Designing with the Mind in Mind

Chapters 10, 11 and 12

Reading Summary

Gurpreet Singh
February 04, 2018
CS4474

Chapter 10

Learning From Experience

Three Brains

The old brain categorizes everything into edible, dangerous, or sexy and regulates the body's automatic functions. The mid brain controls emotions and reactions to events. The new brain controls conscious activity including planning.

When we run into a situation, all three brains decide how we react and our actions. The old brain and mid brain react faster than the new brain.

Learning from Experience is Easy

People learn from their daily experiences without knowing that they are learning. Some problems with learning from experience are listed next.Complex situations with lots of variables are hard to learn from because they do not occur as often as other experiences.

Real life experiences are more valuable to the brain then ones you read or hear about. If something has happened to you or your family member, you will remember it better.

You may not learn the correct lesson from an experience if you made the wrong decision at the time of the event. You are not always able to remember the correct decision if the event occurred again.

People often overgeneralize. If you have only seen dangerous animals that are black, you will think all dangerous animals are black. This can be seen as a con or a pro because overgeneralization allows humans to make assumptions about things they havent seen before which could save their life and help evolution.

Performing learned actions is easy

When we do something many times we can do it without thinking. Real world tasks have a mixture of automatic and controlled components because without the mix we wouldn't be able to process everything at once. We need automatic activities to assist us.

Problem Solving and Calculation are Hard

New problems are hard to solve. Having a large new brain helps us solve these problems. Problem solving requires focus and is slow. Executes slowly and serially. Our brains are not optimized for calculation because numbers are so new. We need external memory aids to solve complex problems because we use them like extra working memory.

Implications for UI design

- Indicate system status and how far user is to goal
- Guide users toward the goal
- Tell users instructions and make them exact
- Don't make users diagnose system problems
- Minimize number of settings

- Minimize calculation (Use graphs)
- Make system similar to something user is used to

Chapter 11

Many Factors Assist Learning

Learn faster when task is consistent

The gap between what the user wants and what a tool provides is called the "gulf of execution". The smaller the gulf of execution the less the users need to think about the tool. Design the tool to provide exactly what the user wants to do

- Perform a task analysis
- Design task focused conceptual model
- Design UI based on conceptual model

A task analysis answers questions about what the user wants to do with the software and which tasks are most important/frequent.

Object / Action Analysis

Specifies all the conceptual objects that an application will expose to the user. Basically a UML diagram for UI objects.

Aim to simplify this with the least amount of concepts and actions the user has to remember.

Interactive systems should aim to be consistent. More consistent they are the faster the user can begin using automatic actions inside of the software

You can make a matrix with Objects on Y and Actions on X and find out which interactions are being done the most to optimize the usage patterns

Learn faster when vocab is task-focused

Keeping terminology related to the task the user is trying to finish minimizes the time a user needs to learn how to use the software. Use easier words that non CS people can understand. Public instead of DB and private instead of local. Use words that are seen by many people often. Use similar words around the whole software so the user has to learn less.

Learn faster when Risk is Low

When there is not much to lose the user will be more inclined to click around and explore the software. If the user is scared of messing something up they wont click on anything they arnt used to seeing the result of. Make easily approachable UIs

Chapter 12

Time Requirements Exist