



KANDIDAT

**4511**

PRØVE

**IS-104 1 Digital interaksjonsdesign**

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Emnekode	IS-104
Vurderingsform	Skriftlig eksamen
Starttid	30.11.2018 09:00
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**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) d) this two ar inncorect, because a structured interview dont allow the interviewers to ask other questions other then the ones that are prepered. It dont need to take more time to make than a queistionarie, because a questionaries needs good questions and testing before use.

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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) familiarity is about using language and symbols that the intended audience will be familiar with, option c is connectetd to accommodation and conviviality and not to familiarity.

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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, because a HTA is about analysing the tasks, subtask and actions that need to be done to achieve a goal. Option B is describing the cognetiv task analysis GOMS.

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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

incorrect. In digital interaction design projects evaluation happens all the time, every step of the way we evaluate something, it can be a early lo-fi prototype, evaluating an existing system or evaluate a hi-fi prototype later in the designingprocess, that may be the finished product.

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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

correct. It can be usefull to use wireframes and navigation maps togheter when you are going to communicate a design idea for a website, because when you use them together you get more feel of the "flow" of the system.

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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

incorrect. The independent variable will be the different positions of the buttons, because that is what you are going to compare. The dependent variable is the time measured, because that is how you are measuring which design is best.

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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

The difference between a cognitive walkthrough and a cooperative evaluation is that a cognitive walkthrough is an expert-based evaluation method and a cooperative Evaluation is a participant-based evaluation method. An expert-based evaluation is that the evaluation of a design is preferred by an usability expert or other design experts and analysts, and is a cheap and effective way to evaluate the system at an early stage. A participant-based evaluation is done by participants, usually from the target group of the system and is done later on in the design process.

With a Cognitive walkthrough I would get an expert to look at my design. First I would give him some input about who the system are designed for, he would get some scenarios that a) are usual and b) unusual actions. After this he would get a description of the interactive system. So after this he can ask some questions:

- will the user understand what to do?
- will the user think that the solution is right there?
- will the user choose the right solution and understand what the consequences of their action was?
- if the user chose right, will they understand that they are getting closer to their goal.

If some of these questions are answered negative, we have found some usability problems.

With a cooperative evaluation I would have found a person from the target group of the system, (the person is found in the understanding process) and couple the person up with a usability expert. Then the person will get some information of the system and test it side by side with the expert, and they can talk and at the end make a list of usability problems.

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Besvart.

**8 IS-104, Question 3.2**

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

**Fill in your answer here**

Usability is important for a user interface (UI), because it makes it easier to learn, to use and to enjoy.

Usability make the the system easier to learn. With that means that usability is focusing on that a system should be easy to learn. This is important for the user interface, because then people want to use it time after time, because the system was not to hard, the user understood it and reached their goal with using it. It is important that the system is easy to learn and use, because one of the most common reasons for people leaving a website is that the usability is not good enough and they dont understand the system. So if this website is a online shopping website bad usability will make them sell less, and their rival sell more. And when a system is easy to learn and to use, the the usr can enjoy the use of the system.

Usability is important for user interface, because then the system include many types of people. When you design for usability you are designing for å bryte barrierer you design for all, tal people, short people, big humans, small humans, humans that have som problems with their senses and people that have good or bad memory. You design for accesability, that everyone can use the system to achive goals even if they have a disability.

Usability is important for the user interface, because then opertunity for accept is bigger. When people accept a system they will use it. It need to be accepted by the govnerment, the laws and "normer" the country have. The system also need to be accepted by the people, they need to see that they need the system in their life, and that the system can make aspects of their life easier and more efficient.

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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".

