

## design(s)

### design-attitude(s)

#### design(s) – attitude(s) to innovation / resistance to change

... / change(s) / method(s) / obstacle(s) / instinct(s) / target(s)

... the main conclusion that follows from our description of **attitudes to innovation**, except at the very ends of the chain, there is an **inherent resistance to the kinds of radical change** at the systems level that seems to be **necessary to solve the major design and planning problems of our time**

...

. / John Chris Jones – Design Methods / cycle(s) / ..

### design-change(s)

#### design thinking – fundamentally an exploratory process

... / design(s) / change(s) / attitude(s) / obstacle(s) / culture(s) / ..

##### design is now too important to be left to designers ...

... the power of design ... ”not as a link in a chain but as the hub of a wheel” ... not as a stage in a process but as a center of gravity, as a gravitational/centrifugal force, with involvement at all levels and in all areas of operation.

. /

from review: change by design / science(s) / eye(s) / cycle(s) / ..

### design-culture(s)

#### design(s) – culture / technology

...

/ design(s) / attitude(s) / change(s) / human(s) / experience(s)

##### design is where technology meets culture

from Information in Space: Explorations in Media and Architecture

### design-engineer(s)

#### design engineer(s) – inventor(s) of technology

attitude(s) / innovation(s) / error(s) / force(s) / cycle(s)

... like everyone we get frustrated by products that don't work properly.

as design engineers we do something about it.

... we're obsessed with improving and inventing!

James Dyson – inventor of cyclone vacuum technology / [www.dyson.nl](http://www.dyson.nl)

### design-form(s)

design(s) / innovation(s) / method(s) / obstacle(s)

1. **form** follows *function*
2. *form* follows **fortune**
3. **form** follows *failure*
4. *form* follows **fashion**
5. **form** follows *future*

Henri Petroski – The Evolution of Useful Things

## design-how-to-apple(s)

### design(s) – how to innovate

design(s) / innovation(s) / interaction(s)

1. **clear your mind** – understand (how to make) remarkable products
2. **build your fortress** – create the infrastructure you need to innovate
3. **cultivate your elite** – empower your most valuable employees
4. **don't rush, don't dawdle** – prevent short-term, cyclical or competitive pressures
5. **clone your *Steve Jobs*** – if you put a tyrannical perfectionist in charge, institutionalize his/her thinking!

source: How to Innovate Like Apple (Chris Morrison/BNET)

## design-innovation(s)

### design(s) – invention vs innovation

how to / design(s) / relation(s) / method(s) / obstacle(s)

- **invention** – engineering solution at system level
- **innovation** – meets demands in (**envisioned**) context

John Chris Jones – Design Methods

## design-method(s)

### design – art, science or form of mathematics?

role(s) / life(s) / form(s) / obstacle(s) / HCI / science

	divergence	transformation	convergence
<b>community</b>	<i>experience</i>	...	value analysis
<b>system(s)</b>	brainstorming	...	...
<b>product(s)</b>	...	...	dependency graphs
<b>component(s)</b>	...	...	<i>requirements</i>

John Chris Jones – Design Methods

## design-obstacle(s)

### design obstacle(s) – resistance to change

role(s) / attitude(s) / method(s) / innovation(s)

sponsor(s) (design) team  
supplier(s) producer(s) distributor(s)  
purchaser(s) user(s)  
(system) *operator(s)* society

John Chris Jones – Design Methods

## art(s)

### art-hack(s)

### art(s) – hack(s)

... / science(s)

... early hackers proved that technical problems can have artistic solutions, and they thereby transformed programming from a mere engineering task into an art form.

like many other forms of art, hacking was often misunderstood.

hacking – the art of exploitation / ethic(s) / cycle(s)

## art-modernism(s)

... / science / art(s) / education(s)

Modernism was born out of a desire to revisit Platonic ideas and through the elevation of the so called original forms; the circle, the square, and the triangle and their three dimensional equivalents of the sphere, the cube and the pyramid. These pure geometric forms, applied to a set of parallel and equidistant lines which divide a plane or three-dimensional area into a grid, marked a return to the classical golden section as well as an unapologetic homage to modern technology.

[www.niklasbelenius.com/cgi-bin/index.pl?id=110](http://www.niklasbelenius.com/cgi-bin/index.pl?id=110)

## theme(s)

### theme-create(s)

#### theme(s) - creative technology / it's all in the game

... / idea(s) / value(s) / workshop(s) / \_ / .

imagine          original          interaction  
processing          media art  
experience          creative          technology

. /

trailer / blog(s) / slogan(s) / cycle(s)  
/ ..

## theme-ctsg(s)

### theme(s) – CT(... )G

... / idea(s) / value(s) / workshop(s) / \_ / .

smart  
social  
singularity  
superpower

problem(s) / power(s) / game(s) / cycle(s)

## theme-display(s)

### theme(s) – display(s)

... / idea(s) / value(s) / workshop(s) / \_ / .

color(s)

reflection(s)

default(s) / common(s) / level(s) / game(s) / cycle(s)

## theme-literacy(s)

### theme(s) – literacy

procedural literacy  
digital literacy  
media literacy  
classical literacy

... / idea(s) / value(s) / workshop(s) / \_ / .

power(s) / game(s) / cycle(s)

## theme-offer(s)

### theme(s) – kennis halen en delen

inspiration(s) by art  
exploratory research  
narrative(s) & game(s)

multimedia @ VU / creative technology

Æliens

- personal – idea(s) & workshop(s) / game(s)
- student(s) – project(s) multimedia & game development

in collaboration with CAMERA @ VU / digikring

## theme-parent(s)

### theme(s) - parent(s) / doe er wat aan!

talent(s)   ongehoorzaamheid   attitude(s)  
  
artist(s)   geek(s)   nerd(s)   gamer(s)  
  
social network(s)   addiction(s)   landgenoten

... / create / idea(s) / workshop(s) / \_ / .

science(s) / value(s) / cycle(s)

reflection(s) /

## theme-place(s)

### theme(s) - place(s) i/red i

create @ appspot   EWI   CTSG @ ning  
  
multimedia @ VU   CS   UNIVERSITEIT TWENTE.  
  
common(s)   topical media   CTSG @ twitter

... / idea(s) / value(s) / workshop(s) / \_ / .

/ ..

. / game(s) / cycle(s)

## theme-tool(s)

### theme(s) - tool(s) / let's collaborate!

... / team(s)

this page contains a number of tools to collaborate, including:

- a (privately) shared todo list
- a (privately) shared whiteboard
- a (publicly) shared presentation
- a (publicly) shared social network

at this stage, it is an experiment, but I think it is necessary to find effective ways to collaborate, also in real time.

common(s) / cycle(s)

## theme-try(s)

### theme(s) - creative technology / it's all in the game

... / value(s) / idea(s) / workshop(s)

imagine          original          interaction

processing          media art

experience          creative          technology

. / trailer / blog(s) / slogan(s) / cycle(s)

/ ..

## reflect(s)

### reflect-ca1-09(s)

#### reflection(s) – SmartXP Exhibit

...

/ create / common(s) / art(s) / \_ / .

- coherence – between projects
- (visual) guidance – in space
- explanation(s) – meaning & impact
- identification(s) – who did what?
- (explicit) invitation(s) – to explore installment(s)

## reflect-group(s)

#### reflection(s) – group

...

/ create / common(s) / art(s) / \_ / .

The singularity is near  
Resistance is (not?) futile  
Program or be programmed  
CreaTe resistance  
Together we resist  
Get a( )live  
Emotions are for humans

humans are (ir)replacable // anything you can do i can do better  
the only reality is virtuality  
humans are parasites  
symbiosis ¡-¿ parasites  
digital infection  
digital affection  
synergy

/ game(s) / cycle(s)

## reflect-self(s)

### reflection(s) – self

...

/ create / common(s) / art(s) / \_ / .

kilometers maken -¿ stop procrastinating with planning  
- too unclear -¿ converge get focus  
- no method, no concentration, no focus -¿ common responsibility  
- be a group/participate as group (in math-classes etc.) -¿ get your ass up  
- no documentation -¿  
- smart xp, is it already ours? -¿  
- too lazy to ask for the stuff we need/want -¿

theme(s) / game(s) / cycle(s)

## reflect-theme(s)

### reflection(s) – theme(s)

...

/ create / common(s) / art(s) / \_ / .

digital infection/affection  
symbiosis ¡-¿ parasitism  
CreaTe resistance  
... existence is futile  
emotions are for humans  
humans are (ir)replaceable  
together we resist

product(s) / mood(s) / attitude(s) / game(s) / cycle(s)

## slogan(s)

### slogan-advertise(s)

### slogan(s) – creative technology / PR

...

/ social / process / change(s) / design(s) / space(s) / \_ / .

- een speelse manier van omgaan met technologie,
- in het exploreren van nieuwe diensten en producten
- een creatieve aanpak in de studie, waarbij ook analytisch inzicht en managementsaspecten aan de orde komen,
- en er ruimte is voor vindingrijkheid in het onderkennen van problemen en het bedenken van oplossingen
- in zowel de persoonlijke als publieke sfeer,
- toepasbaar in de echte en digitale wereld, in al hun verwevenheid
- voor *living tomorrow* en *working tomorrow* – (resource(s))
- creativiteit is je kapitaal!

## slogan-application(s)

**slogan(s) – creative application(s): format(s) / target(s)**

rethoric(s) / place(s) / – / .

We Create Identity  
Living and Working Tomorrow  
Have Fun and Play!  
Ambient Screen(s)  
Hybrid World(s)

what are (y)our dreams?

## slogan-art(s)

**slogan(s) – media art(s) / computer augmented artefact(s)**

...

/ social / process / change(s) / design(s) / space(s) / – .

shift of paradigm(s)

- emotional response – *enrich experience*
- intellectual challenge – *avoid boredom*

reading(s)

## slogan-concept(s)

**slogan(s) – concept(s) / creative technology**

...

/ social / process / change(s) / design(s) / space(s) / – .

- target(s) – digital, computational & conceptual skills
- topic(s) – invisible computing & digital culture
- course(s) – smart technology & new (digital) media

## slogan-contact(s)

**slogan(s) – contact(s) / potential partner(s)**

...

/ social / process / change(s) / design(s) / space(s) / – .

- [www.syntens.nl](http://www.syntens.nl) – Marco Strijks (...) en Harry Bosch (...) – via Annewies Kuipers (...)
- Rom Langerak (UT/EWI/CS) (... – [www.planetart.nl/vriendschap.htm](http://www.planetart.nl/vriendschap.htm))
- Kees de Groot (...) – [www.creatiefabrieek.nl](http://www.creatiefabrieek.nl)
- ... – interactive museum (Arnhem)

## slogan-control(s)

**slogan(s) – control(s) / layered mentorship**

...

/ social / process / change(s) / design(s) / space(s) / – .

- supervision(s) – from multiple perspectives
- (peer) reviews – with mild competitive edge
- (public) exhibition(s) – for external exposure
- (scientific) competition(s) – by demo(s) & paper(s)

## slogan-course(s)

### slogan(s) – course(s) / principle(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- canonical example(s) – *game* / *calculator*
- (online) reference material(s) – [www.w3schools.com/js](http://www.w3schools.com/js) / example(s)
- challenging target(s) – heart(s) / [labs.google.com](http://labs.google.com) (*edu* / *code*)

## slogan-create(s)

### slogan(s) – creative technology / indeed, language is confusing

...

/ social / process / change(s) / design(s) / space(s) / – .

- *is the technology creative?*
- *do I use technology in a creative way?*
- *does the technology allow me to be creative?*

. / change / human(s) / pattern(s) / experiment(s) / cycle(s) / ..

## slogan-design(s)

### slogan(s) – creative technology /perspective(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- computational structure(s) – sensor(s) & display(s)
- (material) object(s) – senso-motorical function(s)
- concept design(s) – artifact(s) & algorithm(s)

## slogan-dilemma(s)

### slogan(s) – dilemma(s) / how to teach attitude(s) & creativity

...

/ social / process / change(s) / design(s) / space(s) / – .

1. *implicit* – confusion is the origin of (all) creativity – there is no theory / creativity killers
2. *explicit* – (amateur) course(s) on creativity, philosophy, psychology – computational art
3. **by example(s)** – invite artist(s) & pioneer(s) – teaching creativity / dead media
4. **design case(s)** – facets of fun – on the design of computer augmented entertainment artefacts
5. **target(s)** – generation Y / rip it / creative thinking / loser(s) / leader(s) / vision(s) / definition(s)

## slogan-discipline(s)

### slogan(s) – discipline(s) / multi/cross-disciplinary team(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- new media – design & development
- smart technology – engineering & deployment
- creative application(s) – innovation



## slogan-element(s)

### slogan(s) – element(s) / educational mechanism(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- (art) inspiration(s) – item(s) of beauty
- (periodic) de-construction(s) – discover (un)truth(s)
- (technical) exploration(s) – trial(s) without error(s)
- (creative) workshop(s) – to boost the imagination(s)
- (special) event(s) – to educate and surprise

## slogan-expression(s)

### slogan(s) – expression(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

... why do people do and believe weird things? Because in the end, feeling alive is more important than truth.

We have evolved in living creatures to express ourselves, to be creative, to tell stories.

We are instruments for feeling, faith, energy, emotion, significance, belief, but not really truth.

truth(s) / Louis Theroux – The call of the weird – travels in american subcultures

## slogan-first(s)

### slogan(s) – application(s) / my first creative technology application(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- **sensor** – to detect footsteps on the stairs
- **media** – a little light announcing approaching person(s)

to enable reading ...

## slogan-focus(s)

### slogan(s) – focus / to improve/embellish public space with innovative (media/smart) technology

...

/ social / process / change(s) / design(s) / space(s) / – .

- science/art-inspired visual effects
- out-of-screen deployment
- environment-sensitive application(s)

## slogan-fun(s)

### slogan(s) – fun application(s) / de wereld gaat aan vlijt ten onder / time

...

/ social / process / change(s) / design(s) / space(s) / – .

- societal impact/relevance – inspiration(s)
- convergence of technologies – educational(s)

UTwente/EWI doctrine(s)

## slogan-hazard(s)

slogan(s) – item(s)/hazard(s) / with subtext(s) ...

/ social / process / change(s) / design(s) / space(s) / – .

- requirements – kill creativity
- user studies – lead to conservatism
- clear goals – limit exploration

inspiration(s) / dilemma(s) / game design(s)

## slogan-identity(s)

slogan(s) – creative technology / *starting from 1st year* ...

/ social / process / change(s) / design(s) / space(s) / – .

- **identity** – as a group
- *portfolio* – as individual
- **imagination** – mixing *science & art*
- **authenticity** – as in no bullshit
- *craftmanship* – in discovering the **rethorics of the material**

. / experiment(s) / cycle(s) / ..

## slogan-imagine(s)

slogan(s) – slogan(s) / creative technology

create / ... / change(s) / design(s) / – / .

- do you want to make a **difference**?
- ... in every scientist there is an artist
- everything is intertwined – make it **twinkle**!

. /

lyric(s) / network(s) / game(s) / cycle(s) / ..

## slogan-innovative(s)

slogan(s) – creative technology / *creativity on an academic level* ...

/ social / process / change(s) / design(s) / space(s) / – .

You are expected to be, and will be trained to become:

creative  
visual  
authentic  
innovative  
playful

As *creative engineer(s)* our graduates will distinguish themselves by their level of technical expertise.

## slogan-interact(s)

slogan(s) – challenge(s) / interactive entertainment

...

/ social / process / change(s) / design(s) / space(s) / – .

- immersion – *being in*
- *rapture* – loss of *aesthetic* distance
- agency – being in *control*

*facets of fun*

## slogan-know(s)

slogan(s) – known(s) / ignorance 2.0

creativity / ... / vision(s) / science / quality / – / .

*... in science only one thing is more wonderful than how much we know, and that is how much we do not know.*

I. Svitak – Man and his world / quest(s) / cycle(s)

## slogan-learn(s)

slogan(s) – learn / to acquire/deepen skills & insight

...

/ social / process / change(s) / design(s) / space(s) / – .

- craft – drill & repetition
- concept(s) – application(s) & reflection
- target(s) – challenge(s) & context

## slogan-metaphor(s)

metaphor(s) – towards a new curriculum

cloud(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- **a networked world** – you make it work [*engineering*, management] – not network maintenance!
- **everything is connected** – you make the connections [*mediator*, management]
- **everything is intertwined** (Ted Nelson) – you make it twinkle [*the creative track*]

## slogan-paradigm(s)

slogan(s) – shift of paradigm(s) / innovation by re-creation(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- taking (media) **artists as a role model** for **creative engineers**, following the recommendation of IIP/CREATE
- combining disciplinary courses with **creative applications**, to ensure a solid technical level
- looking for **inspiration in the art(s)**, as the ultimate **source of human value(s)**

## slogan-platform(s)

### slogan(s) – platform(s) / dynamic (virtual) culture(s)

...

/ social / process / change(s) / design(s) / space(s) / – .

- software – *architecture vs ecology*
- *technology* – hybrid, interconnected, customizable function(s)/skin(s)
- application(s) – *in a participatory* (playful) *culture*
- (serious) game(s) & entertainment – *programmed content* / script(s)
- *exploratory development* – to discover the potential(s) of technology

## slogan-point(s)

### slogan(s) – 12 point(s) / creative technology

...

/ social / process / change(s) / design(s) / space(s) / – .

technology

1. knows the relevant electronic and computing technologies to be used, concerning both principles and functionality;
2. is skillful in implementing algorithms and combining principles from physics and mathematics at the level required by the application

requirements

3. can analyze complex requirement contexts by making abstract descriptions following mathematical principles.
4. can implement key prototypes to try out ideas based on the latest tools and technologies;
5. recognizes and understands technological trends at such a level that a critical evaluation of scenarios for future applications and developments can be made;

human factors

6. is able to identify societal problems and human needs that can be solved with state of the art technology in the digital realm;
7. can solve problems in a creative way, taking into account all complexities, requirements and interdependencies of the application areas and stakeholders;

design

8. possesses skills to design attractive solutions, where both aesthetics and function are combined;
9. understands user acceptance and success criteria in a multi-cultural and globalized world;
10. has communicative skills and psychological knowledge, indispensable for dealing robustly and successfully with stakeholders and people benefitting from the new systems and services;

business

11. can place the new applications in a business context, developing business plans, executing market research and translating innovations into profitable opportunities;
12. can assume a bridging role in a variety of multi-disciplinary teams, thereby translating and communicating requirements and knowledge from different fields of specialization.

