Summary: Book "Interaction Design: Beyond Human-Computer Interaction" Chapter 1

[Rogers, Y., Sharp, H., & Preece, J. (2011). *Interaction design: beyond human-computer interaction*. John Wiley & Sons.]

What Is Interaction Design?

- Introduction
- Good and Poor Design
- What Is Interaction Design?
- The User Experience
- The Process of Interaction Design
- Interaction Design and the User Experience

Introduction
how usable is a product?

easy, effortless, enjoyable ← → frustrating

design primarily with the user in mind;
as opposed to
engineered primarily as systems to perform set functions;

One of the main aims of interaction design is to reduce the negative aspects (frustration, annoyance) of the user experience while enhancing the positive ones (enjoyment, engagement)

- developing interactive products that are easy, effective, and pleasurable to use from **the users' perspective**

Good and Poor Design

- easy to learn, effective to use and providing an enjoyable user experience

Poor design is:
- infuriating
- confusing
- inefficient, requiring you to carry out a number of steps for basic tasks
- difficult to use
- not intuitive

Good design is:
- incorporating familiarity
- aesthetically pleasing
- enjoyable to use
- one step actions
- simple but elegant design
- less functionally (trade off)

The good solution involved the user in the design process, getting feedback on everything from the feel of the device to other details

What to Design

Designing interactive products requires considering who is going to be using them, how they are going to be used and where they are going to be used.

how, where, who ← usability

Types of interfaces:

- multi-touch displays
- speech-based systems
- handheld devices
- large interactive displays

Ways of designing how users can interact:

- use of menus
- commands
- forms
- icons
- gestures

User interfaces are nowadays predominantly digital.

What used to be physical the *'realm of product design'* is now **digital.**

friendly face helping you ← → interface 'barking orders' at you
While more cost effective, this approach puts the onus (responsibility) on the user to interact with the system
All this amounts to a multitude of choices and decisions interaction designers have to make:

Key question!

- how do you optimize the users' interaction with a system, environment, or product, so that they support and extend the users' activities in effective, useful, and usable ways?

This means figuring out:

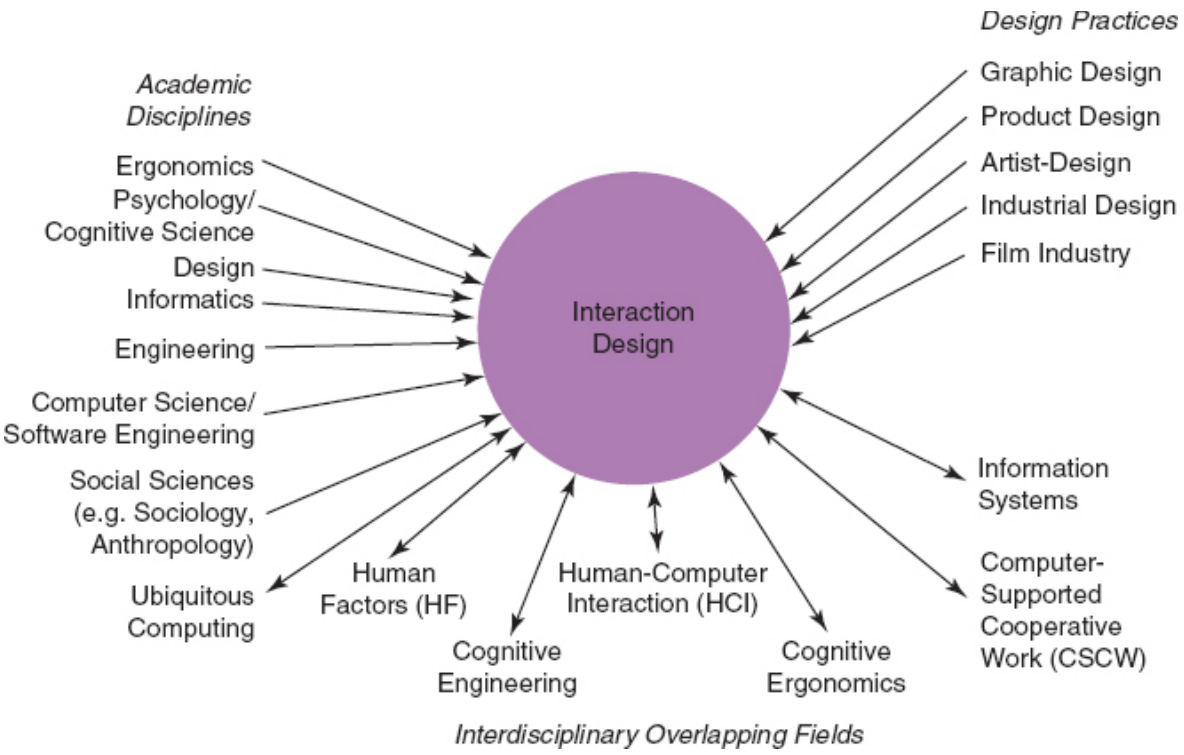
- considering what people are good and bad at
- considering what might help people with the way they currently do things
- thinking through what might provide quality user experiences
- listening to what people want and getting them involved in the design
- using tried and tested user-based techniques during the design process

