to Socially Responsible Education.This experimented design activism project, conducted through a locally interactive research process by graduate students[1] (the first and second author), has become a valuable learning experience for the researchers by implementing simple methods and finding out noteworthy numbers in paper consumption in the closest environment. The process of the research contains, literature review, a survey done among design students and faculty members, observations in the school and an exhibition to inform for this festival and to gather, evaluate responses of students, academics who will be involved in this festival. The question here is the starting point for this research: In what way could design thinking change the habits of non-socially responsible, non-ecological thinking students in the daily life of today? At the end of the survey, it was found out that one student of this faculty consumes 4 trees for his/her 4-year design education. When The 1st Tree Plantation Festival will be held, 153 individuals of this local academic community will plant 612 trees. In conclusion, a simple 'awareness act' (staged tree-planting festival) have potential to spark a mass-change in a long turn, in consequences of chain reaction. It is an effort to empower the relationship between human and nature, by responsible thinking other than only economic-based approach of commercial world.

Keywords: Deep and Social Ecology, Paper Recycle, Paper Waste, Responsible Design, Tree Plantation.

Özet: Bu çalışma, Yaşar Üniversitesi'nde (İzmir-Türkiye) (3. yazar tarafından) verilen "Sağduyulu Tasarım 2" adlı yüksek lisans dersinde yapılan bir araştırmayı bir vaka çalışması olarak sunmaktadır. Bu vaka çalışması, Sanat ve Tasarım öğrencileriyle birlikte ve onlar için, eğitimlerinin başlangıcında katılabilecekleri bir "Ağaç Dikme Festivali" organize etmeyi örnek bir etkinlik olarak önerir. Bu etkinliğin amacı, tasarım eylemi ve eylemciliği aracılığıyla, yerel bir akademik toplulukta kağıt tüketim farkındalığı yaratmak ve bir enstitünün gerçekleştireceği sosyo-ekolojik bir hareketin parçası olarak öğrencilerin gelecek 4 yıllık tasarım eğitimlerinde tüketecekleri kağıtların yerine ağaç dikerek ağaçlanmaya katkı sağlamalarıdır. Bu çalışmanın amacı ise; ampirik bir uygulama-odaklı araştırmayı paylaşarak "Eğitimde Sosyal Sorumluluk" konusuna katkı sağlamaktır. İki yüksek lisans öğrencisinin[2] (ilk iki yazar) yerel ve sosyal etkileşime sahip bir araştırma süreciyle gerçekleştirdiği bu deneysel tasarım eylemciliği projesi, basit yöntemlerin uygulanmasıyla ve en yakın çevredeki kağıt tüketimindeki kayda değer rakamların bulunmasıyla araştırmacılar için değerli bir öğrenme deneyimine dönüşmüştür. Araştırma süreci; literatür tarama, tasarım öğrencileri ve akademisyenler arasında yapılan anket çalışması, okuldaki gözlemler ve dersin yılsonu sergisinde festival hakkındaki bilgilendirme çalışmaları ve bu festivale katılabilecek öğrencilerin, akademisyenlerin tepkilerinin toplanması ve kayıt altına alınması aşamalarını içerir. Tasarım düşüncesi, henüz sosyal ve çevresel sorumluluk içermeyen düşünce biçiminin gündelik yaşamdaki öğrenci alışkanlıklarını hangi yollarla değiştirebilir? sorusu çalışmanın yola çıkış noktasıdır. Anket çalışmasının sonunda, fakültedeki bir tasarım öğrencisinin 4-yıllık tasarım eğitimi süresinde 4 ağaç kadar kağıt tükettiği tespit edilmiştir. "1. Ağaç Dikim Festivali" organize edildiğinde, bu yerel akademik toplulukltan 153 kişinin 612 ağaç dikeceği sonucu bulunmuştur. Sonuç olarak, basit bir "farkındalık eylemi" (ağaç dikme

---

[1]1 Amama Farooq and Ali Hosseinzadeh Forsi are graduate students at Art and Design Graduate Program in Yaşar University, İzmir – Turkey.

[2] Amama Farooq and Ali Hosseinzadeh Forsi, Yaşar Üniversitesi (İzmir- Türkiye) , Sanat ve Tasarım Yüksek Lisans Programı öğrencileridir.

festivali), oluşturabileceği zincirleme bir tepkimeyle, uzun vadede kitlesel bir değişimi başlatma potansiyeline sahiptir. Bu potansiyel, ticari dünyanın ekonomik odaklı düşüncesi yerine, sağduyulu düşünceyle insan ile doğa arasındaki ilişkiyi güçlendirmek adına ortaya konan bir çabadır.

