

‘HANDS ON’: A DESIGN PROJECT FOR A SUSTAINABLE FUTURE

Jeanette HELLEBERG DYBVIK and Lise-Kari BERG

Oslo and Akershus University College of Applied Sciences. Faculty of Education and International Studies

ABSTRACT

This paper is a contribution to design education for the general public. Primary school teaching students at Oslo and Akershus University College of Applied Sciences (HIOA) have executed design tasks with the aim of achieving a greater consciousness around a sustainable future. This text has its vantage point in a specific design task, ‘Hands On’, where the students were to design a lamp made of wood and recycled materials. The design task consisted of re-designing an old lamp, which was used as the template to design a new one. The focus of the paper is on how material consciousness defines the design process from a sustainable perspective. The teaching example is illuminated through a dialogue with, amongst others, Richard Sennett’s term ‘engaged material consciousness’. The text shows how the craft is about more than just physical execution. Design competence is going through social changes, and this paper describes an example of teaching students to engage with the material world we live in. Methodically, the examination builds on research-by-design, where the practical, aesthetic work with the material is the deciding factor. The text exemplifies how being ‘hands on’ with the material is a fundamental way of learning through the design process.

Keywords: Engaged material consciousness, research-by-design, education for the future, re-design, reuse, dynamic repairing, sustainable future, environmentally conscious.

1 INTRODUCTION: ENGAGED MATERIAL CONSCIOUSNESS

Throughout this paper, we will, with a focus on material consciousness, exemplify how design teaching can be executed in the education of primary school teachers, with sustainability as a superior perspective.

Amongst many other tasks, primary school teachers are also obliged to lay the foundation of knowledge for the engineers and product designers of the future and for those who collaborate with them or who will utilize what they design.

The Brundtland commission, point no. 107 (1987), addresses attitudes regarding sustainable development and social development that accommodate today’s consumer needs without diminishing the opportunities for future generations to have their needs met. One of the UN’s goals for sustainable development is to secure sustainable patterns for consuming and production, by, amongst other ways, reducing the amount of waste through reduction, recycling, and reuse[1]. Fundamental values regarding tomorrow’s society are established through education, and sustainability is central in the curriculum of the primary school teachers’ education[2].

The teachings of the schools of education should reflect important aspects of the design process from a sustainable perspective, which could lead to changes in human attitudes. Here, we would especially like to focus on material consciousness as a determining factor in understanding quality, which in turn, is connected to understanding what can help create a sustainable future.

This text has its basis in a design task, ‘Hands On’, performed by students in the Department of Arts and Crafts at Oslo and Akershus University College of Applied Sciences (HIOA). It is important to the understanding of the text that the reader know what framework this subject is organised within. Arts and crafts is an optional course in the Norwegian primary school teacher’s course of study. Practically speaking, this means that most of the students who choose this subject will graduate with 30 or 60 study points in arts and crafts, where design is one of the main areas of study (the other main areas are

visual arts, sculpture, and architecture). Within this framework, the students achieve a basic education that will equip them to teach in primary schools.

Methodically, we examine examples from our teaching mainly through the qualitative method—research-by-design. Sevaldson presents experimental design practice as an analytical tool in design research. His definition of experimental practice is: ‘The practice is experimentally changed and modified to explore and evolve concrete enquiries, research questions or effects’ [3:28].

In this context, we understand research-by-design as exploration through concrete practical, creative work with materials in the design process and where one’s own observations in a teaching setting and the experiences of the students in the process, also work as part of this exploration. ‘Arts’ is a term for aesthetical experience with several kinds of ‘art’ [4][5]. Here, research-by-design falls under ‘arts based research’.

