

## **A Review Paper on Human Computer Interaction**

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### **Abstract**

The development of computer technology has materialized into the term of human computer interaction. Research studies in human computer interaction studied young age groups that are educated and technically inclined. This paper will study the mental model in Human Computer Interaction that could be useful in some area. There are a number of types of this review paper on the Internet. One will lay out the current approach, result, trends, in the human computer interaction and the other approach will look into research construction that have been around long before but are now forgotten. In this paper, the author is also looking at the landscape in the emotional intelligence of a user so that they are more user like, fidelity prototyping. The development and design of an automated system that performs this task is still being undertaken. The notion of human-computer interaction is conceived as a result of the evolution of the development criteria of computer technology. The next generation of individuals (those at a younger age cohort) in which is termed an educated, technical, or at least knowledgeable individual will also be the focus of individual (tech) research experiments in human-computer interaction. Human-computer interaction (HCI) refers to both technical and human behaving aspects. The central tenets of practical studies in human-computer interaction are to reveal implicit knowledge about human behaviour and human interaction with technology. Resilience is set of behaving contextually taken collectively reacts to challenges. The term resilience has been applied to virtually everything from the economy, real estate, sports, psychology, business, and education, and the list could and can go on. Resilience is mainly comprised or made of a number of different abilities and skills as a way to be able to relate effectively to others, build relationships, self-efficacy, optimism, and self-awareness, creating meaning from other experiences form these are essential combination of competencies. In this manner people should use this in order to optimize the value of the resilience of an organization. This becomes important resourcefulness knowledge of the help available to increasing capacity to deal with the challenges facing change, overcoming (wasting time) relative to everything that could be done alternatively.

## INTRODUCTION

Computer-human interaction has an emphasis of usability. That is, the efficiency with which Humans use computers. It relates to how Humans and computers relate to one another and their common understandings. It also connects to proceduring software that make a Human's work easier, acceptable, and enjoyed to use the software. It can also be defined as how Humans use computers to accomplish tasks, and do so using an interaction that is both enjoyed and effecient . It can mean that HCI has a large role in the interaction between Humans and computers. HCI (Human Computer Interaction) consists of three components that are the user, the computer, and the interaction. HCI may involve low/high fidelity sketches (li= low and fidelity = high external input) so the level of exactness something is being copied is a practice HCI may depict. An intelligent or intelligent HCI would be able to sense and respond to a user's affective feedback.

The initial step to an intelligent HCI is having the abilities to respond and sense appropriately according to user's affective feedback and detect and interpret the affective states shown by the user instinctively. This paper will also investigate certain categories of hci deign approaches.

## HUMANS

The HCI product is developed and employed by the beings known as users of the product. In trying to understand humans as an information-processing system, aspects of the human/user as an information-processing system involve Human Processor: communication, the user's processor characteristics, memory, attention, problem-solving, learning, motivation, motor skills, conceptual models, and diversity. Linguistics, social interaction and communication, conversational interaction and any other languages. Systematic measurement of the physical properties of individuals - the dimensional descriptors of human body size and shape, physiological characteristics of human beings, and its connection to the workplace and surrounding environment.. The humans are being good at computing hard and difficult computational problems. Computers are used for interaction with the users because computer hardware it has special components that allow the interaction with human users. The computers also provide a medium for the users to formulate and interact with components and allow active learning to occur. Computers are good for counting and measuring, accurate storage and retrieval, rapid and consistent response time, being able to process or calculate data, formulate algorithms, repetitive tasks, and its capability of performance over time, "Simple and, clearly defined, things."

