Advanced interaction design (AIxD)

TDDD53 & 729A88

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LINKÖPING UNIVERSITY

Designing interactive experiences

Advanced interaction design

- What you should already know:
  - user research
  - sketching
  - prototyping
  - usability testing

  … the basics

  - In this course we with user experiences as our design material.

Advanced interaction design

- Advanced course
  - Theoretically more challenging
  - More individual responsibility
  - More responsibility for the end result
  - Applied
  - More fun

Agenda

- Course info
  - First time given in english
- Groups
- Assignments
- Subject introduction

Course info

- Two course codes
  - Advanced interaction design:
    - 729A88: ~18 students
    - TDDD53: ~27 students
- Different programs
  - D
  - IT
  - U
  - MT
  - Cognitive science
  - Design M.Sc

TDDD53 (2019)
Course Information
Syllabus
Examination
Timetable
All Messages
Contact

INTERNAL
IDA Internal
Student Pages
Emergency

TDDD53 Advanced Interaction Design

Course information

Aim

The student shall develop advanced knowledge in methods and theory for interaction design. After the course, the student shall be able to:

- Use methods and techniques for concept design and detailed design to define problems and alternative solutions for digital interactive products and services.
- Give an account of system objectives, and analyse design qualities and user experience for digital interactive products and services.
- Define purpose, content, and form for digital interactive products and services.
- Argue for one's interaction design ideas using multimedia, visualisations, or oral and written presentation.
- Summarise and analyse the meaning of concepts from interaction design and use them to analyse design work.

Course content

The course is conducted as a collaboration with industry and focuses on designing interactive experiences based on **target experiences**. The core of the course is a group project with an external client.

A document detailing *all the assignments* can be found **here** .

During week 40 and 41 you will have access to the **Designstudio** and a **design lab** with video editing software so that you can create your video prototypes if you do not use your own computers.

Project hold times

Suggested times to guide the projects:

- 13/9 - desicion about three concept ideas to take forward
- 1/10 - the group should have decided on one concept to prototype
- 9/10 - prototyping completed

Lectures

During the course, the following lectures will be given (will be marked with "New!" as the lectures slides are updated with this year's edition):

- **Introduction**
- **First teaching session**
- **User Experience Design**
- **Methods and Creativity in Design**
- **Design Ethics and Prototyping Experiences**
- **Video Prototyping, Dramatic Structure, and Storyboarding**
- Ubiquitous Computing. Guest lecture: Dipak Surie, CEO and founder of Smartmiljös and lecturer at Malmö University.

Course info

- Supplementary deadlines

The time table can be found in **timeedit.**

Supplementary deadlines for submissions or amendmends:

- 2020-01-10 at 17:00
- 2020-04-24 at 17:00

Students that still do not have a passing grade after these deadlines are welcome to take the course again.

Course info

Learning outcomes

- Use methods and techniques for concept design and detailed design to define problems and alternative solutions for digital interactive products and services.
- Give an account of system objectives, and analyse design qualities and user experience for digital interactive products and services.
- Define purpose, content, and form for digital interactive products and services.
- Argue for one's interaction design ideas using multimedia, visualisations, or oral and written presentation.
- Summarise and analyse the meaning of concepts from interaction design and use them to analyse design work.

Course info

Learning outcomes

- **Use methods and techniques** for concept design and detailed design to **define problems and alternative solutions** for digital interactive products and services.
- Give an account of system objectives, and **analyse design qualities** and **user experience** for digital interactive products and services.
- Define **purpose, content, and form** for digital interactive products and services.
- **Argue for one's interaction design ideas** using multimedia, visualisations, or oral and written presentation.
- **Summarise and analyse the meaning of concepts from interaction design and use them to analyse design work.**

Course info

- Literature
  - No book, but travels and other materials can be needed
  - Articles available through the University library
  - Additional articles for higher grades
  - Recommendations for further reading

Course info

- Rooms
  - Designstudio B building: during specific times
    - Access using LiU-card
  - Design lab in E building can be booked

Course info

- Learning opportunities
  - Lectures
  - Teaching sessions
  - Group work / project work
  - Seminars
  - Individual reflection