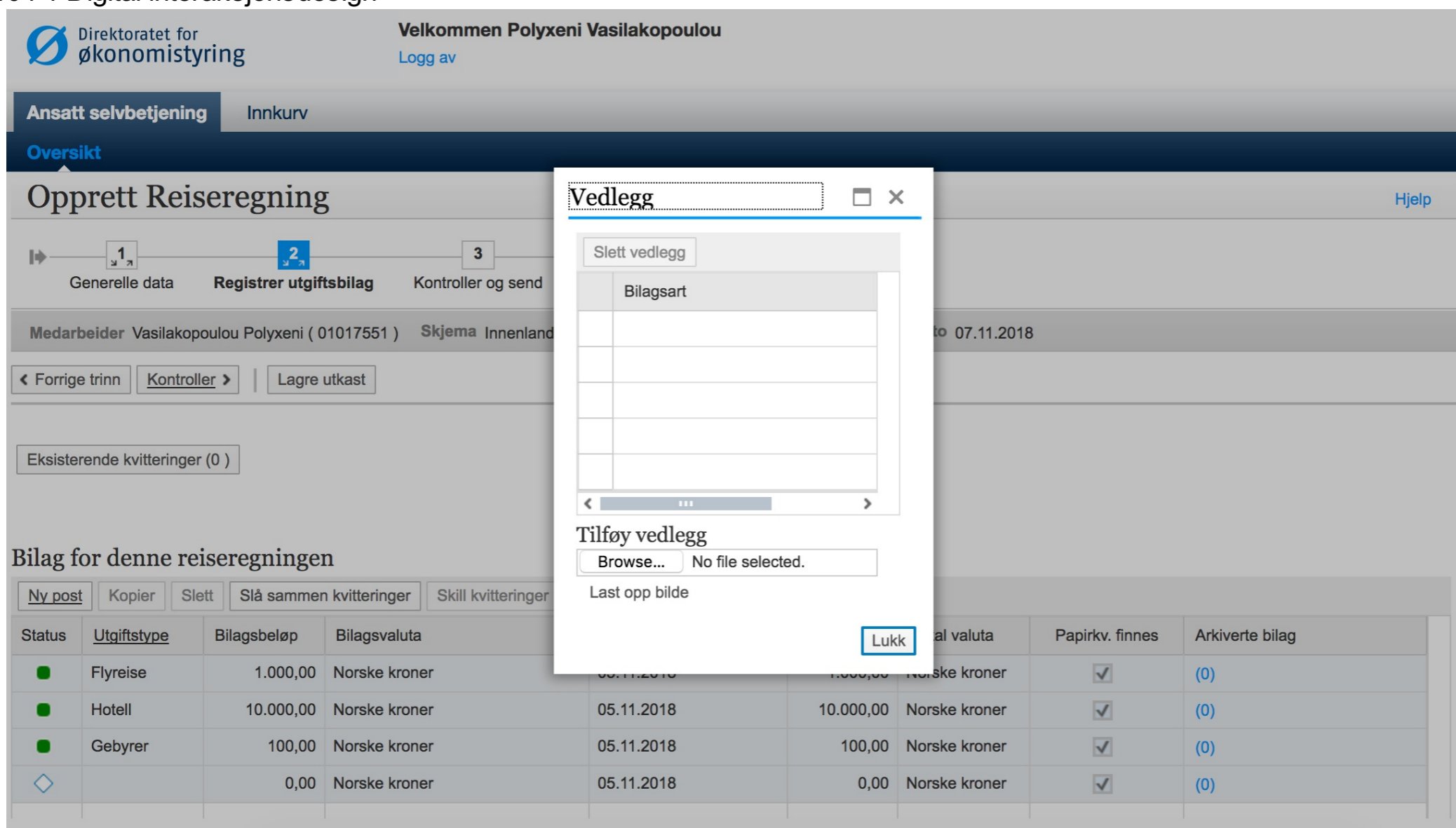
FIGURE 1:

FIGURE 2:

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

FIGURE 3:





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)

All these principles are connected to Learnability.

Visibility is all about making things visible. Making functions visible is important, it is also important to make visible what the system is intended to do. If we look at Figure 1, we can see the title "Opprett reiseregning", the letters are large and the placement is good, so it is visible what the system is intended to do. The step of the registration process is also visible, this is great, because then you understand how far you have come, and what you need to do at this site. It is also visible who is logged on and where to log off. If we look at Figure 3, I don't think that the pop-up site shows the purpose of it, I would not understand what that site was for and what to do, it should have a better title.

