



KANDIDAT

**4567**

PRØVE

# IS-104 1 Digital interaksjonsdesign

Emnekode	IS-104
Vurderingsform	Skriftlig eksamen
Starttid	30.11.2018 09:00
Sluttid	30.11.2018 12:00
Sensurfrist	22.12.2018 00:59
PDF opprettet	10.09.2019 10:11
Opprettet av	Digital Eksamen

**IS-104, general information**

**Course code:** IS-104

**Course name:** Digital Interaction Design

**Date:** 30.11.18

**Duration:** 3 hours

**Resources allowed:** Bilingual dictionaries

**Notes:**  
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The professors sometimes ask for exam answers to be used for teaching purposes, but in order for this to take place, the university needs your consent.

**Do you grant the University of Agder permission such permission?**

**Select one alternative**

Yes

No

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Besvart.

**1 IS-104, Question 1.1**

Identify which of the following is INCORRECT (more than one can be incorrect). In the space provided, first note the incorrect statement(s) (a,b,c,d) and then, briefly explain what is wrong.

Structured interviews:

a) can be used for understanding what people want from a digital interaction solution.

b) use predefined questions that need to be followed.

c) allow interviewers to follow-up on unexpected responses exploring new topics.

d) always take more time to prepare, perform and process than questionnaire-based surveys.

**Fill in your answer here**

c is incorrect.

In a structured interview all the questions are planned beforehand and allows little exploration outside the planned topics. If we want to explore new topics we can use a semi-structured or unstructured interview.

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Besvart.

**2 IS-104, Question 1.2**

Identify which of the following is INCORRECT (more than one can be incorrect). In the space provided, first note the incorrect statement(s) (a,b,c,d) and then, briefly explain what is wrong.

The design principle of familiarity:

- a) is about using language and symbols that the intended audience will be familiar with.
- b) is important for interface learnability.
- c) is about ensuring that the interface is polite, friendly, and generally pleasant.
- d) can be used for the heuristic evaluation of a user interface.

**Fill in your answer here**

**c is incorrect.**

The principle of familiarity is about making things familiar to the user. Like using familiar language, signs and symbols. Being polite and friendly belongs to the principle of conviviality.

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Besvart.

**3 IS-104, Question 1.3**

Identify which of the following is INCORRECT (more than one can be incorrect). In the space provided, first note the incorrect statement(s) (a,b,c,d) and then, briefly explain what is wrong.

A Hierarchical Task Analysis (HTA):

- a) focuses on physical and observable actions.
- b) requires analyzing in terms of goals, operators, methods, and selection rules.
- c) can be visualized with hierarchical charts presenting a sequence of tasks, subtasks and actions.
- d) can include optional subtasks.

**Fill in your answer here**

**b is incorrect.**

Goals, operators, methods and selection rules has to do with GOMS. which is a different form of task analysis.

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Besvart.

**4 IS-104, Question 2.1**

Read the following statement (which is in bold letters). In your answer, first state if the statement is correct or incorrect and then explain your answer briefly.

**In a digital interaction design project, evaluation always comes at the end and is performed for assessing finished systems.**

Fill in your answer here

The statement is incorrect.

Evaluation can come at any time during the design process, and it is often a good idea to evaluate after every step in the process.

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Besvart.

**5 IS-104, Question 2.2**

Read the following statement (which is in bold letters). In your answer, first state if the statement is correct or incorrect and then explain your answer briefly.

**Using wireframes together with navigation maps can be more effective than using only wireframes to communicate design ideas for a new website.**

Fill in your answer here

This is correct.

As the wireframes only show the page layout, it can be hard to tell how the navigation works and where what button will take you. By using a navigation map we can clearly see what pages and buttons link to where.

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Besvart.

**6 IS-104, Question 2.3**

Read the following statement (which is in bold letters). In your answer, first state if the statement is correct or incorrect and then explain your answer briefly.