Course info

- Lectures
  - Inspiration and wider perspective
    - Loosely connected to the work in the course
  - Practical suggestions
  - Some exercises
  - NOT a substitute for reading the literature

Course info

- Lectures
  - Shared lecture on 17/9 with me and Lina Johansson, on:
  - inspiration and creativity in design and
  - interactive installations at norrköping science park
  - Guest lecture 27/9 by Jon Manker
    - Video production.
    - **Starts at 10:30**

Course info

- Teaching sessions
  - Should be thought of as design studios
  - You work on your projects and a teacher is available in the room
  - Sometimes introduced by the teacher
  - Potential special topical sessions
- Group work/project work
  - No rooms booked
- Presentations
  - Both oral and written

Course info

- Examination assignments
  - Group assignment (only passing grade)
    - Project, groups of about 5 participants
    - Oral and written examination
  - Individual assignment
    - Three parts:
      - 2 Literature seminars (G, U)
      - Critical reflection (3,4,5,U alt. G,VG,U)
      - Written examination

Course info

Assignments

- Individual assignments
  - Seminar 1
    - Domain specific literature, and some more general ones
  - Seminar 2
    - Articles about prototyping and interactive experience
  - Everyone reads three articles and writes a summary for each before the semianr.
  - At the seminar, each paper is introduced, followed by a group discussion.
  - At the end of the seminar you have som time to write reflections.
  - Submissions the day after.

Course info

Assignments

- Group assignment
  - Design an interactive system that meets a target experience and is a relevant solution for your project.
- This year's clients
  - Flygvapenmuseum (Air Force museum)
  - Friluftsmueet Gamla Linköping (Open-Air Museum)
  - Kultur- och fritidsförvaltningen (Linköping municipality)

Course info

- Interactive experience
  - Installation
  - Multi-media guide
  - Mobile game
  - Web page?

  … etcetera

Course info

- Group assignment
  - Target user experience
    - PLEX

Category	Playful experiences		
Adventure	discovery Finding something new or unknown	exploration Investigating an object or situation	captivation Forgetting one's surroundings
Caretaking	nurture Taking care of oneself or others	sympathy Sharing emotional feelings	control Dominating, commanding, regulating
Excitement	thrill Excitement derived from risk, danger	subversion Breaking social rules and norms	humor Fun, joy, amusement, jokes, gags
Excel oneself	suffering Experience of loss, frustration, anger	challenge Testing abilities in a demanding task	completion Finishing a major task, closure
Imagination	expression Manifesting oneself creatively	fantasy An imagined experience	simulation An imitation of everyday life
Physical	sensation Excitement by stimulating senses	relaxation Relief from bodily or mental work	eroticism A sexually arousing experience
Social	fellowship Friendship, communality or intimacy	submission Being part of a larger structure	competition Contest with oneself or an opponent

(Kaasinen et al., 2015)

Course info

Structure:

Intro 3/9

- Visit clients 5/9 (13-17)
  - Introduction to the work context
  - Viewing of the location
  - Free exploration and **intitial sketching**
- First seminar 12/9
- New field visit 19/9
  - Situated prototypes and further ideation; feedback from clients
- Second seminar 26/9
- Creating final prototoype w.40-41 (Sep. 30-Oct. 11)
- Final presentations 17/10 (13-17) in A34

Course info

- Guiding times for the projects
  - 13/9 Decision made about 3 concepts to continue working on
  - 1/10 Decision about final concept to continue working on
  - 9/10 Prototype ready

Air force museum

- **Tailored visits**
- *As a visitor it can be difficult and time consuming to take in all information in an exhibition, and there is probably a lot of uninteresting information for individual visitors. If we could tailor the information to each individual visitor based on their interests and choices we could also offer more interesting and relevant automated guides, thus increasing the quality of the visito to the museum.*
- Assignment: Create a guide tool that takes information about individual visitors' interests and choices leading to a unique and personal trail through the museum and with filtered information.
- User group: first time visitors with limited time