## slogan-problem(s)

### slogan(s) – creative problem(s) / compute / media / smart / math / design

...

/ social / process / change(s) / design(s) / space(s) / – .

problem solving

problem finding

problem creation

educational goal(s)

## slogan-profile(s)

slogan(s) – profile(s) / in very scientist is a (hidden) artist ...

/ social / process / change(s) / design(s) / space(s) / – .

- more in-depth (research-related) technology development
- (proper) intellectual and academic context for innovation

## slogan-public(s)

slogan(s) – theme(s) / creative technology ...

/ social / process / change(s) / design(s) / space(s) / – .

- in every scientist is a (hidden) artist
- craftsmanship – the rethorics of the material
- exploratory development – potential(s) of technology
- everything is intertinkled – you see/make it twinkle
- social processes – to innovate technology
- application(s) – in a participatory (playful) culture
- imagination – mixing science & art

. /

imagine / create / game(s) / cycle(s) / ..

## slogan-question(s)

slogan(s) – question(s) / awareness 2.0

research / question(s) / change(s) / space(s) / – / .

*Theoretician, artist, do you intend to **embellish the existing conditions with the ornament of your abstractions** and to give theory or art an appearance of depth at variance with the truth, or do you intend to **make (y)our thinking an instrument for the reshaping of these conditions?***

I. Svitak – Man and his world / cycle(s)

## slogan-room(s)

slogan(s) – room(s)

engineer(s) / politic(s) / culture(s) / – / .

As I leant against the wall the University indeed seemed a sanctuary in which are preserved rare types which would soon be obsolete if left to fight for existence on the pavement of the Strand.

Virginia Woolf: A Room of One's Own (1928, p. 9)

## slogan-scenario(s)

scenario(s) – new media

...

/ social / process / change(s) / design(s) / space(s) / – .

- creative industry – *in new entrepreneurial activities*
- product design – *in healthcare and entertainment*
- communication – *regional/global media campaign*
- entertainment – *new concepts in private and public settings*
- game development – *serious games in education and corporate training*

## slogan-scope(s)

**slogan(s) – scope(s) / learning goal(s)/approach** ...

/ social / process / change(s) / design(s) / space(s) / \_ .

- (low-level) basics/technology – to take away the magic
- (high-level) applications/tools – to achieve challenging target(s)

## slogan-screen(s)

**slogan(s) – digital art(s) / Deep Screen: Art in Digital Culture** representation(s) / art(s) / science(s) / \_ / .

In addition to taking *role model* of the *media artist* as a reference in educating our students, exhibitions in *digital art*, that is *art that uses digital technology* in an essential way, can be taken as *example playgrounds*, exploring the *relation(s)* between space, digital technologies and human perception and emotion. Such *experiments* may indicate new ways to deploy technology and provide a reference of how technology may influence *human experience*, and provide the intellectual and cultural background against which student projects and experiments can be set.

media art(s)

## slogan-social(s)

**slogan(s) – theme(s) / do you want to make a difference?** ...

/ social / process / change(s) / design(s) / space(s) / \_ .

- technology to innovate social processes
- social processes to innovate technology

. /

open source / de Waag / identity / connection(s) / cycle(s) / ..

## slogan-student(s)

**slogan(s) – student(s) / every student is trained as an artist** ...

/ social / process / change(s) / design(s) / space(s) / \_ .

- (visual & concept) design
- (technology & application) development
- (aesthetic & intellectual) sensibility

## slogan-subtext(s)

**slogan(s) – approach / with subtext(s)**

inspiration(s) / dilemma(s) / \_ / .

- (cheap) philosophy – leads to ignorance and self-satisfaction
- colloquial wisdom – is an internet commodity
- common sense – only results in confusion

creative thinking

## slogan-target(s)

### slogan(s) – target(s) / creative technology & industrial design

...

/ social / process / change(s) / design(s) / space(s) / – .

- concept(s) – instrumentation, *interaction*, visualisation
- context(s) – home, office & urban environment(s)
- approach(s) – (*computational*) simulation(s) & exploration(s)

## slogan-track(s)

### slogan(s) – program(s) / creative technology

...

/ social / process / change(s) / design(s) / space(s) / – .

- technology – new media, smart technology
- creative applications – creativity (mental + artistic), psychology, research/design methods, communication
- business – marketing, planning, project management

## slogan-truth(s)

### slogan(s) – truth(s) / all truth passes through three stages / event(s)

expression(s) / politic(s) /

creativity / – / .

- first, it is ridiculed.
- second, it is violently opposed.
- third, it is accepted as being self-evident.

Arthur Schopenhauer

## ideo(s)

## ideo-affordance(s)

### ideo design(s) – affordance(s) / meeting people

... / design(s) / change(s) / experience(s) / – / .

... truly good design is about meeting people.

It is about opening doors.

Designers sometimes call these *affordances*.

I like to think of them as welcoming handshakes

visual clues that make you feel more comfortable.

. / the art of innovation / metaphor(s) / ..

## ideo-art(s)

### ideo design(s) – the art of innovation

... / design(s) / change(s) / experience(s) / – / .

- innovation begins with an eye
- prototyping is the shorthand for innovation
- creating experiences for fun and profit
- in search of the wet nap interface

. / the art of innovation / create / innovation(s) / cycle(s) / ..

## ideo-attitude(s)

### ideo design(s) – attitude(s)

... / design(s) / change(s) / experience(s) / \_ / .

... the transformation of a business-as-usual culture into one focussed on innovation and driven by design involves activities (\*), decisions and attitudes.

(\*) workshops, pilot projects, leadership, interdisciplinary teams, dedicated space. change by design / cycle(s)

## ideo-barrier(s)

### ideo design(s) – jumping barrier(s)

... / design(s) / change(s) / experience(s) / \_ / .

- barrier(s) – hierarchy-based, bureaucracy, anonymous, clean, experts
- bridge(s) – merit-based, autonomy, familiar, messy, tinkers

. / the art of innovation / brief(s) / cycle(s) / ..

## ideo-blake(s)

### ideo design(s) – satanic mills [heat, beat & treat]

... / design(s) / change(s) / experience(s) / \_ / .

... they subordinate humans to the inscrutable logic of the machine, they degrade and frustrate us, they compromise the quality of life and the efficiency of work.

(service) companies must (innovate to) improve the quality of life!

change by design / cycle(s)

## ideo-brief(s)

### ideo design(s) brief(s) / fail early to succeed sooner

... / design(s) / change(s) / experience(s) / \_ / .

desirability

viability

feasibility

change by design / cycle(s)

## ideo-communication(s)

### ideo design(s) – communication(s) / the decline of traditional advertising ... / design(s) / change(s) / experience(s) / \_ / .

... all of these clever marketing tools not only were well executed, they also got people talking, and that became part of the story.

change by design / cycle(s)

## ideo-compete(s)

### ideo design(s) – compete / design thinking is more than design

... / design(s) / change(s) /

experience(s) / \_ / .

... in today's fluid business environment, innovation is key to competitiveness.

change by design / cycle(s)



## ideo-cult(s)

### ideo design(s) – cult(s) / design thinking

... / design(s) / change(s) / experience(s) / – / .

... others, less in awe of the **cult of the designer**, may confuse the mastery of the tools – including the qualitative tools of brainstorming, visual thinking & storytelling – with the ability to reach a design solution.

... design thinking is neither an art nor a science. it is the capacity, ultimately, for **integrative thinking**.

change by design / cycle(s)

## ideo-culture(s)

### ideo design(s) – culture / innovation(s)

... / design(s) / change(s) / experience(s) / – / .

a culture that believes it is better to ask forgiveness afterward rather than permission before, that rewards people for success but gives them permission to fail, has removed one of the main obstacles to the formation of new ideas.

change by design / cycle(s)

## ideo-design(s)

### ideo design(s) – design thinking is more than design

... / design(s) / change(s) / experience(s) / – / .

1. inspiration – problem or opportunity
2. ideation – generating, developing & testing ideas
3. implementation – from project room to market

. / change by design / affordance(s) / attitude(s) / cycle(s) / ..

## ideo-experience(s)

### ideo design(s) – experience(s)

... / design(s) / change(s) / experience(s) / – / .

- design is about delivering a satisfying experience
- design thinking is about creating a multipolar experience in which everybody has the opportunity to participate in the conversation ...

comfort / style / community

. / change by design / cult(s) / attitude(s) / future(s) / cycle(s) / ..

## ideo-future(s)

### ideo design(s) – future / where do we go from here?

... / design(s) / change(s) / experience(s) / – / .

... we are at a critical point where rapid change is forcing us to look not just to new ways of solving problems but to new problems to solve.

. / change by design / innovation(s) / cycle(s) / ..

## ideo-great(s)

**ideo design(s) – how to create great product(s) & service(s)** ... / design(s) / change(s) / experience(s) / – / .

1. make a great entrance – easy to find your way about
2. make metaphors – to inspire (y)our new products
3. think briefcase – between work & home
4. color inspires – from business black to candy-pink
5. backstage pass – let them know what's behind ...
6. one click is better than two – as in autopilot
7. goof proof – with auto-save and undo
8. first, do not harm – or provide discomfort
9. etcetera – checklist / great extra(s)!

the art of innovation / cycle(s)

## ideo-hot(s)

**ideo design(s) – hot group(s) / characters** process / ... / artist(s) / engineer(s) / designer(s) / mind(s) / – / .

1. the visionary – rise above the others!
2. the troubleshooter – no excessive politeness, ...
3. the iconoclast – as a counterpoint
4. the pulsetaker – as a heart
5. the craftsman – with talent(s) & technology
6. the technologist – to unlock byzantine problems
7. the entrepreneur – bright & innovative
8. the cross-dresser – self-educated/self-motivated

the art of innovation / team(s) / cycle(s)

## ideo-idea(s)

**ideo design(s) – the politics of new idea(s)** ... / design(s) / change(s) / experience(s) / – / .

... at the heart of every good story is a central narrative about the way an idea satisfies a need in some powerful way ...,  
as it unfolds the story will give every character represented in it a sense of purpose and will unfold in a way that involves every participant in the action.

change by design / cycle(s)

## ideo-innovation(s)

**ideo design(s) – innovation(s) / storytelling** ... / design(s) / change(s) / experience(s) / – / .

... it is essential that storytelling begins early in the lifecycle(s) of a project and be woven into every aspect of the innovation effort.

. / change by design / future(s) / cycle(s) / .. /

## ideo-inspiration(s)

### ideo design(s) – prototype as inspiration

... / design(s) / change(s) / experience(s) / \_ / .

... designers may need a fully equipped model, but **design thinkers** can build prototypes in the cafeteria, a boardroom or a hotel suite.

change by design / cycle(s)

## ideo-journey(s)

### ideo design(s) – journey / adherence

... / design(s) / change(s) / experience(s) / \_ / .

1. time-based design – each journey will be different
2. designing with time means thinking of people as living, growing, thinking organisms,
3. ... who can help write their own stories!

. / change by design / barrier(s) / cycle(s) / ..

## ideo-kill(s)

### ideo design(s) – ways to kill a brainstorm(er)

... / design(s) / change(s) / experience(s) / \_ / .

1. the boss gets to speak first
2. everybody gets a turn
3. experts only please!
4. do it off-site
5. no silly stuff
6. write down everything!

. / the art of innovation / weirdo(s) / attitude(s) / rule(s) / journey(s) / cycle(s) / ..

## ideo-life(s)

### ideo design(s) – life / design with a small 'd'

... / design(s) / change(s) / experience(s) / \_ / .

... using design as a tool to improve the quality of life at every level, as opposed to creating the signature of *objets* that grace the pedestals of art museums and the covers of lifestyle magazines.

change by design / cycle(s)

## ideo-limit(s)

### ideo design(s) – era of limit(s)

... / design(s) / change(s) / experience(s) / \_ / .

... we are entering an era of limits.

the cycle of mass production and mindless consumption that defines the industrial age is no longer sustainable.

design thinking needs to be turned towards the formulation of a new participatory social contract! change by design / cycle(s)

## ideo-matrix(s)

**ideo design(s) – process / design thinking is more than design**

... / design(s) / change(s) /

experience(s) / – / .

	existing users	new users
new offerings	extend/evolutionary	create/revolutionary
existing offerings	manage/incremental	adapt/evolutionary

change by design / cycle(s)

## ideo-message(s)

**ideo design(s) – speading the message / storytelling**

... / design(s) / change(s) / experience(s) / – / .

... we rely on stories to put our idea(s) into context and give them meaning. It should be **no surprise**, than, that the human capacity for storytelling plays an important role in the intrinsically human-centered approach to problem solving: **design thinking**.

change by design / cycle(s)

## ideo-model(s)

**ideo design(s) – internet as model**

... / design(s) / change(s) / experience(s) / – / .

... the internet, in other words, characterized by dispersed, decentralized, naturally reinforcing networks, is not so much a **means** as the **model** of the new forms of organization taking shape.

change by design / cycle(s)

## ideo-observation(s)

**ideo design(s) – observation(s)**

... / design(s) / change(s) / experience(s) / – / .

watching what people don't do

listening to what people don't say

empathy = standing in the shoes of others

change by design / cycle(s)

## ideo-organization(s)

**ideo design(s) – organization(s)**

... / design(s) / change(s) / experience(s) / – / .

... the fact remains that curiosity does not thrive in organizations that have grown cynical.

change by design / cycle(s)

## ideo-paradox(s)

### ideo design(s) – prototyping paradox

... / design(s) / change(s) / experience(s) / – / .

... they slow us down to speed us up!

change by design / cycle(s)

## ideo-pioneer(s)

### ideo design(s) – pioneer(s) / designer(s) of the past

... / design(s) / change(s) / experience(s) / – / .

... not minimalist, esoteric members of design's elite priesthood

but ... creative innovators who could bridge the chasm between thinking and doing because they were passionately committed to the goal of a better life and a better world around them.

tomorrow – today: around the world design thinkers have become activists and are applying their skills to sources of dysfunction.

change by design / cycle(s)

## ideo-plant(s)

### ideo design(s) – planting tips / cross-pollination(s)

... / design(s) / change(s) / experience(s) / – / .

1. subscribe & surf – browse magazines & books
2. play director – take perspective of film/story
3. hold an open house – invite experts & everybody
4. inspire advocate(s) – exercise mental diversity
5. hire outsider(s) – to introduce new ideas
6. change hat(s) – ... importance of observation(s)
7. cross-train – drills & processes from other ...

the art of innovation / cycle(s)

## ideo-pong(s)

### ideo design(s) – story / life-size pong (350 people)

... / design(s) / change(s) / experience(s) / – / .

... as the prototype unfolded, we learned that a story needs to be repeated many times before people understand how it applies to them and many more times again before they change their behavior.

change by design / cycle(s)

## ideo-portfolio(s)

### ideo design(s) – portfolio(s) / diversity

... / design(s) / change(s) / experience(s) / – / .

a company's best defense is to diversify its portfolio by investing across all quadrants of the innovation matrix.

change by design / cycle(s)

## ideo-practice(s)

### ideo design(s) – hitting the practice room

... / design(s) / change(s) / experience(s) / \_ / .

- watch customers
- play with your physical workspace
- think verbs not nouns
- break rules and fail forwards
- stay human
- build bridges – across people & departments

have some serious fun!

the art of innovation / cycle(s)

## ideo-process(s)

### ideo design(s) – process / design thinking is more than design

... / design(s) / change(s) /

experience(s) / \_ / .

... the reason for the iterative, non-linear nature of the journey is not that design thinkers are disorganized or undisciplined but that design thinking is fundamentally an exploratory process

. / change by design / cycle(s) / affordance(s) / ..i/a?

## ideo-prototype(s)

### ideo design(s) – prototyping / building to think

... / design(s) / change(s) / experience(s) / \_ / .

... this shift from physical to abstract, and back again, is one of the most fundamental processes by which we explore the universe, unlock our imagination(s) and open (y)our mind(s) to the new possibilities.

change by design / cycle(s)

## ideo-rigor(s)

### ideo design(s) – rigor(s)

... / design(s) / change(s) / experience(s) / \_ / .

... people who practice design thinking rely heavily upon imagination, insight and inspiration, but at (...) they are equally committed to the rigors of scientific procedure(s).

change by design / cycle(s)

## ideo-rule(s)

### ideo design(s) – rule(s) / brainstormer(s)

killer(s) / ... / design(s) / practice(s) / revolution(s) / \_ / .

1. sharpen the focus – well-honed problem statement
2. playful rules – don't critique or debate ideas
3. number your ideas – obvious, right?
4. build & jump – facilitate steep power curves!
5. space remembers – record flow of ideas
6. stretch (y)our mental muscle(s) – time is short!
7. get physical – brainstormers are extremely visual

. / mind(s) / the art of innovation / cycle(s) / ..

## ideo-story(s)

### ideo design(s) – story / toolkit

... / design(s) / change(s) / experience(s) / \_ / .

... storytelling needs to be in the toolkit of every design thinker – in the sense not of a tidy beginning, middle and end, but of an ongoing, open-ended narrative that engages people and encourages them to carry it forward and write their own conclusions.

... design thinking can help us chart a path into the future ..      change by design / design(s) / cult(s) / cycle(s)

## ideo-team(s)

### ideo design(s) – smart team(s)

... / design(s) / change(s) / experience(s) / \_ / .

in an interdisciplinary team there is collective ownership of ideas and everybody takes responsibility for them.

change by design / cycle(s)

## ideo-time(s)

### ideo design(s) – time / design in the fourth dimension ... / design(s) / change(s) / experience(s) / \_ / .

... designing in time is a little different from designing in space.

