Design for DIY

‘Implementing Design for Do It Yourself in design education’

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[Refer to: Hoftijzer, J.W., presentation displayed at the MCPC 2015 conference at UQAM in Montreal, CAN]
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Project background: Waves of civilization (Western countries): Industrial Design and Post-Industrial Era (new structures, other way around)

1st Wave: Agricultural society

2nd Wave: Industrial society

3rd Wave: Post-industrial society*

*or super industrial society/scientific-technological society/segments of one (Pine)

Wave theory: Alvin Toffler

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Project background
Mass production, mass customization, DIY
(from an end user’s point of view concerning user products)
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Why Design for DIY?
Anticipating the lack of knowledge and confidence: solving the gap between (mostly passive) amateur and industry
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Why support Do-It Yourself?, why Design for DIY?

-Human side: support people’s Selves, express creativity/identity, democratizing (bridging gap), etc.

-Nature side: product attachment, better care, repair, re-use, accessibility

-Ethics: consciousness, knowing the consequences of your actions (ethics)

John F. Ehrenfeld’s sustainability domains

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Scenario of ‘Design for DIY’:

Role of the 21st Century designer: ‘post industrial’

*New relationships* between designer and amateur

As an attempt to increase consciousness and level of competence: offer the opportunity Do-It-Yourself and learn from it
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How to support/ facilitate the amateur’s DIY activity?

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Design for DIY Framework

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FRAMEWORK

*From:*

Previous Industrial design context

*To:*

NEW design approach
(new context)

**External factors:** states and developments (various spheres)

**Internal factors:** people, products

(ViP: Hekkert, Van Dijk)
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FRAMEWORK

Previous Industrial design context

External factors: states and developments (various spheres)

NEW design approach (new context)

Internal factors: people, products

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FRAMEWORK

Previous Industrial design context
- Goals and visions (2nd Wave)
- Traditional business models, economic and political structures
- Factories and labor
- DIY history: learning from the past

External factors: states and developments (various spheres)
- Stakeholders

NEW design approach (new context)
- Goals and visions
- Task division designer/ amateur
- DIY boundaries
- Design for DIY requirements (various levels)

Internal factors: people, products
- Stakeholders

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FRAMEWORK

‘design cycle levels’
(after Kolb, Roozenburg)

1\textsuperscript{st} level: meta
2\textsuperscript{nd} level: project definition
3\textsuperscript{rd} level: platform
4\textsuperscript{th} level: interaction
5\textsuperscript{th} level: pre-design
6\textsuperscript{th} level: DIY design
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FRAMEWORK

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1st level: meta
2nd level: project definition
3rd level: platform
4th level: interaction
5th level: pre-design
6th level: DIY design

Each level:
- Requirements,
- Boundaries, limitations
- External factors
- Internal factors
- Actors
Design for DIY physical structure & information

1. CORE
2. BASIC STRUCTURE
3. PREDEFINED ELEMENTS
4. DIY DESIGN ‘SPACE’
5. DESIGN TOOLS
6. DESIGN TOOLKIT
7. DIY MAKE ‘SPACE’
8. MAKE TOOLS
9. MATERIALS
10. MAKE TOOLKIT
11. INFORMATION
DIY design of headphones

Project: DIY design of shells and headband

Task division: pre-design, post design, process to 3d print

Interaction: drawing on a grid

Findings: *‘post-designed’ results higher valued,
*willingness to pay comparable to existing products,
*most people tend to litterally translate inspirational pic into design,
*drawing template should be very clear and 2d
Design for Do-It-Yourself with industrial waste (Scrap) as a base

Project: facilitate designing/ assembly of plastic parts with a dedicated making tool

Task division: provide manuals, add tools to the platform

Interaction: avoid use of glue, provide more options

Findings: * manuals helped to get started,
* physical creation supported social interaction,
* tools only for plastics
* clearly added to the user experience in the Scrap environment

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DIY design of a desk lamp

Project: DIY shape a lamps form

Task division: pre-design, process to 3d printing

Interaction: physically manipulate a preliminary model

Findings: *managing expectations,
*structure of the process cleared,
*documentation required was easy to understand, easier than manipulation itself,
*translation of people’s design into CAD was harder than expected
DIY design of a desk lamp

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(pics: Mark Sypesteyn)
DIY design and assembly: ‘Development of an open workshop’

Project: create design workshop for learning and designing coffee machines at various levels

Task division: facilitation, manuals, materials

Interaction: physical workshop, guidance, Q&A

Findings: *people should be free to decide their level,

*learning to use tools and learning the working of a coffee machine should not interfere,

*experienced amateurs should have the option to increase complexity,

*seeing each other's work motivated to do better

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(pics: Nine Perdeck)
Design for DIY Pilots

DIY design and assembly: ‘Development of an open workshop’

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(pics: Nine Perdeck)
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Insights to be taken into account for the further construction of the framework

Framework ultimately to result in an *education and practice* source and guide

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FRAMEWORK

‘design cycle levels’
(after Koith, Roosendal)

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6th level: DIY design

Each level:
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‘Design for DIY’ requires to approach design differently: the opposite direction, however guidance is needed.

Implementing a ‘Design for DIY’ scenario requires an ethical consideration, a vision: awareness, Being, attachment an care, education, sustainability in a broad sense.

New roles of the designer (practice and scenarios) should be part of design curriculum.

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general conclusions

Changing **interaction** alters **task division and roles to play**

Design process alters: an extensive process of facilitation and anticipation, at various levels: set-up, pre-design, make available, facilitate, assist, post design

Make it **simple**, create clarity before starting

Co-operating and mentoring instead of offering and marketing

(J. W. Hoftijzer)
Thank you very much,

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Some other publications:

