

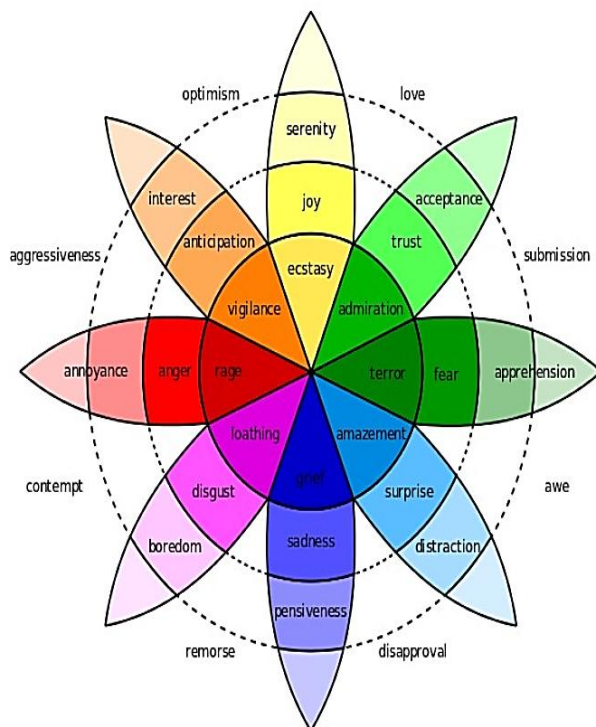
HCI SEMI FINALS REVIEWER

DESIGN FOR EMOTIONS

Emotional Design

- strives to create products that elicit appropriate emotions, in order to create a positive experience for the user.
- The emotions a product elicits can strongly influence users' perceptions of it
- Emotions play a central role in the human ability to understand and learn about the world.
- Positive experiences kindle our curiosity, and negative ones protect us from repeating mistakes.

Plutchik's Psycho-evolutionary Theory of Emotion



Plutchik posited 10 points with regard to emotion:

1. Emotions are found at all evolutionary levels of species. They are equally applicable to all animals as they are to human beings.
2. Emotions evolved differently in different species and may be expressed differently between those species.

3. The purpose of emotions is an evolutionary survival response enabling the organism to survive when confronted by environmental challenges.

4. While emotions can be displayed and evoked through different mechanisms in different organisms there are common elements to emotions that can be identified across all emotional animals.

5. There are 8 basic, primary emotions.

6. Other emotions are simply a combination of these 8 basic emotions or are derived from one (or more) of these basic emotions.

7. Primary emotions are "idealized" and their properties must be inferred from evidence but cannot be accurately stated in full.

8. Each primary emotion is paired with another and is a polar opposite of that pair.

9. Emotions can and do vary in degrees of similarity to each other.

10. Emotions exist in varying degrees of intensity.

The 8 basic emotions that Plutchik devised were:

1. Anger
2. Disgust
3. Fear
4. Sadness
5. Anticipation
6. Joy
7. Surprise
8. Trust

Basic Emotional Pairs

The basic emotional pairs are as follows:

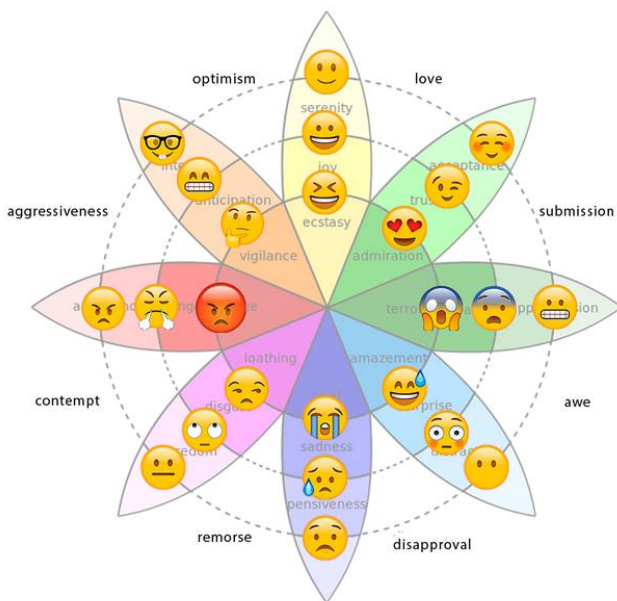
- Joy and Sadness
- Trust and Disgust
- Fear and Anger
- Surprise and Anticipation