### verb(s) *not* noun(s)

change by design / cycle(s)

## ideo-trick(s)

### ideo design(s) – from black art to systematic procedure ... / design(s) / change(s) / experience(s) / \_ / .

... the trick is to do this without sucking the life out of the creative process – to balance management's legitimate requirement for stability, efficiency and predictability with the design thinker's need for spontaneity, serendipity, and experimentation.

change by design / cycle(s)

## frog(s)

### frog-battle(s)

### frog design(s) – battle(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... today the business world is engaged in a global battle between individualism and collectivism  
or *culture versus commodity*.

esslinger, a fine line / cycle(s)

## frog-choice(s)

### frog design(s) – choice(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... the options for changing the current industrial paradigm of *cheap, cheaper, poisonous* to one of better business, stronger profits, and better value for us all ...

esslinger, a fine line / cycle(s)

## frog-collaboration(s)

### frog design(s) – collaboration(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... the creative collaboration starts with an open mind on a defined stage. The players on that stage are much like those in the ancient art form of Greek tragedy, which remains timeless in its simplicity and very stringent rules. The action (and drama ) on the stage is created and defined by three elements: the **hero** (or leader, in business terms), the supporting **cast** (the organization or company), and the **messenger** (the irritation or problem the innovation is intended to resolve).

esslinger, a fine line / cycle(s)

## frog-culture(s)

### frog design(s) – culture(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... innovation paired with culture and a love for usability is a timeless formula for success.

esslinger, a fine line / cycle(s)

## frog-design(s)

### frog design(s) – creative business strategy

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

1. find your sweet spot – area of design
2. be business-minded and do great work for clients
3. look for hungry clients who want to get to the top
4. get famous – by being the best

adapt to win – CULTURE + PROCESS = PROFITS

esslinger, a fine line / cycle(s)

## frog-elf(s)

### frog design(s) – ELF rating system

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

.. in addition to saving resources, cost and materials the advantage to a strategic approach based on convergent technology will lead to a better usage ratio for technology, and a more universal connectivity in the virtual back-end.

mobile phone – computer, minimal display, sensors

esslinger, a fine line / cycle(s)



## frog-ethic(s)

### **frog design(s) – ethic(s)**

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

as we have seen during the dot.com boom and bust of the 1990s, and the economic crash of 2008, speculation and paper wealth can lure plenty of smart people away from their better judgement – and into a morass of compromised ethics.

adopting a creative strategy boils down to a fundamental and momentous shift in how we think about business.

esslinger, a fine line / cycle(s)

## frog-factory(s)

### **frog design(s) – the factory**

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... in the new and ever-evolving global economy, those who know how to engineer and manufacture will have an advantage over those who know how to brand and market products.

so it is vital that all of us learn about (and learn to love) factories!

esslinger, a fine line / cycle(s)

## frog-fusion(s)

### **frog design(s) – fusion product(s)**

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

simple, flexible, sustainable

less is better – open source design & development

esslinger, a fine line / cycle(s)

## frog-olcp(s)

### **frog design(s) – OLCP / Negroponte**

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... today's industrial-cultural colonialism represents one of the biggest obstacles designers and business leaders must overcome in creating environmentally responsible product strategies.

... triggering a holistic 'reboot'

esslinger, a fine line / cycle(s)

## frog-school(s)

### **frog design(s) – strategies & school(s)**

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

1. classic designer(s) – individual artistic statement(s)
2. artistic designer(s) – product(s) with visual appeal
3. corporate designer(s) – in anonymous department(s)
4. creative, strategic designer(s) – fluent in
  - convergent technologies
  - social and ecological needs
  - business

esslinger, a fine line / cycle(s)

## frog-step(s)

### frog design(s) – step(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

1. groundwork – preparation(s) & research
2. creative collaboration(s) – result-driven team work
3. marketing – refining & optimizing

esslinger, a fine line / cycle(s)

## frog-strategy(s)

### frog design(s) – strategy

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... strategies based on creativity, insight and cultural awareness are more environmentally responsible and sustainable than the age-old approach of winning through maximizing (y)our use of resources, money and people.

it is a cold fact that both manufacturing and service industry are hitting the ceiling of efficiency and scale

esslinger, a fine line / cycle(s)

## frog-test(s)

### frog design(s) – test(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

... test and visualize product strategies using (virtual ) reality simulations!

... competent in the vertical integration of convergence products that combine software and hardware, especially in the medical field ...

esslinger, a fine line / cycle(s)

## frog-wisdom(s)

### frog design(s) – wisdom(s)

/ design(s) / change(s) / future(s) / game(s) / machine(s)

...

one who does not compete cannot be competed against

lao tse, cited from esslinger, a fine line / cycle(s)

## goal(s)

### goal-ca1(s)

### learning target(s)

More specifically, the learning goals may be summarized as:

- skill(s) – (digital) content creation
- knowledge – information management & presentation
- theory – relation technology, science & art(s)
- experience(s) – presentation of ideas, concepts & plans
- attitude – exploration, communication, discovery, presentation

In particular, experience and attitude are relevant since Creative Technology is relatively unique in targeting **creativity** at an academic level in a bachelor curriculum.

## goal-ca3(s)

### learning target(s)

In terms of skills, competences, etcetera, the learning goals of this course can be indicated as follows:

- skill(s) – multi-platform technical development
- knowledge – interaction & game play
- theory – smart technology, media & communication
- experience(s) – large scale application with (societal) impact
- attitude – acquisition, problem-finding, self-organization, creative solutions

Perhaps not present in the list in a sufficiently explicit way is that the application must be resistant to **public exposure**, and that the student must develop a sense of **aesthetic responsibility** as well as a sufficient degree of **artistic autonomy**.

## goal-ca4(s)

### learning target(s)

In terms of skills, competences, etcetera, the learning goals of this course can be indicated as follows:

- skill(s) – multi-display visual design
- knowledge – narrative(s) & interaction
- theory – communication & aesthetics
- experience(s) – medium scale cross-media application
- attitude – aesthetic sensibility

In accordance with the format of *creative application(s)* **self-management** is essential for the successful completion of the course.

## goal-ca5(s)

### learning target(s)

In terms of skills, competences, etcetera, the learning goals of this course can be indicated as follows:

- skill(s) – configuration of sensor systems
- knowledge – sensor data management
- theory – coordination & logistics
- experience(s) – medium scale (playful) logistics application
- attitude – inventive, playful

Again, in accordance with the format of *creative application(s)* **self-management** is essential for the successful completion of the course.

## goal-de7(s)

### learning target(s)

- skill(s) – (3D) modeling, graphic design
- knowledge – tools & applications
- theory – design project workflow(s), DCC formats
- experience(s) – graphic or game design project
- attitude – aesthetics, craftsmanship

## goal-nm1(s)

**learning target(s)** The NM1 course is meant to bring competence(s) and skill(s) at various levels. In addition, references will be made to literature for further theoretical study. Small projects will further give the experience needed for using web technology in an effective manner.

- skill(s) – scripting, styling, configuration
- knowledge – html, javascript, css, xml, php
- theory – basic(s) of web 2.0
- experience(s) – small scale multi-language web application development
- attitude – understanding, craftsmanship, discovery

Apart from practical skills, the course aims at an intuitive understanding of the complexity of the web as a platform for communication and services. To profit from the course, must have a sufficient degree of curiosity and lust for discovery.

## goal-nm2(s)

**learning target(s)** With regard to the programming skills, the actual **topics** treated in *interactive visualization* will to a large extent on what has been covered in the earlier **programming course(s)** However, taking a **technology-agnostic view** our learning goals can be summarized as:

- skill(s) – scripting, XML-based configuration
- knowledge – interactive animation & visualization
- theory – dynamic systems, information presentation
- experience(s) – medium scale interactive visual application(s)
- attitude – explorative, problem-finding, aesthetics

In particular, students must gain an **intuition** on how to create **visualizations using computational means**, and how to approach visualization issues by iteratively, as outline in Ben Fry's book on **visualizing data**, going through the following steps: *acquire, parse, filter, mine, represent, refine* and *interact*. No need to emphasize that an **exploratory attitude** is essential, as well as a (to be developed) sense of **(computational) aesthetics**

## goal-nm3(s)

### learning target(s)

Basic skills involve the use of technology, involving both programming issues, as well as service APIs.

- skill(s) – scripting, configuration, use of service APIs
- knowledge – APIs, protocols, REST & SOAP
- theory – web 2.0, social networks
- experience(s) – construction of moderately complex mashup
- attitude – craftsmanship, creativity

However, not only technical issues are important, but also issues of **design** and **creativity** in developing novel **(combinations) of services**, together with an **appealing interface**.

## goal-nm4(s)

### learning target(s)

Basic skills involve the use of authoring languages and tools. Detailed knowledge of the **platform of choice** is required to produce **effective VRs**.

- skill(s) – authoring, design
- knowledge – VR technologies, spatial organisation
- theory – user interface issues
- experience(s) – construction of moderately complex VR
- attitude – experimentation, aesthetics

However, not only technical issues are important, but also issues of **design**, **creativity** and **aesthetics**.

## goal-nm5(s)

### learning target(s)

Basic skills involve the use of authoring languages and tools. Detailed knowledge of the **platform of choice** is required to produce **effective game(s)**.

- skill(s) – design, coding
- knowledge – game engine(s), game (play) mechanics
- theory – game development workflow(s)
- experience(s) – construction of moderately complex game
- attitude – creativity, aesthetics, explorative

However, not only technical issues are important, but also the use of fantasy and **creativity** and **aesthetics** needed to **explore** (novel) forms of **game play**.

## target(s)

### target-compute(s)

educational targets – *computing*

- **skill(s)** – programming in various languages, able to learn new languages quickly
- **knowledge** – networks, web-applications, programming languages, operating systems
- **theory** – integration of languages, computer & software architecture, algorithmic complexity
- **experience(s)** – application development, (technical) requirements analysis
- **attitude** – understanding, with an eye for complexity

### target-create(s)

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*

## target-design(s)

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

## target-math(s)

educational targets – *mathematics*

- **skill(s)** – problem solving
- **knowledge** – algebra(s), graph theory
- **theory** – dynamic systems, logic
- **experience(s)** – modeling complex systems
- **attitude** – inquisitive, with an eye for the beauty of mathematics

## target-media(s)

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*

## target-smart(s)

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

## quote(s)

## quote-artist(s)

## designer vs developer – culture(s) / question(s)

practice(s) / change(s) / vision(s) / – / .

... no, at the **personal level**, you should accept no less than the title of ***artist*** and aspire to earn the right to carry the title. And earning this right is influenced not so much by your accomplishments as by your **approach**: a **relentless pursuit of perfection**, where the journey is the destination.

www.bit-101.com / from: ActionScript 3.0 Animation – Making Things Move

## quote-book(s)

### creative engineering – culture(s) / inspiration(s)

/ create / common(s) / art(s) / – / .

...

- from Stonehenge to the Apollo program
- 5000 years of engineering and related science(s)
- *critical motivating force(s)* – curiosity, necessity, enlightened self-interest
- historical figures – Leonardo di Vinci, Galileo Galilei

*understanding the process by which engineers combine scientific knowledge, practical know-how, and human values to create the technologies of tomorrow ...*

- what is engineering – what is it that engineers do?
- understanding the nature and impact of technology on society

from: Masterworks of Technology – the Story of Creative Engineering, Architecture and Design, E.E. Jewis

## quote-business(s)

### quote(s) – business

portsmouth

...

/ create / common(s) / art(s) / – / .

- creativity
- leadership
- self knowledge
- entrepreneurship
- global awareness

## quote-color(s)

### color(s) – painting the virtual limbo

space(s) / support(s) / chance(s) / – / .

he knows that there are in the soul tints more bewildering, more numberless, and more nameless than the colours of an autumn forest.

G.K.Chesterton *Infinite Symbols*

taken from: Victor Onstein bekent kleur

## quote-converge(s)

### digital convergence(s)

...

/ create / common(s) / art(s) / – / .

- *content* – audio, video, data
- *platform* – PC, TV, internet, game machine
- *distribution* – how it gets to your platform

## quote-create(s)

co-creative – google(s) / dream(s)

relation(s) / challenge(s) / create / – / .

- use – doing / **adapting** / making / creating
- [ideas] – requirements / **process** / product
- **explore** – objects as elements in **design grammar**
- tool(s) – **social networks** / virtual worlds / **participatory media**

convivial design(s) / cycle(s)

## quote-creativity(s)

definition(s) – **creativity**

challenge(s) / method(s) / dream(s) / dilemma(s) / word(s) / vision(s) / – / .

- **product(s)** – novelty or value / [**culture**]
- **process** – unconventional thinking / **idea(s)**
- **person(s)** – high motivation & persistence / [**intensity**]
- **problem(s)** – vague & ill-defined / [**reformulation(s)**]

Newell & Shaw (1962), from R.L. Glass Software Creativity 2.0

## quote-culture(s)

culturalization – in the context of information technology

ired. research / question(s) / artist(s) / – / .

Culturalization within the broader context of information technology (IT) can also be read as a moment of anticipation, a tactical sidetrack in response to the long-term decline of the engineering class in the West. **The hegemonic role of computer scientists as inventors can easily been understood, but wasn't going to last forever.** Different fields of knowledge, from human computer interaction to usability and new media studies, have ll in their own ways proclaimed the coming of the cultural turn. MyCreativity: A critique of Creative Industries

## quote-defragment(s)

defragment – (y)our mind(s)

interaction(s) / infosphere(s) / conclusion(s) / science(s) / – / .

1. chose your dominant setup
2. identify necessary information
3. establish priorities
4. ignore the unimportant
5. run a dry test

tip(s) / blog(s) / deliverable(s) / cycle(s)



## quote-economy(s)

### layer(s) – experience economy

level	function	attribute	product	measure(s)	process
agriculture	<b>extract</b>	natural	commodities	quantity	trader/market
industrial	<b>make</b>	standardized	goods	price	manufacturer/customer
post-industrial	<b>deliver</b>	customized	<b>service(s)</b>	quality	<b>provider/client</b>
<b>now</b>	<b>stage</b>	<b>personal</b>	<b>experience(s)</b>	<b>authenticity</b>	stager/guest
post-experience	<b>guide</b>	individual	<b>transformation(s)</b>	change	<b>elicitor/aspirant</b>

from: B.J. Pine II, J.H. Gilmore The Experience Economy

## quote-education(s)

### education – in a classless society

challenge to our educational system / co-create / resource(s) / – / .

- freedom of the mind – no tyranny
- equality of opportunity – social mobility through education
- universal schooling – differentiation of instruction
- see also – teaching greatness / niveau

1940 by James Bryant Conant / blog(s) / cycle(s)

## quote-engineer(s)

### engineer(s) – create technology?

...

/ create / common(s) / art(s) / – / .

skin(s) / human(s) / room(s) / problem(s) / screen(s)

the 20th century is the century of engineers ...

Der Man ohne Eigenschaften Robert Musil / ...

## quote-ethic(s)

### creative technology – ethic(s)

ethically informed  
morally inclined

divina comedia

www.nmc.org

## quote-game(s)

### game(s) – theory / challenge(s)

...

/ create / common(s) / art(s) / – / .

- **game space(s)** – possibility space(s)
- **model(s)** – metaphor(s) / narrative(s)
- **interaction loop(s)** – success/failure
- **relation(s)** – real/virtual

- **world(s)** – specific/abstract
- **player(s)** – hardcore / casual
- **grouping(s)** – competition(s) / specialization(s)
- **behavior(s)** – state machine

[www.youtube.com/watch?v=CdgQyq3hEPo](http://www.youtube.com/watch?v=CdgQyq3hEPo)

## quote-initiate(s)

**infospere(s) – enhancing or augmenting?**

form(s) / interaction(s) / design(s) / – / .

**Now, to be clear**, information and communication technologies are not augmenting or empowering in the sense just explained. They instead **create environments** that the user is then enabled to enter through (possibly friendly) gateways. **It is a form of initiation.**

future of the infospere(s)

## quote-knowledge(s)

**knowledge management – data, information, knowledge**  
miracle(s) / chart(s) / – / .

book(s) / skin(s) / understanding / place(s) /

- **acquisition** – from person(s)/(sensor) **data source(s)**
- **modelling** – **representation(s)** & storage
- **retrieval** – find **connection(s)** & **context(s)**
- **re-use** – employing **relation(s)** between chunks
- **publishing** – multiple **formats/modalities/platforms**
- **maintenance** – consistent **update(s)**, in-time

Kieron O'Hara: Plato and the Internet

## quote-landgenoten(s)

**quote(s) – landgenoten**

...

/ create / common(s) / art(s) / – / .

... terwijl het gebruik van 'social media' professioneel toeneemt, velen het een verrijking in hun leven (prive en werk) vinden, zien we een Koningin met een waarschuwend vinger wijzen naar Internet, Twitter, Hyves, Facebook ...

blog(s) / cycle(s)

## quote-landscape(s)

**socio-digital landscape – value(s)**

...

/ create / common(s) / art(s) / – / .

how we ought to interact with technology in the new world ...

... **moral investigation** of why technology has a role ...

other discipline(s) from the arts & humanities will become more relevant ...

from: human(s)

## quote-learning(s)

### game(s) – active learning / rethoric(s)

/ create / common(s) / art(s) / – / .

...

- experiencing the world in new ways
- forming new affiliations
- preparation for future learning

## quote-life(s)

- **infosphere(s) & inforg(s)** – future(s) / gateway(s) / aesthetic(s)
- **second life** – confession(s) / human(s) / machinama(s) / tv
- **real world(s)** – health / money / travel(s)
- **let's not be** – philosophic / sarcastic
- **topic(s) & theme(s)** – art / science / life
- **design(s)** – change(s) / attitude(s) / interaction(s)
- **developer(s)/artist(s)** – de(v/s)elop(s) / relation(s) / world(s)

**disclaimer(s)**: some of the material may seem distasteful or even shocking, and as such do not represent the panel(s) opinion. Æ

## quote-media(s)

### aspiration(s) – media literacy / spark(s) representation(s) / twitter(s) / value(s) / question(s) / space(s) / – / .

To produce a media literate citizenry, **media literacy education** will have to be included across the curriculum and at all grade levels, including higher education, with each educator doing an appropriate piece, and each piece being valued for its contribution to the ultimate goal.

cultural analytic(s) / amlainfo.org / present(s)

## quote-method(s)

### method(s) – creativity technique(s)

creativity / manipulation(s) / – / .

- analogy/metaphor – similarity & figures of speech
- brainstorming – large quantity of ideas in short time
- blue slip(s) – small notecards to express ideas in random order
- extrapolation(s) – apply proven techniques to new problem
- progressive abstraction technique – alternative problem definition(s)
- 5W+H technique – Who-What-Where-When-Why+How
- force field analysis – identify forces contributing or hindering solution(s)
- peaceful setting – relax and open mental process(es)
- problem reversal(s) – to provide a different framework for analysis
- association(s)/images technique – builds on natural inclination to associate things
- wishful thinking – to counteract (too) analytical approach(es).

