



Final-Term

HUMAN COMPUTER INTERACTION

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Date: 26/06/2020

Question No: 01

Consider the chair given below. Your Employees want to use it as a computer chair. Your task is to write as an HCI Specialist, your job is to point out any five issues in the design of this chair.



Ans:

- 1. Having no arm rests:** Proper arm position is not the only way to avoid wrist problems. It is also important to know how to sit in your chair. Prolonged typing without arm support can cause tension and tension in the back and neck muscles. But this chair does not have arm rest, so it can cause a lot of health problems like wrist pain and shoulder pain. As a result, no one can concentrate on work and no one can work long hours during office hours.
- 2. Tilt-ing space facility:** The tilt-in-space facility is useful as the whole seat and backrest unit can be angled backwards to provide a deep seat. The chair can then be angled forwards again to make it easier to get in and out if a person has sufficient mobility and balance.
- 3. Having no Lumbar support:** Lumbar support for office chair is very important. A lumbar support helps promote good posture by filling the gap between the lumbar spine and the seat through which the natural inward curve of the lower back is supported. This chair is not having the lumbar support because of which it is much difficult to maintain
- 4. No height and position adjustment:** Height and position adjustments do not make this chair a bad choice for office use. Damage to both hands and spine can occur, especially during prolonged office hours. If the computer table is not in the correct position on this chair or all the employees will not be of the same height then not everyone will be given a balanced height of the chair in front of the computer screen on this chair in front of the computer screen. This is very important because if the height is not released, it also damages our neck joints and our spinal cord, which becomes a permanent problem for our health.
- 5. No wheelbase:**



Question No: 02

What is Paradigm, and what do you mean by paradigm shift?

Ans:

Paradigm: The term 'paradigm' as a way to describe waves of research in a field derives from Thomas Kuhn's theory of the structure of scientific revolutions. Kuhn describes not an accretive model of scientific knowledge, but one of successive and overlapping waves in which ideas are fundamentally re-framed. Canonical examples of such paradigm shifts include the acceptance of continental drift by earth scientists and the shift from a mechanically elegant Newtonian physics to the messy and, at times, counter-intuitive relativistic physics. In many cases, including that of HCI, new paradigms do not disprove the old paradigms, but instead

provide alternative ways of thinking. They often co-exist.

Following Kuhnian lines, a scientific paradigm in HCI would contain the following elements:

- common understanding of the salient properties of interaction
- types of questions that appear to be both interesting and answerable about those properties of interaction
- a set of broad procedures which can be used to provide warrantable answers to those questions
- a common understanding of how to interpret the results of these procedures

These four elements are interdependent and grounded in a deeper common conceptualization. For Kuhn, who derived his theory from analyzing physics, the deeper common conceptualization is embodied in the paradigmatic examples that are used in schools to teach the field. A paradigm shift, then, is accompanied by a shift in the examples which are considered to be central to the field. Because of the enormous range of topics taught as “HCI” and the dearth of classical reproducible experiments and demonstrations in our field, paradigm shifts must be tracked in another way; following Agre’s theory of generative metaphors in technical work, we argue that paradigm shifts can be traced in HCI by tracing shifts in the underlying metaphor of interaction.

paradigm shift: computer interaction is giving way to the era of human computer integration, integration in the broad sense of a partnership or symbiotic relationship in which humans and software act with autonomy, giving rise to patterns of behavior that must be considered holistically. Cyborgs or brain-computer interfaces may come later, but integration is already well under way.

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Question No: 03

Explain Design Rationale. Write and explain the types of design rationale.

Ans:

Design Rationale: In designing any computer system, many decisions are made as the product goes from a set of vague customer requirements to a deliverable entity. Often it is difficult to recreate the reasons, or rationale, behind various design decisions. Design rationale is the information that explains why a computer system is the way it is, including its structural or architectural description and its functional or behavioral description. In this sense, design rationale does not fit squarely into the software life cycle described in this chapter as just another phase or box. Rather, design rationale relates to an activity of both reflection (doing design rationale) and documentation (creating a design rationale) that occurs throughout the entire life cycle.

Types Of DR:

1. Process-oriented: It is intended for use during design meetings as a means of recording and structuring the issues deliberated and the decisions made. It is also intended to preserve the order of deliberation and decision making for a particular product, placing less stress on the generalization of design knowledge for use between different products. This can be contrasted with the structure-oriented technique discussed next.

2. Structure-oriented: a set of questions representing the major issues of the design. Since design space analysis is structure oriented, it is not so important that the questions recorded are the actual questions asked during design meetings. Rather, these questions represent an agreed characterization of the issues raised based on reflection and understanding of the actual design activities. Questions in a design space analysis are therefore similar to issues in IBIS except in the way they are captured. Options provide alternative solutions to the question.