What is Interaction Design

- designing interactive products to support the way people **communicate** and **interact** in their everyday and working lives
- creating user experiences that **enhance** and **augment** the way people work, communicate, and interact.

- Winograd 1997 → "designing spaces for human communication and interaction"
- Thackara 2001 → "the why as well as the how of our daily interactions using computers"
- Saffer 2010 → "the art of facilitating interactions between humans through products and services"

Components of Interaction Design



interaction design vs HCI a difference of scope
ID → theory, research, practice of designing user experiences for all manner of technologies, systems, and products
HCI → narrower focus, concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them

Who is Involved in Interaction Design?

Designers need to know many different things about users, technologies, and interactions between them in order to create effective user experiences.

At the very least, they need to understand how people act and react to events and how they communicate and interact with each other

To be able to create engaging user experiences, they also need to understand how emotions work, what is meant by aesthetics, desirability, and the role of narrative in human experience.

Developers also need to understand the business side, the technical side, the manufacturing side, and the marketing side.

Interaction design is mostly carried out by multidisciplinary teams, where the skill sets of engineers, designers, programmers, psychologists, anthropologists, sociologists, artists, toy makers, and others are drawn upon.

People with different backgrounds have different perspectives and ways of seeing and talking about the world. What one person values as important others may not even see

What this means in practice is that confusion, misunderstanding, and communication breakdowns can surface in a team.

The User Experience

- central to interaction design
- how a product behaves /behavior
- how a product is used
- all aspects of the end-user's interaction with the company, its services, and its products."
- "every product that is used by someone has a user experience: newspapers, ketchup bottles, reclining armchairs, cardigan sweaters." about how people 'feel' about a product and their pleasure and satisfaction when using it, looking at it, holding it, and opening or closing it
- overall impression of how good it is to use, right down to the sensual effect small details have on them (stuff like smoothness in controls)
- quality of the experience someone has
- you cannot design a user experience, you can design for a user experience
- one cannot design a sensual experience, but only create the design features that can evoke it
- "It is not enough that we build products that function, that are understandable and usable, we also need to build joy and excitement, pleasure and fun, and yes, beauty to people's lives."

Central Importance for UI:

usability
functionality
aesthetics
content
look and feel
sensual and emotional appeal

other areas:

fun
health
social capital
cultural identity
disability
family status
occupation
education

The process of Interaction Design

- Establishing requirements
- Designing alternatives
- Prototyping
- Evaluating

measuring the usability of what has been built in terms of whether it is easy to use provides feedback that certain changes must be made or that certain requirements have not yet been met.

Evaluating what has been built → the heart of interaction design

usually addressed through a user-centered approach to design

- observing users
- talking to them
- interviewing them
- modelling their performance
- understanding what people do
- how people act and interact
- context in which they live, work, and learn
- understanding differences between people
- being aware of cultural differences

Accessibility → focus on disabled people

Interaction Design and the User Experience

Design and usability goals: All useful for analyzing and evaluating aspects of an interactive product

- Usability goals and user experience goals: For assessing acceptability of a whole system
- Design principles: Reminders of the do's and don'ts of interface design (Norman)
- Usability principles: For assessing the acceptability of interfaces (Norman)

Goals:

Usability goals - meeting specific usability criteria
User experience goals - develop the quality of the user experience (aesthetic, games)

Usability goals:

- effective to use (effectiveness)
- efficient to use (efficiency)
- safe to use (safety)
- having good utility (utility)
- easy to learn (learnability)
- easy to remember how to use (memorability).

