Authenticity, Sustainability and Design
Developing guidelines and product examples

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Abstract

This paper looks at the relationships that exist among 1) the notion of the 'authentic' object, 2) the principles of sustainable development, and 3) product design, with a particular focus on furniture design. The main argument of this discussion is that when product design addresses the economic, environmental and social considerations of sustainability in a meaningful and responsible manner, then the design process and the designed product will be authentic.

Firstly, 'authenticity' is explored in terms of self-awareness, self-reflection and personal responsibility. These three, it is argued, constitute the cornerstones of a contemporary understanding of authenticity. In turn, sustainability is examined with particular reference to its implications for the design and manufacture of material goods, and the economic, ecological and social ramifications are discussed. From these two explorations a set of succinct guidelines for the designer is developed.

The second part of this paper is the application of the theoretical discussion by direct engagement in the design process. A number of furniture pieces are explored, leading to a presentation of 'product as metaphor' which, through physical design, symbolizes the integration of materials and techniques, across various scales of production, that must become reconciled if 'sustainable product design' is to be achieved in ways that are progressive, feasible, enriching and 'authentic'.

Lastly, the insights gained from the theoretical discussion and the exploratory design process come together in the design of a series of lighting products that are considered to be authentic representations of sustainable product design.

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Introduction

This paper explores the contemporary notions of authenticity and sustainability and how these relate to the practice of design. It will be shown that the development of these ideas through theoretical and practical design explorations can result in design interventions that are authentic representations of material culture for a more sustainable society. (1) After first examining 'authenticity' and 'sustainability' and the relationships that exist among them and our material culture, we will discuss how these ideas relate to the process and products of design. Two design exercises are presented. Firstly, the willow chair is an exercise in design as metaphor, and is the result of juxtaposing different scales of production within one object. Secondly, the HLC series of lamps is the product of combining various scales of manufacture within a product in hopes of creating an authentic, sustainable product design. Finally, a series of guidelines are presented that were identified during the design explorations, and can be drawn upon to inform further research into sustainable product designs.

Authenticity

As designers, we usually equate the idea of authenticity with the physical existence of objects as accurate representations of certain historical, political, philosophical or design movements. Another, more metaphysical interpretation of the expression of authenticity relates to the conscious awareness of our existence as human beings. In his book "The Malaise of Modernity" Charles Taylor refers to authenticity as an "ethic" based on a demand that all persons think self-responsibly for themselves. (2) Being aware of oneself as an independent and responsible entity permits one to determine what is important and meaningful in one's own life without interference from outside influences. This unique and original perspective on morality makes us who we are, and contributes to the authenticity of our lives. Through meaningful interaction with our cultural context, we can begin to form an internal moral framework through which we view the world. It follows then, that the way in which we view the world around us becomes an important influence on how we act. It is our unique interpretation of our experiences and the manner in which we take responsibility for

our interpretations that form the intent of our actions. In order for our actions to be authentic they must be the manifestation of informed ethical intent.

We all have a unique way of defining ourselves against the background of our cultural influences. If these definitions are to be meaningful and authentic, then we must act in accordance with our moral and ethical beliefs. It is the integrity of this intent, in relation to an authentic culture, which determines the authenticity of our actions. Being continually self-reflective implies an iterative process of constant moral adjustment and personal growth. Living an authentic life is not a goal, but a process of inner growth. Just as we change as we age, paradigms also tend to change. Indeed, if a culture is to be deemed authentic, it must change. If we accept that active participation within our cultural milieu is necessary for an authentic experience, then it follows that the culture around us must also adapt and change to facilitate this active and meaningful participation. A culture that does not allow for an autonomous and self-reflective experience cannot be considered authentic.

Sustainability

The concept of sustainability is one that has come to dominate much of our contemporary culture. At he beginning of the 21st century we are increasingly inundated with references to the expression of 'sustainability'. Sustainable development, sustainable growth, sustainable forestry, etc., have become buzzwords for politicians, business people, and environmentalists the world over. Most often used in the context of the environment sustainability has come to mean different things to different groups. When we as designers speak of sustainable design, we most often refer to the issues of "green" design, design for recycling or disassembly. In the larger picture however, sustainability also includes economics and social equity, in addition to the environmental aspect.

Contemporary economic thought, developed along with the capitalist economy, is founded on the idea that human needs are infinite and can never be fully satisfied. This concept of perpetual growth is what drives the current economic paradigm to which we subscribe. So long as society experiences a need for products and services, real or perceived, there will be a demand for production. Indeed, we make judgments regarding the value of our society based on the performance of our economy. Unfortunately, this current economically driven paradigm often demands that social equity take a back seat to the provision of the perceived needs of a very few. While we toil less and less within our own society, we seem to expect other societies to toil for our benefit.