1. Introduction

A case study, conducted through an issue of "Responsible Design in Education", its aim is to create awareness and act on the paper consumption in a local academic society. The mentioned society consists of students and faculty members of the Art and Design Faculty at Yaşar University in Izmir, Turkey. This empirical case study is implemented in a graduate course (2014 spring semester), titled "Responsible Design 2" (RD2) of the Art and Design Graduate Program, as a research project focusing on design practice and environmental issues as acting the responsible role of designers for facts of paper wastage. Re-use, re-cycle and re-production of paper and tree plantation are issues to concentrate in our academic environment. On the route of this research, we adopt approaches of "design for the real world" (Papanek, 1984) and eco-effectiveness in design practice of "cradle to cradle" (McDough & Braungart, 2002) and - according to the philosophy of environmental ethics (Brennan & Lo. 2011)-; deep ecology (Næss, 1973) and Murray Bookchin's "social ecology" and "Bioregionalism" into this case study.

Paper is a material that is commonly used in art and design education. Even though digital works are widespread in the field of design, paper still remains the main material in this field. Over-consumption of paper causes damage to the forests of the world. According to Forest Ethics (Vancouver, US), working on the protection of endangered forests, wildlife and human well-being, estimated figures in North America shows that paper consumption is increasing day by day, and forests of the world are decreasing at a higher rate than paper consumption (Forest Ethics, 2014).

By reaching facts on paper consumption, this study is constructed within *responsible design thinking* to support the planet by putting effort into saving forests. Thinking responsibly as well as creatively, we as paper-users can think of planting trees, re-cycling, re-using paper, will help the planet. Carrying this perspective onward, our main objective in this study is to spread awareness in the faculty about paper wastage and woodcutting for paper manufacturing. Our intention is to help people become aware of the fact that unnecessary usage and wastage of paper is catastrophic to the environment as well as to life on this planet.

Therefore, the approach of this study, evolving from the environmental philosophy of "deep ecology" and this effort in turn gaining its roots from "social ecology and bioregionalism" is to take an initiative for saving the planet by starting with our nearest environment, the paper consuming academic culture. It focuses on spreading awareness in education. Our main objective is instead of preventing people from using paper; to encourage them to remember that paper is produced from trees, which are natural resources, and for paper production trees are being cut down at a higher rate than they are being planted. The idea is that if we consume something out of nature, we have to give it back to maintain that balance. This modest effort contributing by responsible design knowledge and design thinking is to create consciousness about the balance in the relationship between consumption and production of the source of the paper. With these ideas, the case study has two main points:

1. By responsible design thinking, to encourage people into planting trees for their usage of paper,
2. By graphic designs as visual communicators of creative acts, to enrich people's minds to rethink their paper consumption, recycling habits, as well as, to internalize re-using their personal paper instead of throwing it away after one use.

Design is a tool to envision life and solve problems. By this study, we intend to take a step with a design tool in our hand or mind, which is small scale but can have an impact in the long run. There are a lot of resources that we use every day from the earth, and trees are one of these resources. From the construction of architecture to the production of paper, consumption of trees is a main part of the procedure. We cut forests to build houses and produce paper. But people do not think of planting the trees to maintain the balance and to return what they consume form the earth back to the earth.

As follows, the ecological catastrophe on the planet, caused by over-consumed natural resources by human activities will be the first issue, which will be mentioned briefly as the main problem for this study. The theoretical structure of this study bases itself on *Responsibility in Design* and *Environmental Philosophy: Deep, Social Ecology and Bioregionalism.* The design act of the case study, presented in this article, is being generated from responsible design thinking and practices. The concept of the case study has its roots in environmental philosophy, which will be explained in detail in this article.

2. Hand-made Catastrophe: Over-Consumed Natural Resources

"He, who knows what sweets and virtues are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man." Emerson, R.W. (1844)

According to various spiritual beliefs the earth was 'created' and 'filled' with treasures and resources: claims are made that a god(s) or goddess(es) provided these resources to provide pleasure and sustenance for humankind, providing for the propagation of the species (so to speak). Artists, secular or religious, have all been known to take inspiration from these so-called bounties of nature, starting with some of the earliest cave-artists and continuing through to present time. Engineers of all types, as well as many other 'technologists,' have just as readily acknowledged drawing on inspiration from nature. With a depletion of some aspects of this 'bounty from nature' increasing questions are being raised in terms of 'sustainability' as a common catch-cry of those looking to the future of planet earth.

The key questions of sustainability are: 1. How long can we extract and use the resources of this planet? 2. What needs to be done to maintain a balance between consumption and generation of renewable resources? The relationship between the consumption of fossil fuels and global warming is increasingly obvious to all but the most hardened energy-cynic.

There is a growing global perception that humankind is in some manner out of balance with nature, or that some indeterminate 'equilibrium' between nature and commercial activity has been so disturbed that beyond global warming we are facing catastrophes of flooding, water-shortages, vast pestilence/s, and food *in*security across the modern world. Even though religions and science take differing views on the very roots of such impending disasters, they at least concur that there is a lack of balance between human activity (and, therefore, consumption) and what the planet is able to provide (Stern, 2007).