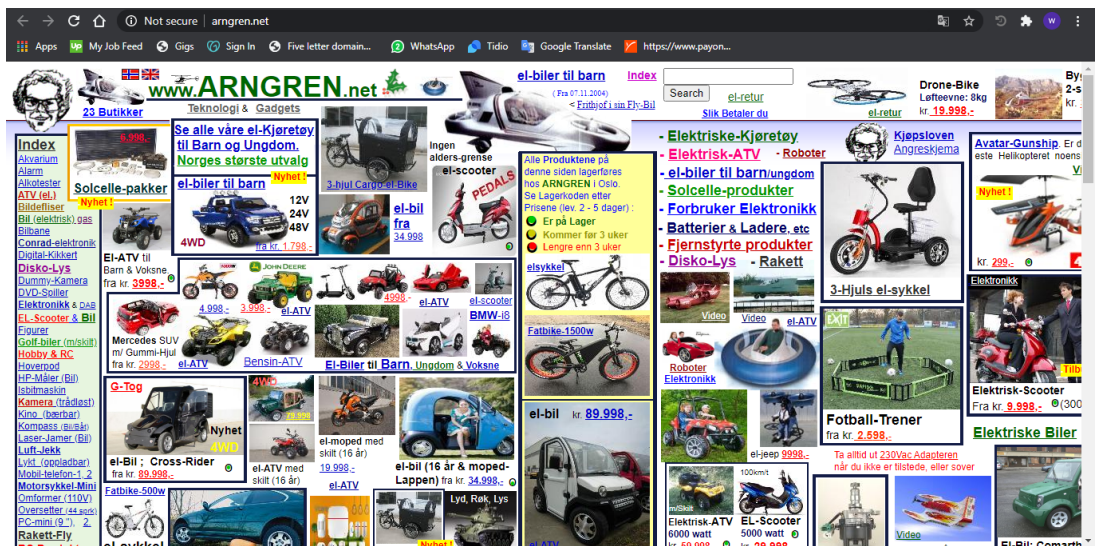
Question No: 04

Find the web pages that illustrate the principle of consistency. You must provide on good and one bad example of consistency. You must provide the screen shot of web pages along with URL and the written explanation justifying your good and bad example in your answer. To provide the relevant examples browse the internet

Ans:

Bad Website Example

Arngren website:



This Norwegian classified site denies all the existing rules of contemporary web design! Remember the awful yellow pages that were popular in the 90s, with the ads fighting for tiny space of the page. Now, you see a similar design, brought to life in 2020.

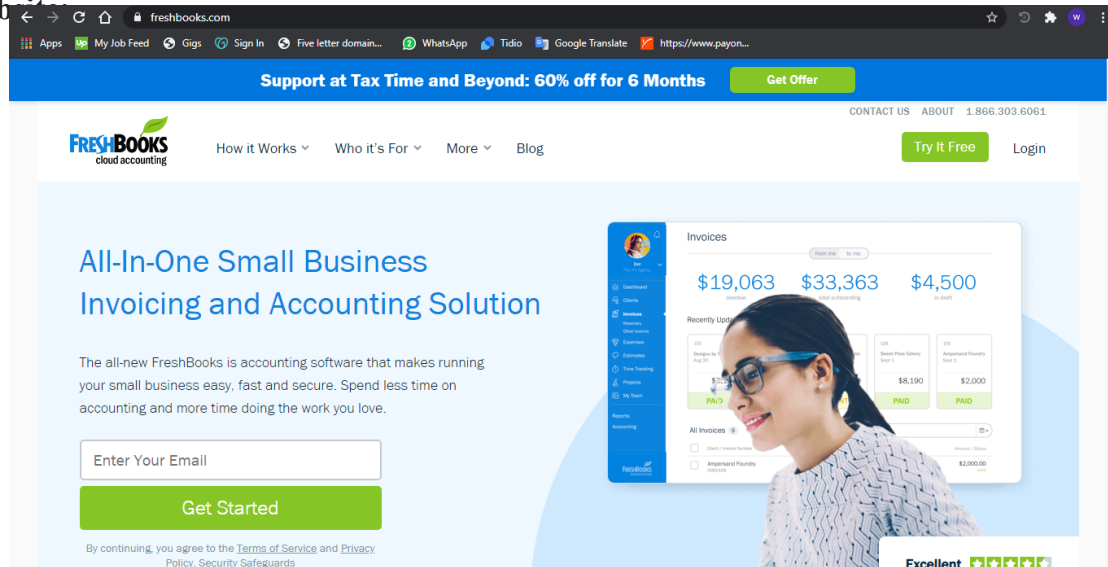
Reasons for listing the website in bad design category:

- Incorrect color usage.
- Poor navigation.
- Tiny and even confusing typography.
- The absence of a clear message about the business.
- Random use of colors.