Grupp 1

Nodelijk, Felix
Landor, Anton
Samuelsson, Emma
Lundblad, Oscar
Fallström, Johan

Air force museum

- **Flight and the environment**
- *Flying has a large negative impact on the global climate. At the same time there is a lot of research around alternative, environmentally friendly, fuels and new types of airplane designs. We want to be able to show the alternatives to todays' flights that exist, that are more friendly to the environment and that might become more prevalent in the near future.*
- Assignment: Create an interactive experience for our science center Flyglabbet, where the focus is on the airplanes of the future, and where visitors can learn about factors surrounding environmentally friendly flight.
- User group: young adults

Grupp 2

Sundberg, Simon
Liljedahl, Sofie
Lindholm Undén, Beate
Laine, Rickard
Wojtulewicz, Karol
Sharma, Sudeep

Air force museum

- **Flight and the environment**
- *Flying has a large negative impact on the global climate. At the same time there is a lot of research around alternative, environmentally friendly, fuels and new types of airplane designs. We want to be able to show the alternatives to todays' flights that exist, that are more friendly to the environment and that might become more prevalent in the near future.*
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- User group: young adults

Grupp 3

Hillborg, Ruben
Lindblom, My Elin Rebecca
Kuch Wesolowski, Robert
Koniakowski, Isabella
Indrias Biniam, Thomas

Air force museum

- **Treasure hunt**
- *We want kids to be able to discover the musum in a fun and exciting way. It could be about solving a problem or e.g. finding keys in different locations that later lead to some greater discovery. The important thing is that kids are exposed to different, perhaps unexpected places in the museum.*
- Assignment: Develop a way for kids to discover the museum, where activity, action, creativity and excitement is important.
- User group: kids that know how to read in company of adults

Grupp 4

Möller Ehrnlund, Björn
Rashid, Arin
Widerberg, Lisa
Vujovic Rahlén, Stefan
Driving, Douglas

Activity Unit, Linköping municipality

- **Outdoor gym 1**
- *How can we attract more people into to the outdoor gyms? There are many hurdles for visitors to try the gyms. Examples include insecurity in terms of how to use the equipment, fear of being hurt, fear of embarrassment and making mistakes. The political program for recreation in Linköping municipality clearly states that municipal resources should be for everyone, so there is a need for overcoming the hurdles.*
- **Assignment**: Create a solution to overcome the hurdles preventing visitors to Vidingsjö motionscentrum from using the gym. The solution can be digital if there is need for it.
- **User group**: Existing visitors to Vidingsjö motionscentrum that could see themselves using the gym but does not.

Grupp 5

Sjöbergsson, Christoffer
Bergman, Oscar
Wiktorson, Erika
Rönnqvist, Lisa
Grzech, Jessica Elizabeth

Activity Unit, Linköping municipality

- **Outdoor gym 2**
- *How can we offer users feedback in the outdoor gym and support them in conducting complete workouts? Research on outdoor gyms suggest that average use time is lower than the recommended time to reach health benefits. We want to find solutions that support the users in carrying out complete workouts for specific purposes and that encourages repeat use.*
- **Assignment**: Create and interaction that supports the completion of workouts, guides the user, gives feedback and motivates further use. The interaction can preferably be augmented by digital means, but there should not be a demand for a smartphone or smart watch. The user should be able to choose the level of ambition.
- **User group:** Visitors in Vidingsjö who want to be able to conduct a good workouts but not plan it by themselves.

Grupp 6

Guo, Tjelvar
Jonsson, Daniel
Tang, Vanessa
Asteberg, Henrik
Andersson, Gustav

Activity Unit, Linköping municipality

- **Increased movability**
- *There is little knowledge about the plethora of available opportunities for physical exercise offered by the municipality. This goes for organized sports as well as open, public spaces for activities such as boule and running tracks. A greater knowledge about the alternatives increases the chances of more people becoming active. The difficult part is reaching people who are not active today, or are in a context where sports and movement are not present.*
- **Assignment:** Create an interactive experience that can be placed in a public space and that allows visitors to try and explore the large variety of possible activities. Visitors should not only be allowed to try but also overview and contact, or gain knowledge about places where exercise can take place.
- **User group:** Physically inactive adults