As Benjamin Franklin (1746) said: *"When the well is dry, we know the worth of the water",* claims are made that if consumption habits are changed and greater focus is placed on working toward sustainability, responsibility, the future of this globe will not be so catastrophe-ridden. In the same vein claims are made that as surely as humankind draws inspiration from nature, it is the very *separation* from nature that encourages the destruction (and/or consumption) of the bounties of this earth that contributes the depletion of resources. As an example the prestigious Sufi teacher and author Llewellyn Vaughan Lee (2013), discusses the effects of excessive consumption of resources *"on the soul of the Earth,"* in one of his articles (Vaughan-Lee., L. ,2013).

Scientific evidences show that global-warming is human-made, caused by the carbon dioxide emissions and greenhouse gases that have been produced during human-activities on the planet for the last 100 years, and have created adverse effects in the atmosphere. Emergent policies are needed to recover the eco-system. The *Stern Review Report* puts an emphasis on operating a worldwide urgent strategy including long-term goals and agreements for frameworks of action internationally to decrease the negative impacts of non-ecological human-activities for the future (Stern, 2007: 21). Stern suggests four key elements of this action, one of the these elements higlights *an action to reduce deforestation* by pointing to the loss of natural forests which contributes to the carbon emmison (Stern, 2007: ix). From this standpoint, how can the design or designers stand for *forestation*? Is a design action possible to increase natural forests and planting trees? Briefly, can hands heal the planet through design?

3. Action: Designing with Ecological, Social Responsibility and Ecophilosophy[i]

The design is a tool for solving problems creatively. Designing is a way of thinking and acting which could be an activist action contributing to forestation by creating social impacts in communities. Consequently, designers can have a role in contribution to decreasing the global hand-made catastrophes. In this study, it

is suggested that this role of design act merges with the philosophies of "*Responsibility in design*" and "*deep and social ecologist environmentalism*", and the case study, presented in following sections is conducted within these philosophies.

The responsibility in design has taken its roots from Papanek's proactively ethical thinking. Papanek declared that Industrial designers' responsibilities are not only serving for consumerism culture but also designing with social values, ecological awareness and differentiations of human beings, cultural impacts (Papanek, 1971). Since the early 90's, in the field of design, discourses of environmental / ecological or green design, sustainability, designs for all –or universal design-, socially responsible design, etc. are all-latching on ethics and responsibility. *The Responsible Design* has reactive and proactive approaches. It is important to understand these two approaches for this proposed design action. The design and designer's role focuses widely on demand-oriented and economic-based success, which is the reactive approach. On the other hand, proactive responsibility that is more complex is based on "*world-changing modernisations and improvements in culture of communication and objects.*" The proactive approach of responsible design is not only considering economics but also "*social, political, ecological and ethical consequences of that design.*" According to Max Weber's ethics of responsibility, design actions are various as described below in four steps: *1. Reconciling of designers' objective and vision of social responsibility, 2. Analysing of historical discourses, 3. Identifying parameters for relevant to production and sales, 4. Subjecting the design to shifting nature of responsibility through reality* (Erlhoff & Marshall, 2008: 336-337). Compared with only-economic-based commercial design, locally, ecologically engaged social need-oriented design has been developing design processes for social needs of minorities, underserved communities, etc.- (369). Weber's sugessted steps are providing routes here for the proposed design action of the case study in this research.

During industrialization, material used in products for daily life contains chemicals that harm the eco-system. The production cycle has a linear system called "cradle to grave", which uses and sends products to the garbage at the end, which has resulted in damaging the eco-system and polluting the earth. This is the main circumstance in the reality, which caused *the hand-made catastrophe* mentioned in the previous section. As a cure for this linearity, the "Cradle to Cradle" approach is offered 31 years later Papanek's design approach. For changing the long-term non-ecological sense in design and production, a series of eco-effective acts in five steps which requires patience for design practice is as follows: "*1. Get "free of" known culprints, 2. Follow informed personal preferences (prefer ecological intelligence, respect, delight, celebration and fun), 3. Creating a "passive positive list", 4. Activate the positive list, and 5. Reinvent.*" For the long-term transformation of eco–effective vision by design, five guiding principles are also described as: *1. Signal your intention, 2. Restore, 3. Be ready to innovate further, 4. Understand and prepare for learning curve, 5. Exert intergenerational responsibility*" (McDough & Braungart, 2002: 165-186). These are the principles that have enlightened and empowered the theoritical structure of design in this study.

Beside *The Responsibility in Design*, *Deep Ecology*, *Social Ecology* and *Bioregionalism* under the Environmental *Ethics*[ii] discipline of philosophy were reviewed for the design act of the case study in this research. *Environmental ethics* is contrary to *human-centeredness* that "*the moral relationship of human beings to, and also the value and moral status of, the environment and its non-human contents*" (Brennan & Lo, 2011). Beyond *human-centeredness in* anthropocentrism*, deep ecology* and *social ecology to politics are* derived from these arguments to understand discourses behind development of human and ecology relationship in philosophy in order to contribute to responsible design thinking and practice.

