Our Famous Punching Bag – Usability Issues

Jacob Nielsen – Father of Usabilithy Engineering

Nielsen Norman Group (nng) – their famous organization

Norman – famous author of Design of Everyday Things

Nielsen's Summary of Windows 8

- Hidden features, - Shutdown was a real treasure hunt!
- reduced discoverability,
- cognitive overhead from dual environments,
- reduced power from a single-window UI
- low information density. Too bad.

Our Famous Punching Bag – Usability Issues

- ✓ smothers usability with big colorful tiles while hiding needed features.
- ✓ new design optimized for touchscreen
- ✓ **Double Desktop = Cognitive Overhead**
- ✓ **product's very name has become a misnomer.**
- ✓ **no longer supports multiple windows** on the screen
- ✓ can't view several windows simultaneously, they must keep information from one window in short-term memory while they activate another window
- ✓ **short-term memory is notoriously weak**

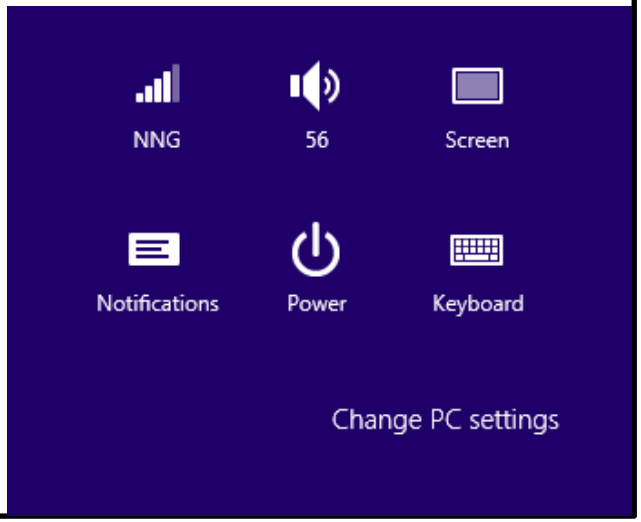
Our Famous Punching Bag – Usability Issues

- **Flat Style Reduces Discoverability**

Where can you click? Everything looks flat, and in fact "Change PC settings" looks more like the label for the icon group than a clickable command.

- **Low Information Density**
- Amount of Info projected on a window is drastically reduced.
- **Overly Live Tiles Backfire**

✓ Misuse for all apps results in apps being not recognised!



MORE ON USABILITY

Some of the key factors affecting Usability are

- Format of Input
- Feedback
- Visibility
- Affordance – added by Donal Norman/
- **Affordance** of an object **--**sort of operations/manipulations that can be done on or to it.
- Examples such as A door affords opening
- **Visibility** – mapping between control and its effect. Eg. Cars have good designed controls – steering wheel has only one functionality – **good feedback – easy to understand**
- **Really bad ones follow…….**

