



Doctoral Consortium: Empirical Study to Measure the Impact of HCI Technologies on Environments and Design Framework Model for Future HCI Technology

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Abstract: Human interface is the growing technology for future work. The supporting environment known as user interface may play a wide role in our future technologies. Therefore we choose this field for doctoral research degree. Current systems show most of the people use user interface device. Toward this thesis, we compute the collision of user interface & their internal interfaces into the new generation. We also collaborate the role of user interface & their internal interfaces to Grow-up the standardization of Indian peoples & their life style. We proved or cancelled the myth about user interface hypothesis for impact of user interfaces to our societies. Through this thesis we check the status of our culture regarding this technology. The brief study on HCI is done through primary & secondary data. After brief study, we will search the future technology for our acceptance & proposed a model for future technology.

Keywords: HCI, user interface, surface interface, Computing, Modeling, future technologies.

I. INTRODUCTION TO THE PROPOSED RESEARCH

HCI is also known as: Man-Machine Interaction & Computer-Human Interaction. It's defined as "Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them". The 1998 Amendment to Rehabilitation Act for Federal law to ensure the access to IT, including computers and web sites other field of disabilities covers the Vision for blind (bill-reader), Low-vision & Color-blind with hearing problem both deaf & limited of hearing. It's more useful in the design & development of Keyboard, mouse, color alternatives, Contrast, text descriptors for web images, screen magnification, text to speech (TTS), JAWS (web pages) to check email on the road, in bright sunshine, riding a bike, Mac OS X and Windows Universal Access, Speech Recognition, Head mounted optical mice, Eye Gaze control, Learning what helps those with disabilities affects everyone, Present procedures, directions, and instructions accessible to even poor readers, Design feedback sequences that explain the reason for error and help put users on the right track, Reinforcement techniques with other devices, Good target area for a final project.

II. LITERATURE SURVEY

- ✚ Andrew Tawfik is invited for Future Research work on human factors for game designing. [1]
- ✚ S. Kappu shows future direction work is open and required to focus on more methodologies regarding the

survey on touch screens, voice recognition, and different kind of software interfaces etc. [2]

- ✚ Sean Gustafson proposed the imaginary interface and promising directions for future work include investigating methods of learning an imaginary interface, extending Imaginary Interfaces to allow annotation of interactions with speech, adding auditory cues as a feedback channel that allows users to explore an imaginary space and extending Imaginary Interfaces to 3D. [3]
- ✚ The Imaginary Phone of Sean Gustafson gave the future work to transfer learning could be applied to a broader range of devices, such as remote controls and instrument panels. In particular, it would be interesting to investigate if the transfer learning principle can be applied to such devices (that have a strong tactile component) rather than the visual interface as we have shown here. [4]
- ✚ Alessandro Mulloni et al., forward to apply to work to location based services in outdoor scenarios. Here the environment is mutable and visual matching is not always feasible. [5]
- ✚ Patrick Baudisch plan to future work to explore more compact form factors, such as malleable devices touch-enabled using time-domain reflectometry in Rock-Paper-Fibers.[6]
- ✚ Stephan R. Richter have plan for future work to adapt Bootstrapper for different form factors and to explore user recognition based on users' clothing using a single overhead camera, which will facilitate touch-to-user associations. [7]
- ✚ For future work, Noah Smithy recommendations for the mobile phone game regarding the more interactive games and challenging levels should be implemented and tested with user groups. More thorough and organized testing should be conducted with user groups with longer duration set aside for testing. [8]
- ✚ Michael Lew gave the future research directions: to make rapid progress in face analysis, human body

analysis and creating the early generation of complete human-computer interactive systems. s and collectively create credible ground truth sets for evaluating and improving our systems. [9]

- ✦ Christian Holz says the future experimentations on multiple specimen generalized with caution in her user interface research.[10]
- ✦ Gabrielle Ford recommended the future research be conducted to ascertain both the limitations as well as the strategies used to overcome those (Effects of Culture on Performance Achieved Through the use of Human Computer Interaction). [11]

