Qualities of interaction
Interaction is not a material, it appears only in use... and use can be defined/afforded by form, material and other expressions...
Still, it has properties

- Which ones??? Today’s topic!

Yes, non-physical things can of course have properties… e.g. music!

- Key (=tonart)
- Rhythm
- Genre
- Instrumental or a capella or both instruments and song
Properties of interaction

Which properties can interaction have?

Think like if you are programming and setting up variables....

– Don’t list instances of properties (fast, slow, quick) but the properties themselves (speed)

Compare looking for information on Google vs. in Wikipedia. How are they different? Similar? Work in pairs and list everything you can come up with
The three L’s

Today we’ll look at three different ways to look at interaction and its qualities.
The texts dealing with them are also part of your literature assignments… (So don’t freak out of you don’t understand them at once… :)

– Lim et al: Gestalt attributes
– Löwgren & Stolterman: Use qualities
– Löwgren: Interaction aesthetics
– Landin: Interaction form and expressions of interaction
Use qualities vs artifact properties

"The interaction gestalt is shaped by a set of interaction attributes that must be translated to and manifested in the interactive artifact properties in order to be communicated, perceived, and experienced by users.

The interaction gestalt also has to be designed in a way that will evoke the desired user experiences. The designer has to anticipate how a certain gestalt will be experienced by a user, and that anticipation has to be translated back into ideas on how the gestalt should be shaped.
The interaction gestalt, and its relationships with user experience and interactive artifact.

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Connectivity

- **Dimensions:** independent-to-networked
- Wikipedia vs. any book-version of an encyclopedia

Continuity →

- discrete-to-continuous
- Scrolling by clicking on arrows vs. with scrollbar handles
Directness

- indirect-to-direct
- Data fuzzy/ambiguous vs clear; 
  www.yr.no vs Ambient Orb,
  http://www.ambientdevices.com/
Movement →
  - static-to-dynamic
  - A static map vs www.bbdo.com; note especially the ”bouncing”

Proximity
  - precise-to-proximate
  - Entering exact RGB-codes vs. a color picker →
Orderliness

- random-to-orderly
- Well-ordered, catalogued items vs. scattered, non-indexed
- Also how user is allowed to arrange info
Speed

- delaying-to-rapid
- Whether something happens fast or slow, e.g. opening www.rpa.com vs. playing Tetris at an advanced level

State

- fixed vs. changing, e.g. the ever-changing challenge of Tetris or simpler things like dynamic mouseovers (see www.philips.se) vs static pages, e.g. www.dn.se
Pace

- slow-to-fast
- *Navigating the timeline of* [www.rpa.com](http://www.rpa.com) *using arrow keys (medium pace) vs. clicking on desired things (quicker)*

Resolution →

- scarce-to-dense
- *E.g. a wireframe of an object vs a rendered version of it*
Time-depth

– concurrent-to-sequential

– Placing newly opened windows “on top of” or next to each other.
So, Lim et al define these qualities as something that appears only in (inter)action.

But – aren’t many of the qualities built-in properties of the artifact, properties that affect interaction?

– Proximity, movement, connectivity are all artifact properties for example. Or?
Let’s look at Google in terms of Lim et al’s gestalt attributes...
Use qualities – later experiential qualities (from “experience”)

- ...not a fixed list; rather under improvement.
- As opposed to Lim it is more about what the user experiences he or she can get/can do with the interface

"I [Löwgren] propose to think about interaction design in terms of use qualities, i.e., certain properties of a digital design that are experienced in its use. Such qualities transcend the specific design and offer a language in which to talk about desirable design outcomes.”
Five major groups

Qualities dealing with *motivation*
Qualities dealing with *interaction* per se
Qualities dealing with *social aspects* of interactive systems
Qualities dealing with *structural qualities*
Qualities dealing with *meaning-making*

*(Don’t worry, you’ll get the complete list soon)*
Anticipation

- Users can imagine/anticipate what comes next. (Some would call this continuity or coherency)
- E.g. the "save" icon looks the same everywhere

Playability

- "just one more time" (Some would call this replayability)

Seductivity

- Users are enticed, emotionally attached (e.g. toying around with an interface, exploring it)
- E.g. being intrigued by one’s new iPhone...
Qualities related to *motivation*

Relevance

– *It solves the current problem* or *fulfills a current need*

Usefulness

– *Users see it as being useful for their purpose*

– *Useful, but not necessarily as in ”usability” or ”easy to use”, but in ”getting good use of”* (användbar). E.g. playing some game on your mobile whilst waiting for the bus.