## quote-mission(s)

the go game / \_ / .

technology fuelled  
creative game(s)  
and activities  
for team building  
marketing and sales  
personality training  
or just fun

[www.avantgame.com/writings.htm](http://www.avantgame.com/writings.htm) / cycle(s)

## quote-pareidolia(s)

pareidolia(s) – co-creative world(s)  
pareidolia (n)

vision(s) / workshop(s) / \_ / .

the erroneous or fanciful perception of a clear pattern or meaning in something that is actually random or ambiguous.

## quote-politic(s)

politic(s) – for a co-creative world

... we shook hands, my inability to remember that particular moment more precisely is disappointing: the handshake is the threshold act, the beginning of politics. anonymous: primary colors – a novel of politics / space(s)

## quote-principle(s)

educational principles

...

/ create / common(s) / art(s) / \_ / .

1. learner-centered environment
2. active appropriate practice
3. experiential learning
4. interpersonal communication and feedback
5. multi-disciplinary collaboration
6. student responsibility and self-motivated learning
7. consistent instructional elements

## quote-processing(s)

processing – bridging art(s) & technology

... / learning / software / literacy / education / network / context |loadcfg=quotex;

- **software** is a unique **medium** with unique qualities
- every **programming language** is a distinct **material**
- **sketching** is necessary for the development of **ideas**
- programming is **not** just for **engineers**

. /

create / software literacy: read & write (**tool(s)**) / ..

## quote-represent(s)

### representation(s) – fallacies of new media art(s)

human(s) / moral(s) / color(s) / question(s) / \_ / .

It has been one of the grave misconceptions of **new media art** to assume that new **technologies** would break with the **paradigm(s)** of **representation(s)**, **perception(s)** and **cognition(s)** to the extent that the **effect(s)** of that break could exclusively be articulated by means of these technologies.

Andreas Broeckmann – Deep Screen - Art in Digital Culture

## quote-shadow(s)

### data shadow(s) – are we there yet?

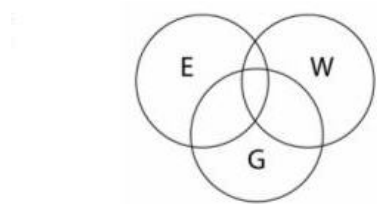
...

/ create / common(s) / art(s) / \_ / .

**data shadow** = **digital profile** generated from **data** garnered from a user's **online habits**

interaction(s) / future of the infosphere(s)

## quote-simulation(s)



game play, model-based simulation, exploration

...

/ create / common(s) / art(s) / \_ / .

- **game cycle** – turns in subsequent rounds
- **simulation(s)** – world (climate) model
- **exploration** – by means of interactive video

game elements / **XIMPEL**

## quote-skill(s)

### developer(s) – smart / media

1. one of the *big three* (.NET, Java, PHP)
2. rich internet applications (RIAs)
3. web development
4. web services
5. soft skills
6. one dynamic and/or functional programming language
7. agile methodologies
8. domain knowledge

9. development *hygiene*
10. mobile development

[blogs.zdnet.com/BTL/?p=16052](http://blogs.zdnet.com/BTL/?p=16052)

## quote-skin(s)

### aesthetic(s) – new media

the skin is the deepest part of man.

Paul Valery / cycle(s) / color(s)

## quote-sphere(s)

### infospere(s) – are we there yet?

...

/ create / common(s) / art(s) / \_ / .

- **absence of friction** – data superconductivity (data = process)
- **ecosystem(s)** – absorbing all other space(s)
- **evolution of inforg(s)** – dependent, more online than sleep?

interaction(s) / future of the infospere(s)

## quote-tinag(s)

mission(s) / ARG / this is not a game / cloud(s) / \_ / .

- computer/console/video games.
- role-playing games
- live action role-playing games
- massively multiplayer online role-playing games
- viral marketing/internet hoaxes

who wants to be a puppetmaster?

## quote-value(s)

media(s) / education(s) / color(s) / relationship(s) / pattern(s) / \_ / .

being human is not simply a label.

... it is about a set of **aspirations**. Recognizing those aspirations and striving to **realise** them can make the world we live in one to **celebrate** rather than **fear**.

human(s) / experiment(s) / cycle(s)

## quote-violence(s)

### social media – is twitter evil?

fast-moving television or virtual game(s) / representation(s) / moral(s) / \_ / .

... in a media culture in which violence and suffering become an endless show, be it in fiction or in infotainment, indifference to the vision of human suffering gradually sets in, ...

USC media scholar Manuel Castells (Brain and Creativity Institute)

quote-watch(s)

space(s) / dream(s) / vision(s) / \_ / .

we will watch

experiment(s) / screen(s) / experience(s)

quote-wave(s)

the new wave of Web 2.0 – google(s) / mashup(s) / science(s)

yahoo – developer.yahoo.com

del.icio.us – del.icio.us/help/api

technorati – www.technorati.com/developers

flickr – www.flickr.com/services

google – code.google.com

ebay – developer.ebay.com

quote-yet(s)

infor(s) – are we there yet?

...

/ create / common(s) / art(s) / \_ / .

1. **battery life** – are we running out of power?
2. **google object(s)** – where are my glasses?
3. **digital migration(s)** – children of the post-computer revolution?
4. **time connected** – more online than sleep?
5. **virtual assets** – what is for sale?

interaction(s) / infosphere(s) / future of the infospere(s)

question(s)

question-agenda(s)

agenda(s) – ~~agenda(s)?~~

what

about

agenda(s)?

## question-challenge(s)

engineering / ICT challenge(s) [3/5]

### concept(s)

- everything is miscellaneous – site<sup>1</sup>

### model(s)

- business model – *what is web 2.0?* (article<sup>2</sup>)

### problem(s)

- identity 2.0 – who is the dick on my site(s)<sup>3</sup>

## question-course(s)

### course(s) – engineering / format(s)

- **knowledge** – is a process, not a product
- **information** – is a commodity (on the web)
- **creativity** – is contagious
- **discipline** – relies on self-organisation
- **technology** – requires motivation

education is a waste of time

## question-create(s)

### structure(s) – creative explorations of art, science & technology

1. *disciplinary courses* – traditional approach, with regular courses and assignments
2. *project-based work* – lectures to support active exploration of topics by students
3. *creative applications* – challenges, to produce viable solutions for real world applications

## question-engineer(s)

### engineer(s) – creative explorations of art, science & technology

Who can be interested any longer in that age-old idle talk about **good and evil** when it has been established that good and evil are not 'constants' at all, but '**functional values**', so that the goodness of works depends on the historical circumstances, and the goodness of human beings on the **psycho-technical skill** with which their qualities are exploited? The world is simply ridiculous if one looks at it from the **technical point of view**. It is **unpractical** in all that concerns the **relations between human beings**, and in the highest degree uneconomical and inexact in its methods.

Der man ohne ...?

---

<sup>1</sup>[www.everythingismiscellaneous.com](http://www.everythingismiscellaneous.com)

<sup>2</sup>[www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html](http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html)

<sup>3</sup>[identity20.com/media/ETECH\\_2006](http://identity20.com/media/ETECH_2006)



## question-game(s)

### game(s) – meaning / C4(X)

- **challenge** – relevance, feedback, confidence
- **curiosity** – *cognitive* / *sensitive* discrepancy
- **control** – contingency, choice, power
- **context** – intrinsic or extrinsic metaphor(s)

value(s) / theory / gaming is a waste of time?

## question-hero(s)

### hero(s) – background(s)

- Galvani/Volta/Ritter – sensorial experiments / electrified
- Walter Benjamin – (re)introducing the aura of art
- Ted Nelson – augmenting the human intellect
- Donald Knuth – literate programming
- Timothy Leary – turn-on, tune-in, drop out – [deoxy.org/leary.htm](http://deoxy.org/leary.htm)

creative engineering, architecture and design

## question-medium(s)

### answers(s) – message 2.0

in our digital age the message determines the selection of the medium

Æ

## question-research(s)

### research(s) – [www.iipcreate.com](http://www.iipcreate.com)

comments after 8/5/08:  
interesting, high level research,

veel kennis, geen benul ...

note to myself: back to  
basic principle(s)  
of media & game development

academic research takes the fun out of humor

## question-secondlife(s)

human(s) / relationship(s) / experience economy / network(s)

- to what extent is second life *fake-real* or *real-fake*?
- what is the *secret* of second life?
- what role(s) do *virtual environments* play in our (human) life?

panel(s) / experience economy / opinion(s) / sphere(s) / sleep

## question-self(s)

question(s) – *creative technology*

who am i?

- skill(s) –
- knowledge –
- theory –
- experience(s) –
- attitude –

## question-success(s)

success factor(s) – iip/create: strategic research agenda

talent

technology

įstrikeĭtoleranceį/strikeĭ?

politic(s) / room(s)

## question-thought(s)

random thought(s) – without thinking / inspiration(s)

- the aesthetics of our time – youtube **9/11**
- the medium is the message – flash (skip)
- **models of dissemination** – (...) / **viral**
- **creativity is contagious** – involvement
- attention vs impact – peripheral, subliminal
- conventional wisdom – surprise(s)
- **new media** – **personal expression(s)**

## question-workshop(s)

prepare – act/express/present – reflect

1. what was your most recent (un)creative behavior?
2. what would you like to (un)learn?
3. what do you think/feel about **X**?
4. how do you behave/connect with **Y**?
5. where did you hide (y)our dream(s)?
6. what is your favorite story?
7. why did you not tell us before?
8. what is on your mind?
9. what is under your feet?

## line(s)

### line-aggression(s)

#### line(s) – aggression(s)

/ create / common(s) / art(s) / – / .

...

what can we do against:

aggression(s)?

violence(s)?

could have thought of moment(s)?

clip(s) / show(s) / game(s) / cycle(s)

### line-allegory(s)

#### allegory vs algorithm(s) – game(s)

casual / form(s) / error(s) / gap(s) / – / .

... the form of the digital game is an allegory for the form of being.

... to be a gamer is to come to understanding through quantifiable failure.

cited from: Gamer Theory

### line-beauty(s)

skin(s) / skill(s) / place(s) / – / .

... for **beauty** is nothing but the **beginning of terror**, which we are still **just able to endure**,

and we are so **awed** because it serenely disdains to **annihilate us**.

Rainer Maria Rilke / cycle(s)

### line-casual(s)

#### allegory vs algorithm(s) – casual revolution(s)

algorithm(s) / space(s) / error(s) / rule(s) / – / .

the casual revolution is a re-invention of both games and players.

... casual game design is a genuine innovation in game design and a return to lessons long forgotten ...

while the idea of the less-dedicated, less-obsessed casual player helps us to move beyond the prejudice that video game players are nerdy and socially inept.

cited from: The Casual Revolution

### line-chart(s)

presentation(s) / understanding / ... / list(s) / science(s) / – / .

chartjunk is a clear sign of statistical stupidity.

Edward Tufte – PowerPoint is Evil

## line-communication(s)

communication(s) – n-grams

world(s) / science(s) / error(s) / – / .

THE HEAD AND IN FRONTAL ATTACK ON AN ENGLISH WRITER THAT THE CHARACTER OF THIS POINT IS THEREFORE ANOTHER METHOD FOR THE LETTERS THAT THE TIME OF WHO EVER TOLD THE PROBLEM FOR AN UNEXPECTED (GUEST) from  
Claude Shannon A mathematical theory of communication

cited from: Expressive Processing

## line-confusion(s)

line(s) – confusion(s) / spark(s)

...

/ create / common(s) / art(s) / – / .

confusion is the origin of creativity

i/br<sub>i</sub>

game(s) / cycle(s)

## line-creativity(s)

definition(s) – creativity

challenge(s) / method(s) / dream(s) / dilemma(s) / quote(s) / vision(s) / – / .

- The **product** of thinking has novelty or value, either for the thinker or his/her culture.
- The thinking is **unconventional**, in the sense that it requires modification or even rejection of previously accepted ideas.
- The thinking requires **high motivation** and persistence, taking place over a considerable time span (continuously or intermittently) or at **high intensity**.
- The problem as initially posed was **vague and ill-defined**, so that part of the task was to **reformulate the problem** itself.

Newell & Shaw (1962), from R.L. Glass Software Creativity 2.0

## line-ctsg(s)

line(s) – creative technology (...) game(s)

...

/ create / common(s) / art(s) / – / .

CT(..)G

display(s) / game(s) / cycle(s)

## line-curiosity(s)

artist(s) / vision(s) / future(s) / education(s) / science(s)

it is a miracle that curiosity survives formal education

Einstein / cycle(s)

## line-design(s)

... / form(s) / skin(s) / obstacle(s) / place(s) / failure(s) / culture(s) / \_ / .

design = to initiate change in man-made things

. /

John Chris Jones – Design Methods / cycle(s) / ..

## line-dot(s)

... / skin(s) / role(s) / logic(s) / place(s) / science(s) / space(s) / vision(s) / \_ / .

creativity = connecting dots

one would not look at, normally ...

. / Alain Kay / screen(s) / wire(s) / cycle(s) / ..

## line-dots(s)

... / singularity / eliminate(s) / logic(s) / vision(s) / \_ / .

creativity = connecting ...

one would not look at, normally ...

Alain Kay / idea(s) / screen(s) / wire(s) / cycle(s) / ..

## line-dream(s)

understanding / engineer(s) / future(s) / ... / economic(s) / idea(s) / \_ / .

reason can dream what dreams cannot reason

Nicalas Snowden Willey, 1965, quoted from J.C. Jones Design Methods

## line-engineer(s)

dream(s) / theme(s) / miracle(s) / force(s) / role(s) / engineer(s) / \_ / .

it is the **process of design**, in which diverse parts of the *give-world* of the **scientist** and the *made-world* of the **engineer** are reformed and assembled into something the like of which *nature* had not dreamed, that divorces **engineering** from **science** and marries it to **art**.

H. Petroski – To Engineer is Human

## line-error(s)

### imagination(s) – error(s)

science(s) / communication(s) / chance(s) / \_ / .

... unlike the requirement that error must be removed from a computer program, however, the likelihood of error must be tolerated even in the normal individual if the brain is to confront novelty in an adaptive fashion.

Gerald Edelman: second nature – brain science and human knowledge / cycle(s)

## line-existence(s)

dream(s) / free / creative / human(s) / \_ / .

it is as if each creature has the power to dream itself out of one existence into a new one, one step higher on the ladder of things

David Malouf An Imaginary Life

## line-experience(s)

### experience(s) – economy of dream(s)?

... / vision(s) / economic(s) / challenge(s) / product(s) / mechanic(s) / \_ / .

evidence of the dream society can be found in business models that incorporate stories into products, services, strategies and advertising.

. / dream society and experience economy / screen(s) / ..

## line-experiment(s)

... / logical / understanding / vision(s) / experience(s) / network(s) / \_ / .

we're in a big social experiment,  
where it ends up, I don't know.

friend(s) / Dan Siewiorek, Carnegie Mellon University / question(s) / cycle(s) / ..

## line-failure(s)

presentation(s) / understanding / design(s) / reboot(s) / \_ / .

failure is an unacceptable difference between expected and observed performance

quoted from: Henry Petroski – Success through Failure

## line-fire(s)

... / media / science / art(s) / miracle(s) / artist(s) / experiment(s)

fire then wire

. / second nature / network(s) / cycle(s) / ..

## line-focus(s)

### line(s) – focus!

...

/ create / common(s) / art(s) / \_ / .

defragment (y)our mind(s)

quote(s) / game(s) / cycle(s)

## line-force(s)

dream(s) / engineer(s) / relationship(s) / product(s) / \_ / .

**structural engineering** is the **science** and **art** of designing and making, with economy and elegance, buildings, bridges, **frameworks** and other similar **structures** so that they can safely resist the **force(s)** to which they may be subjected.

H. Petroski – To Engineer is Human

## line-free(s)

dream / creative / human / existence / innovation(s) / \_ / .

... but we are free after all, we are bound not by the laws of our nature but by the ways we can imagine ourselves breaking out of those laws without doing violence to our essential being. we are free to transcend ourselves, if we have the imagination for it.

David Malouf, An Imaginary Life / cycle(s)

## line-fun(s)

... / vision(s) / science / art(s) / education(s) / machine(s) / \_ / .

science takes the fun out of humor

. / ??? / wave(s) / cycle(s) / ..

## line-future(s)

dream(s) / ... / miracle(s) / innovation(s) / \_ / .

the imagination jumps from present facts to future possibilities

J.P. Page, 1966, quoted from J.C. Jones Design Methods

## line-gap(s)

### allegory vs algorithm(s) – world(s)

error(s) / quest(s) / form(s) / algorithm(s) / \_ / .

the gamespace opens a critical gap between what gamespace promises and what it delivers

... the game is true in that its algorithm is consistent, but this very consistency negates a world that is not!

what is true is not real, what is real is not true, this is what the double movement of allegorithm and allegory have to report.

cited from: Gamer Theory

## line-hack(s)

### line(s) – hack(s)

/ create / common(s) / art(s) / \_ / .

... hacking is the art of creative problem solving, whether that means finding an unconventional solution to a difficult problem or exploiting holes in sloppy programming.

. / hacking – the art of exploitation / cycle(s) / ..

## line-human(s)

innovation(s) / theory of mind(s) / secondlife(s) / force(s) / \_ / .

... *relationships* are things that happen only in a *virtual world*, and we are able to move *backwards* and *forwards* between the *physical world of interactions (real events)* and the virtual world in which these events are *constituted into relationships* in order to be able to *understand* what the *significance of specific actions* is or might be, or *how two relationships impinge upon eachother*.

Robin Dunbar – The Human Story (p. 66)

## line-ignorance(s)

**line(s) – ignorance(s) = bliss**

...

/ create / common(s) / art(s) / \_ / .

knowledge is (often not) a solution, but a problem ...

rule(s) / kill(s) / game(s) / media:12-4 / cycle(s)

## line-inspire(s)

**line(s) – inspiration(s) / infoart(s)**

...

/ create / common(s) / art(s) / \_ / .

ai

□

vr

idea(s) / media:iv / cycle(s)

## line-interaction(s)

understanding / skin(s) / place(s) / form(s) / \_ / .

human computer interaction is a symmetric relation

mouse site(s) / infosphere(s)

## line-invitation(s)

**line(s) – invitation(s) / spark(s)**

...

/ create / common(s) / art(s) / \_ / .

**creativity**

is

an invitation

and not an obligation ...

game(s) / cycle(s)

## line-joke(s)

**the car starts to smoke and stops ...**

presentation(s) / understanding / failure(s) / \_ / .

