Principles of Efficient Experience

* The UI allows users to understand and complete tasks easily.
* Measuring Usability: The usability can be measured by the performance, the time to execute a task, the number of jobs completed, the number of observations of user frustration, the frequency of the interface components or behavior that is never used.
* Xerox Star development led to one of the first usability principles to be created. Task Analysis.
* Usability: Creating technology that is usable by a wide range of people, solutions must best fit most of the population most of the time.
* Universal usability can be implemented using flexibility.
* Component separation is making the UI and the system application logic independent of each other so that the UI can be changed without changing the functionality of the system application logic -> Interface adaptability.
* Support openness and consistency of the data and API and taylor-bility of the interface. Physical design should not be captured in the programme logic. API helps to separate programme logic and interface.

Usability Models

* One of the first models were developed by Miller to apply information theory to humans.
* Information theory involves the quantification of information.
* Miller extended this theory into the Psychology domain and defined a model of the **bandwidth** that people could cope with and called it a **channel.**
* Led to the ‘The Magical Number Seven, Plus or Minus Two - Some Limits on Our Capacity for Processing Information’
* Analogize humans to processors and one-dimensional entities.
* Best outcome is measurable and efficient.
* Useful of predicting usability.

The Human Processor Model: Learn how it works

* Cognitive processing model used to calculate how long it takes to complete a task.
* Designer predicts the performance concerning the time it takes a person to complete a task without performing experiments directly.
* Use empirical work already undertaken to make predicitions.
* UX specialists and Software Engineers do not need to run their own experiments.
* model uses the cognitive, perceptual, and motor processors along with the visual image, working memory, and long-term memory stores.
* Each processor has a cycle time and each memory has a decay time.
* Calculation: (1) write out main steps based on: a working prototype, simulation, step by step walk-through of all steps; (2) clearly identify the specific task and method to accomplish that task; (3) for each final step identify sub-levels down to a basic process; (4) convert into pseudo code; (5) list all assumptions; (6) determine time of each operation; (7) determine if operation times should be adjusted; (8) sum up execution times; and finally (9) iterate as needed and check with prototyping.

Goals, Operators, Methods, and Selective rules (GOMS): Learn how it works

* Similar to HPM in that the primary actions are taken into account only.
* Produces quantative and qualitative prediction of how people will use the system.
* Primary interactions are used as a framework to study the interface.
* Different variations of GOMS which allow different aspects of an interface to be studied and predicted.
* **Goals** are what the user intends to accomplish. **Operators** are actions that are performed to get to the goal. **Methods** are sequences of operators to accomplish the goal.
* **Selection rules** are used to pick from a set of competing methods.
* **Advantages:**
* **Disadvantages:**

Keystroke Level Modelling