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A Review Paper on Human Computer Interaction

P. Sinha, S. Shukla, J. Suryavanshi
Shri G.P.M. Degree College of Science and Commerce, Andheri, Mumbai, Maharashtra

Abstract: *The progress of computer technology is what gave rise to the concept of human-computer interaction. humans and its relationship to technology. Resilience can be described as a collection of practices and routines that facilitate our ability to rebound from challenges. The term 'resilience' finds application across a wide spectrum of areas, encompassing the economy, real estate, events, sports, business, psychology, the educational field, and numerous others. Resilience is essentially composed of a variety of different talents and abilities for the aim of forming meaningful relationships.*

Keywords: Resilience, Resilience Strategies, Technology, Younger participants, Artifacts, Emotional intelligence, Fidelity Prototyping, Human Computer Interaction, Human Factors, Interactivity, Information Systems

I. INTRODUCTION

These days, the field of computing is expanding quickly. Additionally, the use of computers by humans is crucial for a variety of functions. HCI (human-computer interaction) is the study of how humans interact with computers as well as their behavior, or how they behave around them[1]. How far have computers developed for successful human interaction, as well as what are the things that are not developed for good human interaction. The human (the user), the actual interaction machine (the computer), and the techniques (ways they interact) are the three components of HCI, as the name suggests. Therefore, everything here is about the interaction between a machine and a human and their shared perceptions. And with the program (which was made using technology), human job can be completed quickly. Following that, people/humans would adore using the software for the purpose of carrying out tasks in a productive manner. Additionally, anyone would be able to use that program, which was created utilizing a variety of technologies. Human- computer interaction is essentially the study of how people interact with computers and other technology and what kinds of interactions are possible. discover additional strategies that might be created so that people.

In other terms, HCI (human-computer interaction) is the study of how people use computers to accomplish a variety of tasks. And how they are utilizing technology in a way that allows people to interact with the computer in a fun and productive way. Initially limited to computers, human-computer interaction has since grown to encompass practically every type of information technology design currently used in our environment[2].

Humans can engage with computers in a variety of ways to complete tasks quickly and effectively. Thefirst step in an intelligent human-computer interaction (HCI) is the ability to respond and sense correctly in accordance with humans' (the users') affective feedback and identify, interpret the affective states displayedby the user instinctively[3]. Additionally, this essay focuses on the various human-computer interaction design paradigms. Human-Computer Interaction is a broad field that draws from organizational, cognitive, organizational and computer science, psychology, and social sciences to learn about how users interact.

The two areas on which recent research on resilience has concentrated are information technology and organizational. The ability of an organization to endure under pressure, including the prevention or mitigation of risky, harmful, or adverse events that jeopardize the organization's very survival, is taken into account when determining organizational resilience. When dangers to computers and networking are present, stabilityand quality of service will be viewed as infrastructure. Resilience in information technology[5].

Humans

Since this product was created by people, it is sometimes referred to as a product of the users because there are many different human-computer interaction results that people build and consume. The following properties of the human/user as a processor of information are important to understand in order to fully understand how humans can be

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analyzed as information-processing systems: memory, attention, problem- solving, learning, motivation, motor abilities, conceptual models, and diversity. Language, computer interaction, communication, and interaction within the context of language, including pragmatics, grammar, semantics, specialized languages, and specialized languages used in conversation. Anthropometric.

Computers

Computers are mostly used to interact with humans (the users), though there are many different componentsthat can be utilised.The user can utilize the computer in a variety of ways depending on their own requirements thanks to the different capabilities and components it offers. Computers are capable of a wide range of tasks, including storing and recalling data, measuring, quickly counting, processing data, and performing a wide range of mathematical operations. They can also handle repetitive tasks quickly and efficiently. A computer's performance will depend on the system's workflow and the amount of time neededto complete each task.

Interaction

Every interaction involves two parties. Users can interact with the computers here by using the computer's parts. To find an answer to their question, users typically communicate with computers. It is evident from this that machines and people differ greatly from one another. Interaction between humans and computers makes sure their joint efforts are successful. Apply your knowledge of computers and people to the system inorder to make it usable. You should also consider design suggestions from different users. There are two crucial factors to think about while creating a real-time system: the schedule and the system budget.

Basically everyone here investigates the process by which people create, carry out.

User Interface

In software projects, user interface is crucial. In the human-computer Users and computers will interact in this interaction, so the user interface also plays a crucial part in computer interaction because without a suitable user interface, good communication between users and the computer system will not be established.The user interface (UI) primarily controls inputs (what the user enters into the system as inputs) and output display. The developer side will take into account a number of factors when developing the user interface in order to offer the users better services. Services like: being simple to use, ensuring that the user is satisfied after using that interface, and having the capacity to accept errors when they occur in real life.

II. AREAS OF HCI

The field of human-computer interaction encompasses a variety of domains and disciplines.