As it becomes increasingly apparent that the current paradigm is inherently unsustainable, it becomes equally important that our society have the ability to change itself. Just as self-reflection and moral adjustment are crucial elements of an authentic life, so is the evolution of the societal paradigm a vital element of an authentic and meaningful society. We hear much of the so-called global village, and the global economy, yet if we are to achieve a truly sustainable global society, it will have to be equitable for all segments of the world's population.

Authenticity, Sustainability and Design

As discussed above, an authentic existence is predicated on the notion that our actions are based on some meaningful interpretation of a particular worldview or paradigm. It seems clear that the current, dominant paradigm, based on continual economic growth, is not

sustainable. If we are to move to a more sustainable way of living, then there must be a significant shift away from the current destructive norms. This economically based paradigm has been a major influence on our society, and as such, is mirrored in the nature of the objects and artifacts which make up our material culture. If we are to develop a more sustainable paradigm as the basis for an authentic life, then we, as designers, must attempt to communicate the intent of this paradigm through the manifestation of material culture. In order for this to happen, the culture itself must be a meaningful and accurate reflection of the goals of a just and equitable society.

If we as designers support sustainability initiatives within the medium of product design, then we must be able to communicate this meaningful intent. As discussed earlier, three of the major issues that sustainability initiatives have in common are ecology, economy and social equity. As such, if we are to design products that are authentic representations of a sustainable society, then they must communicate elements that address at least one, or preferably all, of these issues. In terms of authenticity, the designer must make a conscious decision to create products that not only address the issues of sustainability, but which are also implicitly expressive of the designers concern for these issues. As designers, we are individuals, but also members of our local community, our society and the larger global community. The objects that we design will be unique to the designer, but they must also relate in some meaningful way to the culture of which we are a part, our own time and place. Juhani Pallasmaa says that: "The practice of design is existential - who am I, what am I doing here? Design is an expression of the authentic values of life". (3) In much the same way that the authentic life is an iterative process of self-reflection and adjustment, design is an iterative process of trial and error. Stuart Walker suggests that:

"The core of 'designing' can be likened to a search, an imagining, or a 'what if', which is separate from and in addition to the application of analytical technique…Philosophical issues are spawned - the ethics of aesthetics, issues of function, significance and meaning, the meaning of meaning, and its transformation into artifact. These lie at the heart of design." (4)

Theory and Practice – The Designs

The design explorations that follow are based in the desire to manifest authentic interpretations of what sustainable design might be like. The first exercise, the willow chair, is an exercise in design as metaphor. The intention was not to design a product, but to explore the possibilities of fusing two opposing philosophies of design, the modernistic view of mass manufacture with its high finish materials and repeatable forms, and the more traditional craft approach with its natural materials and small scale production. Furniture design was chosen as a vehicle since it seemed to lend itself to both extremes of production.

The Willow Chair

The Willow-Back Chair is an experimental exercise in fusing together two very different approaches to product design. On one hand, the chair exhibits elements associated with a modernist industrial approach to design using contemporary, highly finished materials and high-energy production methods. On the other hand, the chair has features associated with more traditional and sustainable design and production approaches. This includes the use of natural, low finish materials from renewable sources and low capital, craft production processes suitable for small-scale local production and simple assembly.

The chair is composed of three major elements that become metaphors for three different levels, or scales of production. The base or legs of the chair exemplify the conventional, high capital, global scale, and mass production approach to design. The chair back is composed of roughly cut willow branches. These natural elements, representing the traditional, low capital, craft approach to design by promoting local scale production and individual creativity, form the back support and provide a visual and tactile interface between the chair and the user. The seat pan, indicative of a batch production scale of manufacture, and using regionally produced oriented strand board (OSB), provides the physical and metaphorical transition between the modernist, mass-produced base and the locally created, craft-production seat-back.

Fig.1 Willow Chair Sketch

Using the chair concept as a vehicle, the integration of different scales of production in both a metaphorical and a physical way were explored. In terms of metaphor, the different physical elements of the chair embodied two disparate approaches to design and scales of production By forcing together the modern mass-produced approach and the low-technology craft approach in one unified piece, we hoped to establish an approach to design that brings together various scales of production, namely the local, regional and global, in an appropriate way. While the chair itself was not meant to be a product designed for production, the metaphorical issues that were raised needed to be addressed in a manner appropriate to designing a chair.