...these two are often closely related
Interaction-related qualities

Pliability

- Pliancy; that something is (or appears to be) touchable, e.g. a button appears to be more pliant than the surface around it
- A sense of tangibility; that you can ”grab” things or ”drag” them, even if it’s just with a mouse

Fluency

- “...the degree of gracefulness with which the users deals with multiple demands for their attention and action.”
- A good chance for the user to get into a ”Flow”-state
One of Löwgren’s examples of both pliability and Fluency is Google Maps…
Interaction-related qualities

Immersion
- Being ”sucked into” something, forgetting time and the outside world.
- VR but also creative or exploratory activities

Control/Autonomy
- The range between full control and total automation.
- RCT (left) vs Tetris

Sus Lundgren fall 2010
Qualities related to social aspects

Social Action Space
– Potential for social interaction like chat

Identity
– Means to express your identity, e.g. skins or uploading profile pictures

Personal Connectedness
– Getting and keeping in touch
Qualities of structural qualities

Elegance

– A combination of power and simplicity (Gelernter 1998)
– ”a really beautiful/smart solution”

Transparency

– Possibility to uncover new functionality and increase control if needed and wanted, or
– Possibility to focus on the task rather than the tool, e.g. creating a text rather than handling Word. (HCI-definition of the word!)

Efficiency

– Tasks can be carried out quickly, without error or annoyance
Qualities related to *meaning-making*

**Ambiguity**
- *Unclarity, fuzziness*
- *Is a virtue in many games, (e.g. fog of war)*

**Surprise**
- *Surprise: user interested in what s/he did...*
- *...as opposed to confusion; user interested in how to back out and redo it right*
Qualities related to **meaning-making**

**Parafunctionality**
- As explained by Dunne (1999, p. 44).
- The quality of a digital artefact that makes us reflect on our relationship with technology, i.e. a self-critical aspect.
(Most qualities) Do cover experiences rather than artefact properties but...

Mix of qualities on totally different levels, e.g.:

- *Control/Autonomy and Ambiguity* deliberately built into the system
- *Surprise and Immersion* (may) appear in use
- *Para-functionality* is a meta-quality
Explore Bembo’s Zoo: http://www.bemboszoo.com/

– Which ones of the use qualities are most prominent?
– Are some nonexistent?
Löwgren: Aesthetic Ix Qualities

Löwgren has been developing the concept further, presenting four “aesthetic qualities of interactive products”

- Pliability
- Rhythm
- Dramaturgical structure
- Fluency

Critique: Why these four?
Landin looks into unusual and/or unexpected aspects of interaction.
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- Expected use of an ATM: To withdraw cash
- Unexpected use: To skim card numbers & codes
- Both the expected and unexpected/unwanted use affect design and interaction
”In the work presented in this thesis aesthetics of interaction is seen as the whole of forms and expressions.”

– Hanna Landin in ”Anxiety and Trust and other expressions of interaction”, 2009, p.25

Sees the aesthetics as what is built into the design

– ”since we do not program people”

– …when designing still reflecting upon how design certain decisions affect how users might interact, and explore the outcome.

– Designs possible interaction rather than actual interaction
Landin works with two key concepts...

...Interaction form
- *Not* coupled to physical form
- “the way in which a design relates interaction (what you can do with a device) and function (what the device can do for you) to each other.” (Landin 2009, p. 31).

...Expressions of interaction
- how a certain form can express itself in different contexts.
- What people appear to be feeling
Just like physical forms, interaction forms can be described.

”Form has more to do with how it has been built, how parts are put together to form a whole and how these have been arranged in three dimensions.

When we want to describe the form of interactive computational devices there is an additional aspect; we can describe these products not only by the physical form but also in terms of their interaction form”

– Hanna Landin in ”Anxiety and Trust and other expressions of interaction, 2009, p.2
Interaction form

- the relation between what you can do with an artifact (interaction), and what it can do for you (function)... or "does to you" (implicit function)
- Not (necessarily) physical (spatial) but also temporal

We do not only design explicit interaction, but also implicit, both of which are part of the form. Consider an e-mail program:

- Explicit interaction: Writing mails, reading mails
- Implicit interactions: Feeling stressed about the number of mails, being more likely to answer certain mails...
Examples of interaction forms

Fragile form: when the relation between interaction and function easily breaks

– *E.g. when you intend to do something, slip slightly and do something completely different*

– *or when something simply breaks down or freezes*
  
  • *E.g. a web site that does not work for all browsers*

  – *Very common in computational artefacts, system down, strange errors etc...*
Examples of interaction forms

Magical form: When there is something magical in the way interaction and function are related to each other in the design.

– *When people can’t quite understand how it works but are intrigued by it; deception in a sense (e.g. the telephone)*

– *When people think that there’s something more to the design than it actually is, e.g. computerized toys are often ascribed with insights and functions they do not have*
Examples of interaction forms

Changeable form: When the way interaction and function are related to each other can change.