The approach of *Deep Ecology*[iii] is living in nature, being eco-centric instead of being ego-centric. By taking care of the eco-system and identifying ourselves as human beings with "self-realization" within, surrounded largely by many living creatures that require us not to cause pollution in nature. According to Næss (1973), The *Deep Ecology* generated from "*deep ecology movement*", respects any living creature beyond oneself as having rights and values without questioning their usefulness or not on the planet, and concerns humans, taking care of plants, trees, animals and any creatures. It is considered as a *Social Movement*[iv] emphasis that cultural surroundings, as "*second nature*" which recommends through social ecology highlights *human's gifts such as sociability, communication and intelligence, which can be devoted to preserve nature.* Following *deep and social ecology*, *Bioregionalism* is suggested carrying the value of local communities, affected also by other philosophers with a concern of the negative impacts of industrialized capitalism (Brennan & Lo, 2011).

Authors have reviewed, discussed theories and discourses mentioned above both in design and philosophy regarding to ethics, responsibility and ecology is to find out their intention to restore. As reviewing the five steps eco-effectiveness act of *Cradle to Cradle* and its five principles applied to the process of the case study and applied to its theoretical structure in the RD2 course. A survey and design act is proposed as a project; this step was to be ready for exploration. Building up consciousness of researchers, merging with their new eco-oriented design knowledge, referring to the fourth principle above and the fifth one were the act of this project by interviewing, exhibiting the project and sharing, accepting the responses, projecting a "plantation festival" for the near future. It is obvious that a connection between ecological problems and problem solving by design acts is based on these discourses, especially by examining in design education.

4. The Design Problem of the Design Act: Paper Wasting, Consuming without Putting Back Trees

The paper-wastage, related to the ecology, trees' life span and the materialized academic environment are creating a design problem. An 'ecological-consciousness' creates new ways to design or design is a way to contribute to the awareness of ecological consciousness in use of paper and investigate for planting or re-planting of trees consumed in the manufacture of paper products.

Paper has been mass-produced since the 19th century out of fibres from wood pulp. Although un-recycled, mass-produced paper is made from wood from sustainable forests, cutting trees in these forests is not the problem. The problem is the maintenance of these forests and the senseless cutting, monoculture plantation, employment of toxic chemicals, herbicides and fertilizers for maximum growth in the US and Canada. Bleaching un-cycled paper with chlorine based chemicals causes air pollution during its production and after-use chlorine further contributes to soil pollution. *"Global production in the pulp, paper and publishing sector is expected to increase by 70% from 1995 to 2020"... "It is estimated that for every ton of paper recycled you are saving: 3000 litters of water, 3000-4000 KWh electricity, 95% emission, 2.5 cubic meters of landfill space, 17 pulp wood trees."* (McCorquodale & Hanaor (eds.), 2006: 39-43)

Paper is an essential material part of everyday life. It is consumed every day all over the world. The sources of paper in nature are plants and trees. Production of paper is proportional to the consumption of trees and forests (Global Environmental Services, 2014). Recycling paper not only saves the resources of planet earth but it also reduces environmental pollution; it saves energy and water, reduces atmospheric and soil pollution. Tree planting is an act of investigating, repairing and re-paying planet earth. We consider that this case including research on people's behaviors and awareness on consuming, recycling papers, and a proposing festival of planting trees are an activist social act as being a *deep ecologist*.

Even though, the act of tree-plantation may refer to *traditional environmentalism*, what the whole case proposes is a process that is based on the *principles of deep ecology*[v] (Deep Ecology, 2013), (Environment and Ecology, 2015). Under the light of *the deep and social ecology,* a case of design solution is constructed by research and design practice. The case is conceptualized in the nearest environment within an academic social community. Briefly, it takes a place with its a modest role in ecological social movement through design in design education.

5. The Case Study: Planting Paper in an Institute

The use of paper in academy is very evident, especially in art and design education. It is consumed in art and design faculties more than any other faculties. Therefore, being a part of this faculty we decided to take a step to spread awareness about the consumption of paper in Yaşar University.

The moment of enlightenment, yes it would be called enlightenment; it came to the authors when they were discussing the resource and balance in consumption and sustainability in *deep ecological design*, in the RD2 course. The authors came across many design problems, researched for eco-friendly design solutions that are offered by other designers, environmentalists. RD2 has been an interesting journey for all of us *-including the instructor while preparing and conducting the course-* towards the realization of our responsibility to this planet and the eco-system. We decided to take our first step from our very own

faculty. We thought if we succeed in spreading awareness about paper wastage, reuse and recycling here, it would trigger the wave of consciousness and responsibility among all other students. With this wave, we can create a river that can flow towards the direction of "change": the river of responsibility.