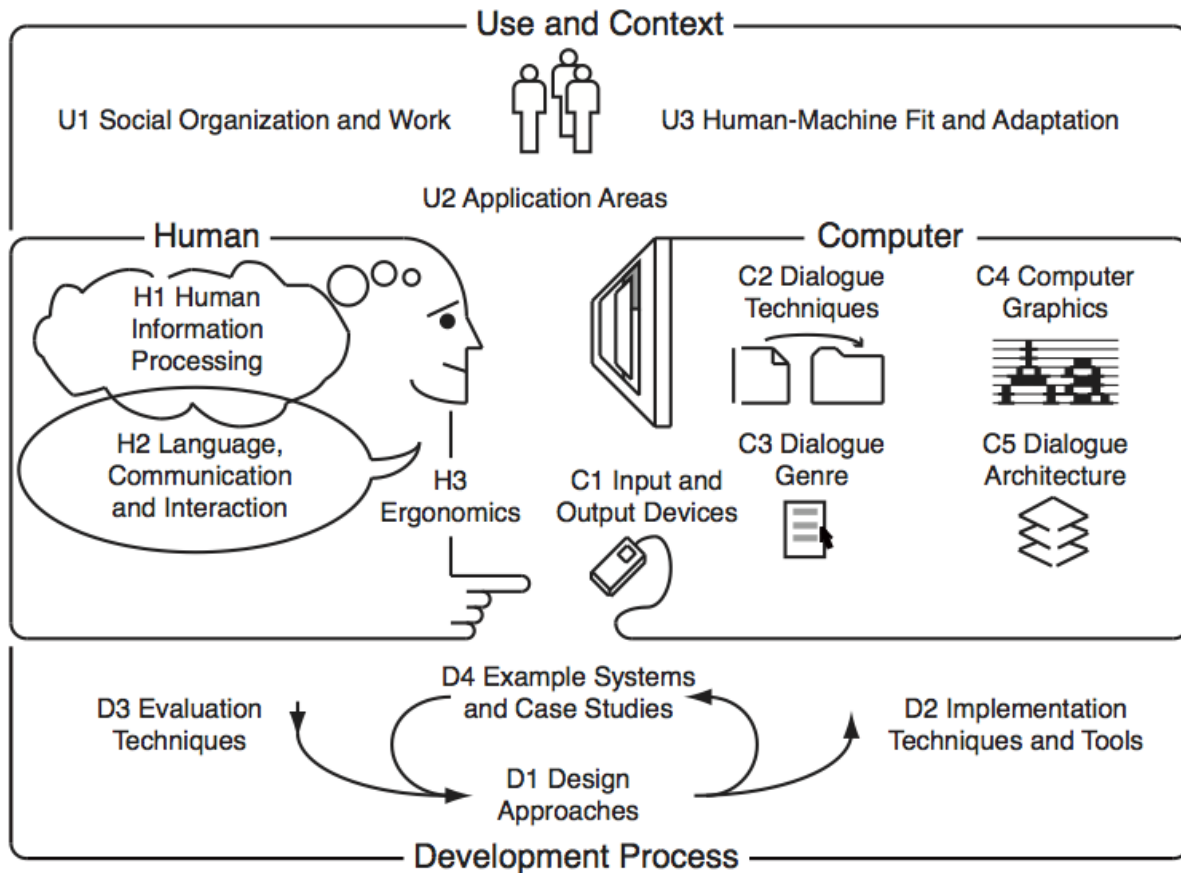
## COMPUTERS

The computers interact with the users because they possess special parts that can interact with the users. Furthermore computers serve to perform a user interface through which users can create and interface the components so as to deliver and effective learning. The computers are designed in a way that they can perform like humans and can interact like those. HCI have a main component of the computer which may leads to the interaction between the humans and the computer. Computers are very good in calculations, formulations and various actions which are not that easy on human basis.

## INTERACTION

Interaction is a two way process between the computer and humans by which the user can generate the effective output. The interaction may lead to the effective and proper functioning by which both the computer and humans

can interact with each other and produce efficient output by using various skills. The complete using of the human and computer skills together is known as Human Computer Interaction.



### HCI Technologies Currently Used

Any design of HCI needs to take into account a range of human behaviour factors and be useful. In contrast with the apparent simplicity of the interaction technique itself, the nature of human involvement in a machine interaction can sometimes be quite sophisticated. The level of usability and the financial and economic costs of the machine on the market, all determine how sophisticated the current interfaces are. For example, an electrical kettle's interface is just enough with a thermostatic on/off switch because the role of the device is essentially boiling water and more features than that may add expense without easing the user's burden. As a contribution to the betterment and simplification of the user's interface, this paper essentially revolves around recent developments in the Physical properties of interaction. It shows how different types of interaction can be integrated (Multi Model Interaction) and how each type can be its performance enhanced (Intelligent Interaction). The proportionate human sense that the device is designed for essentially classifies the physical technologies for HCI that are presently accessible. The more complex methods based on audition include some kind of speech recognition . These devices are useful to construct as they are supposed to facilitate communication in a way as to be as easy. And it is easier to construct output auditory devices. Currently, machines generate immense amounts of non-verbal as well as voice signals and messages as output signals. Basic examples include beeps, alarms, and step-by-step directions from a GPS device. Generally, haptic devices are designed for virtual reality or applications supporting disabled people. The new approaches and development in HCI are attempting to combine earlier forms of interaction with other high technologies like networking and animation. These include: New developments that fall into three categories-wearable technology, wireless technology, and virtual technology. Technology has advanced so rapidly that lines defining the new technologies are blurring rapidly.

