

## consideration(s) – design for create

### creative technology – track(s) / the age of play

- design in creative technology – from a new media perspective
- CreaTe and IDE – why together?
- reference(s) – design
- target(s) – design for create

*Æliens*

### slide(s) – online

- design – line(s) / role(s) / general
- approach – ideo / rework
- goal(s) – innovation(s) / point(s) / scratch / script(s)

### selected reference(s)

- Jones J.C. (1992), Design Methods, Wiley (2nd edn)
- Thackara J. (ed.) (1988), Design after Modernism
- John Mayfield – The Engine of Complexity: Evolution as Computation
- Idris Mootee – Design Thinking for Strategic Innovation

remark(s): all may be considered complimentary references, the first a solid overview of issues in design, the second with a diversity of (relevant!) essays, and the third not so much a design book as well as providing a model that is (at least) inspirational for the exploratory attitude that is at the heart of creative technology ... (eh ...) and the latter with refreshing ideas on *design thinking* and (business) innovation(s).

### comment(s)

1. Angelika Mader's model – ideation, specification, realization, validation
2. book Interaction Design – Beyond Human-Computer Interaction – cross-disciplinary, practical and process-oriented approach

ad 1) good starting point, with entry for (all?) imaginable perspectives

ad 2) perhaps too much too read, and too wide ..., but I am not sufficiently familiar with the field ...

### engine of complexity

- entities – simple or complex elements
- heritable features – of interest
- reproduction – copy & paste
- change mechanism – transform(s) / mutation(s)
- feature-based selection – fitness

engine of complexity  
serious.aliens.net/reference-design.html

reference(s) – auxiliary / etcetera [literature]

- Brown T. (2009), Change by Design – how design thinking transforms organizations and inspires innovation, HarperCollins Publishers
- Buxton B. (2007), Sketching User Experiences – getting the design right and the right design, Morgan Kaufmann
- Jones J.C. (1992), Design Methods, Wiley (2nd edn)
- Idris Mootee – Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School

- Munari B. (1966), Design as Art, Penguin Books
- Norman D.A (1990), The Design Of Everyday Things, Basic Books
- Petroski H. (1982), To Engineer is Human – The Role of Failure in Successful Design , Vintage Books
- Petroski H. (1989), The Pencil – a history of design and circumstance , Alfred A. Knopf
- Petroski H. (1992), The evolution of useful things, Vintage Books
- Petroski H. (2006), Success through Failure – the paradox of design , Princeton Press
- Thackara J. (ed.) (1988), Design after Modernism – Beyond the Object, Thames and Hudson
- Thorp H. and Goldstein B. (2010), Engines of Innovation – the entrepreneurial university in the twenty-first century, University of North Carolina Press

## old material(s) – before 2010

educational targets – *design*

- **skill(s)** – drawing, modelling
- **knowledge** – design methodology
- **theory** – human factors
- **experience(s)** – design & prototyping
- **attitude** – sensitive, with an eye for human experience

## design in *creative technology*

### from a *new media* perspective

Anton Eliëns

**abstract** In this report we look at how the *design* track may complement the *new media* track, not only in the area of skills, such as hand drawing, but also, perhaps more importantly, in the area of *human factors*. Additional benefots may come, more over from modelling, that is building VR models inspired by drawing using appropriate digital content/modeling tools.

**status:** 11/2/08 – for discussion

## introduction

Although there are by tradition significant differences between the computing disciplines (from which the initiative for *creative technology* was taken) and industrial design, joining efforts in establishing the new curriculum *creative technology* may be worthwhile, not only because of potential overlap and shared interests, but also because of the fact that the tow approaches may complement eachother in a fruitful way.

For a brief summary of educational targets for *creative technology*, we may somewhat tentatively present a list as below:

educational targets – *creative technology*

- **skill(s)** –*computing, mathematics, simulation, technology*
- **knowledge** –*computer & software architecture, human factors*
- **theory** –*systems engineering, media & communication*
- **experience(s)** –*project(s), deployment in social context*
- **attitude** –*initiative, creative, involved*

Although this summary gives no information wrt. the educational approach, many of the topics would alos be included in a curriculum *industrial design*. As a matter of fact, the curriculum *industrial design* already has experience with an educational approach that me be characterized as project-based and *just-in-time* (theoretical) learning [1].

## new media – targets and learning goals

No doubt, the level of technical expertise, that is computing skills, required of students *creative technology*, and in particular students of the *new media* track, will be more demanding than for *industrial design* students.

In summary, educational targets for *new media* may be listed as below:

educational targets – *new media* / ...

- **skill(s)** – scripting, programming, interaction design
- **knowledge** – web, multimedia & game technology
- **theory** – understanding of media & communication
- **experience(s)** – concept development & realization of (playful) application(s)
- **attitude** – explorative, with an eye for the *rethorics of the material*

Actual learning goals, or topics of study in the *new media* track encompass:

learning goals – *new media*

- interactive video – in customizable format
- web technology – for developing information portal(s)
- animation – for simulations and (physical) systems
- virtual reality – for games and virtual environments
- game development – for entertainment and instruction
- rich internet application(s) – for multimedia (web) applications
- interactive installation(s) – media art

Apart from *virtual reality*, which also has a place in industrial design, these topics are of subsidiary relevance for industrial design students, but may become more important when the context of deployment of design artefacts is taken into account.

### smart technology – additional requirements

An essential part/track of *creative technology* is constituted by what may be called *ubiquitous computing*, or smart technology. The educational targets related to this track may be summarized as:

educational targets – *smart technology*

- **skill(s)** – modeling, construction
- **knowledge** – mechatronics, ubiquitous computing, dynamic systems
- **theory** – human perception, privacy, security
- **experience(s)** – deployment of smart (multi sensor) systems
- **attitude** – inventive, with a playful mind

Nevertheless, as the focus of *creative technology* may be characterized as the creation of *computer augmented* (entertainment) *artefacts* [2], smart technology should also clearly be positioned in a *design* context.

### the design curriculum – focus on human factors

Looking at educational targets for *design*, admittedly from a *creative technology* and *new media* perspective, we may arrive at:

educational targets – *design*

- **skill(s)** – drawing, modelling
- **knowledge** – design methodology
- **theory** – human factors
- **experience(s)** – design & prototyping
- **attitude** – sensitive, with an eye for human experience

Elements in the curriculum *design* would typically encompass:

learning goals – *design*

- sketch, drawing
- vr & cad modeling

- physical prototypes
- concept development

We may observe that in addition to elementary skills of drawing and modeling, an important contribution may come from the attention to human factors that is essential in the design of artefacts related to human experience.

### **conclusions – creating computer-augmented artefact(s)**

Looking at the curriculum as a whole, we may safely conclude that design should be an intrinsic element of *creative technology*, and, taking into account the observations made above, that additional benefits may come from

- experience with a project-based educational approach
- clear attention to human factors in a design context
- practical experience with teaching drawing and modelling skills
- training in visual presentation skills

### **reference(s)**

1. Create the Future – An environment for excellence in teaching future-oriented Industrial Design Engineering, available in online version
2. Facets of Fun – On the Design of Computer Augmented Entertainment Artefacts, available in online version