- *physicist* – This is obviously a classic problem of torque. It has overloaded the elasticity limit of the main axis.
- *engineer* – Let's be serious! The matter is that it has burned the spark of the connecting rod to the dynamo of the radiator. I can easily repair it by hammering.
- *computer scientist* – What if we get off the car, wait a minute, and then get in and try again?

quoted from Henry Petrosky – Success through Failure / joke(s)



## line-knowledge(s)

knowledge / understanding / place(s) / miracle(s) / chart(s) / \_ / .

... writing shares a strange feature with painting.

... the offspring of painting stand there as if they were alive, but if anyone asks them anything, they are solemnly silent.

the same is true of written words ...

Phaedrus, 275d

Kieron O'Hara: Plato and the Internet

## line-labyrinth(s)

future(s) / dot(s) / miracle(s) / place(s) / science(s) / \_ / .

to all appearances, the artist acts like a mediumistic being who, from the labyrinth beyond time and space, seeks his way out to a clearing.

Marcel Duchamp, Houston 1958

## line-learning(s)

### line(s) – learning

...

/ create / common(s) / art(s) / \_ / .

learning is really remembering

Plato, cited from free play, p. 34

## line-less(s)

more is less / \_ / .

more is less is more less is more less is more less is more less is more less is more less is more less  
is more less is more less is more less is more less is more less is more less is more less is more less  
is more less is more less is more less is more less is more less is more less is more less is more less  
is more less is more less is more less is more less is more less is more is less

## line-logical(s)

relation(s) / experiment(s) / understanding / ... / science / \_ / .

... I don't see the deep thinking. I see superficial connecting of **dots** rather than logical thinking,

Dan Siewiorek, Carnegie Mellon University

## line-manipulate(s)

### manipulation(s) – creativity

challenge(s) / method(s) / dilemma(s) / quote(s) / \_ / .

- **multiply** – generalize(s) part of the system?
- **divide** – sets of similar interest(s)?
- **eliminate** – avoid special tailoring!

quoted from R.L. Glass Software Creativity 2.0

## line-math(s)

experience(s) / ... / science / \_ / .

... a mathematician is like a blind man in a dark room looking for a black cat that isn't there.

misattributed to Charles Darwin – cited from vision(s)

## line-mile(s)

### line(s) – mile(s)

...

/ create / common(s) / art(s) / \_ / .

a journey of 1K miles begins with the first step(s)

media/iv / game(s) / cycle(s)

## line-mind(s)

expression(s) / relationship(s) / experience(s) / \_ / .

## theory of mind – level(s) of intentionality

- evolution – walking, tools, brain size
- (frontal) brain size – socializing/grooming, from 20 to 80
- 1-7 levels of intentionality – 2nd = theory of mind
- what do we speak about, when we speak about ...

Peter *believes* [1] that Jane *thinks* [2] that Sally *wants* [3] Peter to *suppose* [4] that Jane *intends* [5] Sally to *believe* [6] that ... her ball is under the cushion.

Robin Dunbar – The Human Story (p. 46)

## line-more(s)

less is more / \_ / .

less is more

. / .. / ... / ....

## line-play(s)

### line(s) – play

...

/ create / common(s) / art(s) / \_ / .

paint as you like and die happy

Henri Miller

## line-power(s)

### line(s) – power(s)

...

/ create / common(s) / art(s) / \_ / .

death by powerpoint

... / rule(s) / inspire(s) / cycle(s)

## line-problem(s)

politic(s) / engineer(s) / – / .

problem(s) can be solved, dilemma(s) only optimized

www.ubercool.com

## line-product(s)

### line(s) – product(s)

...

/ create / common(s) / art(s) / – / .

(the) process is (part of the) product

blog(s) / game(s) / cycle(s)

## line-program(s)

### line(s) – program(s)

...

/ create / common(s) / art(s) / – / .

program or be programmed

blog(s) / code(s) / SXSW 2010: Ten Commands for a Digital Age / cycle(s)

## line-quality(s)

chance(s) / force(s) / role(s) / space(s) / screen(s) / – / .

the quality without a name in us, our liveliness our thirst for life, depends directly on the patterns in the world, and the extent they have this quality for us from: Christopher Alexander – The Timeless Way of Building

quoted from: Michael Nitsche – Video Game Space

## line-reboot(s)

### line(s) – reboot(s) / mind(s) & machine(s)

...

/ create / common(s) / art(s) / – / .

reboot (y)our society

machine(s) / fail(s) / frog(s) / joke(s) game(s) / cycle(s)

## line-role(s)

### role(s) – engineer(s) / designer(s) / artist(s)

workshop(s) / dream(s) / theme(s) / miracle(s) / force(s) /

panel(s) / – / .

- artist(s) – [intervention]: *perceptive* / intuitive & immediate
- designer(s) – [sketch]: *imaginative* / envisioning & reflective
- engineer(s) – [prototype]: *constructive* / technical & rational
- scientist(s) – [paper]: explanation / *scepticism & doubt*
- mathematician(s) – [theorem]: precision / *manipulation & elegance*

loosely based on John Chris Jones – Design Methods p. 11

## line-routine(s)

**line(s) – routine / workshop(s)** ...

/ create / common(s) / art(s) / \_ / .

story = (routine) breaking point(s) ...

game(s) / cycle(s)

## line-run(s)

understanding / skin(s) / logic(s) / place(s) / \_ / .

”write once, run anywhere” is really something of an aspirational slogan rather than a reality

blog(s)

## line-science(s)

**imagination(s) – science(s)**

knowledge / error(s) / science / art(s) / representation(s) / \_ / .

... science is imagination in the service of verifiable truth

its ultimate power, of course, is in understanding, and as we see around us, its reach in technology is stunning.

... but the brain origins of imagination in science do not differ from those necessary for poetry, music or the building of ethical systems.

Gerald M. Emerson: second nature – brain science and human knowledge

## line-share(s)

**line(s) – share design(s)** ...

/ create / common(s) / art(s) / \_ / .

share (y)our design(s)!

game(s) / cycle(s)

## line-silence(s)

**line(s) – silence** ...

/ create / common(s) / art(s) / \_ / .

ideas and insights need to cool over a period of time

free play

## line-singularity(s)

**line(s) – gogbot(s)** ...

/ create / common(s) / art(s) / \_ / .

the singularity is near

search / color(s) / game(s) / cycle(s)

## line-skill(s)

artist(s) / developer(s) / beauty / skin(s) / \_ / .

it is **skill surmounting difficulty**, and **beauty triumphing over skill**

(art) ..., to snatch this grace beyond the reach of art is then the **height of art** – where fine art begins, and **where mechanical skill ends**.

William Hazlitt – THE PLEASURE OF HATING

## line-space(s)

### allegory vs algorithm(s) – space(s)

i/red. experience(s) / error(s) / gap(s) / space(s) / screen(s) / \_ / .

the game is a knowable algorithm from which you know you can escape.

... gamespace is an unknowable algorithm from which there is no escape.

the game is just like the gamespace of everyday life, except that the game can be saved.

cited from: Gamer Theory

## line-story(s)

### line(s) – story / workshop(s)

...

/ create / common(s) / art(s) / \_ / .

a story can be regarded as a meaningful pattern of information

science(s) / routine(s) / game(s) / cycle(s)

## line-understand(s)

knowledge / skin(s) / place(s) / chart(s) / quest(s) / engineer(s) / \_ / .

to understand is to be capable of doing

Goethe (from Design as Art, Bruno Munari)

## line-vision(s)

... / skill(s) / experience(s) / science(s) / screen(s) / \_ / .

... for the blind man in a dark room looking for a black cat that isn't there.

exhibition(s): de appel / quest(s) / vision(s) / hole(s) / cycle(s)

## line-xp(s)

### smart experience lab(s)

... / science / art(s) / value(s) / \_ / .

functionality, flexibility, fascination

smartxp.ewi.utwente.nl

## scenario(s)

### scenario-communication(s)

#### scenario(s) – *communication*

Traditional communication models, in broadcasting and advertisement, are gradually being replaced by multimedia strategies, involving the internet and crossmedia in an essential way. In such media endeavors we may find our students active in one of the following roles or departments:

scenario(s) – *communication*

- *web developer* – setting up portal(s)
- *crossmedia architect* – relating all media
- *production agency* – to coordinate delivery
- *strategic planning* – defining targets and goals

Despite the wide range of possible roles, whatever role is taken, however, our graduates will distinguish themselves by their level of technical expertise.

### scenario-creative(s)

#### scenario(s) – *creative industry*

The *creative industry* is a somewhat wide notion, originally introduced by the Blair government to re-vitalise dormant industrial areas. After the success of Silicon Valley, and New York's Silican Alley, the model was adopted by among others Amsterdam and Berlin.

In the *creative industries*, our students might take any of the following roles:

scenario(s) – *creative industry*

- *entrepreneur* – creating business
- *creative genius* – generating idea(s)
- *content author* – to produce material(s)
- *technical developer* – to write script(s) & program(s)

Despite the wide range of possible roles, whatever role is taken, however, our graduates will distinguish themselves by their level of technical expertise.

### scenario-entertain(s)

#### scenario(s) – *entertainment*

Entertainment is an everlasting source of revenue for innovative enterprises. In our society the technical opportunities for entertainment are abundant, both in an urban and private setting. Our students may work in the area of entertainment in one of the following roles or fields:

scenario(s) – *entertainment*

- *concept design* – defining new artefacts
- *technical infrastructure* – for realization
- *business plan* – to coordinate the enterprise
- *production manager* – mediating between parties

Despite the wide range of possible roles, whatever role is taken, however, our graduates will distinguish themselves by their level of technical expertise.

## scenario-game(s)

### scenario(s) – *game development*

Games are increasingly being recognized as valuable tools in an educational environment, and corporate learning. With the growing attention for *serious games*, it becomes likely that we will find our students active in *game development*, in either one of the following roles or activities:

scenario(s) – *game development*

- theme(s) & storyline(s) – *setting the context*
- style & visual(s) – *creating the appeal*
- asset development – *to embody the game*
- interaction & experience design – *to promote involvement*

Despite the wide range of possible roles, whatever role is taken, however, our graduates will distinguish themselves by their level of technical expertise.

## scenario-product(s)

### scenario(s) – *product design*

In an evergrowing consumer market, *product design* will be an area of active development. Dependent on the context of deployment, healthcare, entertainment, or home or office furniture, our students may be active in any of the following roles:

scenario(s) – *product design*

- *visual design* – to give aesthetic appeal
- *concept development* – to accommodate human needs
- *usability & deployment* – making it fit for its role
- *evangelist* – to promote the (benefits of the) idea

Despite the wide range of possible roles, whatever role is taken, however, our graduates will distinguish themselves by their level of technical expertise.

## game(s)

### game-answer(s)

#### game(s) – answer(s)

workshop(s) / instinct(s) / world(s) / quest(s) / science(s) / place(s)

sometimes attaining the deepest familiarity with a question is our best substitute for actually having the answer.

from Brian Green – The Elegant Universe (p. 365) / question(s) / cycle(s)

### game-chance(s)

world(s) / experience(s) / mechanics(s) / pattern(s)

chance is tricky stuff, because it intertwines hard math, human psychology, and all of the basic game mechanics.

... but this trickiness is what gives games their richness, complexity and depth.

from: Jesse Schell – The Art of Game Design – A Book of Lenses

### game-colors(s)

eyebook / game(s) / source / cycle(s) / color(s)

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## game-communication(s)

idea(s) / innovation(s) / dream(s) / rule(s) / change(s)

our commitment to the technological civilization has accelerated, but unfortunately we have not as yet fully understood, much less accepted, the psychological and social changes associated with the new sources of energy, the exploration of space, and the computer revolution.

1973: Jurgen Ruesch: Therapeutic Communication

## game-ctsg(s)

### game(s) – CTSG / creative technology superpower game(s)

idea(s) / ... / space(s)

**Creative Technology Superpower Game(s)**, where the main focus is to investigate playful applications of technology to emulate or support players' superpowers, such as invisibility, telekinesis, etcetera, in (for example) interactive space(s).

Our investigations involve workshop(s) in game design as well as application development as part of the creative technology curriculum, using all available resource(s).

CTSG / theme(s) / workshop(s) / @ning / @google / cycle(s)

## game-document(s)

### game(s) – document(s)

inspiration(s) / imagination(s)

- vision of the game – summary, game goals, mood/theme
- primary & secondary features – environments, mechanics, interactions
- game mechanics – traversal, camera control & movements
- combat – style & delivery, targeting, charge-ups, defense, combo(s)
- player challenges – enemies, strength & weakness, attacks, AI & NPC(s)
- environmental designs & interaction – terrain, interaction, danger, scope
- characters – attributes, locations, destination(s)
- level design – layout, maps & hotspots, puzzle(s)

GDD: chapter

## game-dodge(s)

eyebook / game(s) / source / cycle(s)

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## game-engine(s)

### game(s) – engine(s) / CTSG

inspiration(s) / imagination(s)

- unity – unity3d.com
- unreal – udk.com
- source sdk – source.valvesoftware.com
- dark GDK – gdk.thegamecreators.com
- delta3D – www.delta3d.org
- dragon age – dragonage.bioware.com/toolset
- open frameworks – www.openframeworks.cc
- basic technologies (DIY) – HTML5/AJAX / flex/as3



## game-example(s)

### game(s) – example(s)

inspiration(s) / engine(s)

- world of goo – 2dboy.com/games.php
- crayon – www.crayonphysics.com
- flower(s) – thatgamecompany.com/games/flower
- braid – www.braid-game.com
- zen bound – zenbound.com
- lapis – www.moboid.com/lapis/LapisPres.htm
- blueberry – eriksvedang.wordpress.com/blueberrygarden

trendspotting san francisco GDC 09 (VPRO) / floor game(s)

## game-health(s)

### game(s) – health(s)

inspiration(s)

- fitness – www.virtuagym.com
- elderly care – www.silverfit.nl/en
- diabetes – www.gripsugarkids.nl

immovator / izovator

## game-idea(s)

workshop(s) / game(s) / create(s) / challenge(s) / **go** / TINAG / CTSG

*communication is the key to creativity*

## game-imagination(s)

innovation(s) / space(s) / communication(s) / idea(s) /

imagination is the one weapon against reality

/ whatsthehubbub.nl / screen(s) / cycle(s)

## game-imitate(s)

innovation(s) / screen(s) / machine(s) / cycle(s)

... immature poets imitate; mature poets steal; bad poets deface what they take, and good poets make it into something better, or at least something different.

T.S. Elliot, quoted from: Jesper Juul – The Casual Revolution (p.85)

## game-innovation(s)

idea(s) / engineer(s) / imagination(s) / health / instinct(s)

play/game(s) is the key to innovation(s)

education(s) / com(s) / roll(s) / thought(s) / situationism(s) / direction(s)

## game-instinct(s)

understanding / innovation(s) / document(s) / quest(s)

one of the most difficult tasks men can perform, however much others may despise it, is **the invention of good games** and it cannot be done by men out of touch with their instinctive selves.

from Penny de Byl (supposedly: Jung 1977) / cycle(s)

## game-machine(s)

### game(s) – machine(s)

world(s) / experience(s) / dream(s) / chance(s) / space(s)

**stories and games can each be thought of as machines that help create experiences.**

... the idea that the mechanics of traditional storytelling, which are innate to the human capability to communicate, are nullified by interactivity is absurd!

from: Jesse Schell – The Art of Game Design – A Book of Lenses

## game-marker(s)

### game(s) – ludic marker(s)

... / design(s) / emergence(s) / exercise(s)

... if the game can be identified easily as play, then it should be easy enough for bystanders to accept or refuse an invitation to play.

The adoption of **ludic markers** is the easiest way to sidestep some ethical questions.

... ludic markers need not be explicit but can focus on communicating playful or fictional aspects of the game.

pervasive games / cycle(s)

## game-math-dropsum(s)

Enjoyed by over 7.5 million PC users worldwide, Dropsum will stretch your mental agility and give your brain a good work out.

In DropSum you release numbered balls into a grid. The aim is to make a line of these balls add up to 9, either horizontally or vertically. When your column or row totals nine, you score points and all the balls involved change color. They start out grey and advance to blue, yellow and then red. Once a red ball has been used to make a sum of nine it will explode and allow any balls above it to fill the gap. The falling numbers then have the potential to form scoring combinations with their new neighbours, which may burst other balls, and so the chain reaction progresses. Setting up large combos like this is the way to score serious points. The game ends when the whole grid is filled.

Destroy special octagon tiles and you'll release a special star. These stars are gathered up after a short while. The more stars gathered, the higher the bonus you'll receive.

youtube

DropSum becomes very addictive and will improve your basic maths skills the more you play it.

It's great for both kids and adults and will help speed up your mental maths agility.

- Listen to the relaxing in game music or your own iTunes music
- Your progress is always saved if you quit at any point
- Ten trophies to achieve
- Classic and techno display themes with their own music styles

## game-math-quote(s)

### How do you use maths in programming, and more specifically just game programming?

Math is an integral part of programming and you cannot write applicable code without understanding basic maths. More-so in games programming which often requires tens of thousands of states to be stored, modified and acted upon during the real-time execution of the game. A good starting point to understand the game maths is to study algebra, and specifically the idea that you can store values in variables represented as letters, and produce complex equations and produce different outcomes based on the data you input. You will find the very first computer programs you write will almost certainly follow these lines. Also, as we move increasingly to a 3D centric approach to games, an understanding of basic trigonometry and three dimensional functions would be invaluable. Leave school with a good grasp of these, and you are half way towards working on the next generation of games.

from game creators newsletter Nov 09

## game-plane(s)

### game(s) – perspective(s): structure / presentation / functionality

design / world(s) / space(s)

1. **rule-based** space – mathematics, physics, AI
2. **mediated** – image(s), cinematic(s), animation(s)
3. **fictional** (imaginary) space – story & plot
4. **play** – game mechanics, interface(s), hardware
5. **social** space – context, rank(s), multiplayer

from: Michael Nitsche – Video Game Spaces – Image, Play and Structure in 3D Worlds

## game-quest(s)

### game(s) – quest(s) / mono myth(s)

cycle(s) / world(s) / perspective(s) / mechanic(s) / quest(s)

- 1 ordinary world
  - 2 call to adventure
  - 3 refusal of the call
  - 4 meeting the mentor
- 5 crossing the threshold
  - 6 test, allies, enemies
  - 7 approach to inmost cave
- 8 supreme ordeal
  - 9 reward
- 10 road back
  - 11 resurrection
  - 12 return with the elixir

from: Michael Nitsche – Video Game Spaces – Image, Play and Structure in 3D Worlds

## game-space(s)

innovation(s) / quest(s) / rule(s) / world(s) / CTSG / experience(s) / – / .