The main motive was to alert students and faculty members about their consumption of paper. We do not want to stop people from using paper, but we want them to use it effectively. Because the cost of paper is not money, the cost is trees and forests, which effects and damages the whole ecosystem. To begin with we carried out a research in the faculty, in which we asked students and faculty members about their habits of paper consumption. The research is structured and outcomes are targeted as in three steps:

1. A questionnaire (see annex) was conducted in the faculty among academics and students to find out their monthly consumption of paper and how many trees they have to plant to replace the paper consumed during one year of education. Following this calculation, a festival was proposed to the administration as titled; *"Yaşar Festival of Planting Trees for Art & Design Works",* to be held and organized at the beginning of each education year. Every new incoming student of the faculty will plant trees in the land provided by the administration of Yaşar, in Izmir with faculty members.

2. Observations were made by photographing the studios, workshops and offices at the faculty to investigate the amount of wastage paper, to then develop and provide methods for re-use and re-cycling of paper by design thinking and creating prototypes.

3. An exhibition was held and interviews made at the end of the semester to share the research results and to observe the responses to the Tree Plantation Festival. Interviews were recorded in order to evaluate people's reactions. Poster designs and the facts of paper wastage were presented within an installation in the exhibition.

5.1. The Questionnaire

After a literature review, the next step of this study case was based on the questionnaire with three simple questions about their habits of using paper. We asked students and faculty members:
1. How much paper do they consume in a month?
2. How much money do they spend?
3. Do they reuse the paper they used?

In the faculty, there are five departments; graphic design, industrial design, film design, animation, and music. This survey is made among departments of graphic and industrial design students and faculty members as these students are estimated to be using more paper than digital tools compared to animation, film, and music students. Among 143 graphic and industrial design students and 10 faculty members, in total 56 individuals participated and filled out the questionnaires. In questions, papers used by individuals are categories and standardized as in the Table 1.

Table 1. This table is provided to students in the questionnaire form, which shows how papers are categorized and standardized by sizes and weight of paper.

QUESTION 1 How much paper do you consume **in a month** for your projects and courses? Please assume and write in the table numbers of the type of the paper and size that you consume **in a month.**

Paper Type	Paper Type					Paper Weight
	A5	A4	A3	50 x 100 cm.	70 x 100 cm.	
Sketch Book						A4, 160 gr. X 36 pages = 5440 gr
Note Books						A4, 60 gr. X 80 pages = 4800 gr
Drawing Papers						A4, 160 gr.
Card Boards						A4, (3mm) 400gr.

Source: Data gathered from the survey of the case study.

A4 size of sketchbooks, notebooks, drawing paper and cardboard according to the data collected from these individuals; **373.680 grams of papers used per month** by 56 people. By considering each academic year as nine-months, for a 4-year education, 13,45448 tons of paper are used, which is equivalent to 228,72616 trees consumed by 56 students in four years. In other words, the average consumption of paper of these 56 people in a month, which takes 6,3 trees to produce the paper products. The fact that *1 ton of paper equals 17 trees* in this calculation (McCorquodale & Hanaor (eds.), 2006: 39). According to the statistics of research for each student and professors in the graphic and industrial design departments, students should plant **4 trees** for their consumption of paper in their four year education. The population of

students and professors in these two-departments is 153. In the first year of the *Tree Plantation Festival*, just for these 2 departments, 153 individuals should plant **612 trees** for their coming 4-year education (for calculation, please see Table 2.). If we consider approximately 30 students entering to these 2 departments every year, in the following festivals, each year **120 trees** can be planted.

Table 2. Figures in red are the answers of individuals and calculation is placed in the bottom of the table.

Answers of 56 individual

Paper Type						Paper Weight /gram
	A5	A4	A3	50 x 100 cm.	70 x 100 cm.	
Sketch Book	-	56	-	-	-	5440 gr X 56 = 304.640 gr
Note Books	-	12	-	-	-	4800 gr x 12= 57.600
Drawing Papers	-	39	-	-	-	160 gr x 39 = 6.240
Card Boards	-	13	-	-	-	400gr. X 13 = 5.200
	Numbers of pages				Total:	373.680 gr/per month by 56 people

(1 Academic year is estimated as 9 months / 1 ton of paper estimated as 17 trees)
Paper for 4-year education used by 56 students: 373.680 X 36 months = 13.454.480 gr= **13.45448ton**
13.45448 ton x 17 trees = **228.72616** trees
228.72616 trees **/ 56** Students = **4.084 trees per student to plant for his/her 4-year education**

Plantation of *612 trees* for the first year and the following year's *120 trees* are results originate from calculations based on answers to the first question of a simple questionnaire. Among answers that we received, only A4 format paper consumption is estimated to simplify the calculation. Other numbers assigned to other sizes did not seem very reliable as participants assume their consumption. Therefore, the results only contain the consumption of A4 format papers varying in different weights of paper, not any other papers used in the daily life of students used for education purposes such as cardboard, mail, photocopy papers etc.

The aim of this questionnaire is to objectify peoples' tendencies that have been observed by authors, within tangible results. This survey creates a limited numerical example, which is not purposed to provide a large-scale statistical data. The amount of sampling groups and questions in this survey are under the limits and criteria of statistical data presentment (Yazıcıoğlu ve Erdoğan, 2004:40). Nevermore, results here provide us a perspective in paper consumption and the level of socio-ecological awareness of the community by empowering the author's predictions and the motivation to continue the case.