– Software where content changes, like Wikipedia
– Software that changes, adds or (“physically”) moves services, e.g. Facebook and LinkedIn
– Software that adapts to your behavior, e.g. resorting lists according to your preferences

Did you know...

From Wikipedia’s newest articles:

- ... that the Frederick W.潘多尔Bridge (pictured), a concrete open-spandrel arch bridge in Russian Gulch State Park near Mendocino, California, replaced an earlier wooden trestle bridge in 1940?
- ... that blue cake, a flaky pastry from the Bernese Oberland, Switzerland, is not blue?
- ... that the 1997 video game Ballblazer Champions is a remake of the 1985 Ballblazer that was released for the Commodore 64 consoles?
- ... that BBC defence correspondent Caroline Wyatt was born in Australia and adopted by a British diplomat?
- ... that the first violin concerto by Philip Glass was composed in honor of his father Ben, who died some sixteen years before the composition?
- ... that 2009 National Indigenous Art Award winner Danie Mellor created a sculpture using ceramics, kangaroo skin, synthetic eyeballs, and stuffed birds?
- ... that in 1904, gymnast George Eyser won six Olympic medals including gold in the vault, even though he had a wooden prosthetic leg?
- ... that the Battle for Lake Tanganyika involved an expedition dragging two motor boats through Africa, led by a man who “court-martialed for wrecking his own ships, an inveterate liar and wearer of skirts”?

Archive – Start a new article – Nominate an
Examples of interaction forms

Illusionary form: When it is hard to distinguish between what actually is, and what just appears to be.

- Fake internet banks
- Very realistic Virtual reality

Indistinct form: When it is not clear what you can do and/or how to do it →

- Typically in ”bad designs” since indistinctness is per definition non-coherent
”... is [a way to **describe**] how a design expresses interaction form in certain contexts of use. The point is that even though it is somewhat abstract and intangible, interaction is expressed in a design, and we should be able to discuss how.”

– Hanna Landin in ”Anxiety and Trust and other expressions of interaction”, 2009, p.46

**How interaction (or interacting) expresses itself**

– The (physical) form of a Porsche expresses speed

– **What does the interaction form of Wikipedia express?**
Landin gives nine examples of expressions of interaction

- Anxiety, alienation, indifference, confusion, imagination, dependence, suspiciousness, thrill and trust.
- Chosen because they are common in IxD, or because they encourage reflection

Note that...

- Expressions of interaction may vary in degree.
- What a device expresses does not have to reflect its actual properties or qualities.
- The same interaction form can result in different expressions: Fragile form can result in both Anxiety and Thrill
Expressions of Interaction

Anxiety: Is expressed if a user can’t be sure s/he did what she wanted, or if it’s easy to make mistakes; it affects the way the user interacts with the artifact

- Double-checking that you are sending a delicate e-mail as ”Reply” and not ”Reply All” (a fragile form expressed as Anxiety)

- Fax machines that do not acknowledge if something has been sent, so the user can’t be sure and has to call and check if it got there, or sends it twice just in case: (an indistinct form expressing itself as anxiety)

- A hard disk that often crashes and thus forces you to make backups very often (fragile form)
Alienation: When the link between cause and effect is unclear.

- *Systems making suggestions according to some logic that we do not get; to us it seems to be illogical (indistinct form)*
Confusion: When it is not clear what you can do and/or how to do it

- Often a result of indistinct form, e.g. ticket machines
- Can also be a result of a changeable form: ”...it used to be here / it used to work like this...” A typical problem when upgrading software!
Expressions of Interaction

Imagination: when the form triggers imagination

- Strongly coupled to magical interaction form
- Any (interactive) toy
- Immersive games or tycoon/sim games → kids making up "stories" about their themepark

Dependence: when the user is dependent :)

- E.g. cell phones; many useful functions and an explicit way to express them (e.g. that someone is texting you). Can be expressed as the user always keeping the phone close, making sure it’s charged etc.
Suspiciousness: when data is being treated in an obscure way

- *Facebook*: Who reads my posts, who can see my content, who has the rights to my content (photos etc), who hides me and who does not? May result in people using false names or displaying less information than they actually want to.
Expressions of Interaction

Thrill: when there’s an element of (wanted) uncertainty in the design

- (Internet) auctions: will I get my thing? May result in bidding more than once!
- Many games: can result in replayability

Trust: when systems are perceived as having distinct and non-fragile forms

- Various security systems for internet banking; having double devices where one is not online
- Coherency in design; that the artifact is easy to understand, predict
Pro’s with Landins’ view

– Acknowledges unusual, unexpected or unforeseen aspects of interaction
– Talks about how interaction appears (anxious, confused etc) without taking user’s actual feelings into account

Cons…

– Very abstract, especially the forms
– A collection; there are many more...
Analyze Facebook in terms of Landin’s expressions