III. RESEARCH GAPS IDENTIFIED

The next generation of Indian culture is more adaptive to internal interfaces of HCI Technologies. Our current systems show most of the people use user interface devices. They prefer the product build on the basis of HCI technologies such as:-

- ✓ Palmtop
- ✓ Touch screen mobiles
- ✓ Touch screen laptops
- ✓ Visualization of electronic items
- ✓ Virtualization of electronic items
- ✓ Create prototype of items through laser light
- ✓ Laser light projection on mobile
- ✓ I-Pad
- ✓ Handicapped disability interface tools

These are all changing the human behavior and their living standards. So, we want to measure this effect on our daily life. We compute the impact of HCI Technologies and their internal interfaces to our societies & proved or cancelled the myth about internal interface hypothesis. Through this work we captured the status of our culture regarding HCI Technologies. The above strategies motivated us to do the researcher in that era.

IV. OBJECTIVES

Now-a-days, the latest technology of HCI is applicable everywhere. The future of Indian culture may be fully depending on internal interface of HCI Technologies. Most of developed countries are uses advanced application of internal interface of HCI Technologies to develop their environments. Then, why Indian culture did not adopt it? I think peoples could adopt it to grow-up their environment. Therefore we have considered two objectives as:-

- 1) To measure the impact of HCI Technologies on the current Indian environment.
- 2) Searched the future HCI Technologies and design their framework model for future interface.

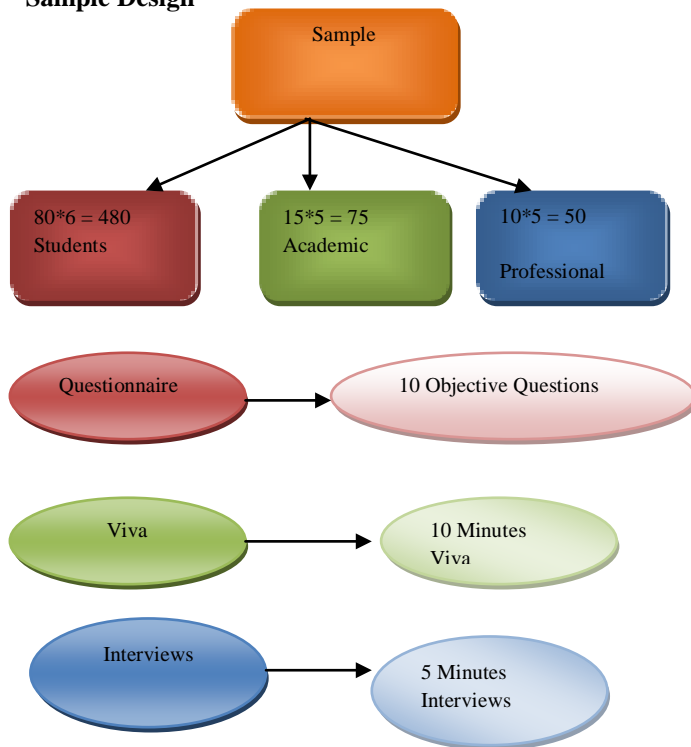
V. DETAILED METHODOLOGY

Continual technological evolution has led to an explosion of new techniques in HCI research. Research Methods in Human-Computer Interaction is a thoroughly comprehensive guide to performing research and is essential reading for both quantitative and qualitative methods.

