**Kelly Chapter 3**

-Human factor process: seeing and hearing things with your own eyes and ears to create break through products

-Bug list: keep track of everything in life that has a problem or bugs you

-Fuzzy problem vs. well-defined problem

-Being left-handed: developing empathy for your users

-Observe people using products

**Kelly Chapter 4**

-Seven secrets

1. Sharpen the focus: have a well-defined problem statement or question

-Focus outward on customer needs instead of inward on a organizational goal

2. Playful rules: don’t critique any of the ideas

-Go for quantity

-Encourage wild ideas

-Be visual

3. Number your ideas

-Helps motivate participants in reach a target number of ideas

-Helps jump back and forth between ideas

4. Build and Jump: build off each other’s ideas

-Momentum builds slowly, then intensely, then plateaus

-Build on an idea and then introduce a small variation

5. The space remembers: cover every surface with paper

-Never have the awkward situation of erasing ideas

-Good synergy in moving and sketching ideas around the room

6. Stretch you mental muscles

-Group warm up 🡪 get group comfortable with each other and brainstorming

-Do some hw before the session: bring in a object related to the brainstorm

7: Get physical: brainstorms are very visual

-Include mapping, diagramming, stick figures

-Leave your lack of artistic ability anxiety at the door

-Try to get 3-D, bring competitive products or models

Brainstormer effect: a great brainstormer gives you the feeling of possibility

Six ways to kill a brainstorm:

1. Boss gets to speak first: do not let anyone limit the ideas with boundaries or agendas, also people need to be comfortable sharing wild ideas
2. Everyone gets a turn: going clockwise and everyone get 2 minutes to speak is not a brainstorm
3. Only experts: instead bring in people from a wide range of backgrounds
4. Do it offsite: make worker believe that creativity does not exist in the office
5. No silly stuff: instead embrace the silly stuff cause they can lead to great ideas
6. Write down everything: it shifts your attention from the brainstorm and to the wrong side of your brain.

**Norman Chapter 1**

-Important design principle: visibility 🡪 correct parts must be visible and must convey the correct message

-Mappings between what you want to do and what seems possible

-Phycology of everyday thing🡪 several principles: visibility, appropriate clues, feedback

-Affordance🡪 perceived and actual properties that determine how the thing could possibly be used

-When simple things need pictures and explanation then the design has failed

-Fundamental principles designing for people: provide a conceptual model and make thing visible

-A good conceptual model allows users to predict the effects of their actions

-Mapping: the relationship between two things 🡪 controls and their movements and their results in the world

-Natural mapping: taking advantage of physical analogies and cultural standards lead to immediate understandings

-Principle of feedback: sending back to the user information about what action has actually been done

-Paradox of technology: technology simplifies life by adding more functions also complicates life by making the device harder to learn and use

-Paradox of technology should never be used as an excuse for bad design

**Norman Chapter 2**

-If error is possible someone will make it

-Designer must assume all possible error will occur and must design a product to minimize the probability of error or its effects once the error is made

-Errors should be easy to detect, they should have minimal consequences and their effects should be reversible

-Mental model are our conceptual models of how things work🡪 based on our knowledge

-Often constructed with fragmentary evidence and a poor understanding of what is happening

-Faulty models can lead to frustration in life

-People often blame misfortunes on their environment

-When things go well for themselves people take credit

-When things go well for other people, people give credit ot the environment

-Learned helplessness🡪situation where people experience failure in a situation many times, as a result they believe the task cannot be competed by themselves: they are helpless

-Taught helplessness🡪 few instances of failure in what appear to be a straight forward situation generalize to every technological object

Seven stages of action:

1. Forming the goal
2. Forming the intention
3. Specifying action
4. Executing the action
5. Perceiving the state of the world
6. Interpreting the state of the world
7. Evaluating the outcome

-Gulfs: separate the mental states from physical ones. The distance between the mental representation of the person and the physical components and state of the environment

-Gulfs represent major problems for users

-Gulf of execution = how well does the system allow the person to do the intended actions directly without extra effort

-Gulf of evaluation = the amount of extra effort the person must exert to interpret the physical state of the system to determine if expectation are met

Design principles:

1. Visibility = by looking the user can tell the state of the device and alternative for action
2. Good conceptual model = designer provides a good conceptual model for the user with consistency in the presentation of operation and results and a coherent, consistent system image
3. Good mapping = it is possible to determining the relationship between actions and results, between the control and their effects, and between the system state and what is visible
4. Feedback = the user receives full and continuous feedback about the results of actions