

ASSESSMENT GUIDELINES

Course code:	ITI46318-1 19H
Course name:	Interaction Design
Form of examination:	Inspera digital exam (50%) Scientific group paper (50%)
Date:	6 December (Inspera) 29 November (group paper)
Lecturer(s):	Susanne Koch Stigberg
Comments:	Master course - English only The group paper is submitted in Canvas.



Digital Exam – Individual

1. What is Interaction design? (1p)

short definition:

e.g. Interaction design is about shaping digital things for people's use (Löwgren)

e.g. Designing interactive products to support the way people communicate and interact in their everyday and working lives. (Preece, Sharp, Rogers)

e.g. The design of spaces for human communication and interaction. (Winograd)

2. What are the main phases in an Interaction Design project and what methods and techniques are central in each phase? (8p)

In class we presented a four-phase model:

- informing the design / gathering requirements
- designing alternatives
- building prototypes
- evaluating the design

(2p) for informing different methods could be:

(a short description for the methods should be included.)

- observations
- interviews / focus groups
- questionnaires
- literature review
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(2p) for designing different methods could be:

(a short description for the methods should be included.)

- brainstorming
- sketching
- storyboarding
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(2p) for building different "techniques" could be:

(a short description for the methods should be included.)

- video prototyping
- digital prototyping
- paper prototyping
- mockups
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(2p) for evaluating different methods could be:

(a short description for the methods should be included.)

- usability testing
- field tests
- experiments
- expert reviews
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3. What is an interface? (5p)

Give a brief definition of the term "interface" (1p) and describe the interface of a web browser on your computer using the interface framework presented in class (4p).

(1p) An interface enables human-computer communication. Human understandable machine Input / Output.

(4p) It can be seen from different levels. The student should understand *interfaces* as a term with different abstraction hierarchies. In class we presented an interface framework.

- Each human-computer interface has some *input and output devices* (hardware) such as screen, keyboard, mouse,....
- Interaction devices can be commonly used in certain ways, something we called *interaction style* such as WIMP, Web, Dashboard, Direct manipulation,.....
- DeFacto practices of interaction devices and interaction styles can be called a *interaction paradigm* such as the desktop paradigm that uses a standard setup of interaction devices combined with a certain style of interacting such as WIMP or Web. Other paradigms that differ from that best practice are mobile, tangible, ambient,..... These often newer paradigms might not have standard interaction devices or styles yet.

For the web browser interface we rely on the desktop paradigm as a way of describing a standard use for desktop computing. Following this paradigm we can expect a standard setup of i/o devices: Monitor, keyboard, mouse and speakers. Furthermore there are some common interaction styles such as wimp, web and dashboard. The situated use of technology is where the user is sitting at a desktop looking at the screen with full awareness to the computer to perform the task.

4. What are (human-computer) interactions? (9p)

Give a brief definition of the term "(human-computer) interaction" (1p) and answer the following subquestions:

- What is the difference between "interface" and "interaction"? (2p)
- Preece et al. introduce the concept of interaction types as a model for interactions. List at least three different interaction types and describe them by providing an example interface. (6p)

(1p) The student should provide a short definition of interaction such as a process / communication between human and machine that is unique for each occasion.

(2p) Use the interaction model to explain the difference. Interface is used in an interaction. Interface is an artifact (belongs to the computer), interaction is a process between human and machine. Interface is part of the interaction.

(6p) In the course literature interaction modes can be:

- Instructing – command line
- Conversing – chat mm
- exploring / browsing - vr
- manipulating – any phone app?
- Responding – notification mm. Sensors / ambient interfaces?

5. What are prototypes? (5p)

Give a short definition of "prototype" (1p) and answer the following subquestions:

How can prototypes be categorised based on the model presented by Houde & Hill in

"What do prototypes prototype?" (2p)

What are the two principles of prototyping as discussed by Lim et al. in "The anatomy of Prototypes" (2p)

(1p) Short definition e.g. Prototypes are materialization of ideas.

(2p) Prototypes can be categories by:

- By purpose (role / look&feel / implementation / integration prototypes)

(2p) Principles:

- Fundamental principle: Prototypes are filters
- Economic principle: as easy as possible to test....

6. Discuss user participation in interaction design projects. (10p)

Why should users be included in the design process?

What roles can they be given in an interaction design project and what is the rationale for each role?

(5p) The student should reflect on User Centered Design providing some arguments for the importance to include users in the design process, such as

- understanding the users needs, values, problems,... For appropriate solutions
- user expectation management (no surprises, training, communication),
- ownership (active stakeholders, understand problems, product acceptance),

(chapter 9.2.1 in the course literature)

(5p) Users can be included throughout the design process with different roles.