Grupp 7

Johnsson, Daniel
Gyulai, Sofia
Röhr, Malin
Jaeger Tronde, Emma
Sterneling, Hanna

Open air museum, Gamla Linköping

- **Life as a ”soldier family” in 1814**
- *The open air musuem Gamla Linköping has recently moved an old soldier cottage, complete with outhouse to the museum area. The exhibition shows life for a “soldier family” (soldatfamilj) in 1814. The cottage is going to be open year-round, but only “gate open”, i.e. the visitor can only get part way into the cottage but not all the way. We are interested in finding a solution where the visitors can take part in life on the farm interactively without staff present. What can life have been like, what did people talk about and what did they do?*
- **Assignment:** Using an interactive solution, like a game, visitors should be able to take part in history and life as a soldier family based on actual events in Linköping’s history; war placements, battlefields, work allocations (like digging Göta Kanal), caring for prisoners of war, farming, wood cutting, work at neighboring farms, loosing a child, collecting money for a cow etcetera in an interactive and curious manner.
- Preconditions: safe, easy to use without staff
- **User group**: Adolescents and young adults with access to digital tools.

Grupp 8

Vestin, Alexander
Bäckström, Madeleine
Melbi, Alexander
Herkevall, Jonas
Lindblad, Patricia

Open air museum, Gamla Linköping

- **Everyday life in 1814**
- *The open air musuem Gamla Linköping has recently moved an old soldier cottage, complete with outhouse to the museum area. The exhibition shows life for a "soldier family" (soldatfamilj) in 1814. The cottage is going to be open year-round, but only "gate open", i.e. the visitor can only get part way into the cottage but not all the way. We are interested in finding a solution where the visitors can take part in life on the farm interactively without staff present. What can life have been like, what did people talk about and what did they do?*
- **Assignment**: how can visitors take part of scenes, sounds and similar experiences from everyday life in 1814?
- Preconditions: Safe, easy to use without staff present. The cottage is furnished and visitors can only reach to door frame and look into the rooms. Preferably use the whole environment around the cottage. Accessible in Swedish and English. Story could vary depending on time of year: e.g. Christmas, slaughter time, harvest.
- **User group**: adult visitors with families

Grupp 9

Almgren Friberg, Richard
Hellberg, Tim
Rosberg, Alice
Eklund, Malin
Rönnberg, Sofia

Break

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Conceptualisations of design

"Interaction Design refers to the shaping of interactive products and services with a specific focus on their use." (Löwgren, 2008)

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Conceptualisations of design

Design

- Exploring possible futures
- Putting forth suggestions and evaluating their consequences
- Manifesting solutions as scenarios, sketches, prototypes etc.

- Exploring current situations

Conceptualisations of design

Distinguishing features of Design?

- A way of thinking (design thinking)
- Messy, open-ended, process focused, creative(?)

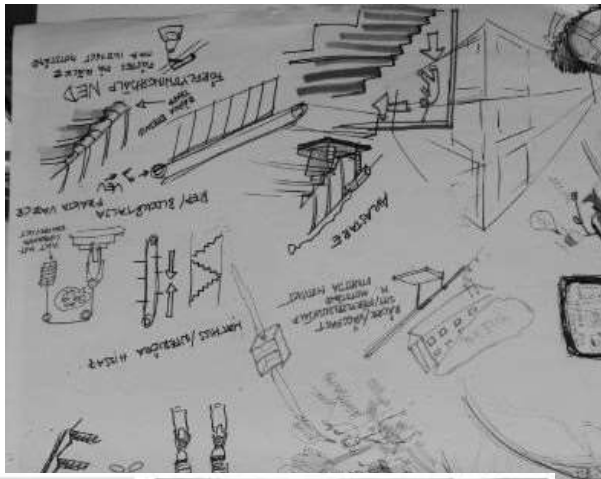
- Historic focus on design problems:
  - Wicked problems (Rittel & Webber, 1973)
  - Problem framing (Schön, 1983; 1987)

