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Special project
Product Design 2001-2003
IDC, IIT Bombay

design for habit formation

Project

This project is an attempt to identify issues pertaining to

“Design for habit formation”

understanding user habits to be able to predict the usage pattern of any new product which would help designers at the time of product development.

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Ai m

This project documents how habit formation has a positive or a negative **influence on human-machine interaction** incase of any interactive and intelligent products leading to the improve quality of interaction between users and the product by

- ensuring an appropriate use of the product
- higher productivity
- Safer product use
- quick learning
- less time to operate by smoother work flow
- greater perceived value
- Improved satisfaction

Objectives

- Understanding Habit formation
- Documentation of how users of interactive intelligent products develop habits and focus on how they impact design.
- An attempt to identify issues pertaining to “Design for habit formation” understanding user habits to be able to predict the usage pattern of any new product which would help designers at the time of product development.
- To understand why there are different ways in which products are being used by the people.
- Documentation of how habit formation has a positive or a negative influence on human-machine interaction

Methodology

Project was carried out in four stages:

Stage I

Understanding human interface design
Understanding habit formation
Psychology behind habit formation

Stage II

related research papers

Stage III

Relevance of habit formation to design
supported by documented examples

Stage IV

Heuristics as Conclusions

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Stage I

What is a Habit?

Why habits are formed?

How do habits form?

What is the need / purpose of habit formation?

How can we ease habit formation?

What are the different ways in which habits are formed?

What is the implication of habit formation to design?

Why does one change a habit?

Examples of habit formation

habit	Design idea	opportunity	Insight	heuristics	product
habituated to constant riser height	with in a same building not too drastic difference in risers should be there	any change suddenly makes one topple	frequency of use is very high	Habit formation is directly based on the frequency of use	staircase



Equal risers

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habit	Design idea	opportunity	Insight	heuristics	product
Sticking post-its on the handsets	physical scheduler or cover should give way to writing and erasing all over again	lack of scheduler in the phone	Need based		mobile phone



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Positives

habit	Design idea	opportunity	Insight	heuristics	product
Habit of using the top most round click button to shoot snaps	stereotyping and standardization of some controls	favors the design	frequency of use is very high	Certain stereotyped attributes should be directly taken and used in to new products	cameras and digicams



Similar clicking operations no change at all

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Negatives

habit	Design idea	opportunity	Insight	heuristics	product
habit of using the horizontally operated door bolt	change in design should better the design in more than one aspect	user takes more time to operate	frequency of use is very high	the mechanism should not drastically change	Door bolt



Registered action is horizontal
As against the actual action



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Negatives

habit	Design idea	opportunity	Insight	heuristics	product
habit of not pulling up the stand before starting the bike	providing an indication for the side stand on bike in (PULSAR) stand alarm in the bikes	can topple the bike while turning	its not part of the starting sequence hence away from the primary goal	the activities which are beyond the purpose are always forgotten	motorcycle

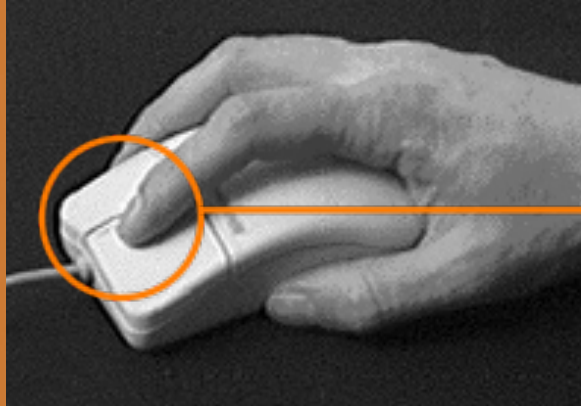


Stand on indicator

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Negatives

habit	Design idea	opportunity	Insight	heuristics	product
habit of moving the finger in search of the scroll wheel	need of standardization of technology incase of such products	even when there is no scroll we tend to try operating it	frequency of use is very high	Habit formation is directly based on the frequency of use .HF occurs faster in non visual interfaces	Mouse scroll