We compute the following in this:-

- Impact on education (Engineering, College, Schooling, etc)
- Impact on Societies/culture (apartment life, sectors life etc)
- Impact on childhood
- Craze towards latest technology
- Importance for their existence (user interface)
- Design view
- Ontological perspective
- Effect on the new generation
- Utilization
- Limitation/boundary edges

Sample Design



VI. IMPORTANCE OF THE PROPOSED RESEARCH

HCI technology is most acceptable computing field. There measurement & searched future technology is most growled word in that. Few of other requirements of HCI as:

- Technology experience is varied
- Uninformed on how technology could help them
- Practice skills (hand-eye, problem solving, etc.)
- Touch screens, larger fonts, louder sounds

❖ HCI impact on technology to improve:

- Motor skills
- Vision, hearing, touch, mobility
- Speed
- Memory

❖ HCI Impact on children's age to changes much:

- Physical dexterity (double-clicking, click and drag, and small targets)
- Attention span
- Intelligence (vaguely)

- Varied backgrounds (socio-economic)
- ❖ Impact on Teenagers
 - Motivate towards Next generation
 - Beta test new interfaces, trends
 - Cell phones, text messages, simulations, fantasy games, virtual worlds
- ❖ Goal of HCI
 - Educational acceleration
 - Socialization with peers
 - Psychological - improve self-image, self-confidence
 - Creativity – art, music, etc. exploration
- ❖ Others
 - Like exploring (easy to reset state)
 - Don't mind making mistakes
 - Like familiar characters and repetition
 - Don't like patronizing comments, inappropriate humor

We consider four hypotheses and proved or cancelled them through this work. These hypotheses are as:-

- 1) Zooming, scrolling & other function through touch screen in electronics items is the feature of our country.
- 2) Medically handicapped or disability of person's is controlled by user interface device.
- 3) HCI technologies make a person lazy & diseases may result due to their use.
- 4) Total Virtualization save the space and remove the hardware (that may become useless after life cycle)

VII. RESEARCH PLAN SCHEDULE

A. Data Collection for Research

Our work is depending on both primary and secondary data.

- For collection of primary data, we create
 - (a) Questionnaire
 - (b) Interview
 - (c) Viva
- For collection of secondary data, we use internet to search articles, research paper, manuscript, books and dialog session previously have done on related work.

B. Processes and Analysis of Data

- ☺ Designing Forms for Data Collection
- ☺ No matter how data are collected, the objective is to obtain accurate, complete data that are consistent across respondents, records, or other sources employed.
- ☺ The data, after collection, has to be processed and analysed in accordance with the outline laid down for the purpose at the time of developing the research plan.
- ☺ To ensuring that we have all relevant data for making contemplated comparisons and analysis.
- ☺ Develop procedures to monitor its quality; when they hire someone else to do it, that individual or firm will handle most of the tasks

- ☺ Careful data collection includes attention to pretesting and pilot studies, hiring and training data collectors, supervising data collectors, and logging and editing completed questionnaires or data collection forms
- ☺ Once data collection has been completed and checked, the process of data entry and cleaning starts.
- ☺ On one occasion of data entering into the computer system to obtained documented data file, there must prior to analysis of data is processed.
- ☺ A Checklist for Study Documentation

VIII. FUTURE SCOPE

HCI is more applicable area in overall environments. Our research changes the mentality of peoples and they find out the reality from selected HCI technologies. Few of common effects from different perspective are given below:

- ⌘ Children
 - Age changes much
 - Physical dexterity
 - Attention span
 - Intelligence
- ⌘ Socio-economic Goals
 - Educational acceleration
 - Socialization with peers
 - Psychological - improve self-image, self-confidence
 - Creativity – art, music, etc. exploration
- ⌘ Teenagers are a special group
 - Next generation
 - Beta test new interfaces, trends
 - Cell phones, text messages, simulations, fantasy games, virtual worlds
- ⌘ Sci-Fi Interfaces
 - Star Trek
 - Minority Report
 - Iron Man
- ⌘ Games
 - Dance Dance Revolution
 - Guitar Hero/Rock Band
 - Microsoft Kinect, Nintendo Wii, Playstation Move
- ⌘ Smart Phones
- ⌘ 3D TV and movies

The overall report, open new era for researcher to design the similar future HCI technology for the industries to improve productivity of most usable technology.

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