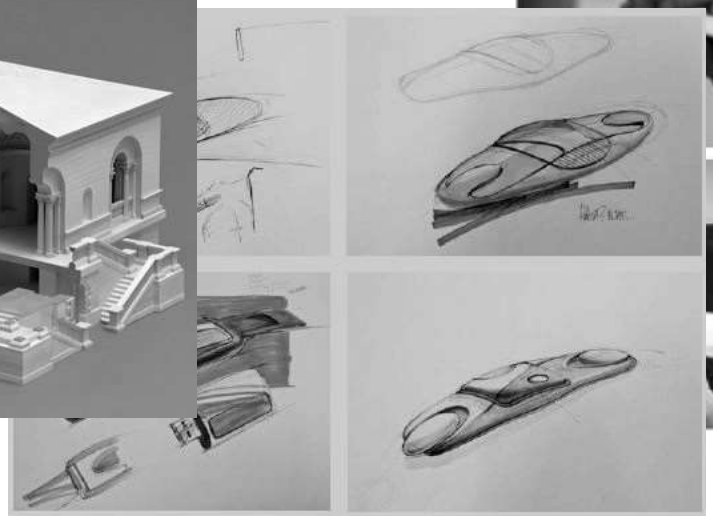
- There are no right (or wrong) solutions

Conceptualisations of design

Distinguishing features of Design?

- Visualisation
- Giving form
- Representation





Conceptualisations of design

Representations

Helps designers understand **possible futures**

- Sketches and prototypes most common variants

Conceptualisations of design

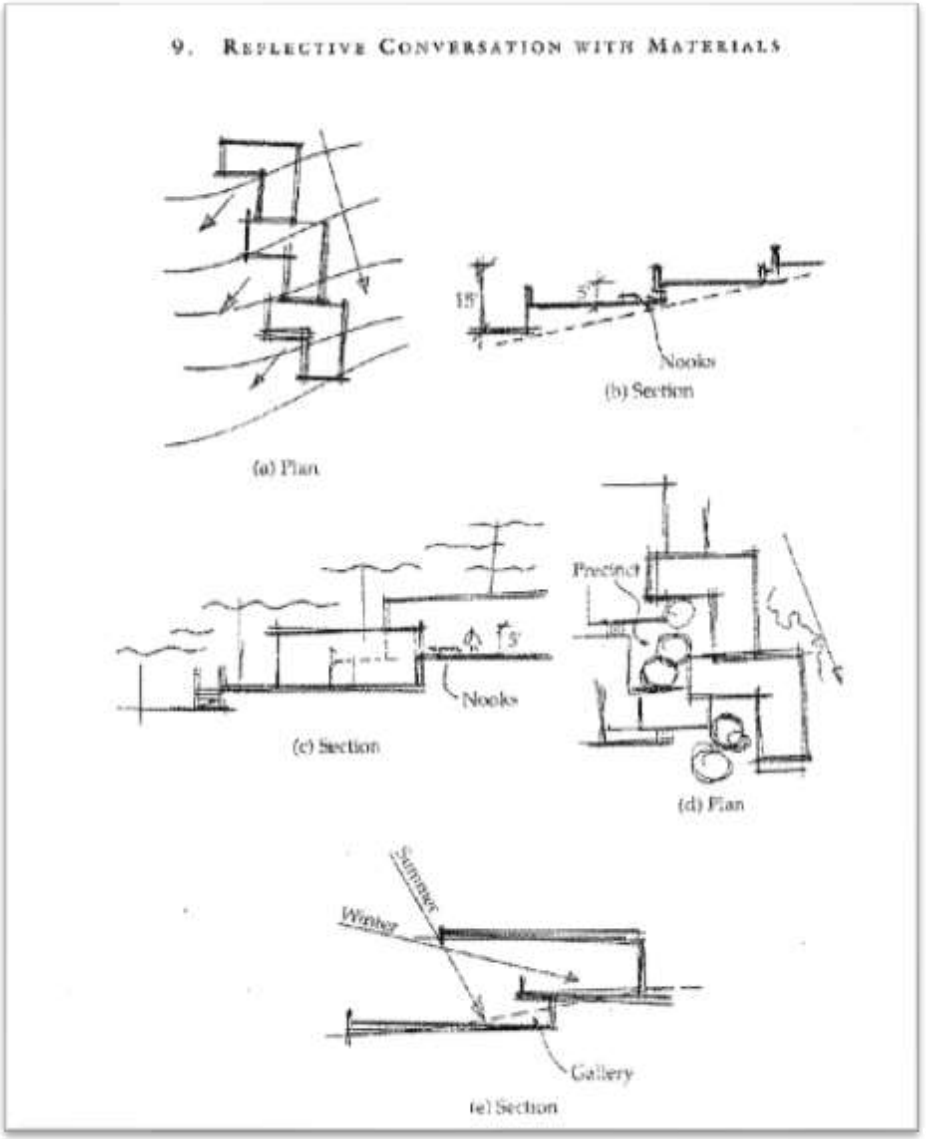
Sketches

(Buxton, 2007)