No scroll



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Negatives

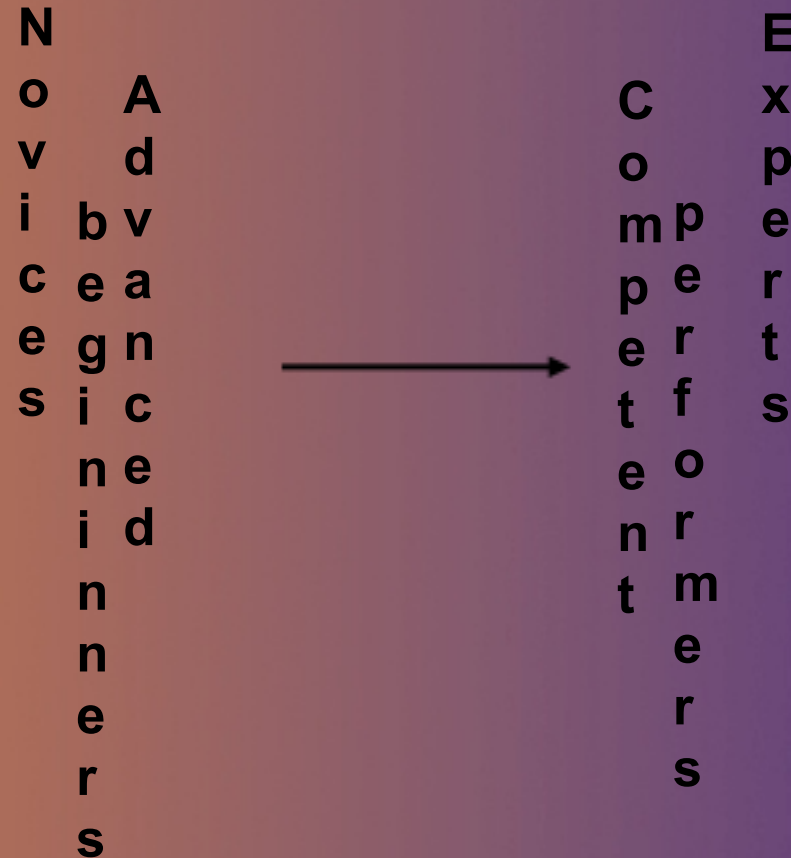
habit	Design idea	opportunity	Insight	heuristics	product
habituated to the mapping of the keyboard which is different in a laptop	mapping has become a stereotype	pressing wrong keys for a specific function	Influence of the parent product	Habits float from one product to the other (should be careful of the injurious impacts of habits formed from very similar products)	Laptop keyboard



The function key is at the corner most where as in the other keyboards have the control key in the corner

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Two kinds of Habit Formation