During information gathering users can be informants to the designers. During design users can both participate in ideation of solutions and co-design activities. During evaluation users become testers of prototypes. Additionally there are different degrees of user involvement. Users can be involved only a short period of time or at only one part of the process or they can be part of the design team throughout the project. There are benefits and disadvantages with both approaches and the optimal degree of involvement needs to be discussed for each project. (chapter 9.2.2 in the course literature)

7. The three paradigms of HCI. (6p)

Harrison, Tatar and Sengers define three paradigms of HCI: Human-Factors, Classical Cognitivism / Information Processing Based and the Third/ Phenomenologically-Situated Paradigm. Describe briefly each approach and highlight differences in terms of metaphor of interaction, goals, ways of knowing and purpose of design.

Based on the paper

<http://people.cs.vt.edu/~srh/Downloads/HCIJournalTheThreeParadigmsofHCI.pdf>

(2p) Human factor:

Background: a-theoretic and pragmatic approach to identify problems in industrial systems and ergonomics.

Metaphor: interaction as a form of man-machine coupling.

Goal: optimize fit between humans and machines

Ways of knowing: a-theoretical pragmatic approach / you tried it out and it worked

Purpose of design: design as problem-solving

(2p) Classical Cognitivism

Background: Card, Moran & Newell (1983) start from the premises that human information processing is deeply analogous to computational signal processing, and that the primary computer-human interaction task is enabling communication between the machine and the person.

Metaphor: interaction as couple information processors

Goal: create general models / optimize efficiency and accuracy of information transfer

Ways of knowing: analytic stance. Creating general models. Defining the world

Purpose of design: design as hypothesis-testing

(2p) Phenomenologically-Situated

Background: marginal issues such as social, context, phronesis, non-task oriented computing,....

Metaphor: interaction as construction of meaning

Goal: support for situated action in the world

Ways of knowing: hermeneutic stance, multiple interpretation and thick descriptions. Explaining the world.

Purpose of design: design as inquiry

8. How do we use theory in HCI? (5p)

Describe one HCI theory (4p) and explain how it can be used in HCI research (1p).

Based on the paper by Rogers 2004

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.102.8355&rep=rep1&type=pdf>

Primarily, the way in which theory was used by early approaches was :

- informative (providing useful research findings) - e.g. Theory of action
- predictive (providing tools to model user behavior) - e.g. GOMS
- prescriptive (providing advice as to how to design or evaluate) - e.g. heuristic evaluation

The way theory has been used in the newer approaches is more diverse:

- provide descriptive accounts (rich descriptions) e.g. ethnomethodological approach
- be explanatory (accounting for user behavior) e.g. phenomenological approach
- provide analytic frameworks (high level conceptual tool for identifying problems and modeling certain kinds of user-interactions) - Activity Theory
- be formative (provide a lingua franca; a set of easy to use concepts for discussing design) – Löwgrens use qualities
- be generative (provide design dimensions and constructs to inform the design and selection of interactive representations) use qualities.

The student should explain the basic idea of one theories (4p) and sort into one of the approaches suitable for that theory (1p).

9. What is Research through Design? (5p)

Pieter Stappers and Elisa Giaccardi have explored the concept of "Research through design" in The Encyclopedia of Human-Computer Interaction, 2nd Ed (interaction-design.org). Summarize in your own words what Research through Design is (2p) and discuss briefly the differences between the field of design and the field of research (3p)

(2p) Research through design is a research approach that using the process of design as a central way to investigate a phenomena. The aim is to design a digital artifact, a service or a system that helps you answer a research question, understand a certain research domain better, or study the use of the designed prototype

(3p) differences in short

	Research	Design
Purpose	general knowledge	specific solution
Result	abstracted	situated
Orientation	long-term	short-term
Outcome	theory	realization

Group paper

As a group you should write a short paper (4-8 pages) for the ACHI or HCII conference. You need to get information about the paper format, page count and referencing style from the conference website. Use the provided paper template.

Your paper should :

- follow the conference paper instructions
- be written in a scientific manner with references to related work
- follow the IMRAD structure
- present a research question / a research problem
- be a "work-in-progress" publication
- present your project work

The reviewer should read the group paper as a first version of a scientific paper.

- Papers that are assumed to be possibly accepted, should be graded as A.
- Papers that would not be accepted right away in a conference can be positively graded (B-C), if they meet the majority of requirements above.

- Papers that have major shortcomings in both structure and content, but still convey the project work can be graded as (D-E).
- Papers that are unclear about project work and do not have a valid structure or suitable content should be graded as unsatisfactory (F).