5.2. Observations
Observations were made in the spaces of the faculty such as in design studios after a design class and paper containers located in the corridors to gather waste paper to send it to recycle firms (Figure 1). Leftover papers are left for others' use, but most of the cardboards are cut into pieces and then they are thrown away. Therefore, students have consequently waste paper piles in the studios. The recycle containers contain used newspapers, envelopes from mail and package cartons after being used, etc.

Figure 1. Leftover papers in the design studios of the Art and Design faculty were observed.
Source: Photography by Ali Hosseinzadeh Forsi

5.3 The Exhibition and Interviews for Tree Plantation

Our next step was to spread awareness about tree plantation in our environment, which we accomplished by interviewing people (students and faculty members) at our final exhibition day of the course. In the exhibition, posters and hand made paper-trees are presented to emphasis the facts of paper waste (Figure 2). During the exhibition we recorded interviews of students and faculty members and asked them three simple questions about their plantation habits.

The questions were:
1. Have you ever planted a tree?
2. How many trees you have planted so far in your life?
3. Do you recycle paper or use recycled paper?

We interviewed thirty people at the exhibition -*including six faculty members, and the rest were students-*. It was found out that 10% of people told that they have planted an average of five trees and few plants in their life and they are conscious about their habits of paper consumption. They also explained the processes and methods they use to recycle paper and how they reuse the trashed paper. But 70% of the students were unaware of their responsibility for planting trees for their consumption and wastage of paper. During the exhibition we also announced a Festival for the Tree Plantation of Art and Design Faculty at Yaşar University.
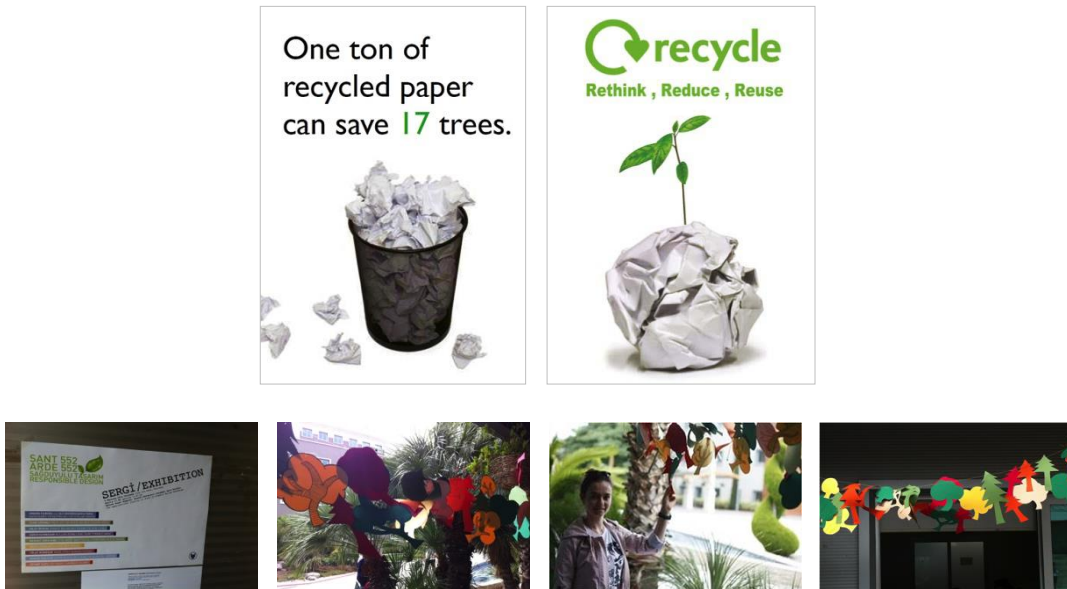

Figure 2. The posters designed for the exhibition to attract attentions to the facts of paper consumption (top images). Photographs from the exhibition held at the campus on June 5th 2014 (bottom images).
Source: Design of posters and photography by Ali Hossienzadeh Forsi

5.4. Implementation of "Yaşar Tree Plantation Festival"

This Yaşar[3] Festival for the Plantation trees will be an affirmation of our approach to compensate the loss of the forests on earth that we have done on our behalf. Also we look forward to it as the first step towards a change. We intend to make people aware of their higher responsibility and their role in the balance and welfare of this planet we live in and the ecology we are a part of.

The festival will be a celebration of the awareness and consciousness of responsibility towards Mother Earth. We propose to make it a ritual in Yaşar University for all incoming students. The festival will be organized by the end of Septembers which is the beginning of the new semester. To realize the dream of

---

[3] *Yaşar* means in Turkish that one who is alive.

this festival a proposal will be presented to the decision makers of Yaşar University for the allotment of a place and funds for the festival. Every student will be given 4 trees to plant into the allotted space. Those trees will be a symbol of love and concern for earth, for its environment, its inhabitants and for the generations to come after us. This effort for the plantation of trees to compensate the use of the forests of the world might not be sufficient but it will transfer a thought of responsibility to the souls who are sensitive enough to live in oneness with this planet and its ecosystem.