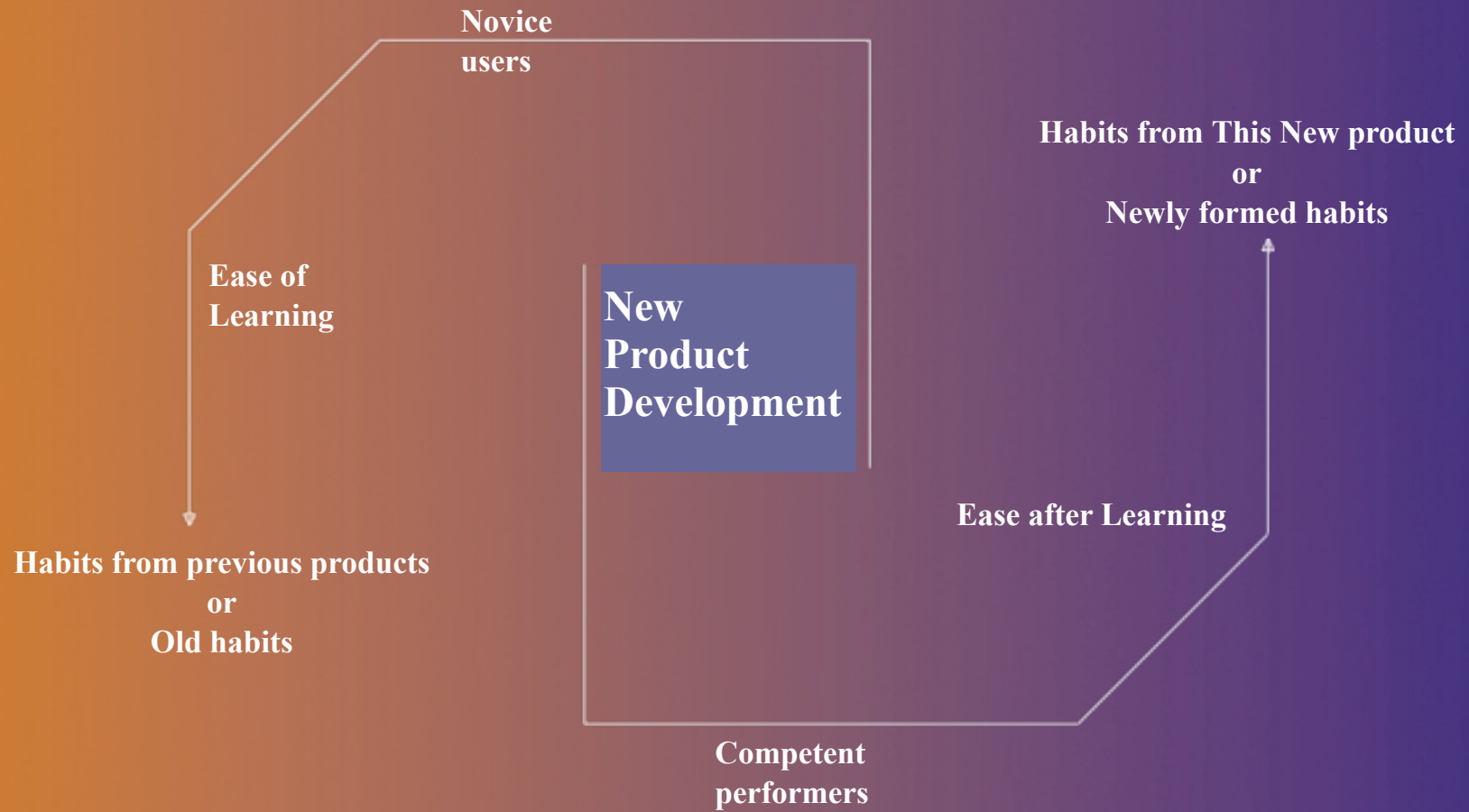


e.g. Flash 5
Short cuts versis
tool menus

One is when the product is given to a **novice**, learning should be easy in order to build a better human-machine interaction, avoiding negative transfer of habits.

Second, after the user has crossed the stage as a **advanced beginner** or a **competent performer** and is heading towards an expert user, then the process should help habit formation for a smoother work flow.

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For novices

Heuristics of how we can make the new product easy to learn by identifying habit formation of the user

- ‘Gollwitzer’ says **When “X” happens I’ll do “Y”**

where X- stimuli

Y-response

Stimuli can be - Product Attribute

Cue

Technology driven

Interaction

e.g. pop out window for deleting

- To add to this we can also say **If I do “Y”, “X” will happen**

user works on predictions specially a novice user who does not know how the product will interact

predictions by:

Identifying stereotypes

For novices

- **Analyzing previous experiences of the users**

BY: Observation

Questionnaire

Similar devices- study by figuring out :

The most frequented act

Availabilities of Cues

Any prominent feature in the product

Activity which is done very fast (2-3 seconds)

Association - product attributes

Handicaps

Any very specific sequence followed

Habituated mode of working

Existing mode of performing the same activity

e.g. Windows operating system
and DOS

For competent performers

Heuristics of how products themselves can encourage habit formation

- higher frequency of rewarded repetitions (+ve reinforces)

The more I do “X” the more I will get “Y” or faster will “Y” happen.