In developing the design details, it rapidly became apparent that the issue of "connecting" the precise machine made components and the rough, natural elements would become a very significant detailing problem. This connection can be seen as a metaphor for the issues involved in resolving these two, seemingly diametrically opposed design and manufacturing approaches.

The form of the base is very simple and mimics the characteristics of numerous modernist chairs, with its clean, rectilinear profile. As metaphor, the form represents the precision of modern industrial mass-production. The joints are fabricated to tight tolerances and rely on capital-intensive technologies to achieve a high level of finish. The aluminum support members are produced in a way that promotes repeatability and uniformity, features that are typical of those required for production in large numbers using modern high capital machinery.

Alternatively, the back support of the chair is comprised of willow branches cut to a length of approximately 4 feet long and with a diameter of between 1/2 and 5/8 inches. Willow branches were chosen for its inherent natural characteristics, which are typical of the types of materials traditionally used in local, craft based production and make the willow branches an ideal sustainable material. The inherent flexibility of the branches provided for a very supportive and flexible back support. When loaded in this application, the branches bend and conform to the shape of the users back. Since each branch is able to move independently, the result is a comfortable cradling effect that physically connects each user

with the chair in a unique way. This conflicts directly with the nature of the rigid modernist base, which promotes uniformity and suppresses individuality. Since the chair back must take a significant load, the connection of branch to base needed to be positive enough to keep the branches in place, while being flexible enough to allow the branches to flex freely. The branches also needed to be controlled in a manner that would overcome the lack of tolerance within the range of branch diameters without sacrificing the simple, craft-production aesthetic by machining or processing the natural elements.

The connection of the back supports to the base structure is the transition not only between the different physical elements of the chair, but also the transition, or reconciliation, of the disparate approaches to design. As such, the transition elements embody the resolution of the two radically different scales of production described previously, both literally and metaphorically. The seat pan forms a transition between the chair base and the chair back by connecting the different structural elements of the chair, while also representing the union of the two different design paradigms that needed to be reconciled in order to appropriately address sustainable production.

Aesthetically, the mechanism had to blend in with the established elements and provide a simple and elegant mechanical design solution. As a structural element, the seat pan is a simple square piece of OSB with holes drilled through along the back edge that correspond with the array of holes in the rear support member of the base structure. In terms of its metaphorical significance, the material chosen represents a "half-way" point between the natural willow branches and the synthetic aluminum base. Manufactured from wood waste and chemical resin, OSB represents a fusion of the two different scales and philosophies of production. Similarly, the control springs, fabricated from 3/16" birch plywood, are representative of combining efficient wood resource usage and mass-production technologies to produce an appropriate material for this application.

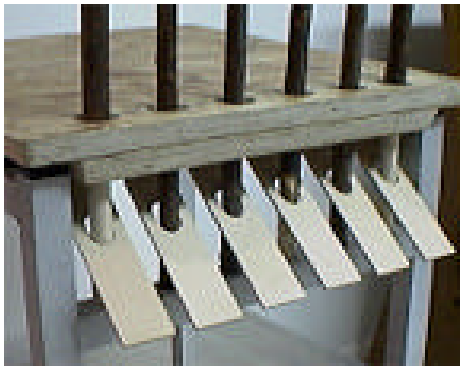

Fig.2 (left) Control spring assembly
Fig.3 Willow Chair (right)

As an exercise in exploring some of the important issues relating to sustainable design, the Willow-Back chair provides an example that is ideally suited to promoting sustainable initiatives at the local level. In forcing together two opposing approaches to design, the Willow-Back chair is a manifestation of synthesizing two radically different design paradigms and finding a successful resolution within one exploration.

HLC Lamps

The HLC series of lamps are a more product oriented design, influenced by the principles set forth in the authenticity and sustainability sections of the paper and inspired by the issues raised in the willow chair exploration. Using commonly available off-the-shelf mass-produced electronic components, simple unprocessed raw materials and elements salvaged from the waste streams of local manufacturers, the lamps are grounded in the desire to

combine various elements and levels of production in a manner that supports local manufacturing initiatives using energy-efficient and low capital manufacturing techniques.

The lamp design uses a simple electrical system, comprised of an exposed, low-voltage halogen spot light, a conducting support structure, common electrical components and a diffuser and foot switch fabricated from local materials. The elements for the system are readily available from local suppliers, providing for a scale of production that is appropriate for both very small, local scale production, or larger scale regional production. By utilizing off-the-shelf, mass-produced components, the capital costs for tooling are kept to a minimum, while facilitating easy repair should the unit be sold to a user in a distant location.