## Architecture for HCI

The topology of a Systems engineering is its most defining characteristic. In reality, the number and nature of all inputs and outputs that an interface provides serves as its most significant defining characteristics. The HCI system's architecture explain these outputs as well as can communicate easily. Another aspect of intelligent interfaces to consider is the fact that most non-intelligent HCI. Most designs are passive interfaces and only respond when the user calls for them, while smartest and most adaptive interfaces tend to be active interfaces. An example of this is a smart billboard or advert that appears in a way that appeals to people's tastes. How multiple HCI techniques are used and how they might be contributed to the creation, and natural user interfaces are addressed in all the covered in various fields. The settings and designs that an interface is based upon are described below.

## Process of HCI DESIGN

Ebert's described four human computer interactions design approaches which uses in the user interface designs to develop user friendly users experience for the users. The various approaches can be used in the HCI so there are four approaches to design a user interface are:

### 1. Anthropomorphic Approach:

This approach involves designing human interface such as to act and react like humans. It involves the creation of the interface in which the computer can interact like humans and can performs various tasks.

### 2. Cognitive Approach:

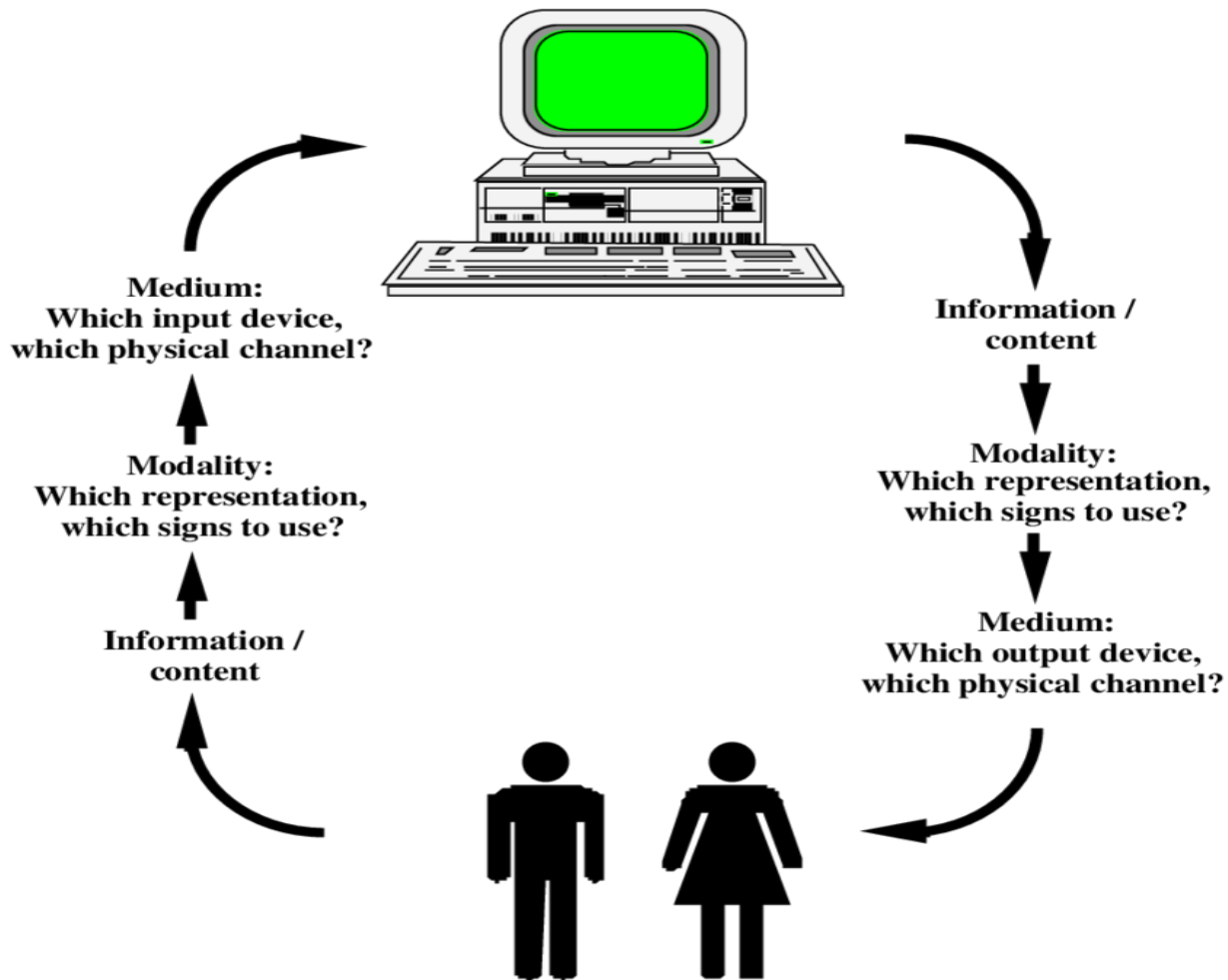
This approach used to develop a user interface which can supports the end user and by considering the ability of human thinking and the sensors like the human sensory system of the humans can act as computer.