- Isolation of S-R relationship

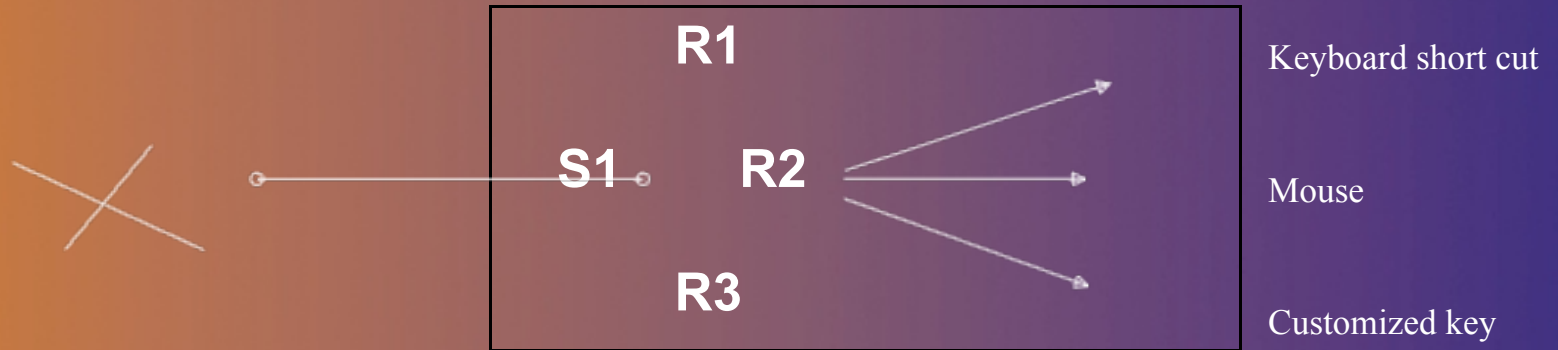
If I do “X” then only “Y” will happen no other stimuli can give “Y”.

alternate ways of doing the same thing

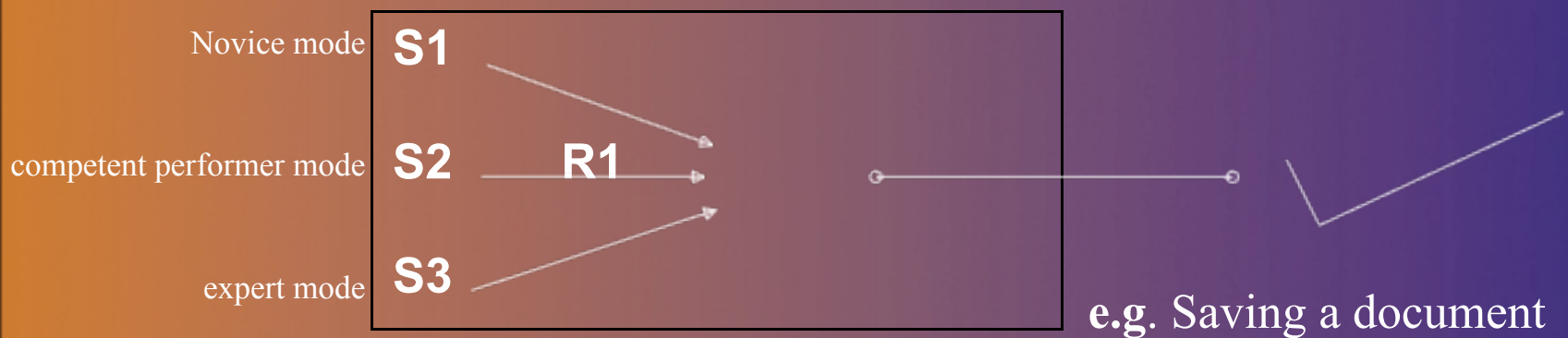
e.g. CTRL ALT DEL
Shift Alt Del

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For competent performers



S1 should not have R1, R2, R3



S1 should always do R1 only

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For competent performers

- Amount of reward

Time taken to do the task

How easily it was done

Accessibility

Availability of the information

less cognitive effort

- Time delay between response and reward

reward can be a feedback also

e.g. FTP interface

Ways in which habit formation happens

- a) Transferable habits
- b) Forgetting related habits
- c) Habit personalizing your product
- d) Habit for security
- e) Habit for convenience
- f) Habits due to Negative transfer
- g) Cultural habits