This involves a dialogue between hand, head and experience through the sensory apparatus, which will be clarified further in Section 2.1. The design project is based on Richard Sennett’s use of the term ‘engaged material consciousness’, which is material consciousness that initiates a conscious, craft-based effort to achieve good quality work. This work is dependent on a curiosity about the materials at hand. Sennett claims that humans are especially interested in things they can alter. He calls this ‘engaged material consciousness’. People invest thoughts and are present when meeting materials; they amass knowledge and material experience. Sennett uses metamorphosis as an explanation of engaged material consciousness: ‘Metamorphosis can be as direct as a change in procedure, as when potters switch from moulding clay on a fixed platter to building it up on a rotating wheel: potters who do both will be conscious of the difference in technique’ [6:120].

2 ‘HANDS ON’: RE-DESIGN OF A LAMP

The design task was performed in the primary school teaching course and had an environmentally conscious ‘reuse’ profile. The example that the text alludes to points out essential details that have made themselves visible in the execution of the task: dynamic repair and engaged material consciousness for a sustainable future. The ‘Hands On’ design task was to re-design a lamp where wood was the primary material. An old lamp was used as the vantage point for designing a new one using old wood scraps chosen from boxes of ‘leftovers’. The design task was one of the many mandatory tasks which the course is made up of. 28 students partook in the curriculum. The task is evaluated as a whole, through assessment of written and visual documentation of the process and an end product. The documentation of the process consisted of, amongst others, moodboards, sketches of ideas, editing of the sketches parallel to trying out techniques, and finally, a work drawing.

According to Taguchi, ‘Physical objects and artefacts can be understood as part of a performative acting production of power and change which stands in active relation to other physical objects and people’ [7:14]. Therefore, how these recycled materials feel and are experienced affects how the student works with the object and what choices he or she makes along the way; an interaction between student and material is created. Furthermore, one can say that all objects that surround people affect what is being learned. In the lamp project, the chosen objects were wooden materials from the left-over box and old lamps used and combined to re-design a new lamp. Learning takes place amidst the interaction among the student, teacher, tools, techniques and materials. Therefore, the teacher should, in design projects such as this, make use of the potentials that exist in spaces, objects, tools, reused materials, and other materials. As one student said, ‘This is a great re-design project, especially considering the environment, as we had to look through the “left over” boxes for wooden materials, or bring old wooden materials and lamps, for example from a chair, and use our creativity to create something new’.

The craft element can be about more than just the physical execution. The students faced concrete challenges connected to the use of tools and repairs, but the products should be made with a high degree of craftsmanship. The students showed great curiosity regarding the possibility of new combinations of recycled materials. In this case, the curiosity could be connected to a conscious wish to create a re-designed object [6]. The higher goal was to help the students form a conscious relationship with a sustainable future.

2.1 Experiences through re-design project: a methodical approach

Included in the re-design process of developing and creating, there were aesthetic occurrences, trust, freedom, surprises, and ups and downs. The students have shared their experiences from the re-design

project—these are actual events that have been accomplished and can be examined. As documentation, the students' reflections, quotes, and observations are used. In line with arts-based research as a method, our data material has been documentation of the process, from idea to finished product, which is described under point 2.0, as well as observation throughout the run of course.

Arts-based research (ABR) is an umbrella term that covers practical and productive knowledge. ABR is also practical insofar as it deals with contingencies that are temporal and not subject to specific answers. 'Arts' is a term for aesthetic experiences with several types of art: crafts, design process, art, design, visual expressions, and multimodal art expressions, to mention only a few. Crafts and design process open up for meetings with the aesthetic dimension where all the senses are affected. Research-by-design is then implied in this term [4][8]. With this, one can see practical re-design, exemplified here, as research-by-design. ABR as a qualitative method, is an approach to research as 'a method designed to enlarge human understanding' [4:8]. With this approach, teaching students' practical work with recycled materials is explored as an understanding of a sustainable future through a re-design project. A general definition of ABR is 'the systematic use of the artistic process (...) the actual making of artistic expressions in all of the different forms of the arts, as a primary way of understanding and examining experience by both researchers and the people that they involve in their studies' [9:29]. Here, the method is used to explore the students engaged material consciousness and experiences in the re-design process. In this context, it is interesting to note that when Bresler writes about qualitative research and relevant processes, he emphasises that empathy, execution, and sensibility to qualities is directly relevant to the research. This paper brings to light some qualities that are described as dynamic repair and engaged material consciousness. It was these terms that distinguished themselves in the re-design project.