URL of Arngren website: <http://arngren.net/>

Good Website Example

FreshBooks website



Why It's Good

- It's easy to consume. There is much debate on whether short or long homepages work better. If you choose to do the latter, you need to make it easy to scroll and read — and that's exactly what this site does. It almost acts like a story.
- There's great use of contrast and positioning with the primary calls-to-action — it's clear what the company wants you to convert on when you arrive.
- The copy used in the calls-to-action "Try it Free for 30 Days" is very compelling.
- The subheadline is also great: "Join 5 million people using FreshBooks to painlessly send invoices, track time and capture expenses." It zeros in on a common pain point for freelancers and small businesses (FreshBooks' target audience) — typically accounting software is often "painfully excellent."

URL of FreshBooks Website: <https://www.freshbooks.com>



Question No: 05

Write the Shneiderman's 8 Golden Rules.

Ans:

The ,Eight Golden Rules' of Interface Design

1. Strive for consistency: Similar sequences of actions should have similar terminology in prompts, actions, menus, help and commands. Standardising the way information is conveyed, ensures users are able to apply knowledge from one instance to another; without the need to learn new representations for the same actions across different pages, windows, panels etc. Consistency performs an important role by helping users become familiar with the digital landscape so they can perform goal-based actions with confi-

dence.

2. Enable frequent users to use shortcuts: With increased use comes the demand for quicker methods of achieving goals. The user wants to interact less but achieve the same effect. For example, the user interface might employ abbreviations, function keys, hidden commands and macro facilities so, as the user becomes more experienced, they can navigate and operate the user interface in the shortest possible time, but still with the highest level of accuracy.

3. Offer informative feedback: For every action there should be system feedback. This feedback should be proportional to the seriousness of the action, with minor incidents flagged by unobtrusive feedback and major system events indicated by eye-catching feedback, such as serious error messages.

4. Design dialogue to yield closure: Action sequences should be teleological i.e. leading to an ultimate goal or satisfying conclusion. These sequences should be organised into groups that satisfy the human inclination for task paths with a beginning, middle and end. When the dialogue is complete this should be clearly indicated so that users know they can proceed to their next goal, or whether they must revise, revisit or return to their previous action.

5. Offer simple error handling: Systems should be designed to be as fool-proof as possible so the scope for serious user error is eradicated or, at the very least, stringently controlled. When unavoidable errors occur, ensure users are provided with sufficient information to detect and solve the problem through simple, clear intuitive means.

6. Permit easy reversal of actions: Designers should aim to offer users satisfying means of reversing their actions. Many users are anxious about using systems because they fear causing an irreversible problem; avoid this anxiety by allowing users to backtrack. This should be permitted at various points along an action path whether after a single action, a data entry or a whole sequence of actions.

7. Support internal locus of control: This refers to giving users the sense that they are in full control of events occurring in the digital space. Supporting the development of an internal locus of control is achieved by ensuring users are the initiators of actions in the virtual space, as opposed to reducing their involvement to system response. The concept has formed the basis of personality studies since Julian B. Rotter (1954), a prominent American psychologist, helped develop our understanding of an internal vs external locus of control.

8. Reduce short-term memory load: Human attentional resources are limited and we are only capable of maintaining around five items in our short-term memory at one time. Therefore, interfaces should be as simple as possible with information condensed, categorised and as much help offered to memorise and become au fait with system operations when users navigate through the digital space.



Question No: 06

You are familiar with internet explorer. Explain any five usability goals in terms of internet explorer. Justify each goal with example.

Ans:

1. Microsoft fixes bugs in Internet Explorer on a fixed schedule. But, bugs are not discovered on a schedule which means IE users remain vulnerable to know bugs until the next scheduled bug fix roll-out. Neither Firefox nor Chrome, my preferred browsers, are locked into a schedule.
2. The topic of bugs in popular software brings Adobe's Flash Player to mind. Internet Explorer users with Flash enabled in their browser get notified of new versions of Flash using a very flawed system. And, when they are notified, they need to manually install the new version of Flash.
3. Internet Explorer as an ActiveX control. The lack of security in ActiveX is what prompted me to jump on the Firefox bandwagon even prior to version 1.0.
4. And, if you use multiple computers, both Firefox and Chrome have built-in features to synchronize bookmarks and more between different instances of the browser. Internet Explorer (at least up to version 8) can't do this.
5. On Windows, I am a huge fan of portable applications, Windows programs that can run without first being installed. There are portable versions of both Firefox and Chrome. There is no portable version of Internet Explorer. A portable application is totally self-contained, which lets you have multiple installed copies that are totally independent of each other.



Thank You!