a) Transferable habits

product to another product

User to another user

Version to version

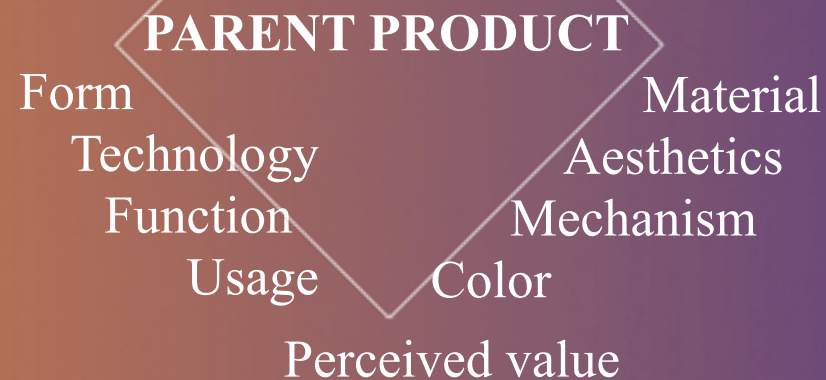
TARGET
USER
GROUP

ECONOMIC
ASPECT

SOCIO
CULTURAL
ASPECT

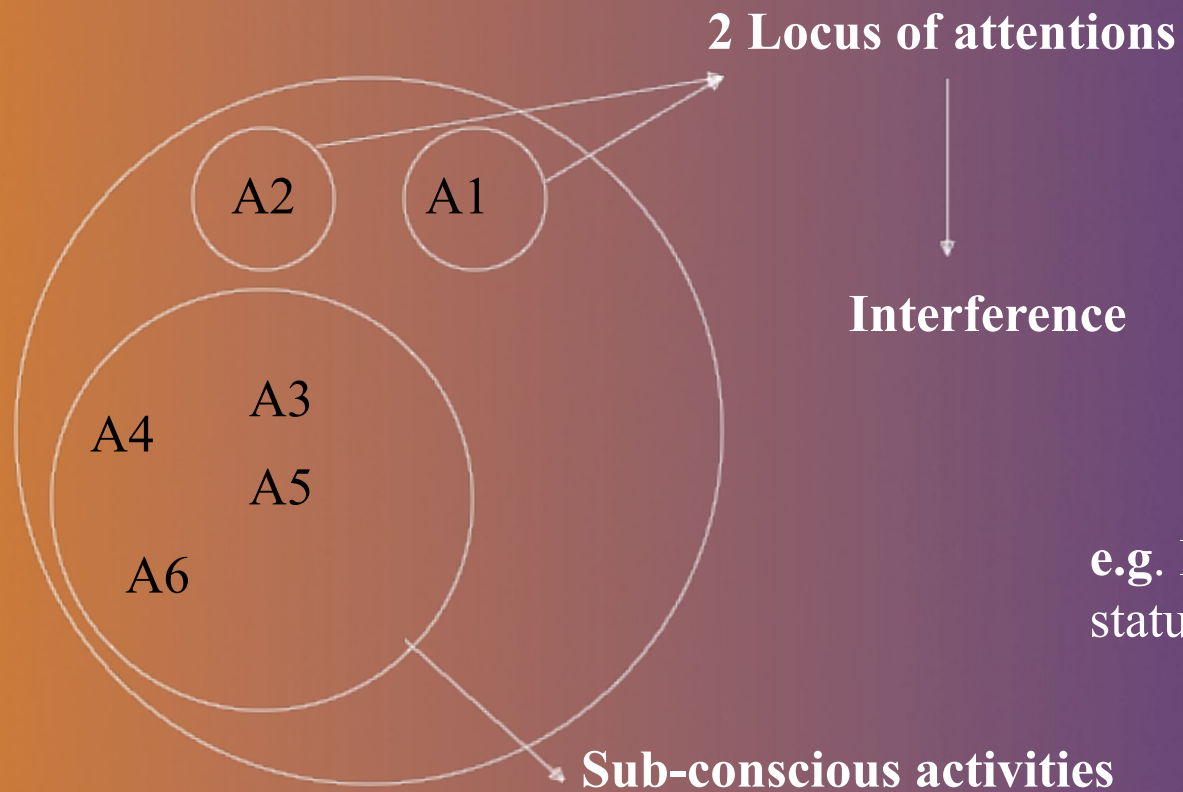
Analysis of the “**dimensions of similarities**” of the Parent product to the Target product.