2.2 Re-design and dynamic repair

Experiences with repairs became directly relevant to the students who took part in the project.

According to Sennett, 'The simplest way to make a repair is to take something apart, find and fix what's wrong, then restore the object to its former state. This could be called a static repair (...) A dynamic repair will change the object's current form or function once it is reassembled (...) the dynamic repair may invite new tools for working with objects' [6:200]. The re-design of the lamp is an example of this kind of dynamic repair; one adjusts, changes, and renews the object's original form. The re-design project challenged the students to reuse old wooden materials and lamps. Suitable tools and handling and touching the materials became necessary to execute the dynamic repairs. One student said this:

'It has been very exciting to work with wood and re-design one's own lamp. This period has inspired me to work with wood at school and during my spare time. It has also given me the inspiration to work with reuse. It has given me new experiences with tools, so that I was able to design the lamp in a completely new way. I thought there was something wonderful about the way the lamp casts shadows that are reminiscent of branches and trees, which reflects this period.'

This quote reflects the experience of acquisition of engaged material consciousness through the choice on one's own tools. A dialogue between hand and head [6] and a mutually acting production between things and people was created [7]. To re-design a lamp and accomplish a dynamic repair required physical items, material objects, and tools. Several of the students acquired new material knowledge, and they expressed that it was inspiring to design their own lamp. This shows 'life experienced' and experiences through practical work. The quality of the objects and the materials determines what kind of learning takes place when the students meet them with their bodies, their senses, and their attention [4]. The students themselves assessed what kind of potential they saw in the old lamps. To ensure high quality, the students were supposed to utilise one or several joining techniques such as mortise with wooden plugs, dowel joints, mortise and tendon, or finger joint (see Figure 1) [10]. These joining techniques give strong and stable results, and involved the necessity of being able to handle tools.



Figure 1. The bottom of the lamp is joined with several bits of wood and the base for the lightbulb is inserted in the bottom. Tracks for the cord are carved, and the plugs are old, golden steel pipes cut with a hacksaw.

The students experienced working their way into the material in a more thorough way since they were relating to the properties of the wood, which leads to a greater material consciousness. One can see this material consciousness as a bodily experience—the act of sawing at a right angle, how one holds the plane, how hard one has to press the chisel against the wood to achieve exactly the track one would like, feeling how a wooden plug has to be in order to fit precisely when one is joining two pieces of wood together. Here, one can see the body as Merleau-Ponty does: the body as experiencing, sensing, and acting [11]. Through the work of creating a lamp, one can say that the students' craft-based efforts in the design process show an engaged material consciousness, but one can also say that it is a bodily manifestation of material experience. Previously in this section, we have alluded to Sennett, who writes about a dialogue between hand and head. In this context, this can be seen as related to Merleau-Ponty's bodily manifested experience. The practical work—the hands-on approach—with the materials increases the students' engagement and understanding. This can be understood as a transformation between materials, a metamorphosis, in accordance with the clarification of terms in the introduction [6]. The students received valuable experience with what materials and tools work best when they are going to teach re-design projects in primary schools. The hands-on approach to recycled materials can give a lived experience where the possibilities and limitations of wooden materials is experienced and the students achieve new knowledge about suitable tools to connect something new with something old. The 'Hands On' task showed the students working their way into the material as a bodily manifestation of material experience, but one can also say that the students acquired personal material experience with dynamic repair where the activating of the sensory apparatus is central. In the quote above, the student makes it clear that the experience with tools in this dynamic repair has inspired her to work with a good base in craftsmanship at school. This experience led to engaged material consciousness, curiosity, knowledge, and a dynamic repair.

