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 – <u>any blue colour underlined text</u> 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-Keyboard.com
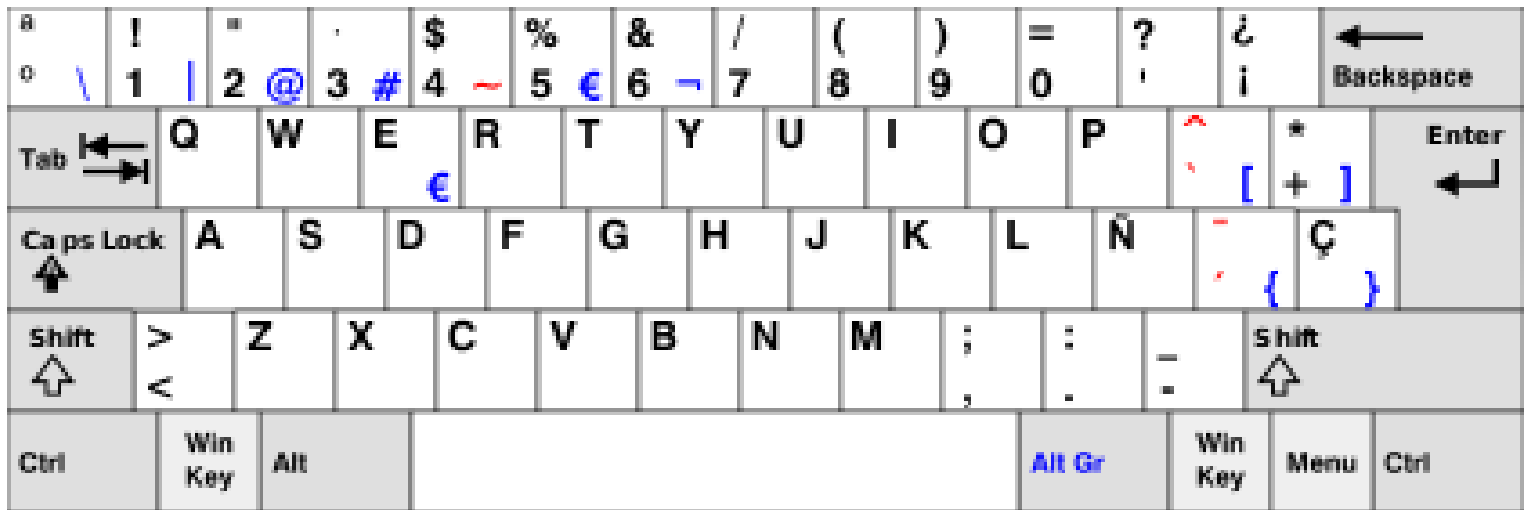
- DVORAK named after the person behind the Design

- 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.

- Jakob's Law of the Internet User Experience --"users spend most of their time on websites other than yours.

- Big part of users mental models of your site will be influenced by information gleaned from other sites."

- Skeuomorphism - describe interface objects that mirror real-world counterparts in how they appear and/or how the user can interact with them.

- This design concept capitalizes on users' existing knowledge and mental models of an actual object

- Many digital UI elements reflect real-world counterparts

- dramatically cuts the cognitive load for that user.

- Skeuomorphic design is common in professional audio production applications.

- Google gave the URL bar the same functionalities as the search bar