### 3. Empirical Approach:

This approach is used for examine and to compare the various thinking capacity of various concepts by the computer which can be perform by computers.

### 4. Predictive Modelling Approach:

GOMS refers to 'g' means goals, 'o' means operators, 'm' refers to methods and 's' refers to the section rules. It is basically used for the consideration from the humans.



## Applications of HCI

### Health Care:

Patients today have unprecedented options for health care. They can arrange an appointment with a physician or order medication via a mobile application. Augmented reality and virtual reality. Now, with 3D animations, they help physicians visualize the experience beforehand, and can even assist physicians in training new surgeons.

### Educational fields:

Students today are able to more easily understand a concept than they could previously. In today's world, there are thousands of resources to help students learn any topic. Classrooms, and learning in general, are now enriched because of smart classrooms. The incorporation of AR and VR can even help students visualize concepts in a way they may not have been able to do previously. If students do not want to attend a traditional classroom, they now have the option of studying online. They were able to make up learning, and even socialize online.

**Banking Sector:**

People today do not need to wait in long queues to access banking solutions. They can access their bank accounts right from home with internet banking or mobile banking. The applications also provide the utilizers of these applications a secure environment in which to avoid cyber crimes.

**Networking sites:**

Networking is easier than ever before. Networking can involve social networking, or business networking. In the modern world, it is much easier for individuals to share ideas with another individual, and provide opportunities for employment. Networking simplifies the process of obtaining an employment opportunity.

**Conclusion**

Human-Computer Interaction (HCI) has changed greatly in its emergence of advanced computing technology. The science of HCI is concerned with enabling the ideal interaction of human beings with computers, thereby enhancing their intuitiveness, user-friendliness, and effectiveness in varying environments. The sophistication of today's interface requires these systems to be intricate and complex in functionality but minimally complex to use, alongside robust applications enabling diverse users to efficiently engage with technology.

As explored, HCI strives to broker a balance between the effectiveness and efficiency of a computer, the satisfaction of users and their varying abilities to perform and on the real-time processing power and evolution of computers. Moving forward, and as evidenced throughout, humans possess certain features like problem-solving ability, memory, and communication, which is predicated on technology, to enhance their productivity. In conjunction with an extremely rapid adoption and an ever-growing recognition of its relevance in contemporary society, particularly as we enter a hybrid future that brings together wearable, wireless, virtual, remote, digital things into daily life; the relevance of humans interacting with computers and technology, though inconspicuous, continues to be complicated every day. For example, the blurring of boundaries or the merging of the digital and physical-world things results in more seamless and seamless interactions; and it's no surprise that intelligent systems are beginning to emerge, which studies and learns users behavior and adjust accordingly to provide that same relevant experience.

The notion of HCI applications is strong, and manifests itself in sectors like banking and networking - enabling users to obtain services and functions remotely and remotely secure which traditionally would have required a trip to a city's location or an office. Similar access considerations apply to user interface simplified in a banking application for example or web application such as Facebook that enable its users to locate a particular item faster and more intuitively. HCI then is ideally concerned with enhancing the system function of a computer in any sector identified, but perhaps more importantly, HCI considers ways to enhance the experience for its largest user audience of society thereby maximising access and ease of use.

In conclusion, HCI is big and largely involved in an organization or companies continued use of empowering and the advancement of technology, with emphasis on how humans interface with technology in an ever-changing, complicated, and diluted world of technology. I believe this augmented capability will contribute to future systems, and hence interactions with them will keep positioning future HCI practices as intuitive, accessible, and everyday integrated regardless its industry.

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