2.3 Re-design and consciousness of a sustainable future

The superior perspective of sustainability in the design project is supported by the argument that the reduction of waste is the most important contribution to a sustainable society. As we pointed out in the introduction, this has been on the agenda for many years, both nationally and internationally, to prevent waste from forming, to promote reuse, to recycle materials, to reduce the amount of waste through a change in consumption and production [1]. From a design perspective, one can carry this thought further—if we produce things of high quality that can be used for a longer time, we will throw less away, and this will have a positive effect on the environment. This requires that we have knowledge of and understand what quality is. Connecting re-design and good quality crafts has led to experiences that give a different understanding of sustainability, which is far superior to simply reading about the subject. Several of the students gave the lamp an emotional value, 'more soul', that exemplifies how emotions and senses can become part of craftsmanship. Physical contact with recycled materials arose, which engaged the head and hands in how old materials could be put

together in new ways [8]. Bresler says that one should connect to that which one is examining, and the students felt it was meaningful to connect through involving all their senses—to look for materials, to physically feel their way with their hands through the different materials, to choose the right tool, and to engage in the curiosity and eagerness to solve problems. Choosing one's own materials amplifies the sustainable understanding through the design process. The act of connecting to the material is, as we have shown here, closely related to the practical work and to learn about sustainability through the design task. To further illuminate and underline this practical aspect, we can see this as if the knowledge exists *in* the act and in the evaluations and assessments which are made in relation to this. The bodily and the attention is in the centre: The right touch, the eye for what has to be done and when it is to be done [12]. Another way of illuminating the act of learning sustainability through work with materials in the design process, is '(...) the actual making (...) as a primary way of understanding and examining experience (...) These inquiries are distinguished from research activities where the arts may play a significant role but are essentially used as data for investigations that take place within academic disciplines that utilize more traditional scientific methods' [13:29]. In this context, the art process is comparable to the design process.

When the students were engaged in the technical execution, most of them said it wasn't so easy. As mentioned in the introduction, both the students and the teachers worked within a relatively limited setting. This means that, for example, the techniques that are presented to the students must be very consciously chosen by the teachers. In this way, the teacher makes sure that the techniques aren't too complicated so that the students have the opportunity to succeed in making a product with a high degree of craftsmanship and quality. But this challenges the students' abilities to make the simple well. In this design project, we could see that the students who were able to put quality in the details in simple constructions achieved a product that was good from a craft-based perspective. The students were very interested; they wanted knowledge of how to accomplish the technique in the right way. Sennett says, 'We can tolerate the frustration because we are now also curious; the possibility of making a dynamic repair will stimulate, and the multipurpose tool will serve as curiosity' [6:200].

In the design process towards the finished lamp, it wasn't just the experience of the materials and the craft process that were important. To develop a good product, it was also important to connect knowledge from other subjects to the product development. The students connected re-design to, for example, compositional principles in the development of form so that they achieved the expression they wanted in the lamp. This led to them understanding the design process better. They showed joy and motivation during the project, but also frustration. When the students mastered the craft, they expressed joy at being able to produce a product they were pleased with. It is important to add that in this entire process, supervision, time, and time management, played an important role.

The re-design project makes visible that, by focusing on engaged material consciousness and quality of craftsmanship, one can create good products in a sustainable context. This is made even clearer through, amongst others, exemplification of how material consciousness is closely related to dynamic repair and an understanding of quality.

Through the documentation, we see that most of the students could see the connection between material knowledge and material awareness, and were able to connect this to consciousness of a sustainable future. We believe this would not have been able without them working practically with the material – "hands on" – in combination with a written reflection. Through the feedback from the students, we can see that 'Hands On' was a project where sustainability became apparent through action.

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