**In a controlled experiment where we want to evaluate the impact of alternative button positions on the speed of completing a task, the independent variable will be the completion time measured and the dependent variable will be the different positions of the button tried out.**

Fill in your answer here

This is correct.

We are testing for completion time depending on button placement, this makes the placement of the button the dependent variable, and the completion time the independent one.

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Besvart.

**7 IS-104, Question 3.1**

What are the differences between (a) a Cognitive Walkthrough and (b) a Cooperative Evaluation of a user interface? Describe how you would set up and perform a Cognitive Walkthrough and how you would set up and perform a Cooperative Evaluation of a user interface.

Fill in your answer here

A cognitive walkthrough is an expert based evaluation. Meaning you get an interface or usability expert (or similar) to perform the evaluation. The evaluation is done by providing the tester with a scenario to follow, and often they will adapt a persona and try to complete their goal.

A cooperative evaluation is a participant based evaluation, meaning you get real people, preferably from your target group, to perform the evaluation. This is done by creating a list of tasks that the tester needs to go through. These tasks are often based on scenarios. The tester will then "think out loud" while using the system and provide feedback during the test. They will be monitored while doing this and asked questions during and after the test.

To perform a cognitive walkthrough, I would begin by selecting my scenarios for the walkthrough. These would be a variety of scenarios that would often happen in the system, and scenarios that would happen less often. I would then select a persona to go with it and have a usability or interface expert walk through my system using the scenarios and persona provided.

To perform a cooperative evaluation. I would first select one or more scenarios and from those select tasks that a tester should try to complete in the system. I would first test that these tasks are actually doable, and perhaps take note of the time it takes to complete them. I would then find 3 - 5 people who are representative of my target group, and separately run them through the evaluation. I would encourage them to think out loud and give commentary on the system while testing. After the test, I will also interview the tester about the system.

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Besvart.

Why is usability important for user interfaces? Provide at least three different reasons.

**Fill in your answer here**

It is important to think about usability when designing user interfaces. And if we take a look at the PACT framework (people, activities, contexts and technologies) we can see why.

People are different, both psychologically and physiologically. These differences give us different abilities, also with using interactive systems. If we do not think about these differences, our interface may be difficult to use for a certain group of people, it will have low usability. This may make our users less likely to use it, or even discard it all together.

Depending on what the purpose of our system is, or what activity we will perform with it. We need to design our interface accordingly. We do this by thinking about what would be most usable for the required activity. A text messaging app, will need a whole different design than an app for an in home security system. Here again we see that thinking about usability, is very important for making good design choices.

The context in which a user interface will be used can also vary. An ATM machine might be placed on a busy street, and a tablet for reading books will probably be used in a much calmer setting. Thinking about the impact our design choices will have on usability in different settings can make a huge difference on if our user interface ends up being good or bad.

Besvart.

## 9 IS-104, Question 4

UiA uses an Employee Self Service application to refund expenses for travelling. Employees have access to this application for registering and monitoring travel expenses that are paid back by the University. For each travel, some general data need to be entered first (for instance, the start and end date of the travel, the destination, the reason for traveling). After this first step, the second step is to register specific expenses paid for the travel (e.g. flight tickets, hotel, etc.) and attach scanned copies of receipts.

Figure 1 shows the screen of this application that is used for registering specific expenses related to a selected trip. Users can register a new expense by selecting “ny post” and then adding information about the expense (e.g. the expense type (utgiftstype), amount (bilagsbeløp), currency (bilagsvaluta), date (bilagsdato), etc.). Figure 2 shows how the screen looks like after registering information about three expense bills. To upload scanned copies of the expense receipts, the users have to click on the number that appears in a parenthesis in the column labelled "arkiverte bilag". When clicking there, a pop-up window appears (Figure 3) for uploading the files of the scanned receipts. The users have to select the appropriate file and click the text “last opp bilde”.