... ever get the feeling that life's a game with changing rules and no clear sides, one you are compelled to play, but cannot win. Welcome to gamespace.

Gamespace is where and how we live today.

from: McKenzie Wark – Gamer Theory / display(s) / vision(s)

## game-world(s)

### game(s) – world(s)

dream(s) / plane(s) / quest(s) / CTSG / experience(s)

navigable 3D spaces allow us to crawl, jump, fly, or even teleport through fictional worlds that come through life in our imagination. We encounter these space through a combination of perception and interaction.

... video game spaces stage our dreams and nightmares and they seem to get better at it every year.

Michael Nitsche – Video Game Spaces

## play(s)

### play-call(s)

#### play(s) – call & response

... / create / common(s) / art(s) / affordance(s) / \_ / .

call-and-response is one of the oldest forms of music, ritual, theatre and dance

free play, improvisation in life and art, p. 105

### play-creation(s)

#### play(s) – creation

... / create / common(s) / art(s) / affordance(s) / \_ / .

... these interreflecting themes, the prerequisites of creation, are playfulness, love, concentration, practice, skill, unsing the power of limits, using the power of mistakes, risk, surrender, patience, courage and trust.

free play, improvisation in life and art, p. 155

### play-cycle(s)

#### play(s) – current(s)

... / create / common(s) / art(s) / affordance(s) / \_ / .

we shall not cease from exploration  
and the end of all our exploring  
will be to arrive where we started  
and know the place for the first time

T.S. Eliot: free play, p. 192 / slogan(s) / vision(s) / wire(s)

### play-flash(s)

#### play(s) – flash

... / create / common(s) / art(s) / affordance(s) / \_ / .

... the professionalism of technique and the flash of dexterity are more comfortable to be around than raw creative power.

free play, improvisation in life and art

### play-gift(s)

#### play(s) – gift(s)

... / create / common(s) / art(s) / affordance(s) / \_ / .

there are hardly any exceptions to the rule that a person must pay dearly for the divine gift of creative fire.

Carl Jung, cited from free play, p. 191

## play-impro(s)

### play(s) – improvisation(s)

... / create / common(s) / art(s) / affordance(s) / \_ / .

the heart of improvisation is the free play of consciousness as it draws, writes, paints the raw material from unconsciousness.

Such play entails a certain degree of risk.

free play, improvisation in life and art, p.9

## play-line(s)

### play(s) – line

... / create / common(s) / art(s) / affordance(s) / \_ / .

how we are finally liberated – to speak, or sing, write or paint, with our own authentic voice.

free play, improvisation in life and art

## play-quality(s)

### play(s) – quality

... / create / common(s) / art(s) / affordance(s) / \_ / .

.. duration has traditionally been one of the greatest measures of quality

free play, improvisation in life and art

## play-silence(s)

### play(s) – silence

... / create / common(s) / art(s) / affordance(s) / \_ / .

the use of silence in teaching becomes very powerful

free play, improvisation in life and art, p. 155

## expressive(s)

### expressive-agent(s)

### expressive(s) – agent(s)

...

... the computer as literary agent ultimately points beyond narrative and toward ergodic modes – dialogic forms of improvisation and free play.

expressive processing / cycle(s)

## expressive-author(s)

### expressive(s) – author(s)

...

one must think of authoring new processes as an important element of media creation.

processes of digital media, however, are separated from non-computational media processes by their potential numerousness, repetition and complexity

. / expressive processing / cycle(s) / ..

## expressive-content(s)

### expressive(s) – content(s)

...

- computational processes are an increasingly significant means of expression for authors.
- ... use the term **expressive processing** to tell about what processes express in their design – which may not be visible to the audience.
- examples are key to the history of process-oriented innovation in fiction and games: eliza, sims, facade

the first book focussed on **computational processes** from the perspective of media, games and fiction, rather than software engineering or computer science.

expressive processing / cycle(s)

## expressive-design(s)

### expressive(s) – design(s)

...

one of the most challenging design tasks in creating digital media – the form of media enabled by computational processes – is to craft and situate interesting processes so that they produce a meaningful audience experience.

expressive processing / cycle(s)

## expressive-drama(s)

### expressive(s) – drama(s)

... / today(s) / world(s)

... an interactive drama then is a first person experience within a fantasy world, in which the user may create, enact and observe a character whose choices and actions affect the course of events just as they might in a play.

. / expressive processing / cycle(s) / ..

## expressive-effect(s)

### expressive(s) – effect(s)

...

- eliza effect –
- tale-spin effect –
- simcity/sims effect –

expressive processing / cycle(s)

## expressive-goal(s)

### expressive(s) – goal(s)

...

... to encourage readers to grasp hold of the creative potential of computing ...  
and to educate **procedural literacy**, the politic(s) of computing.

expressive processing / cycle(s)

## expressive-media(s)

### expressive(s) – digital media

...

... regardless of perspective, writings on digital media almost all ignore something crucial: the actual processes that make digital media work, the **computational machine** that makes digital media possible.

... almost all ... focus on what the machines of digital media look from the outside: their output.

expressive processing / cycle(s)

## expressive-narrative(s)

### expressive(s) – narrative(s)

...

... an inspiration of the work was the field of narrative psychology, which instead of seeing patients as sets of disconnected symptoms, attempts a re-integration through narrative(s).

similarly the *expressivator* attempts symptom control for schizophrenic agents by building a system focussed on narratively understandable behavior.

[grandtextauto.org/2007/12/16/facade-petz-and-the-expressivator](http://grandtextauto.org/2007/12/16/facade-petz-and-the-expressivator)

expressive processing / cycle(s)

## expressive-rethoric(s)

### expressive(s) – rethoric(s)

...

procedural rethoric(s) – the art of persuasion through rule-based representations and interactions, rather than spoken words, writing, images, or moving pictures.

expressive processing / cycle(s)

## expressive-simulation(s)

### expressive(s) – simulation(s)

... / drama(s)

... games and other procedural systems can use processes to create a representation of something that happens in our world – from the growth of cities, to the marketing of cereal, to the mechanisms of long-term debt.

playing the game involves interacting with this representation, which uses internal processes to exhibit different behavior, making it possible to explore the particular model of how things work.

. / expressive processing / cycle(s) / ..

## expressive-today(s)

### expressive(s) – today(s)

... / world(s) / drama(s)

Ted Nelson: you can and must understand computers NOW!

... it matters because we live in media, as fish live in water. But today, at this moment, we can and must design the media, design the molecules of our new water, and I believe the details of this design matters very deeply. (1974)

. / expressive processing / design(s) / cycle(s) / ..

## expressive-world(s)

### expressive(s) – world(s)

... / author(s)

... coming to understand fictional worlds as systems – and exploring their potential through play – is also a powerful means of coming to understand our evolving society, in which (often hidden) software models structure much of how we live now.

. / expressive processing / cycle(s) / ..

## lens(s)

### lens-00(s)

#### 0.1 lens 00 – (y)our secret purpose

... to make sure that you are working toward (y)our one true purpose, ask yourself the only question that matters: space(s) / –

- why am I doing this?

### lens-01(s)

#### 0.2 lens 01 – essential experience

... stop thinking about your game and start thinking about the experience of the player:

- what experience do I want the player to have?
- what is essential to that experience?
- how can my game capture that essence?

If there is a big difference between the experience you want to create and the one you are actually creating, your game needs to change: you need to clearly state the essential experience you desire, and find as many ways as possible to install this essence into your game.

### lens-02(s)

#### 0.3 lens 02 – surprise

... remind yourself to fill your game with interesting surprises:

space(s)

- what will surprise players when they play my game?
- does the story in my game have surprises?
- do your rules give players ways to surprise each other?
- do your rules give players ways to surprise themselves?

Surprise is a crucial part of entertainment – it is at the root of humor, strategy and problem solving. Our brains are hardwired to enjoy surprises.

### lens-03(s)

#### 0.4 lens 03 – fun

... fun is desirable in almost every game, although sometimes fun defies analysis. To maximize fun ask yourself the these questions: space(s)

- what parts of my game are fun?
- why?
- what parts need more fun?



## lens-04(s)

### 0.5 lens 04 – curiosity

... think about the player's true motivations – not just the goals (y)our game has set forth, but the reasons the player wants to achieve those goals: space(s)

- what goals does my game put into the player's mind?
- what am I doing to make them care about these questions?
- what can I do to make them invent even more questions?

For example, a maze-finding videogame might have a time-limit goal at each level. A way to make players care more is to play interesting animations when they solve each maze, so that players will wonder what the next animation will be.

## lens-05(s)

### 0.6 lens 05 – endogenous value

... think about (y)our player's feelings about items, objects, and scoring in (y)our game: space(s)

- what is valuable to the players in my game?
- how can I make it more valuable to them?
- what is the relation between value in the game and the player's motivation?

Remember, the value of the items in the game is a direct reflection of how much players care about succeeding in your game. By thinking about what the players really care about and why, you can often get insights about how your game can improve.

## lens-06(s)

### 0.7 lens 06 – problem solving

..., think about the problems (y)our player must solve to succeed at (y)our game, for every game has problems to solve: space(s)

- what problems does my game ask the player to solve?
- are there hidden problems to solve that arise as part of gameplay?
- how can my game generate new problems so that players keep coming back?

## lens-07(s)

### 0.8 lens 07 – mechanics / story / aesthetics / technology

... take stock of what **element(s)** (y)our game is truly made of: imagination(s) / space(s)

- is my game design using elements of all types?
- could my design be improved by enhancing any element?
- are the elements in harmony, reinforcing each other and working together towards a common theme?

Together, the **elements** are also referred to as the **elemental tetrad**.

## lens-08(s)

### 0.9 lens 08 – holographic design

... you must see everything at once, the four elements and the player experience, as well as how they interrelate: space(s)

- what elements of the game make the experience enjoyable?
- what elements of the game detract from the experience?
- how can I change game elements to improve the experience?

It is acceptable to shift your focus from **skin** to **skeleton** and back again, but it is far better to view (y)our game and experience holographically.

**lens-99(s)**

## 0.10 lens 99 – the raven

... to remember to only work on what is important, ask yourself the question:

space(s)

- is making this game worth my time?

**casual(s)**

**casual-convention(s)**

**casual revolution(s) – convention(s)**

...

... rather, the knowledge of conventions – including those of game mechanics, genre, and interfaces – is an important aspect of the development and consumption of all games.

casual revolution / cycle(s)

**casual-game(s)**

**casual revolution(s) – game(s)**

... / machine(s) / rule(s)

... in the short history of video games, casual games are something of a revolution, a cultural re-invention of what video games can be, a re-imagining of *who* can be a video game player.

casual revolution / cycle(s)

**casual-goal(s)**

**casual revolution(s) – goal(s)**

...

game = goal orientation, experience, social event

casual revolution / cycle(s)

**casual-innovation(s)**

**casual revolution(s) – innovation(s)**

...

the casual revolution is a reinvention of both games and players: casual game design is a genuine innovation in game design and a return to lessons long forgotten.

casual revolution / cycle(s)

**casual-instrument(s)**

**casual revolution(s) – interaction instrument(s)**

...

... interfaces are interaction instruments that mediate between the user and the domain objects the user wants to act on.

casual revolution / cycle(s)

## casual-interface(s)

### casual revolution(s) – mimetic interface(s)

...

1. improved usability – mimics real life activity
2. ease of use – but easier than real activity
3. shift of focus – to player space
4. shift of focus – allowing for social relations

return to player space – success factor(s) of mimetic interface games

casual revolution / cycle(s)

## casual-machine(s)

### casual revolution(s) – stupid machine(s)

...

by now I do understand why some would not feel that pull.

I understand the frustration of not knowing which buttons to push, of being unfamiliar with the conventions on the screen, of being reluctant to invest hours, days, and weeks into playing this game, of being indifferent to the fiction of the game, of having a stupid machine tell you that you have failed, of being unable to fit a game into your life.

casual revolution / cycle(s)

## casual-mimetic(s)

### casual revolution(s) – mimetic game(s)

... / game(s) / machine(s)

mimetic games move the action to player space,  
but many of them also encourage short game sessions,  
played in a social context.

casual revolution / cycle(s)

## casual-norm(s)

### casual revolution(s) – norm(s)

...

to play video games has become the norm  
to not play video games has become the exception

casual revolution / cycle(s)

## casual-play(s)

### casual revolution(s) – game(s)

...

- casual = positive, pleasant, easy, interruptable, juicy, lenient
- hardcore = opposite / inflexible & exclusive

casual revolution / cycle(s)

## casual-stereotype(s)

### casual revolution(s) – game(s)

...

- **hardcore player** – who has a preference for science fiction, zombies and fantasy fiction, has played a large number of video games, will invest large amounts of time and resources toward playing video games, and enjoys difficult games.
- **casual player** – is the inverted image of the hardcore player, this player has a preference for positive and pleasant fiction, has played few video games, is willing to commit little time and resources toward playing video games, and dislikes difficult games.

casual revolution / cycle(s)

## casual-trend(s)

### casual revolution(s) – trend(s)

...

- mimetic interface(s) – action mimics activity (\*)
- online downloadable – conveniently accessible

(\*) in such games the physical activity that the player performs mimics the activity on the screen. Dance Dance Revolution, Guitar Hero, Rock Band

casual revolution / cycle(s)

## pervasive(s)

### pervasive-brief(s)

#### pervasive game(s) – de-brief(s)

...

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

... in larps, treasure hunts, and assassination games, the collective story is often produced through some kind of de-brief, where players narrativize game experiences together.

pervasive games

### pervasive-casual(s)

#### pervasive game(s) – casual exploration(s)

...

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

... an interesting option for mirror world games is to let **adaptronic input** affect the game world.

thefuntheory.com / ignorance(s) / workshop(s) / mile(s) / pervasive games

### pervasive-context(s)

#### pervasive game(s) – context

...

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

	playful mindset	serious mindset
playful context	classic play	instrumental play
ordinary context	pervasive play	ordinary life

pervasive games

## pervasive-culture(s)

### pervasive game(s) – culture

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

the enculturation of digital information and communication technologies has just started, and within the emerging practices like those of pervasive gaming we might just be seeing the first steps of a new culture being created through the human use of those new tools rather than humans just blindly accepting the uses these technologies impose on them.

pervasive games

## pervasive-design(s)

### pervasive game(s) – issues of design(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

- limit the time and space of play
- reward extensive play
- provide single player control
- provide two-player control
- conceal the lack of critical mass

exercise(s) / pervasive games / cycle(s)

## pervasive-emergence(s)

### pervasive game(s) – emergence(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... games of emergence can introduce story elements that are neither complete nor coherent, as long as they allow for interesting gameplay!

pervasive games / cycle(s)

## pervasive-exercise(s)

### pervasive game(s) – exercise(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

spatial expansion is a natural way of creating **exercise games**.

... many people consider exercise as a boring activity, with goals set into the distant future. By enhancing the exercise with the continuous **microgoals and rewards** that are typical of gaming, the activity can be made immediately rewarding.

pervasive games / cycle(s)

## pervasive-expansion(s)

### pervasive game(s) – expansion(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

- spatial expansion – 2D, 3D, urban
- temporal expansion – storyline(s), plot
- social expansion – multiplayer, collaborative

pervasive games

## pervasive-explore(s)

### pervasive game(s) – exploration(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

..., like PacManhattan, ..., these games are less interested in the novelty of emerging technology and more interested in exploring the creative possibilities of sculpting new experiences within the urban environment.

pervasive games

## pervasive-fabric(s)

### pervasive game(s) – fabricated context(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

	playful mindset	pretense	serious mindset
playful context	classic play	big-brother	instrumental play
fabricated context	flash-mobs	show wrestling	instrumental play
ordinary context	pervasive play	spin doctors	ordinary life

design(s) / issue(s) / pervasive games / cycle(s)

## pervasive-flow(s)

### pervasive game(s) – immersion & flow(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

- sensory immersion
- challenged-based immersion
- imaginative immersion
  - create a dynamic story
  - employ role-playable characters
  - craft a coherent and engaging game world.

pervasive games

## pervasive-fun(s)

### pervasive game(s) – fun

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

even though ... most games are played for entertainment, and enjoyment, the purposes of games and play include everything from pleasure to learning, and from artistic expression to societal exploration.

pervasive games

## pervasive-game(s)

### pervasive game(s) – line

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

pervasive games are tied to (new) media culture ...

... major shift in how the struggle for public space, the blurring of fact and fiction, and the rise of ludus are changing the way we perceive the world.

... technology as a design tool, adaptronics,

see also [ludocity.org/wiki/Main\\_Page](http://ludocity.org/wiki/Main_Page)

pervasive games

## pervasive-identity(s)

### pervasive game(s) – identity

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... one of the side-effects of urbanization was the beginning of identity play,  
since the high urban population density granted inhabitants a certain level of anonymity.

pervasive games

## pervasive-immersion(s)

### pervasive game(s) – immersion(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... the imagination is a strong muscle, and as long as that muscle is willing to work, a total and present  
360 degree environment is not strictly necessary.

pervasive games

## pervasive-life(s)

### pervasive game(s) – life

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... talking about games versus ordinary life is problematic, as for many of us gaming is an everyday  
activity that plays a central role in ordinary life.

pervasive games

## pervasive-overlay(s)

### pervasive game(s) – overlay(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... spatially expanded games use technology to trace player locations and movements or to create a  
virtual overlay infusing a magical interpretation of the real world.

pervasive games

## pervasive-performative(s)

### pervasive game(s) – technology performative(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... the resulting interactions can be seen as secretive, expressive, magical, or suspenseful, ...  
... this strongly influences what kind of invitations the game offers!

pervasive games

## pervasive-play(s)

### pervasive game(s) – play

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

active play                      dormant games  
    peripheral play  
                    passive play  
managing stress  
    unpleasant-pleasant/boredom-anxiety

pervasive games

## pervasive-progression(s)

### pervasive game(s) – progression(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... foster the play of collective storytelling, ..., players may collectively recount the same story over and over again, and the fun is in the **re-enactment**.

pervasive games

## pervasive-reality(s)

### pervasive game(s) – reality

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... reality is what you can get away with ...

pervasive games

## pervasive-role(s)

### pervasive game(s) – role9s

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... the danger in character-centric role-play in a story-driven game is that some players may spend their time immersing into the character persona, rather than actually attending the story.

pervasive games

## pervasive-secret(s)

### pervasive game(s) – secret(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

if ... consensual power exchange is extended to ordinary life, this kind of (sexual) play becomes pervasive play, moving beyond encounters.

pervasive games

## pervasive-simulacrum(s)

### pervasive game(s) – simulacrum

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

simulacrum = a mediated acquaintance that only exists as media images.

