

Group 5

Members;

Cornelius Kipkorir – COM/016/15

Benedict Tuiya – COM/1002/15

Sharon Obongo – COM/044/15

Hazen Koskei – COM/031/15

Stacy Rutto – COM/005/15

Tracy Magoma – COM/013/15

Namu Ephantus – COM/006/15

Pretorius Ndung'u – COM/

COM 415: Human factors in computer (HCI)

Question 5: Psychological, social and technical aspects of interaction between human and computer

Psychological aspects;

Human factors psychology examines the capabilities of humans and how these constraints and abilities affect the design. The goal is to design systems with these capabilities and limitations in mind. Some of the design principles apply during the design process include;

1. Gestalt principle

It shows how people tend to unify visual elements into groups. It confirms in practice that our brain tends to make tricks with us so designers should consider that fact during the creation process to exclude the possibility of misunderstanding. The principles on which users form groups, include;

a) Similarity: If a user sees objects that look somehow similar they may automatically perceive them as elements of one group. The similarity can be defined with shape, color, size, texture or value. Similarity gives the user the sense of coherency between design elements.

- b) **Continuation:** The Human eye moves naturally from one objects the other, this often happens through the creation of curved lines allowing the eye to flow with the line.
- c) **Closure:** It is a technique based on the human eyes tendencies to see closed shapes. Closure works were the object is incomplete but the user perceives it as full shape by filling in the missing parts.
- d) **Proximity:** When objects are placed in close proximity, the eye perceives them as a group
- e) **Figure/ground:** Demonstrates the eyes tendencies to separate objects from their backgrounds.

2. Visceral reactions

This kind of reactions comes from the part of our head called 'old brain' responsible for the instincts and its reacts much faster than or consciousness does. So the tendency of using high-resolution beautiful photos or colorful pictures at landing pages, websites or mobile products is not accidental.

3. Psychology of colors

Colors have a great impact on user's perception. Here are some of the basic colors and their meanings;

- a) **Red:** Symbolizes both good and bad feelings including love, confidence, passion and anger.
- b) **Orange:** An energetic and warm color bring the feeling excitement.
- c) **Yellow:** Color of happiness
- d) **Green:** Color of nature, brings the feeling of calmness and renewing
- e) **Blue:** Often represents some corporate images.
- f) **Purple:** Associates with loyalty and wealth.
- g) **Black:** Associates with tragedy and death, also signify mystery.
- h) **White:** Means purity and innocence.

4. Recognition patterns

Visitors visiting a website or using an application are expecting to see certain things associated with the definite kind of product. Example visiting a website of a barber shop, users are no expecting to see bright colors or picture of cows, if they do they will definitely view the website as an untrustworthy resource. This is because user become accustomed to things quickly and their absence makes them feel uncomfortable.

5. Scanning patterns

Before reading a webpage, people scan it to get a sense of whether they are interested. Popular scanning patterns for webpage include 'F' and 'Z' patterns

- a) F-pattern: A user first scans a horizontal line, then moves down the page a bit and read through the horizontal line which covers a shorter area. And the last one is vertical line down on the left side of the copy.
- b) Z-pattern: The user first scans across the top the page starting from the left corner, and then goes down to the opposite corner at a diagonal, finishing on the horizontal line at the bottom of the page, again from the left to right.

Knowing this patterns designers can place the elements in an ineffective way for user's perception and help them perform expected actions.

6. Hick's Law

The laws states that the more options users are exposed to, the longer it takes them to make a decision. Hence the more options you give to the users, the more time and energy to make a decision about the next step of interaction. This results in users getting unpleasant feeling after using the product, thus designers are recommend to keep any options including buttons, pictures, pages to a minimum.knitdureWAS

Social aspects;

The interaction of human beings occurs at a point of contact, whether visual, auditory, or physical. Human-computer interaction not only involves the physical point of contact; it also includes temporal, spatial, cultural, and experiential contexts. Social aspects of interaction between human and computer may be described in terms of:

1. Humans are social beings

Several studies reveal that our brain, senses, and perception were adapted to work well with our social context. Social interactions dominate our area of perception, and we can attribute social meaning to basically anything that others do around us, be it as simple as a direction of their gaze.

2. We are hyper social – even with our computer

Humans are prone to socialize with their peers, but also will readily perceive inanimate objects as social agents. Computers are especially good subject for this personalization, as they have human traits that is, they give words for output, they are interactive and they are playing the same roles traditionally humans play, therefore making it obvious to answer socially to their actions.

3. Computers are social actors

This theory states that those phenomena observed in the social sciences, such as the norm of politeness, the norm of reciprocity, or the norm of reciprocal self-disclosure can be observed during the examination of human-computer interactions. We tend to express similarity preference that is, introverted people prefer being in contact with a computer that shows introverted traits. Others view computers as their teammates.

4. Chatbots

They are artificial intelligence programs that simulate human conversations. In the last few decades, the need for social machines increased immensely. Thus, if we could ask our computer a favor, and it could give us a feedback about what he understood and what information is still needed for completing the task, our interaction would be much more efficient and enjoyable. This insight makes it understandable that chatbots got into the center of the attention. The first chatbot was *ELIZA*, who imitated a non-directive therapist, soon to be followed by *PARRY*.

5. Future directions

The status of chatbots' development hasn't reached its goal yet: the software capable of imitating human behavior faithfully is yet to come. Artificial intelligence is expected to improve on the ultimate social machines (chatbots).

Technical aspects;

All interaction between humans and the computer must go through our senses. We have in this respect a set of “input-channels” (in to our senses from the technical environment) and “output-channels” (out from our senses to the technical environment)

An interaction technique starts when the user does something that causes an electronic device to respond, and includes the direct feedback from the device to the user.

Examples include:

- Physical buttons and switches, for instance one can go back to the previously visited page on a web browser by either
- On-screen menus, used to make adjustment to display
- Scroll bars operated by a mouse, touch screen widgets and gestures such as flick-to-scroll, used to navigate documents.
- Text entry on computers or touch screens,
- Consumer electronics controls.