FIGURE 1:

Velkommen Polyxeni Vasilakopoulou  
Logg av

Direktoratet for økonomistyring

Ansatt selvbetjening Innkurv  
Oversikt

### Opprett Reiseregning Hjelp

1 2 3 4  
Generelle data Registrer utgiftsbilag Kontroller og send Avsluttet

Medarbeider Vasilakopoulou Polyxeni (01017551) Skjema Innenlandsreise m/overnat. Startdato 05.11.2018 Sluttdato 07.11.2018

< Forrige trinn | Kontroller > | Lagre utkast

Eksisterende kvitteringer (0)

#### Bilag for denne reiseregningen

Num...	Status	Utgiftstype	Bilagsbeløp	Bilagsvaluta	Bilagsdato	Beløp	Lokal valuta	Papirkv. finnes	Arkiverte bilag

FIGURE 2:



Direktoratet for økonomistyring **Velkommen Polyxeni Vasilakopoulou**  
Logg av

**Ansatt selvbetjening** Innkurv

**Oversikt**

## Opprett Reiseregning

Hjelp

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< Forrige trinn **Kontroller** > | Lagre utkast

Eksisterende kvitteringer ( 0 )

Bilag for denne reiseregningen

Ny post Kopier Slett Slå sammen kvitteringer Skill kvitteringer

Status	Utgiftstype	Bilagsbeløp	Bilagsvaluta	Bilagsdato	Beløp	Lokal valuta	Papirkv. finnes	Arkiverte bilag
●	Flyreise	1.000,00	Norske kroner	05.11.2018	1.000,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
●	Hotell	10.000,00	Norske kroner	05.11.2018	10.000,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
●	Gebyrer	100,00	Norske kroner	05.11.2018	100,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
◇		0,00	Norske kroner	05.11.2018	0,00	Norske kroner	<input checked="" type="checkbox"/>	(0)

FIGURE 3:

Direktoratet for økonomistyring **Velkommen Polyxeni Vasilakopoulou**  
Logg av

**Ansatt selvbetjening** Innkurv

**Oversikt**

## Opprett Reiseregning

Hjelp

1 2 3  
Generelle data **Registrer utgiftsbilag** Kontroller og send

Medarbeider Vasilakopoulou Polyxeni ( 01017551 ) Skjema Innenland 07.11.2018

< Forrige trinn **Kontroller** > | Lagre utkast

Eksisterende kvitteringer ( 0 )

Bilag for denne reiseregningen

Ny post Kopier Slett Slå sammen kvitteringer Skill kvitteringer

Status	Utgiftstype	Bilagsbeløp	Bilagsvaluta	Bilagsdato	Beløp	Lokal valuta	Papirkv. finnes	Arkiverte bilag
●	Flyreise	1.000,00	Norske kroner	05.11.2018	1.000,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
●	Hotell	10.000,00	Norske kroner	05.11.2018	10.000,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
●	Gebyrer	100,00	Norske kroner	05.11.2018	100,00	Norske kroner	<input checked="" type="checkbox"/>	(0)
◇		0,00	Norske kroner	05.11.2018	0,00	Norske kroner	<input checked="" type="checkbox"/>	(0)

**Vedlegg** [X]

Slett vedlegg

Bilagsart

Tilføy vedlegg

Browse... No file selected.

Last opp bilde

Lukk

Take some time to study the user interface presented in Figures 1, 2 and 3. Think that you are an employee that wants to use it for the first time without having anyone nearby for help. After studying the user interface you are asked to:

a) Perform a heuristic evaluation using the principles of: Visibility, Familiarity and Affordance. In your answer you will need to be specific about the three principles and identify both positive and negative aspects of the user interface. Positive aspects are examples of the interface that follow a principle and negative aspects are examples of the interface that go against a principle. You can use examples from Figure 1 or Figure 2 or Figure 3 or all of them. The answer needs to include for each of the three principles: a short description of the principle's meaning and at least one negative and one positive example from the interface including a brief explanation showing how the principle is followed or not followed.

b) Propose a process for improving this user interface (presented in Figures 1, 2 and 3). In your answer you will need to specify what activities will have to be performed and in what sequence. For this, you will have to think in terms of the key activities of understanding, designing, envisioning, evaluating. Furthermore, you will need to specify how the users will be involved during the overall process. Be specific about user involvement explaining in which activities users will have to participate and what methods will have to be used for their involvement.