... the simulacra are now reaching for a new level of (un)reality through interactivity.

lonelygirl15

pervasive games

## pervasive-technology(s)

### pervasive game(s) – technology role(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

- give the players gaming devices
- give technology a role as diegetic artefacts
- provide players with body extensions
- embed the technology in the environment

pervasive games



## pervasive-travel(s)

### pervasive game(s) – travel(s)

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... there is already a history of alternative forms of travel in cityscapes from skateboarding and roller-skating to trainsurfing and parkour.

these forms are playful, athletic and performative.

the efficiency of moving from one place to another is not at the forefront!

pervasive games

## pervasive-youth(s)

### pervasive game(s) – youth

/ human(s) / social(s) / need(s) / critical(s) / game(s) / space(s)

...

... virtual life, both single and multiplayer, (may) offer a substitute for perpetual youthfulness.

pervasive games

## critical(s)

### critical-aura(s)

### critical play(s) – AURA

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... the user is no longer asked to enter into a representation of an environment through a visual interface, but instead engages automatically with the artist's intervention by virtue of their bodily proximity within the space. The apparent naturalness of this engagement is facilitated by the mobility and perceived invisibility of the technological interface.

[stevesymons.net/projectviewer.php?project=aura](http://stevesymons.net/projectviewer.php?project=aura)

critical play / cycle(s)

## critical-content(s)

### critical play(s) – content(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

- playing house
- board game(s)
- language game(s)
- performative game(s)
- artist's locative game(s)
- critical computer game(s)

critical play / cycle(s)

## critical-dada(s)

### critical play(s) – dada(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

[Dada]'s ... subversive practices in reworking of authority and authorship were one way social norms were pushed and literally *at play*.

... used **participatory play** gaming and **practice research**, and interactivity, to reflect everyday concerns and to **unplay**, **re-skin**, and **re-write**, and, in some cases, actually **re-define** culture.

critical play / cycle(s)

## critical-design(s)

### critical play(s) – iterative design step(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

1. mission statement and values – empowerment, diversity
2. develop rules & tasks – supporting goal(s)
3. design for play styles – and allow subversion(s)
4. develop prototype – test & evaluate
5. playtest – with various audiences
6. verify values – make a difference / revise goals

REPEAT / / space(s) / marker(s) critical play / slogan(s) / cycle(s)

## critical-domestic(s)

### critical play(s) – domestic(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

play and domesticity, ..., became linked to the very notion of free time.

... this shift in play to **domestic space** would set the stage for later trends in computer culture where hacking, BBS communication, fan culture, and open software, and online games would become highly domestic forms of play.

critical play / cycle(s)

## critical-female(s)

### critical play(s) – female(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

games that depict everyday activities such as communication, social negotiation, caring for elements or characters that are part of a game world, or stabilizing precarious situations have become extremely popular with female players.

Sims Online, Everquest, Uru, World of Warcraft

critical play / cycle(s)

## critical-form(s)

### critical play(s) – form(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

Marshall McLuhan: games as popular art forms offer to all an immediate means of participation in the full life of a society, such as no single role or job can offer to any man.

critical play / cycle(s)

## critical-girl(s)

### critical(s) – play(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... nevertheless even in everyday play, 19th century girls met the emphasis on *normative* domestic behavior with subversive resistance.

www.guerrillagirls.com

critical play / cycle(s)

## critical-house(s)

### critical play(s) – house(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

gamers still **play house**, reworking paradigms of the status quo by experimenting with artificial identities, self-expressive environments, and humorous scenarios.

... the artists of the Dada movement created toys and puppet shows that mocked, among other things, familial conventions.

critical play / cycle(s)

## critical-leisure(s)

### critical play(s) – leisure time(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... play would not be as popular without the **invention of leisure time** due to the industrial revolution's separation of the social from the occupational.

in this new culture, games, whether public spectacle(s) or parlor amusement(s), emerged as necessary **interaction mediator(s)**

critical play / cycle(s)

## critical-line(s)

### critical play(s) – line(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

draw a straight line and follow

Nam June Paik (1961)

critical play / cycle(s)

## critical-logic(s)

### critical play(s) – logic(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... games, functioning as an ordering logic – a machine or technology – for creating social relations, work to distill or abstract the everyday actions of the players into easy-to-understand instruments where context is de-familiarized just enough to allow (the) magic circle of play to manifest itself.

... from example(s) ... it is possible to see how games in and of themselves function as social technologies.

critical play / cycle(s)

## critical-magic(s)

### critical play(s) – magic circle(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

if digital artefacts have truly become a magic circle in which players enter a sanctioned play space, then this culture of play, or play culture, as it is commonly termed, is one in which participants find a space of permission, experimentation and subversion.

critical play / cycle(s)

## critical-mental(s)

### critical play(s) – mental growth(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

**play** ... a primary indicator of (...) **mental growth**

play enables children to progress along the developmental sequence from the sensimotor intelligence of infancy to pre-operational thought in the pre-school year to the concrete operational thinking exhibited by primary school children ...

... play also serves important functions in (...) physical, emotional and social development(s)!

critical play / cycle(s)

## critical-message(s)

### critical play(s) – message(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

a game's mechanics is its message

critical play / cycle(s)

## critical-object(s)

### critical play(s) – object(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

the introduction of art objects and performance into public spaces, ..., is a way that artists appropriate the cognitive space, of everyday space, and functions in an interventionist fashion.

... artists practicing intervention often have social or political goals, and may seek to open up dialogue by transgressing the boundaries between art and everyday life.

critical play / cycle(s)

## critical-outline(s)

### critical play(s) – outline(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

1. typical histories of computer games have not examined the practice of play outside the realm of computers
2. these historical studies do not generally involve artists and their social and cultural roles, either in the making or playing capacity
3. few of these studies have made any serious attempt to ground contemporary gaming in creative and aesthetic origins rather than a primarily technical context
4. ... few have made the connection between games and art!

*critical play* outlines how play has influenced the history of creative exploration of the social and the political. critical play / cycle(s)

## critical-pattern(s)

### critical play(s) – pattern(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... because games, sports, and festivals are in part an exercise in the **identity formation** and **display of power** of kings, the aristocracy, heterosexuals and men, *the games of the less powerful are excluded and even ridiculed.*

critical play / cycle(s)

## critical-perfection(s)

### critical play(s) – perfection(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

Marcel Duchamp: in art there is no such thing as perfection.

... but a creative lull occurs always when artists of a period are satisfied to pick up a predecessors work where he dropped it and attempt to continue what he was doing.

When on the other hand you pick up something from an earlier period and adapt it to (y)our own work an approach can be creative.

... the result is not new, but it is new insomuch as it is a different approach.

critical play / cycle(s)

## critical-perspective(s)

### critical play(s) – perspective(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... after the renaissance, games and artworks concerning play continued to be marginalized as irrational, whimsical parts of culture, unworthy of the advanced scholarship of today.

critical play / cycle(s)

## critical-play(s)

### critical play(s) – play(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

what if some games, and the more general concept of play, not only provides outlets for entertainment, but also functions as means for creative expression, an instrument for conceptual thinking, or as tools to help examine or work through social issues.

critical play / cycle(s)

## critical-pure(s)

### critical play(s) – pure form(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... one result was the separation of childhood play from adult experience in a way that made it **innocent & pure.**

critical play / cycle(s)

## critical-shift(s)

### critical play(s) – paradigm shift(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

paradigm shifts ... a dynamic that models how scientists move from doubt, or even disdain, to consideration and finally acceptance and enthusiasm for new theories,  
reveals the rules by which science operates and delineates how, as a system of knowledge, science relies on social and psychological factors.

critical play / cycle(s)

## critical-shoe(s)

### critical play(s) – shoe(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

as we know, time spent on shoes is never wasted.  
... while simultaneously dissecting the objects of their original function(s) it playfully transmigrates the object to its own magic circle.

critical play / cycle(s)

## critical-strategem(s)

### critical play(s) – strategem(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

playful procedures and systematic strategems provided keys to unlock the door of the unconsciousness  
and to release the visual and verbal poetry of collective creativity.

book of surrealist games

critical play / cycle(s)

## critical-trigger(s)

### critical play(s) – trigger(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... games as trigger for discussion,  
and existing social activist games work largely on that level.  
in some cases a game might provide the safest outlet available for exploring devastating problems and conflicts.

critical play / cycle(s)

## critical-war(s)

### critical play(s) – war(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

[rethinking wargames] engages with the idea of choosing strategies.  
... it interrogates the linear trajectory of time intrinsic to games, even with their interactive structure.  
jlp. It enhances the benefits of repetitive performance, mobility and empowerment to make decisions through play.

critical play / cycle(s)

## critical-window(s)

### critical play(s) – window(s)

/ machine(s) / art(s) / change(s) / human(s) / world(s)

...

... the games that entertained America from the 1840's to the 1920s offer a fascinating window on the values, beliefs and aspirations of a nation undergoing tremendous changes.

critical play / cycle(s)

## vision(s)

### vision-creativity(s)

search / definition(s) / value(s) / dilemma(s) / dream(s) / freedom

creativity is a type of learning process where the teacher and pupil are located in the same individual

Arthur Koestler / cycle(s) / metaphor(s)

## vision-game(s)

### game(s) – glass bead game(s) / art(s)

definition(s) / vision(s) / ... / science(s) / space(s) / metaphor(s) /

question(s)

The Glass Bead Game (Herman Hesse, 1943) takes place at an unspecified date, centuries into the future.

Essentially the game is an abstract synthesis of all arts and scholarship. It proceeds by players making deep connections between seemingly unrelated topics.

The four lives, including that as Magister Ludi, oscillate between extraversion (and getting married: rainmaker, Indian life) and introversion (father confessor, Magister Ludi) while developing the four basic psychic functions of Analytical Psychology: sensation (rainmaker), intuition (Indian life), feeling (father confessor), and thinking (Magister Ludi).

[en.wikipedia.org/wiki/The\\_Glass\\_Bead\\_Game](https://en.wikipedia.org/wiki/The_Glass_Bead_Game)

## vision-hack(s)

### vision(s) – hack(s)

... / space(s)

there are people out there who use hacking techniques to break the law, but hacking isn't really about that.

..., hacking is more about following the law than breaking it.

the essence of hacking is finding unintended or overlooked uses for the law and properties of a given situation and then applying them in new and inventive ways to solve a problem – whatever it may be.

hacking – the art of exploitation / cycle(s) / wire(s)

## vision-machine(s)

**re-start culture(s) – digital doomsday / reboot(s)**  
space(s)

vision(s) / question(s) / resource(s) / engineer(s) /

... if a machine civilization were to stop functioning as the result of some catastrophe, it is difficult to see how man would again be able to start along the path of industrialization with the resources that would then be available to him.

re-start industrial society

## vision-paper(s)

**culture(s) – digital doomsday**

machine(s) / question(s) / engineer(s) / resource(s)

.. a century or so after the power goes off, little will remain of the digital age except what's on paper.

the end of knowledge

## vision-research(s)

**development(s) – professor dr. kunstenaar / glass bead game(s)**

definition(s) / dream(s) / ... / science(s) / game(s) / imagination(s) / modernism(s)

beeldend kunstenaars promoveren aan nederlandse universiteiten.

... er wordt steeds meer samengewerkt tussen het kunstonderwijs en de universiteiten. Binnenkort promoveren in Leiden de eerste beeldend kunstenaars op een kunstwerk. Alle schotten moeten weg.

Lien Heyting, NRC Handelsblad, Cultureel Supplement, 29 januari 2010

## vision-search(s)

value(s) / dilemma(s) / workshop(s) / vision(s)

1. **public pareidolia(s) – pattern(s) / meaning(s)**
2. **site-specific superhero** – inter-action(s)
3. **benevolent conspiracy** – spontaneous **mobs**
4. **transparent spectacle** – no **dark play**, chalk up(s)
5. **desire spot(s)** – desire path + hot spot – **ride(s)**

rethinking massively-scaled, urban play / sense(s) / cycle(s)

## science(s)

### science-hack(s)

**science(s) – hack(s)**

... / common(s)

/ create / art(s) / wave(s) / – / .

... many people call themselves hackers, but few have the strong technical foundation needed to really push the envelope.

hacking – the art of exploitation / cycle(s)



## science-media(s)

... / common(s)

/ create / art(s) / wave(s) / \_ / .

in construction, however, see cycle(s)

## science-network(s)

### science(s) – network(s)

... / common(s)

/ create / art(s) / wave(s) / \_ / .

- distribution(s) – power law
- distance(s) – small world
- randomizer(s) – scalable

experiment(s) / space(s) / caught in (y)our own web? / slogan(s) / cycle(s)

## science-story(s)

### science(s) – story / line(s)

... / common(s)

/ create / art(s) / wave(s) / \_ / .

singularity = the story of the design of the human-machine civilization

theme(s) / wiki(s) / singularity / game(s) / cycle(s)

## science-web(s)

### science(s) – web(s)

... / common(s)

/ create / art(s) / wave(s) / \_ / .

future(s)

cycle(s)

## format(s)

### format-course(s)

- Date: Author: Version: Status:
- Course name
- Study load
- Semester
- Contents
- Prerequisites
- Goals and attainment targets
- Place in curriculum
- Application area, motivating examples
- Teaching methods
- Nr of participants
- Special facilities

## format-create(s)

format(s) – creative application(s) / project(s)

... / target(s)

- **domain** – with *societal/personal* impact
- **elements** – new media & smart technology
- **scope** – *design & development* life-cycle
- **initiative** – staff / student / organisation(s)
- **exposure** – lab / UT / festival / *real life*

## format-educate(s)

red<sub>i</sub>creative technology<sub>i</sub>/red<sub>i</sub> – an *integrative* curriculum

question(s) / format(s)

CS – computer science  
NM – new media  
ST – smart technology  
MA – mathematics  
DE – design

CA – creative applications

## format-project(s)

1. (working) **title** – informative, catching attention
2. (short) **synopsis** – < 10 lines
3. **keywords** – 3-5 indicating field of research & topic(s)
4. **context & problem statement** – 20-30 lines
5. indication of **relevance** – societal, scientific, < 5 lines
6. (short) **list of references** – core literature
7. **online resources & references** – additional material(s)

## format-target(s)

format(s) – target(s) / project(s)

...

- **skills** – practical, hands-on, technology-oriented
- **knowledge** – ready-to-use, beyond skills, required insight
- **theory** – grounded in literature and scientific research
- **experience** – application of skills and knowledge in context
- **attitude** – personal disposition and motivation

. / cycle(s) / ..

## oratie(s)

## oratie-broeders(s)

oratie(s) – tussen mens en machine

space(s)

robot surgery    virtual reality lab training

endoscopic surgery

digital lifestyle(s)    patients via internet

- **game(s)  $\llcorner$  training skills for medicare of the future**

prof. dr. ir. I.A.M.J. Broeders, 4/6/2009    robotica en minimaal invasieve interventie

## **oratie-drukker(s)**

### **oratie(s) – things to come**

space(s)

technological innovation    3th tsunami

paradox of productivity

future of design    30-50 years maturation

- **game(s)  $\llcorner$  exploration(s) of use-scenario(s)**

prof. dr. J.W. Drukker, 3/12/2009    design geschiedenis

## **oratie-eliens(s)**

### **oratie(s): creative technology – it's all in the game**

[] / CTSG / cycle(s)

creative applications    web technology

interactive visualisation

game development    virtual environments

- **game(s)  $\llcorner$  scenario-driven design**

prof. dr. A. Eliëns    creative technology / new media

## **oratie-joolingen(s)**

### **oratie(s) – modeltekenen**

space(s)

doodle(s)    simulation(s)    SimQuest

Apply    Create    Evaluate

model to learn!    computational science

- **game(s)  $\llcorner$  interactive drawing for modelling & simulation**

prof. dr. W.R. van Joolingen, 4/2/2010    computationeel modelleren in onderwijssituaties

## oratie-palen(s)

### oratie(s) – beter weten door beter meten

space(s)

changing behavior    COPD    quality of life

computational adaptive testing

stoppen met roken    item response theory

- **game(s)  $\leadsto$  for adaptive behavior modification(s)**

prof. Job van der Palen, 11/2/2010    evaluatie en assessment in gezondheidsonderzoek

## oratie-poelman(s)

### oratie(s) – product-realisme

space(s)

human capabilities    history of artefacts

strategic & operational    product plan(s)

limits to growth: materials, waste,..cultural

- **game(s)  $\leadsto$  exploring limit(s) – scenario(s) of adaptation**

prof. dr. ir. Wim A. Poelman, 8/10/2009

## oratie-putten(s)

### oratie(s) – kleine signalen van grote waarde

space(s)

epileptic patterns    visualisation    monitoring

wearable brain symmetry index

neurostimulation    learning rhythms    judgement

- **game(s)  $\leadsto$  monitoring & correction – scenario(s)**

prof. dr. ir. Michel J.A.M. van Putten, 10/12/2009    klinische neurofysiologie

## oratie-schraagen(s)

### oratie(s) – macht en onmacht der gewoonte

space(s)

cognition in the wild    traffic monitoring

analytical & intuitive system(s)

empathy    dialog    trust    cooperation    attention

- **game(s)  $\leadsto$  to train critical thinking and communication**

prof. dr. J.M.C. Schraagen, 17/9/2009

## oratie-verbeek(s)

### oratie(s) – filosofie van mens en techniek

space(s)

deep brain stimulation   impact of technology

material dimension(s) of morality

man is by nature artificial   human existence

- **game(s) :: explore application(s) & ethics of technology**

prof. dr. ir. Peter-Paul Verbeek, 15/10/2009

## oratie-vollenbroek(s)

### oratie(s) – zorg op afstand dichtbij

space(s)

healthcare by technology   video tele-consult

visual patterns   remote monitoring

ambulant measurement(s)   behavioral feedback

- **game(s) :: explore tele-monitoring & (sensory) feedback**

prof. dr. Miriam M.R. Vollenbroek-Putten, 12/11/2009   technology supported cognitive training

## oratie-weerd(s)

### oratie(s) – innovatie(f) organiseren: een kwestie van balanceren

space(s)

innovation journey(s)   real life case study

cycle(s) of growth & decline / patterns

engaged scholarship   art of balancing

- **game(s) :: scenario(s) for innovation & organization**

prof. dr. ir. P.C. de Weerd-Nederhof, 28/1/2010   organisatiekunde: organisatie van innovatie

## oratie-wezel(s)

### oratie(s) – netwerkende breinen

space(s)

measurement   developing   brain-like systems

brain as network / internet

power laws   short distance   scalable

- **game(s) :: simulation & visualisation of complex networks**

prof. dr. Richard J.A. van Wezel   neurofysiologie

## role(s)

### role-artist(s)

**artist(s) – designer(s) / engineer(s)**

role(s) / dream(s) / theme(s) / miracle(s) / force(s)

has an idea and makes something. interests of users and producers do not play a role. she does not start with a specification. big changes of the product are possible throughout the whole creation process, also short before delivery. The interpretation of the result comes only in the end. It is ok if others give it a different interpretation.

