Incorporating ecological considerations into industrial design practice

Johannes Behrisch
Institute for Sustainable Futures
University of Technology, Sydney

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Certificate of original authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student: ____________________________ (Johannes Behrisch)

Date: 17.07.2013
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## Abbreviations

<table>
<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>AT</td>
<td>Adaptive Theory</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CfD</td>
<td>Centre for Design</td>
</tr>
<tr>
<td>DIA</td>
<td>Design Institute of Australia</td>
</tr>
<tr>
<td>GT</td>
<td>Grounded Theory</td>
</tr>
<tr>
<td>HCD / UCD</td>
<td>Human Centred Design / User Centred Design</td>
</tr>
<tr>
<td>ICSID</td>
<td>International Council of Societies of Industrial Design</td>
</tr>
<tr>
<td>IDC</td>
<td>Industrial design consultancy</td>
</tr>
<tr>
<td>LCA</td>
<td>Life Cycle Assessment</td>
</tr>
<tr>
<td>LCT</td>
<td>Life Cycle Thinking</td>
</tr>
<tr>
<td>PSS</td>
<td>Product Service System</td>
</tr>
<tr>
<td>RMIT</td>
<td>Royal Melbourne Institute of Technology</td>
</tr>
<tr>
<td>SHT</td>
<td>Strict Hypothesis Testing</td>
</tr>
<tr>
<td>SLCA</td>
<td>Social Life Cycle Assessment</td>
</tr>
<tr>
<td>SRD</td>
<td>Society for Responsible Design</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>VDID</td>
<td>Professional association of German industrial designers (Verband Deutscher Industrie Designer e.V.)</td>
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</tbody>
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Abstract

Industrial designers play a pivotal role in the development of consumer products. Consumer products contribute significantly to society’s ecological impact, which needs to be lowered. This thesis examines the role of industrial design practice in developing consumer products with low(er) ecological impacts by (i) expanding the concept of ecodesign and (ii) collecting evidence on its contemporary application in Australia. Ecodesign refers to both the integration of ecological considerations into commercial product development processes and their conversion into product designs. When practicing ecodesign, industrial designers must consider the entire life cycle of products—an approach termed Life Cycle Thinking (LCT).

This research proposes that industrial design practice allows two expansions to the traditional notion of ecodesign. Firstly, it can uncover new opportunities for creating value through ecodesigned products by applying solution-focused thinking. Solution-focused thinking uses representations of tentative suggestions for product designs to explore responses of the context being designed for. Traditionally, ecodesign only applies problem-focused thinking—deductively analysing the status quo to establish requirements for how value can be created. This can result in a lock-in to incremental product-improvement. Secondly, industrial design practice can widen the range of interventions that convert ecological considerations into product designs towards manipulating how products are perceived and understood by consumers, namely, the meanings attached to products. Traditionally, ecodesign focuses too narrowly on technical aspects of product design and has failed to sufficiently represent influencing product meanings.

For this research project multiple-case study research was conducted, investigating the ecodesign practice of Australian industrial design consultancies (IDCs) and their clients. The theoretically developed notion of ecodesign was used to guide and structure the enquiry. Data was collected through content analysis of IDC-websites and sixteen interviews with ecodesign experts, representatives of IDCs and their clients. The empirical insights show that the proposed expansions to ecodesign are appropriate. They can support converting ecological considerations into product designs. In tandem, they can also help with exploring and potentially stimulating opportunities for products that offer new eco-friendly meanings to consumers, which they perceive as valuable. If industrial design practice can identify such opportunities, it can justify ecodesign—guided by LCT—as a value-adding element in the product development process.
In conclusion, industrial designers can contribute to reducing the negative ecological impact of society by embracing the expanded notion of ecodesign. Several factors need to align to enable this; most importantly, they need to practice ecodesign in collaboration with their clients.