Fill in your answer here

a)

Heuristic evaluation using the principles of Visibility, Familiarity and Affordance.

### Visibility:

The principle of visibility has to do with how visible it is to the user where you are in the application and what the system is currently doing. On the positive side, the system has a clear progress bar at the top of the page, which clearly shows where you are in the process of registering your travel expenses.

On the negative side. The popup where you upload your scanned receipts, does not show which expense you are trying to upload a receipts to. This goes against the principle of visibility, because you do not know for sure where the system will upload the receipt to.

### Familiarity:

The principle of Familiarity has to do with making things familiar. Like using language, signs and symbols that are familiar to the user.

On the positive side the system uses familiar symbols in for example the popup box, (X for close and the square for maximize). This follows the principle because it is familiar to most users. It also has a somewhat of an excel-sheet look to it. Which will be familiar to users of this program.

On the negative side the system use a language that is less familiar to people who do not work in administration. Especially in the field where you are supposed to upload your receipts. it says "arkiverte bilag". which does not really explain that you are supposed to upload receipts, and it might not be a label people are very familiar with.

### Affordance:

The principle of Affordance has to do with things like making buttons look like buttons, so that users know that they can be pressed.

On the positive side, most clickable buttons has the clear rectangular shape and outline of a button. This follows the principle because most users will recognize this as a button, and therefore know that it can be

pressed.

On the negative side, it is not very clear that the (o) under "arkiverte bilag" is clickable. The colour could suggest that it is a link, but it is not clear that this will open a popup to upload attachments.

This does not follow the principles because there is little to indicate if this is a button or a link or just plain text.

Another negative point, is in the popup box. Underneath the "browse" button there is some text saying "last opp bilde" I am a bit confused about if this is supposed to be a button that you have to press after finding the picture you want to upload or just text explaining what "browse" means. If this is supposed to be a button, it goes against the principle, because it just looks like text.

b)

Process for improvement.

I suggest that for improving this system, we can preform the following activities.

We could start of by preforming an Evaluation of the system. We would do this using a participant based evaluation, perhaps as a cooperative evaluation. This way, we will get user feedback early on, and highlight problems that the users think needs to be fixed.

Next, we can use these results as a base for our Understanding. We already have some feedback about the system, but we could gain some more by preforming interviews with the target user group. By using a semi-structured interview we could plan out and ask qestions we feel we need the answer to, but also allow for followup questions, should something we have not thought about come up. We could also deepen our understanding by using questioneers with closed questions.

Having preformed our interviews and qestionneers, we can combine this understanding in a variety of personas and scenarios. these should give us a clear idea of what the users goals are, and what they would like to do within the system.

Next up, its time to work on the design.

From our understanding we can see what new features we would need to add, which to take away and which to change and how they should function instead. We can provide new wireframes and navigation maps if needed.

When the design is complete, we can start Envisioning the new design. If the changes are small, we can probably use the existing system as a base for creating a high-fidelity prototype. But if our understanding and design tell us we need to redesign the whole system from the ground up, using a low-fidelity prototype to begin with might be the best solution.

Having created or prototypes, i suggest to again move on to evaluation. If we created a low-fidelity prototype, I would first preform an expert based evaluation. Perhaps a cognitive walkthrough would be aproprate at this stage. We can then use the feedback given here to create our high-fidelity prototype, which we then again will test with real users. Should we already have the high-fidelity prototype to begin with, i would still preform the expert evaluation first, but hold of on making any changes until after the particiant based evaluation.

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Besvart.