6. Conclusion

The purpose of this research is to contribute to *Socially Responsible Design Education* by exemplifying ecologically and socially responsible design acts in a graduate program. A case study is a design action, presented, which is aiming to create awareness on paper consumption behaviors – and negative impacts- in an academic community by an exhibition and a festival. In this exhibition, results of survey, posters designed carrying facts of paper-wasting are presented, a Tree-planting Festival proposed and interviews made with people in order to research for peoples' consciousness, knowledge on paper-consumption and planting tree in order to increase levels of awareness.

The motivation of this research is based on thoughts and knowledge, in which even simple approaches affect changes in complex structures; promulgating long-term thinking about 'ecologically sensible' design instead of short-term, profit-based business thinking. This study is a basic contribution to escalate the thought and sensitivity about nature among people with a simple actions approach by *responsible design thinking* and *deep* and *social Ecophilosophy*.

In conclusion, the study shows that even a very simple survey shows highly meaningful results that our daily behaviors relating to paper-use has a low awareness. The tree-planting festival is a simple-minded organization has valuable potential such as *planting 612 trees for the first year*, contributing to socio-ecological awareness and effort for increasing forestation standing for climate change hand-made catastrophe by this way. A common idiom is that, "a pebble can create a great ripple in the river"; it is imagined our modest efforts may result in greater achievements.

REFERENCES

Brennan, A. and Lo, Y-S., 2011. Environmental Ethics, *The Stanford Encyclopedia of Philosophy* (Fall Edition), Edward N. Zalta (ed.), retrieved from URL = <http://plato.stanford.edu/archives/fall2011/entries/ethics-environmental/>. [Accessed on 14.07.2014]

Deep Ecology, 2015. *In Encyclopaedia Britannica*. Retrieved from http://www.britannica.com/EBchecked/topic/765744/deep-ecology [Accessed on 25.04.2015]

ForestEthics, 2014. San Fransisco / Bellingham (n.d.). http://www.forestethics.org/paper-the-facts [Accessed on 16.04.2014]

Forestry, 2014. http://forestry.about.com/od/treephysiology/ss/A-Hardwood-Tree-And-How-It-Grows.htm

Emerson, R. W. 1844. Nature, *Essays*: *Second Series,* retrieved from http://www.emersoncentral.com/nature2.htm [Accessed on 02.06.2014]

Environment and Ecology, 2015. *Deep Ecology,* retrieved from http://environment-ecology.com/deep-ecology/73-deep-ecology.html [Accessed on 23.04.2015]

Erlhoff, M., & Marshall, T. (Eds.). 2008. *Design Dictionary, Perspective on Design Terminology.* Basel, Boston, Berlin: Birkhauser Verlag AG.

Lee, L V: Collections of essays Spiritual Ecology, The cry of Earth, Published by: Golden Sufi Center, California. Web site 2013

McDonough. W. & Braungart, M., 2002. *Cradle-to-Cradle*, North Point Press, New York.

Global Environmental Service 2014. http://www.globalrcy.com/blog/bid/241176/How-Recycling-Paper-Can-Benefit-The-Environment [Accessed on 02.06.2014]

Papanek, V. J. 1971. *Design for The Real World, Human Ecology and Social Change* (Second Edition ed.). New York: Pantheon Books.

Stern, N. 2007. *The Economics of Climate Change, The Stern Review,* Cambridge University Press. UK

McCorquodale, D. and Hanaor, C. (eds.) 2006. *Recycle, The Essential Guide,* Black Dog Publishing, London.

Vaughan-Lee., L. 2013. The Call of the Earth; excerpt from the anthology, *Spiritual Ecology: The Cry of the Earth, published* in *Parabola Magazine*, issue: August 2013, retrieved from: http://www.goldensufi.org/a_call_of_earth.html [Accessed on 02.06.2014]

Vaughan-Lee., L. 2011. *Praying for the Earth,* Published online on the Huffington Post*,* retrieved from: http://www.workingwithoneness.org/articles/praying-earth [Accessed on 02.06.2014]

Yazıcıoğlu, Y. ve Erdoğan, S. 2004. *SPSS Uygulamalı Bilimsel Araştırma Yöntemleri,* Ankara: Detay Yayıncılık

End Notes

[i] *"The Norwegian philosopher Arne Naess coined the phrase **deep ecology** to describe deep ecological awareness. Deep ecology is the foundation of a branch of philosophy known as **ecophilosophy**, Arne Naess prefers the term **ecosophy**, that deals with the ethics of Gaia"* (Environment and Ecology, 2015).