As with the willow-back chair, the design explorations for the lamp quickly became focused on developing appropriate connections between the various elements of the lamp. The major connection issues consisted of the electrical connections, the structural connections including the base/rod interface, the transformer housing connection and the diffuser connection. Another issue that needed resolution was the switch system.

The base is comprised of a fragment of rundle-stone or concrete, and has three holes to accommodate the steel support rod and the transformer housing. Small rubber feet provide a stable footing for the base.

Fig.4 HLC Base

Fig.5 Lamp Components

A stainless steel rod provides the mounting structure for the lamp components, while also serving as part of the electrical circuit. By choosing stainless steel we eliminated the need for finishing. The simple fabrication processes are well suited to local production, with no specialized tools or facilities required. The rod is simply inserted into the base with friction and gravity holding it in place, facilitating quick and easy assembly and speedy disassembly should repairs be necessary. The components used in the HLC lamps consist of a shielded, low-voltage halogen bulb, a socket which holds the bulb and provides the mounting points for the lamp supports and the electric circuit, a lamp support and a cable clamp.

The diffuser for the lamp is formed by a thin sheet of maple veneer, salvaged from a local furniture manufacturer. The diffuser is affixed in front of the lamp by a wire support that also doubles as part of the electrical circuit. This supporting element mirrors the control springs of the willow-back chair in that both elements provide the controlling force that enables the natural elements of the respective designs to be experienced by the user. When the light shines through the veneer, a soft yellow light is produced and the wood grain becomes visible to the eye. In much the same way as the willow branches provide a natural sensual interface between the user and the chair, the diffuser provides a sensual connection with the lamp.

Fig.6 HLC Footswitch

The foot switch utilizes a rubber hockey puck modified to accept an electrical push button switch. The puck provides the necessary size and weight to adequately control the cord, is robust enough to withstand the repeated abuse from the user's foot and fits well with the aesthetics of the lamp.

The versatility of the basic HLC concept supports a wide range of materials and color combinations, and is not so much a single defined product as it is a framework for producing lamps that adhere to authentic and sustainable principles of design and manufacture. In defining the details of the lamp, great attention was given to ensuring that a variety of materials and configurations could be incorporated without jeopardizing the integrity of the design.

Fig.7 HLC Lamp

Guidelines

The design phases of this project resulted in the identification of several guidelines, which can be used in the design sustainable products. Integrating different scales of production while using local production initiatives tends to produce only what can be consumed locally. Production and consumption come closer together resulting in savings of materials and energy. Local production promotes the use of locally available materials, energy sources, and labour skills, while utilizing mass-produced items where appropriate. “Locally adapted solutions can replace matter, energy, and waste with design intelligence. Such an approach matches biological diversity with cultural diversity rather than compromising both the way conventional solutions do." (5)

Designing products that make use of cast-off materials promotes the establishment of an industrial ecology, where the wastes from one industry become the food for another. The minimization of post processing of the raw materials further contributes to this cycle. By specifying materials that are waste products from established industries the designer contributes to the establishment of an industrial ecology, where the wastes from one industry are used as the fuel or raw materials for another. Minimizing post processing and finishing of components helps to ensure that parts may be disassembled and reused.

By minimizing the use of fasteners and hardware, much of the assembly is completed without the use of power tools and machinery. Encouraging manual assembly where appropriate, the design facilitates a more intimate relationship between the object and the maker. In this way, the craftsman takes an active role not only in the assembly of the product, but also in the determination of design details and finishes. At the local level, such trust between the designer and the maker encourages a more humane and rewarding working environment, and will most likely result in a higher quality product.

Conclusion

The themes of 'authenticity' and 'sustainability' provide a provocative and relevant background against which the process of design can, and should, take place. J. Mays, the vice president in charge of design for the Ford motor company, suggests that the future success of major corporations will be based on supplying "regional products - sold locally"(6), this notion is currently being explored in the development of the e.Volution car (7). This seems to support the notion that local initiatives, providing products with regional appeal, can be a viable and effective vehicle for promoting a more sustainable way of living. The key to making such endeavors successful lies in providing products that exhibit a genuine concern for the environment, provoke thoughtful interaction, and are produced in a sensitive and equitable manner. By ensuring that these products are economically viable and aesthetically appealing, they stand a better chance of competing successfully against mass marketed, industrially produced objects. One approach to this is through the appropriate integration of different scales of production within products. By utilizing mass-produced, off the shelf components in combination with locally and regionally available raw materials and locally produced assemblies, the HLC lamp design realizes significant savings over comparable conventionally produced lighting products.

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Note

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