Angelika Mader

### role-communication(s)

scenario(s) – *communication*

- *web developer* – setting up portal(s)
- *crossmedia architect* – relating all media
- *production agency* – to coordinate delivery
- *strategic planning* – defining targets and goals

### role-creative(s)

scenario(s) – *creative industry*

- *entrepreneur* – creating business
- *creative genius* – generating idea(s)
- *content author* – to produce material(s)
- *technical developer* – to write script(s) & program(s)

### role-designer(s)

**designer(s) – engineer(s) / artist(s)**

role(s) / dream(s) / theme(s) / miracle(s) / force(s)

the designer gets a much less specified problem, or she has even to invent a problem. he comes pretty fast with a prototype, evaluates the prototype, rejects it or improves it, and comes with a new prototype. doing this, he explores the design space, and eventually she will come with a final product. different interests as aesthetics, simplicity, usability, easy productions are relevant design criteria for the designer.

Angelika Mader

### role-engineer(s)

**engineer(s) – designer(s) / artist(s)**

role(s) / dream(s) / theme(s) / miracle(s) / force(s)

the engineer gets a problem she has to solve, in the best case as a complete specification. the engineer solves this problem with the means he has learnt, starts with a decomposition, applies standard solutions when possible, invents new solutions when necessary. when finding new solutions the engineer uses in most cases "incremental design", meaning that starting from an existing solution by modifications a new product is made. Less often, an engineer has to apply "radical design" which means inventing something new with no similar thing to build upon (e.g. the first space ships). the engineer tries to finish a prototype early enough to have time for testing, and, if necessary, improvements for the final product.

Angelika Mader

## role-entertain(s)

scenario(s) – *entertainment*

- *concept design* – defining new artefacts
- *technical infrastructure* – for realization
- *business plan* – to coordinate the enterprise
- *production manager* – mediating between parties

## role-game(s)

scenario(s) – *game development*

- theme(s) & storyline(s) – *setting the context*
- style & visual(s) – *creating the appeal*
- asset development – *to embody the game*
- interaction & experience design – *to promote involvement*

## role-product(s)

scenario(s) – *product design*

- *visual design* – to give aesthetic appeal
- *concept development* – to accomodate human needs
- *usability & deployment* – making it fit for it's role
- *evangelist* – to promote the (benefits of the) idea

## link(s)

### link-ca1(s)

#### online resource(s)

As a mix of examples, tools and possible inspiration(s) we may present the following list of links:

resource(s) / CA1

- software – [processing.org](http://processing.org) / **ximpel** / material(s)
- inspiration(s) – [www.beautifullosers.com](http://www.beautifullosers.com)
- **map(s)** – **twente** / example(s)
- group(s) – [groups.google.com](http://groups.google.com) / **site(s)** / tool(s) / drop.io
- **tag cloud(s)** – [tagcrowd.com](http://tagcrowd.com)
- **ximpel** – [ximpel.net](http://ximpel.net) / view(s)
- concept graph(s) – philosopher(s) (double click to center, double click on center for info) / **amazon**
- **flickr** – **creative technology**
- **video vortex** – [networkcultures.org/wpmu/portal/publications/inc-readers/videovortex](http://networkcultures.org/wpmu/portal/publications/inc-readers/videovortex)
- identity – [www.personalbrand.nl](http://www.personalbrand.nl)

It must be emphasized that rather than presenting all the examples exhaustively, the students should be an actual selection of links available on their site(s), since as we all should realize an overload of examples is generally considered to be a **creativity killer**.

## link-ca3(s)

### online resource(s)

As online resources, we suffice with a brief list of links to online manifestations or descriptions of art. The student is encouraged to bypass this list and google his/her way around, searching information and inspiration(s).

- (my)mondriaan – [www.cjny.com/mydata](http://www.cjny.com/mydata)
- charm(s) – [www.dgc-cga.org/about](http://www.dgc-cga.org/about) | Li<sub>2</sub> digital – [www.digt-paint.nl/digital\\_view](http://www.digt-paint.nl/digital_view)
- demo(s) – [pilgrimage.scene.org/demoscene.html](http://pilgrimage.scene.org/demoscene.html) – (wikipedia)
- net – [www.wwwwwww.jodi.org](http://www.wwwwwww.jodi.org)
- emergent – [www.sandberg.nl](http://www.sandberg.nl)
- science – [computational-aesthetics.org](http://computational-aesthetics.org)

The given resources, and those found with search, should also be looked at from the **perspective of design**, that is as one of the possible ways to present information on the web. Use your knowledge and experience to decide on a proper format for presenting the information about your own project(s) on the web.

## link-ca4(s)

### online resource(s)

As online resources, we suffice with a brief list of links to online descriptions of (art) installations and technology.

- doll face – [nl.youtube.com/watch?v=zl6hNj1uOkY](http://nl.youtube.com/watch?v=zl6hNj1uOkY)
- urban screens – [www.urbanscreens.org](http://www.urbanscreens.org)
- facade(s) – [www.psfk.com/2008/11/urban-screen-creative-use-of-media-facades.html](http://www.psfk.com/2008/11/urban-screen-creative-use-of-media-facades.html)
- deep screens – [www.mediamatic.net/page/38147/en](http://www.mediamatic.net/page/38147/en)
- vision(s) – [opencv.willowgarage.com/wiki](http://opencv.willowgarage.com/wiki)
- integration – [www.softintegration.com](http://www.softintegration.com)
- processing – [www.openframeworks.cc](http://www.openframeworks.cc)
- JavaFX – [www.javaafx.com](http://www.javaafx.com) / [www.sun.com/software/javafx/](http://www.sun.com/software/javafx/)
- screen(s) – [blogs.zdnet.com/perlow/?p=9497&tag=nl.e539](http://blogs.zdnet.com/perlow/?p=9497&tag=nl.e539)

The students are encouraged to find additional information and links.

## link-ca5(s)

### online resource(s)

As online resources, we suffice with a brief list of references to technology.

- map(s) – **twente** / example(s)
- phidget(s) – product(s)
- vision(s) – [opencv.willowgarage.com/wiki](http://opencv.willowgarage.com/wiki)
- integration – [www.softintegration.com](http://www.softintegration.com)
- processing – [www.openframeworks.cc](http://www.openframeworks.cc)

The students are encouraged to find additional information and links.

## link-de7(s)

### online resource(s)

- standard(s) – [www.collada.org](http://www.collada.org)



## link-nm1(s)

### online resource(s)

There is a great, that is massive, number of online resources, about web technology, including treatments about technology, solutions to HCI issues, style and semantics.

- topic(s) – <http://www.digital-web.com/topics>
- tutorial(s) – [tizag.com](http://tizag.com) / [www.w3schools.com](http://www.w3schools.com)
- hci – [www.digital-web.com/articles/the\\_pinball\\_effect](http://www.digital-web.com/articles/the_pinball_effect)
- style – [www.csszengarden.com](http://www.csszengarden.com) / [webdesignfromscratch.com/web-2.0-design-style-guide.php](http://webdesignfromscratch.com/web-2.0-design-style-guide.php)
- game(s) – [nl.youtube.com/experiencewii](http://nl.youtube.com/experiencewii)
- semantic(s) – [www.thefutureoftheweb.com/blog/writing-semantic-html](http://www.thefutureoftheweb.com/blog/writing-semantic-html)

For your basic as well as final assignment(s), the following resources might be useful:

- tool(s) – [www.apтана.com](http://www.apтана.com) / [firefox add-on\(s\)](http://firefox.addon(s))
- example(s) – [javascript.internet.com](http://javascript.internet.com) / [openjsan.org](http://openjsan.org) / [code.google.com/apis/ajax/playground](http://code.google.com/apis/ajax/playground)
- ajax – [softwareas.com/ajaxjavascript-8-ways-to-create-graphics-on-the-fly](http://softwareas.com/ajaxjavascript-8-ways-to-create-graphics-on-the-fly)
- graphic(s) – [raphaeljs.com/reference.html](http://raphaeljs.com/reference.html) / [me.eae.net/archive/2005/12/29/canvas-in-ie](http://me.eae.net/archive/2005/12/29/canvas-in-ie)
- css – [nubyonrails.com/pages/css\\_graphs](http://nubyonrails.com/pages/css_graphs) / [codepunk.hardwar.org.uk/css2js.htm](http://codepunk.hardwar.org.uk/css2js.htm)
- javascript – [tool-man.org](http://tool-man.org)
- dynamic(s) – [www.hunlock.com/blogs/Howto\\_Dynamically\\_Insert\\_Javascript\\_And\\_CSS](http://www.hunlock.com/blogs/Howto_Dynamically_Insert_Javascript_And_CSS)
- menu(s) – [www.noupe.com/css/13-awesome-java-script-css-menu.html](http://www.noupe.com/css/13-awesome-java-script-css-menu.html)
- processing – [ejohn.org/blog/processingjs](http://ejohn.org/blog/processingjs)
- physic(s) – [box2d-js.sourceforge.net](http://box2d-js.sourceforge.net)
- adventure(s) – [zproxy.wordpress.com/2007/11/11/javascript-2d-adventure-game-demo](http://zproxy.wordpress.com/2007/11/11/javascript-2d-adventure-game-demo)
- dream(s) – [jsc.sourceforge.net](http://jsc.sourceforge.net)
- server(s) – [www.softintegration.com/webservices](http://www.softintegration.com/webservices)

For the final assignment, look for example at the following health site(s)

health

- run – [www.runnersworld.com](http://www.runnersworld.com)
- nike+ipod – [nikeplus.nike.com/nikeplus/?locale=euen\\_eu](http://nikeplus.nike.com/nikeplus/?locale=euen_eu)
- sport – [www.digifit.eu](http://www.digifit.eu)
- moral(s) – [morale.erikbenson.com/person/erik](http://morale.erikbenson.com/person/erik)

For additional information look at [create/resource-web.html](http://create/resource-web.html).

## link-nm2(s)

### online resource(s)

Of the many online resources, in particular the **flow(s)** from **diggs.com** deserve special mention, because they apply **physical principles** in an experimental way to gain understanding of patterns of information flow on the internet, as an example of what has been called **cultural analytics**<sup>4</sup> by Lev Manovich.

- beauty of numbers – [www.generatorx.no/category/beautyofnumbers/](http://www.generatorx.no/category/beautyofnumbers/)
- visual(s) – [www.visualcomplexity.com](http://www.visualcomplexity.com)
- code & form – [workshop.evolutionzone.com](http://workshop.evolutionzone.com)
- design(s) – [www.adobe.com/devnet/flex/articles/fig\\_pt6.html](http://www.adobe.com/devnet/flex/articles/fig_pt6.html)
- data structure(s) – [lab.polygonal.de/ds](http://lab.polygonal.de/ds)

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<sup>4</sup>[www.hastac.org/node/1514](http://www.hastac.org/node/1514)

- physic(s) – [diamondtear.org/blog/2008/06/03/exploring-the-actionscript-physics-engine-in-flex](http://diamondtear.org/blog/2008/06/03/exploring-the-actionscript-physics-engine-in-flex)
- flow(s) – [labs.digg.com](http://labs.digg.com) – (oa. buzzcut(s)) – observation(s), no judgment!
- community – [blprnt.com](http://blprnt.com)
- jared tarbell – [www.complexification.net](http://www.complexification.net) / [levitated.net/gravityIndex.html](http://levitated.net/gravityIndex.html) (flash) /
- learning – [www.learningprocessing.com](http://www.learningprocessing.com)
- visualizing data – [benfry.com/writing](http://benfry.com/writing)
- computational art – [friendsofed.com/book.html?isbn=159059617X](http://friendsofed.com/book.html?isbn=159059617X)
- physic(s) – [www.pathf.com/blogs/2008/09/flash-flex-physics-engines-and-examples/](http://www.pathf.com/blogs/2008/09/flash-flex-physics-engines-and-examples/)
- js – [ejohn.org/blog/processingjs](http://ejohn.org/blog/processingjs)
- org – [www.processing.org](http://www.processing.org)
- living planet – unicef report
- visible city – [vimeo.com/2437214](http://vimeo.com/2437214) / [vimeo.com/2437344](http://vimeo.com/2437344)
- gadget(s) – [code.google.com/apis/visualization/documentation/gadgetgallery.html](http://code.google.com/apis/visualization/documentation/gadgetgallery.html)
- networked visualization – [www.latebytes.nl](http://www.latebytes.nl)
- student(s) work – [www.annehelmond.nl/2009/05/15/ma-students-present-projects-visualizing-our-world-of-data](http://www.annehelmond.nl/2009/05/15/ma-students-present-projects-visualizing-our-world-of-data)

After mastering the first principles of visualization, it may be interesting to use actual **(game) physics engines** for the presentation of **(dynamic) data**.

## link-nm3(s)

### online resource(s)

A wealth of technologies is available. Of particular interest, apart from the **ready-to-apply (W)AMP stacks**, are tutorials on how to use **XML in e4x** scripting extensions, and the **mashup servers** of **wso2**. A new contender, at the time of writing, on the RIA market is **JavaFX**, which, covering a wide variety of platforms, including mobile devices, is, given the wide-spread adoption of java, certainly of interest.

- **flex** – [www.adobe.com/products/flex](http://www.adobe.com/products/flex)
- **xml** – tutorial / example(s)
- **umap** – [www.afcomponents.com/tutorials/umap\\_as3](http://www.afcomponents.com/tutorials/umap_as3) / flex tutorial
- **JavaFX** – [www.javaafx.com](http://www.javaafx.com) / [www.sun.com/software/javafx](http://www.sun.com/software/javafx)
- web orb – [www.themidnightcoders.com/weborb](http://www.themidnightcoders.com/weborb)
- labs – [labs.adobe.com/technologies/flex](http://labs.adobe.com/technologies/flex)
- **api(s)** – [labs.adobe.com/wiki/index.php/ActionScript\\_3:resources:apis:libraries](http://labs.adobe.com/wiki/index.php/ActionScript_3:resources:apis:libraries)
- code – [code.google.com](http://code.google.com)
- **db** – **sqlite** / **mysql** / **exist/xml**
- wamp – **appserver** / **server2go** / **webdeveloper**
- **mashup(s)** – **wso2**: [wso2.org/projects/mashup](http://wso2.org/projects/mashup)
- **amfphp** – [sourceforge.net/projects/amfphp](http://sourceforge.net/projects/amfphp)
- **multiuser** – **smartfoxserver.com** / [code.google.com/p/gfs-server](http://code.google.com/p/gfs-server) / [osflash.org/red5](http://osflash.org/red5)

Web service APIs are available in many language environments, including **flex/as3**, developed by **adobe labs**.

## link-nm4(s)

### online resource(s)

The online resources (will eventually) include references to technologies and tools, that may be used by the student(s) to develop **VR applications** for their (final) assignment(s).

- vr – [www.vrjuggler.org](http://www.vrjuggler.org)
- consortium – [web3d.org](http://web3d.org)
- txchange – [www.t-xchange.nl](http://www.t-xchange.nl)
- slides – [www.x3dbook.com/slidesets](http://www.x3dbook.com/slidesets)
- tools – [x3dgraphics.com/tools](http://x3dgraphics.com/tools)
- artoolkit – [www.hitl.washington.edu/artoolkit](http://www.hitl.washington.edu/artoolkit)
- arise – [www.arise-project.org](http://www.arise-project.org)

Additional information will also be gathered during the course, by letting students take an active part in exploring VR technologies.

## link-nm5(s)

### online resource(s)

The online resources provide a random collection of links to **items of interest**, from one perspective or another.

- brand(s) – [www.newzoo.com](http://www.newzoo.com)
- case(s) – [www.nederlandsmedianetwerk.nl/profiles/blogs/mediacase-newzoo-rabobank](http://www.nederlandsmedianetwerk.nl/profiles/blogs/mediacase-newzoo-rabobank)
- fun & game(s) – [springerlink.com/content/k882kqk6686v](http://springerlink.com/content/k882kqk6686v)
- unity – [unity3d.com/unity](http://unity3d.com/unity)
- creative virtuality – [www.virtueelplatform.nl/page/279/en](http://www.virtueelplatform.nl/page/279/en)
- museum – [casualgameplay.com/?PAGE=GameDetail&AID=1113](http://casualgameplay.com/?PAGE=GameDetail&AID=1113)
- serious – [www.seriousgames.dk](http://www.seriousgames.dk)
- magic pen – description / [magic.pen.fizzlebot.com](http://magic.pen.fizzlebot.com)
- getty – [www.getty.edu/gettygames](http://www.getty.edu/gettygames)
- vrouw(en) – [www.teamgx.nl](http://www.teamgx.nl)
- spot(s) – [www.gamespot.com/gamespot/features/video/hov](http://www.gamespot.com/gamespot/features/video/hov)
- history – [www.thedoteaters.com](http://www.thedoteaters.com)
- censuur – [www.groene.nl/2008/6/GAME-CENSUUR](http://www.groene.nl/2008/6/GAME-CENSUUR)
- process – [www.mine-control.com/zack/patterns/gameprocess.html](http://www.mine-control.com/zack/patterns/gameprocess.html)

Additional information will also be gathered during the course, by letting students take an active part in exploring game technologies.

## link-reflect-theme-display(s)

## link-reflect-theme-site(s)