Incorporating ecological considerations into industrial design practice

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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.

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Abbreviations

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

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 eco-designed 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.