[ii] *"Environmental ethics is the discipline in philosophy that studies the moral relationship of human beings to, and also the value and moral status of, the environment and its nonhuman contents. This entry covers: (1) the challenge of environmental ethics to the anthropocentrism (i.e., human-centeredness) embedded in traditional western ethical thinking; (2) the early development of the discipline in the 1960s and 1970s; (3) the connection of deep ecology, feminist environmental ethics, and social ecology to politics; (4) the attempt to apply traditional ethical theories, including consequentialism, deontology, and virtue ethics, to support contemporary environmental concerns; and (5) the focus of environmental literature on wilderness, and possible future developments of the discipline* (Brennan & Lo, 2011).

[iii] **Deep Ecology:** *" The "shallow ecology movement", as Næss (1973) calls it, is the "fight against pollution and resource depletion", the central objective of which is "the health and affluence of people in the developed countries." The "deep ecology movement", in contrast, endorses "biospheric egalitarianism", the view that all living things are alike in having value in their own right, independent of their usefulness to others. The deep ecologist respects this intrinsic value, taking care, for example, when walking on the mountainside not to cause unnecessary damage to the plants."*

"... Inspired by Spinoza's metaphysics, another key feature of Næss's deep ecology is the rejection of atomistic individualism. The idea that a human being is such an individual possessing a separate essence, Næss argues, radically separates the human self from the rest of the world. To make such a separation not only leads to selfishness towards other people, but also induces human selfishness towards nature. As a counter to egoism at both the individual and species level, Næss proposes the adoption of an alternative relational "total-field image" of the world. According to this rationalism, organisms (human or otherwise) are best understood as "knots" in the biospherical net. The identity of a living thing is essentially constituted by its relations to other things in the world, especially its ecological relations to other living things. If people conceptualise themselves and the world in relational terms, the deep ecologists argue, then people will take better care of nature and the world in general."

"... As developed by Næss and others, the position also came to focus on the possibility of the identification of the human ego with nature. The idea is, briefly, that by identifying with nature I can enlarge the boundaries of the self beyond my skin. My larger -- ecological -- Self (the capital "S" emphasizes that I am something larger than my body and consciousness), deserves respect as well. To respect and to care for my Self is also to respect and to care for the natural environment, which is actually part of me and with which I should identify. "Self-realization", in other words, is the reconnection of the shriveled human individual with the wider natural environment. Næss maintains that the deep satisfaction that we receive from identification with nature and close partnership with other forms of life in nature contributes significantly to our life quality. (One clear historical antecedent to this kind of nature spiritualism is the romanticism of Jean-Jacques Rousseau as expressed in his last work, the Reveries of the Solitary Walker)" (Brennan & Lo, 2011).

[iv] **Social Movement** was suggested by Murray Bookchin in 80's and 90's. (Brennan & Lo, 2011).

[v] *Basic principles that describe deep ecology:*
1. *The well-being and flourishing of human and nonhuman life on Earth have value in themselves. These values are independent of the usefulness of the nonhuman world for human purposes.*
2. *Richness and diversity of life forms contribute to the realisation of these values and are also values in themselves.*
3. *Humans have no right to reduce this richness and diversity accepts to satisfy vital needs.*
4. *The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life demands such a decrease.*
5. *Present human interference with the nonhuman world is excessive, and the situation is rapidly rapidly worsening.*
6. *Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.*
7. *The ideological change is mainly in appreciating life quality rather than adhering to to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.*
8. *Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary change.* (Environment and Ecology, 2015)

ANNEX

QUESTIONNAIRE RESEARCH FOR PAPER RECYCLING AND TREE PLANTATION
ARDE 552 RESPONSIBLE DESIGN / MASTERS CLASS PROJECT
NAME & SURNAME _____
DEPARTMENT _____

> QUESTION 1   How much paper do you consume **in a month** for your projects / courses?
Please assume and write in the table: numbers of the type of the paper and size that you consume **in a month**

PAPER TYPE	PAPER SIZE					
	A5	**A4**	**A3**	**50 x 70 cm**	**70 X 100 cm**	
SKETCH-BOOK						**NUMBERS**
NOTE-BOOKS						**NUMBERS**
DRAWING SHEETS						**NUMBERS**
CARD BOARDS						**NUMBERS**

> Q2 How much money (as an average) you spend on paper every month? (TL)
O Less then…   **O** 10 – 50 TL   **O** 50 – 100 TL   **O** 100 – 250 TL   **O** 250 – 500 TL   **O** more then…

> Q3 Do you know what paper made of?
……………………………………………………………
> Q3 Have you ever plant a tree in your life?
O Yes   **O** No

> Q4 If you have planted tree, how many trees you have planted in your life?
  O 1– 10 **O** 10 – 50   **O** 50 – 100   **O** 100 – 500   **O** more then…

> Q5 Are you interested in planting tree?
O Yes   **O** No

> Q6 Do you re-use or re-cycle paper? If your answer is YES, how do you re-use or re-cycle it ?
O Yes   **O** No
………
………
………
………
………
………
……....
Thank you.   Name of Authors