Computer Science
Language
Sociology
Psychology
Design
Ethnography
Engineering
Semiotics
Ergonomics and Human Factor

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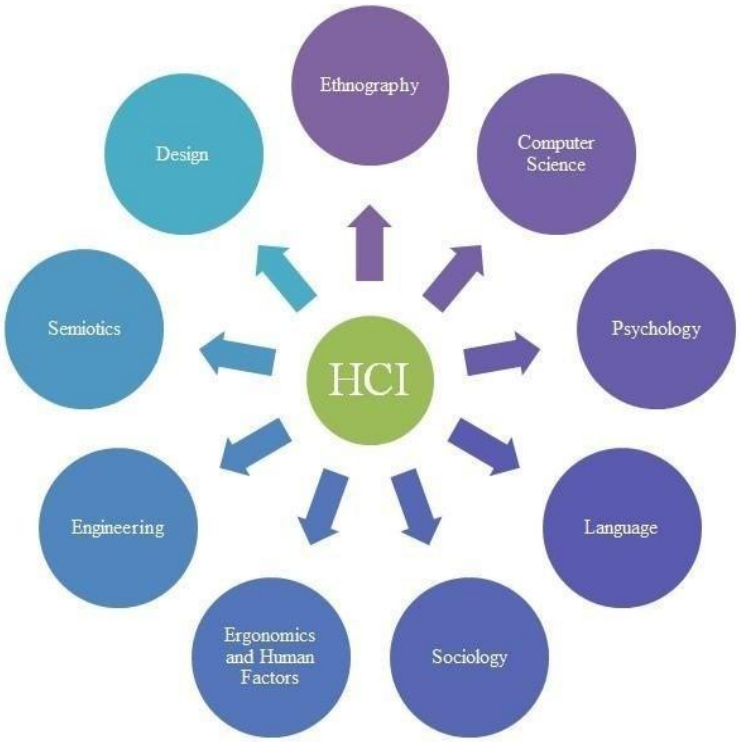

Figure 1: Some of the areas involved in the field of human-computer interactionEMOTIONAL INTELLIGENCE

In Human-computer interaction the Facial Expressions are considered as communicative signals or can be considered as being expressions of emotions and they can be associated with such types of emotions like: surprise, anger, happiness, fear, sadness, contempt. And there is also one other tool is emotional speech recognition which is used to detect the emotions[6][7]

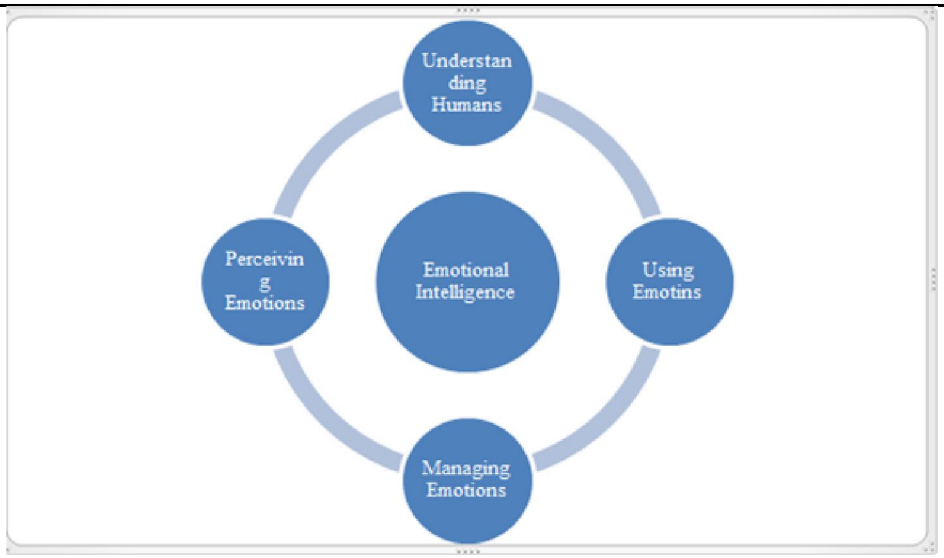

Figure 2: Emotional IntelligenceFIDELITY PROTOTYPING

Simply having a basic model for prototyping allows for the creation of numerous more models. Another term is fidelity, which refers to how faithfully a product can be recreated.It also refers to the final appearance of the product

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once production has been completed. Low fidelity prototyping (low-tech fidelity) and high fidelity prototyping (high-tech fidelity) are two different types of fidelity prototyping[8].

LOW FIDELITY PROTOTYPING

The use of this prototype is really straightforward, and product and design concepts may be simply adapted. Low fidelity prototyping, which is essentially utilized to turn your design idea into a real product, basically implies that whatever you have in mind for a design may be turned into a tangible product that anyone can touch as well as a testable artifact (where you can feel about that product). Here, user needs will be gatheredin the first stages, followed by demand analysis.

HIGH FIDELITY PROTOTYPING

There are several interactive features in this prototyping that are extremely similar to the finished product interms of details and functionality. There may be a variety of possible problems throughout workflow and interactivity, and high fidelity prototyping can be used to find and assess these problems.

Now discussing the order of human-computer interaction (HCI), from Low Fidelity to High Fidelity, examples include paper sketches, computer-aided sketches and storyboards, the Wizard of Oz/slide, shows/video prototyping, scenario simulation on computers, horizontal simulation on computers, and computers with full functionality. In terms of human-computer interaction, low fidelity prototype comesbefore high fidelity prototyping.