- Don’t keep it in the head
- Sketches visualise consequences of design suggestions
- Bounce of the paper
- Sketches help you evaluate and consider details in a design solution, in relation to the larger context

Work sketches pushes design work

- A conversation with materials



(Schön, 1983)

Conceptualisations of design

- Prototypes
  - Qalitatively different from sketches?
  - In design, even very early representations of ideas
  - The tool available to designers to understand use and experiences
  - … as well as contexts

The Photostroller

The Photostroller, an interactive device developed by the Interaction Research Studio (Department of Design at Goldsmiths, University of London) has recently been introduced into a care home in York to enhance the daily lives of its residents.

The Photostroller shows a never-ending sequence of images drawn from the Internet, some related, others more random, like an electronic daydream. The flow can be influenced to stay close to a selected category of images, or allowed to drift away to more tenuously related subjects.

Prior its introduction, the research studio carefully studied the appropriate level of interaction for the elderly residents before designing the Photostroller to complement and enhance their daily lives. This informed the design of a wireless controller to enable the residents to tune the type of photographs displayed in the slideshow. A moment of wonder for the team, during the deployment, was witnessing a 99 year old arthritic resident using The Photostroller with relative ease.

Members of the research studio, along with their collaborators from the University of Northumbria and Newcastle University, have visited the care home regularly during the Photostroller's deployment. Both the residents and the carers seem to have been very happy with it. For instance, some residents have taken responsibility for turning it on and explaining it to others, and its mobility has made it possible to use flexibly within the care home environment. It has been particularly interesting to see how the residents' engagement with the Photostroller has grown and changed over the months they have had it.

The wireless controller tunes into different categories of photographs and controls how far the topic may drift.

The wide variety of images encourage story-telling amongst the residents.

The Photostroller was developed in collaboration with researchers at Newcastle and Northumbria Universities as part of the New Dynamics of Ageing (NDA) programme, a seven-year multidisciplinary UK research initiative with the ultimate aim of improving quality of life of older people. The programme is a unique collaboration between five UK Research Councils - ESRC, EPSRC, BBSRC, MRC and AHRC - and is the largest and most ambitious research programme on ageing ever mounted in the UK.

Interaction Research Studio, Department of Design
Goldsmiths, University of London, New Cross, London, SE14 6NW, UK

Goldsmiths

Conceptualisations of design

Susanne Bødker (1989)

- To design an artifact means not only to design the artifacts for a specific kind of activity. Because the use of artifacts is part of social activity, we design new conditions for collective activity (e.g., new divisions of labor and other ways of coordination, control, and communication).

- This means that interactive artefacts change people and places

“The Drift Table isn’t just a reference tool. By creating a kind of crack in the enclosure of the home, the Drift Table promotes **daydreaming and imagination**. People might glance at it from time to time to see where they are, and even take the current view as a significant portent. They might just get lost and watch the world go by, or use it as inspiration for real travel. In any case, **the Drift Table isn’t ‘for’ anything in a utilitarian sense**: it provides a resource that people can use or play with as they wish.”

Conceptualisations of design

- Designing for experiences (UX design)
  - Interactive systems offer people an opportunity to collaborate and coordinate with, through or with help from them

Conceptualisations of design

- Prayer companion

Conceptualisations of design

- Prayer companion

Mediated body
Mads Høbye

Conceptualisations of design

- Experiences
  - To understand experiences we need to reflect on them
  - This requires breaking them down into parts
  - The parts have to be identified
  - We must try to understand what interactions influence experiences

Conceptualisations of design

- Tomorrow we will work with experiences to try and understand them a bit more

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Slut

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