The reflective, transformative design process: a design process for the future generation of intelligent systems and products

Object + by Eva Hopma, Floris Kimman, Bram Knaapen and David Menting
The reflective transformative design process

Topics

- Implications foundation education
- ID for the design process
- Reflective transformative design process
- Cycles 1-10-100 / 1-5-10-25
- Pressure cooker

Object + by Eva Hopma, Floris Kimman, Bram Knaapen and David Menting
Design projects

and the winner is...

All projects are divided and everyone has a project of their top 3 preference. Preference (without B31 & M21):
62% 1st choice
27% 2nd choice
11% 3rd choice

Thanks to:
Lenny Apon
Martine Jonkers
Aki Rahman
Marjolein Ruijs
Focus & approach

mission statement ID education

Educating unique opportunity creators for societal transformation through intelligent systems

systems = networked technology, products, services and users within a societal context, and the interaction between them

ID

competency = an individual's ability to select, acquire and use the knowledge, skills and attitudes that are required for effective behaviour in a specific professional, social or learning context

approach ID education

Competency-centred learning
three implications

- person- and context dependent
- integration knowledge, skills and attitude
- transforming the world
Competency-centred learning is highly person and context dependent. This asks for a diversity of design processes or flexibility within the design process, in order to support students to find their preferred way of creating design solutions within a certain context.
integration knowledge, skills and attitude: equal weight

Learn by doing: it is about learning and performing through practical application, while simultaneously acquiring theoretical skills.

The nature of design beautifully intertwines the different types of knowledge with different human skills, for example formal scientific notations & knowledge that is harder to formalise (e.g. aesthetics & creativity).

Moreover, knowledge is obtained through analytical skills & synthetic skills.
transforming the world

Innovative technology is potentially capable of transforming our world, but not in ways that we (can) know of beforehand.

We want to educate students who are able to apply these new technologies in ways that are new and daring, driven by a design vision of how our world could be, and validated afterwards by solid user research.

Transforming our world instead of solving problems. Therefore the design process needs to support exploring opportunities & creating a vision.
Our preferred design process is a flexible and open design process where design action is explicitly acknowledged as an essential generator of experiential knowledge for future systems that transform our world.
Reflective transformative design process

Four main principles

• supporting flexibility and individuality (person- and context dependent)
• integration knowledge, skills and attitude
• transforming the world
• creating moments of reflection
Reflective transformative design process

Inner circle ID competency framework
Reflective transformative design process

Designing is taking decisions based on too little information

Decisions are conditional
Five activities

- central activity: ideating, integrating & realising. Designer gains insight into design opportunities which are physicalized & result in the final solution
- Drives (vertical axis) for continuous information gathering: vision & validation
- Strategies (horizontal axis) to generate information: design action & analysis
Strategies

- design action: e.g. building through trial and error
- analysis: e.g. mathematical modelling
- complexity of intelligent systems, products & related services asks for the integration of both strategies. (Complexity needs intuition)
- One strategy is not superior to the other (like in many traditional design processes)
Reflective transformative design process

Five activities

The process exists of five activities that take place within the societal setting, but without a specific order.

Depending on the person, context, or phase within the design process, the student determines where he starts, how often he swaps from one activity to another (frequent change is stimulated), and the order of the activities.

Every time you switch, an opportunity for reflection occurs.
Support for reflection

The model itself

Many iterations, e.g. 1-10-100 to increase the moments for reflection

Visualisation
Example Object+

User Class (Jacques Terken / Berry Eggen):

Object+ is an open-ended game object for skaters by:

Eva Hopma
Floris Kimman
Bram Knaapen
David Menting
Reflective transformative design process

Visualisation

Bram Knaapen, Floris Kimman, Eva Hopma & David Menting
User Class Jacques Terken & Berry Eggen
Visualisation

“Reflect not only within the process on the rationale, but also on the process of activities”

“The visualisation allows to reflect on the quality of / and global process and not only the activities and rationale within the process”

Bram Knaapen
Deliverables design cycles

Frens, Hu & Klooster

• 1-1,5 day (pressure cooker)
  • sketches & models, reflection on design & process, design rational & vision, documentation in a proper form, refinement project description

• 1 week
  • 1st rough prototype, reflection on design & process, design rational & vision, documentation in a proper form, a brief, planning & approach for next phase

• 2-3 weeks
  • 2nd elaborate prototype, validation design, reflection on design & process, coherent design rational & vision, documentation in a proper form incl. exhibition, a brief, planning & approach for final phase

• 5-6 weeks
  • new or adjusted prototype, validation design, reflection on design & process, design rational & vision, documentation (movie, report, exhibition, portfolio)
Pressure Cooker

- start in your team / individually - Themes (Masters can choose): Playful Interactions has a special program
- place the results of the pressure cooker at a small expo Friday afternoon: drinks are on the house. If possible discuss the project outcomes with your coach on Friday.
- document and place the outcome on your webspaces and send the link to your coach (1 link per team)
- deliverables: sketches & models, design rational & vision, documentation in a proper form,
- reflection on your design & process (can be done at the beginning of next week)
The reflective transformative design process

Success & enjoy

Object + by Eva Hopma, Floris Kimman, Bram Knaapen and David Menting