e.g. Windows operating system and DOS
bullet users and bajaj users



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b) Forgetting related habits



e.g. Forgetting the CPU in on status

c) Habit personalizing your product

increased familiarity

higher adaptability

marking for distinction from other products customizing

d) Habit for security

we develop a habits also to feel safe

e.g. sitting on one seat consistently

keeping a diary with one self always

holding on to something all the time might be a habit

e) Habit for convenience

e.g. Holding the phone below the chin and the shoulder starts basically from the need to free hands to write or do any activity while talking on the phone.

now even when we don't have anything on hand we have got used to this particular habit

f) Habits due to Negative transfer

incomplete training

individual differences

skills

experience

physical abilities

Scope for customization

Collective ownership verses private owner ship

g) Cultural Habits

Kitchen products

Eastern WC

References

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2. Raskin, J. (2000). *The Humane Interface: New Directions for Designing Interactive Systems*. Boston: Addison-Wesley.
3. **Experimental Psychology**
4. <http://psychclassics.yorku.ca/Yerkes/Law/>
5. http://web.odu.edu/webroot/instr/ed/jritz.nsf/pages/oted785_ntg_06
6. <http://developer.kde.org/documentation/design/ui/history.html>
7. <http://www.ais.msstate.edu/AEE/3203/ppslides/DiffAdopt/tsld003.htm>
8. Quotes from <http://ww.personalbest.com.au/habitquotes.html>

Heuristics

- In case of products for communication user's sub-consciousness should be kept in mind
- Habits float from one product to the other (should be careful of the injurious impacts of habits formed from very similar products)
- The activities which are beyond the purpose are always forgotten
- Should be careful of the injurious impacts of habits formed from very similar products

examples



Sub-conscious acts while speaking



Banging the doors of a maruti car



Leaving the cam cap open ATM



laptop



Bullet bajaj

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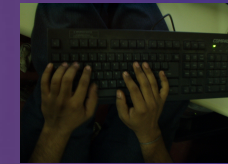
Heuristics

examples

- Frequently done activity should give scope for customization or automacity
- Need specific usage and advantage of a product should be highlighted and communicated to the user
- Consideration of habit formation for frequently used products is very important
- Use of already accustomed terminology



Software like photoshop



Number part of the keyboard which is often used by the accountants only



scrolling



Windows operating system

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Heuristics

- HF occurs faster in tactile interfaces for which you don't have to look at and where options are less.
- Guiding users into new interfaces should be strategic incase of any negative consequences (in switching to a drastically different interface)
- Certain stereotyped attributes should be directly taken and used in to new products
- In order to mark a product identity .sometimes the product might enforce a totally different but a consistent interface is a good idea

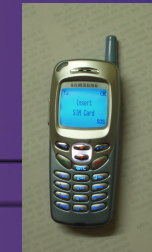
examples



Driving a car (gear shift etc)



Bullet and bajaj or Matiz has different controls



Colors and graphics



India today

Thank You

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