HUMAN FACTORS

The main focus of human factors is how humans interact with different occupations; machines and the environment are also taken into account, although they have their own capabilities and limitations. A humanelement is a cognitive or physical factor.

A characteristic of a person or a social behavior that is unique to humans, as well as the influence on the equilibriums between humans and their surroundings and how technology systems work. The manner thatindividuals interact with computers and their applications is also influenced by human factors. There is a difficulty since approaches used in the software development life cycle (SDLC) omit to take human considerations into account during the user interface design stage[9].

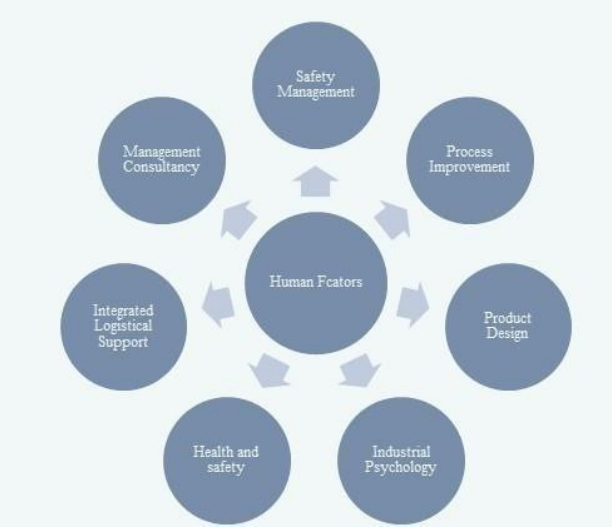

Figure 3: Human Factor in HCISTRATEGIES OF RESILIENCE

Resilience is toughness or the ability to bounce back swiftly from adversity. There are five pillars that make up resilience: awareness, mindfulness, positive connections, purpose, and self-care. By bolstering these pillars, we become more resilient as a result. The "toughness" of the systems is only a concept that is ingrained in the fields of social

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psychology, psychotherapy, ecology, and material science. Now that organization resilience is being discussed, it is important to remember that this basically refers to the capacity to adapt quickly to business disruptions and manage ongoing business operations in order to promote growth and establish oneself as a more reliable partner. Resilience is primarily discuss focuses on the human activities (human characteristics) and how they will react to unexpected situations, such as how they will gather information (information seeking), communicate (communication ability), and deal with redundancy. For example, when more advanced technology is available, how will humans deal with that (redundancy), and when humans have all of the resources, how will they act?

The initial step in a resilience plan is to comprehend what the organization needs in order to offer services during unpredictable events and to discover solutions to such challenges whenever they arise. Resilience techniques should be established so that the system can handle any challenges that may arise at any time. Theresilience method is similar to how and from which way they can readily and less amount of time that somebody will be well when they are sick. Planning for resilience

Various forms of study are currently being conducted in this area, and people are adhering to a number of processes. Having a positive relationship with both those who are employed by the company and those whoare external to it and do not belong to it is important in this. Making connections will therefore increase the level of trust between the parties involved in the process, as well as their capacity to devise practical plans and to put those plans into practice, as well as their belief in their own abilities and strengths. Skills in problem-solving and communication are some of the components that increase resilience. There are many different kinds of products, and if you want to develop any technology, you can employ many different kindsof strategies[10].

THE GOALS OF HCI

The main purpose of human computer interaction is to make systems usable, safe and secure, as well as systems must be functional For making systems simpler to use and easy to learn then here usability is concerned. Inorder to produce computer systems with good usability developers must follow that Recognize the system hardware that gather information is that how the user are using the technology.

Developing different types of tools and techniques that allow to building suitable systems.

After developing suitable systems the second thing is more important is to achieve effective, efficientand safe interaction with computers.

When developing computer systems the best thing to keep in mind is that the system must be usableandeasy to use for the users.

III. CONCLUSION

Nowadays research in Artificial Intelligence is going on and this is the most global research topic and in thisalso human computer interaction concept is used. Human computer interaction design makes important changes world-wide. To analyze behavior of humans at a deeper level so for this purpose their various components of human-computer interaction technology are used in this. Computers basically work accordingto the programmers instructions. And also got the results according to the instructions which are providedby the computers after some processes. In the coming days human-computer interaction will bring big changes in the world. It's basically easy to use always for humans and also the communication between the human andthe computers totally depends on what instructions are fed to the system by the human.

The term resilience has been applied to everything from economy, to the real-state, sports, events, businesses,psychology, and many more areas where resilience helps in difficult situations. The main of this study, with various other perspectives, was to gain information from us as much as possible, by using various methods of research, and after that, analyze the technologies and existing information systems to develop all possiblesolutions in order to force resilience on either employee at the time of training or performance improvementof the users.

The Human Computer Interaction design approach applied to user technological interfaces design, using different research methods, contributed to satisfying both parts: the user and the organization. The output was mainly the promotion of the use of knowledge and methods for users in particular, and for the organization, in general; the

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understanding of guidelines and models, to solve encountered problems and, thetechnology analyses of people in both individuals and organizational contexts.

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