Effectiveness is a very general goal and refers to how good a product is at doing what it is supposed to do.

- Is the system capable of allowing people to learn well, carry out work efficiently, access info, buy goods, etc.?

Efficiency refers to the way a product supports users in carrying out their tasks.

- Once users have learned how to use a system to carry out their tasks, can they sustain a high level of productivity?
- Minimal steps

Safety involves protecting the user from dangerous conditions and undesirable situations. In relation to the first ergonomic aspect, it refers to the external conditions where people work.

- Does the system prevent users from making serious errors, and if they do, can they recover easily?

Utility refers to the extent to which the product provides the right kind of functionality so that users can do what they need or want to do.

- Does the system provide an appropriate set of functions that enable users to carry out all of their tasks in the way they want to do them?

Learnability refers to how easy a system is to learn to use.
10-minute rule

- Novice users should be able to learn how to use a system in under ten minutes, if not the system fails (Nelson 1980)
- Build on existing knowledge
- Inappropriate for complex systems

Memorability refers to how easy a product is to remember how to use, once learned.

- Especially important for interactive systems that are used infrequently
- Meaningful icons, command names, menu options, etc.
- What kinds of interface support have been provided to help users remember how to carry out tasks, especially if used infrequently?

Goals are turned into usability criteria

- Enable the usability of a product to be assessed

Examples of commonly used usability criteria are time to complete a task (efficiency), time to learn a task (learnability), and the number of errors made when carrying out a given task over time (memorability).

User Experience Goals

The process of selecting terms that best convey a user's feelings, state of being, emotions, sensations, and so forth when using or interacting with a product at a given time and place can help designers understand the multifaceted and changing nature of the user experience.

Beyond usability: designing to persuade

- focusing more on the user experience and less on usability
- designing for persuasion, emotion, and trust – which may or may not be compatible with usability goals

- this deceptive approach to UX has been described by Harry Brignull as 'dark patterns' *making the user opt out of what he initially did not opt in for*
- the key is to nudge people in subtle and pleasant ways that they can trust and feel comfortable with.

Design Principles

- generalizable abstractions intended to orient designers towards thinking about
- different aspects of their designs
- well known example: **feedback**
- findability: the degree to which a particular object is easy to discover or locate

Design principles are derived from a mix of theory-based knowledge, experience, and common sense.

Most common design principles:
- visibility
- feedback
- constraints
- consistency
- affordance

Visibility:
how easy it is to discover functionality

Feedback:
- involves sending back information about what action has been done and what has been accomplished, allowing the person to continue with the activity
- various types: audio, tactile, verbal, visual, a combination of these
- using feedback

Constraints:
- The design concept of constraining refers to determining ways of restricting the kinds of user interaction that can take place at a given moment
- constrain by design (e.g., menu shows restricted availability)

Consistency:
- This refers to designing interfaces to have similar operations and use similar elements for achieving similar tasks
- a consistent interface is one that follows rules, such as using the same operation to select all objects
- One of the benefits of consistent interfaces, therefore, is that they are easier to learn and use

Affordance:
a term used to refer to an attribute of an object that allows people to know how to use it
- At a simple level, to afford means 'to give a clue'
- a door handle affords pulling, a cup handle affords grasping, and a mouse button affords pushing.

when we talk about web interfaces: Simplicity is certainly an important design principle

Summary - Key points:

- Interaction design is concerned with designing interactive products to support the way people communicate and interact in their everyday and working lives.
- Interaction design is multidisciplinary, involving many inputs from wide-ranging disciplines and fields.
- The notion of the user experiences is central to interaction design.
- Optimizing the interaction between users and interactive products requires considering a number of interdependent factors, including context of use, types of activity, accessibility, cultural differences, and user groups.
- Identifying and specifying relevant usability and user experience goals can help lead to the design of good interactive products.
- Design principles, such as feedback and simplicity, are useful heuristics for analyzing and evaluating aspects of an interactive product.

Book :
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