Familiarity is about using familiar language and symbols. The system need to use a language that the user understands and when youn are designing you need to think about that in different culutures a symbol can mean different things. If we look at all the figures we can see that the language is easy and i think that the emplyees at the university understand the words used. The negativ thing is that it is written i norwegian, i dont know if this is somthing that the user can change in the settings, but if it is not possible to change language this is a really big familiarity issue. If we look at figure 2 we can see that the color green is used under "Status", the color is used as a symbol for finished/good/done, and the color green is connected to this understanding of finished or go, like traficlights. So use of the color green in this way is great.

Affordance is about making things look like what they are ment to look like and their function. It is important to make buttons look like buttons, and non-buttons should not look like buttons. Many of the buttons look like buttons in this interface, if we look at figure 2 we understand that "logg av" and "help" is buttons because of their color, the blue color make this writing look different from the other words in the system, and then you understand that they have an other purpose. But they could look more like buttons if they were design like the "ny post" button, but the two buttons are not a part of the "reiseregning" function, it is ok that they are design like this. The "ny post" design, is a design we can see on many of the buttons, and i think this is maybe the best way to make a botton look like a button. If we look at figure 2 we can see that the "arkiverte bilag" is blue and like this (o), because of the blue i undretsand that they are different then the other words in the regneark, so thats good. If we look at picture 3 we can see that the "last opp bilde" is not that visiblie and you do not understand that that is a button, this is negative.

b)

First i will like to say that I will do this improving process thinking that i have unlimited resources.

First i will start with an expertbased evaluation, I would wright down a list of what i think should be better, i would do a heurical evaluation using Benyons 12 principles to evaluate the system. After this i would like to take 2-3 interviews in every faculty at the university. The interview will be a semi-structured interview, because then i can make som questions that I genererte form the requiriment that i made from the expert evaluation, and I can ask other questions and oppfølgingsspørsmål. I will ask if it is ok that i take lydopptak of the interviews and i will also take notes.

After the interviews i will observe 2-3 employees using the system and, one at the time. I do this because when someone are talking about how they use a system in the interview the often just speak about prosedyre, and not how they actulley use it. I do the observations after the interviews, because then I know what I am looking for. I will ask if i can take video of the observation and i will also take notes, the reason that i will film it is because then it is easier for other people in the designteam to understand what needs to be imporved and how people use it today. The interview and the observation is done to get an understanding of requiriements.

Based on the expert evaluation, the interviews and the observation i will make a document with requirements for the system. Then the designers will try to redesign and maybe make new or better functions. After the designprocess and some expert evaluating of som hi-fi prototypes we will stand with 2 prototypes. The prototypes is made to envision the system so also other can evaluateate your ideas and design.

Then i will get some people forom the targetgroup (the employees) and do a controlled experiment, that is a paticaipant evaluation method. The experimete needs to be designed and tested, and we are doing it to see which of the two systems that are the best option, this is connected with task analysis. First we need to decide the independent variable, that is what we are measuring, and we are measuring which of the to systemst that are the best. After this we need to decide the dependent variable, that is how we are going to mesure which system that are the best, we can measure it with which system are the fastest to opprette a new

"reiseregning". we also need to think about the confound variables, that is the variables that can go in the way of the other variables, and for example mess with the learning effects. To get the confound variables smaller we make groups with almost the same amount of men and women, young and old, experienced and not experienced.

After the experiment is done, i would like to interview som of the users to get knowlage of what they think of the systems and make some groups to talk about it out loud.

It is nothing wrong with filming the experiment and make the participants talk out loud, but only if it dont have an effect on the results.

The expert evaluation and participant evaluation is done to evaluate the systems.

After this experiment we will analyse the results and choose the best system measured in time that it take to opprette "reiseregning". This system will be implemented.

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Besvart.