MORE ON USABILITY

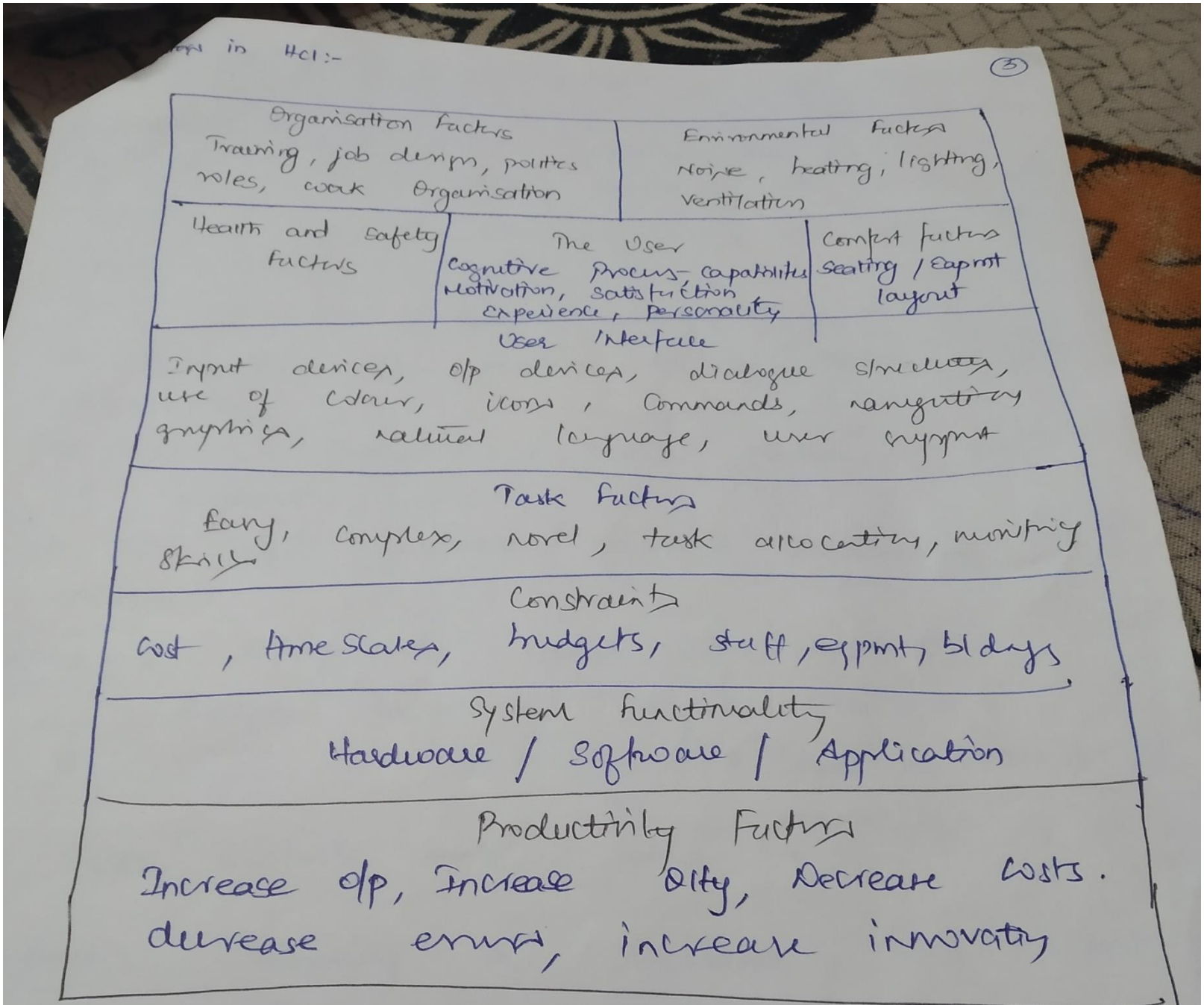
- Mobile Phones and VCR's score poor on visibility front
- There is little visual mapping between control and user goals
- Also controls have multiple functions…
- Who can miss out the **Set Top Box Remotes!!**
- **Elders have simply lost the charm of watching TV**…
- And to make things worse…..multiple designs with functionalities being supported not in a consistent manner**…**
- One more interesting case – How many of us read the **product manuals** given with products such as phones, washing machines, etc.
- Golden Theory in Design –**Blame the Design, Not the User**

- **It is the Duty of Machines and Those Who Design them to Understand People –Don Norman**
- **Bad UX and UI Makes Users Blame Themselves**
- User hate uncertainty, and do anything to escape it, as quickly as possible— even if it means lying to themselves.
- Design isn't about pushing pixels. It's about advocacy.
- it's not about the user understanding technology, but about the technology (and those who create it) understanding them
- **Design is a CONFIDENCE GAME**
- Plenty of Success and Failure Stories! – what better example than Google Search Engine for Usability . Many who visit sites via google even when they know the exact url! That sums up Google's Popularity and Usability

Disciplines Contributing to HCI

- Computer Science – technology, software design, UIMS,etc.
- Cognitive Psychology – information processing capabilities, limitations, etc.
- Social Psychology – Social + Organizational structure
- Ergonomic and Human Factors – Hardware Design, Display Readability, etc.
- Linguistics – Natural Language Processing
- Artificial Intelligence – intelligent Software
- Engineering & Design – Graphic Design, etc.
- ……

Some of the Issues / Factors in HCI



SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- ✓ Design is viewed as a Journey of Discovery
- ✓ Mental Model is one of the key aspects of HCI
- ✓ Users Belief about the system (built / created) over the years
- ✓ What users believe they know about a UI strongly impacts how they use it – Nielsen's Observations
- ✓ Mismatched mental models are common, especially with designs that try something new.
- ✓ Challenge is to violate if required and where done with minimal user discomfort!

SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- ✓ Lets C some failed Mental Model Violations first to digest the importance of Cognitive Issues in Interface Design
- ✓ Windows 8 undoing notion of start icon (default load) – Shutdown & some key features becoming a treasure hunt
- ✓ Notions of Multiple Windows, Clickable icons, Start window, etc. were mental models built over years of using previous windows – Windows 8 was a miserable failure with the Desktop Market!
- ✓ How many websites we have visited which enclose some text within a rectangular bar (to convey important) but often users endup clicking them! Rectangle in UI relates to Buttons which are deemed to be (assumed) Clickable with associated actions.

SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- ✓ A related theme – any blue colour underlined text in web documents / for that matter even local documents is assumed to be a **hyper link – clickable for more detailed information**
- ✓ Purple to indicate previously visited websites
- ✓ A mental model is based on **belief, not facts**:
- ✓ **Users base their predictions** about the system on their mental models
- ✓ Design Challenge - common gap between designers' and users' mental models & how to bridge the gap!

SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- ✓ why, do people *search* for a website if they already know its name?
- ✓ many users have never formed an accurate model of how the "type-in boxes" on their screen function
- ✓ When they type stuff into a box, they sometimes get where they want to go
- ✓ **inability to distinguish between similar type-in boxes**
- ✓ Mental Model Violation – technically called as Mental Model Inertia!
- ✓ NetFlix – e movie service – shifted from the Conventional Shopping Cart Model to a Queuing based setup and still the overall design was successful

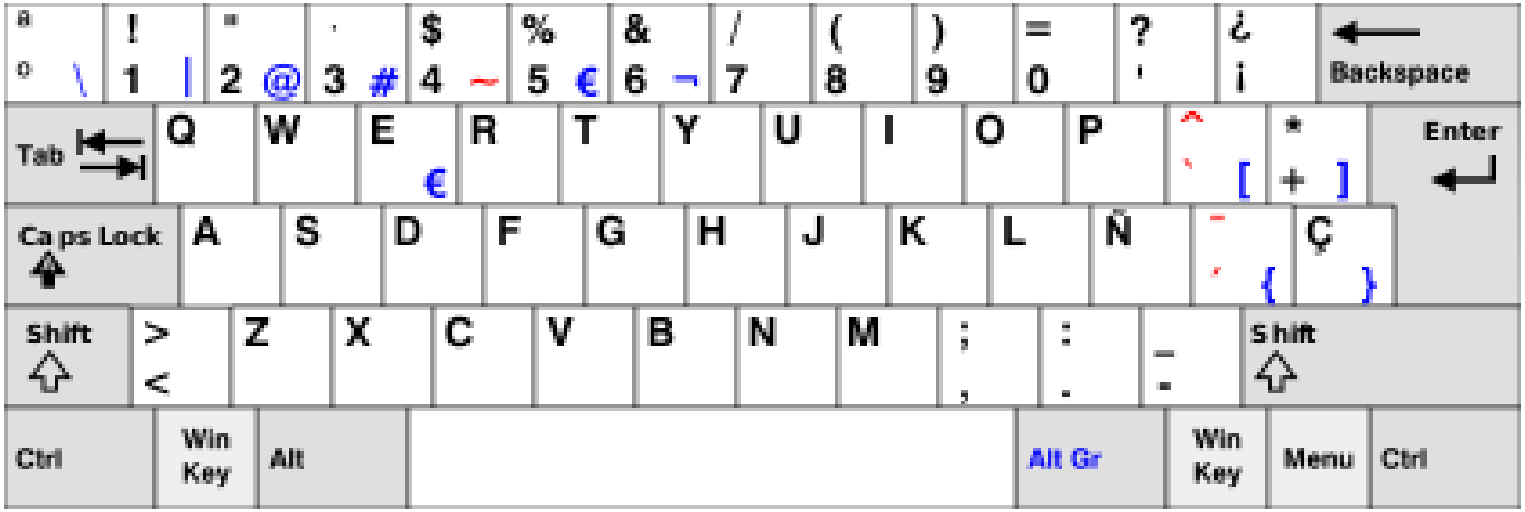
SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- ✓ Another carried forward Design over the years (much cursed but still lives its life HAPPILY!!)
- ✓ The QWERTY Keyboard Design – It has infact overlived its shelf life and still troubling users….
- ✓ Motto of the Original Design was to intentionally slow down user typing speed which used to cause KEY JAMMING which left a bad impression on the paper in the yesteryear ribbon based printing mechanisms!!
- ✓ Carried forward to the Desktop setup as well and still lives its life when there are no such jamming issues and the beauty of the backspace also available for quick erase!!

SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN

- I m a fortunate typewriter generation student and see the benefits of it still as I type this slide.(Lower Grade First Class and Upper Grade Second class!!)
- Irony of the situation – it seems to live its life even with some smart phone models as well!! Which as it is painful with the sensitivity of the touch on the key pad!!
- Old Habits Die Hard!!! (may be equated to Mental Models!!)
- **DVORAK** was yet another keyboard design which simply didn't go thru the users despite its user cognitive / friendly in a design sense features.

SOME KEY COGNITIVE PRINCIPLES IN INTERACTION DESIGN



- DVORAK named after the person behind the Design
- Mental Model – Analogy of RESISTANCE TO CHANGE over NOTHING IS PERMANENT BUT FOR CHANGE
- **Most frequently used letters are placed on the home row.**
- All vowels are on the home row of left hand. So, typing usually means alternating hands.
- top row has letters that are more often used than bottom row, because moving fingers up is easier than moving them down.
- the home row is where you place the most commonly typed keys. Dr. Dvorak did in his layout — 70% of keystrokes are on the home row; 22% on the top row; 8% on the bottom.