Emotions on Plutchik's wheel may be combined as follows:

- Anticipation + Joy = Optimism (with its opposite being disapproval)
- Joy + Trust = Love (with its opposite being remorse)

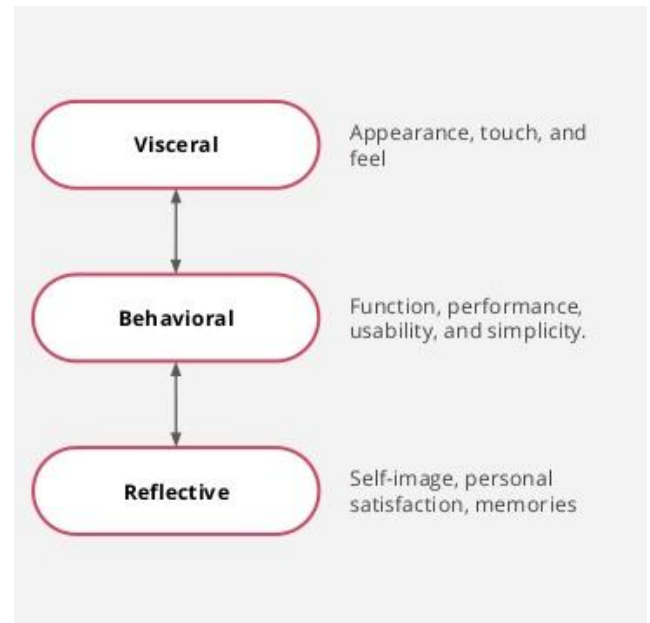
- Trust + Fear = Submission (with its opposite being contempt)
- Fear + Surprise = Awe (with its opposite being aggression)
- Surprise + Sadness = Disapproval (with its opposite being optimism)
- Sadness + Disgust = Remorse (with its opposite being love)
- Disgust + Anger = Contempt (with its opposite being submission)
- Anger + Anticipation = Aggressiveness (with its opposite being awe)

Here's an emoji-based version of the wheel created by Sherene Kasim (an Author in UXDesign) for a recent presentation on Emotive UI:



Humans form emotional connections with objects on three levels

Don Norman's three levels of processing in the brain:



Emotional design revolves around our needs as humans to bond and create a connection between man and machine.

When you have two similar coffee products, emotional design is what makes you choose one over the other.

"Attractive things work better"
- Don Norman



VICERAL

Good Design is

- Aesthetic
- Unobstructive
- Long-lasting

EX: James Bond's Aston Martin, Sleek, elegant, exciting.

— Visceral level is about first impression

First impression is the best impression. Working on building a great on-boarding experience helps you tell your users what your product is all about and make them like your product. It is about telling the story of why users should use your product.

— Visceral level is about attraction

The more attractive (pretty) your product is the more chances you are going to get users' immediate attention. Its when you hear users say, "WoW! Look at that!"

— Visceral level is about immediate emotional impact
Immediate feeling users get looking at your product (color, design etc.,) or touching your product (it feels good...) or feeling the immediate need of the product!

IPHONE

First Impression: When a user unboxes an iPhone for the first time, the sleek packaging, premium materials, and simple design create an immediate sense of high quality and exclusivity.

Attraction: The modern and minimalistic design, smooth edges, and vibrant screen instantly grab attention. The polished user interface with fluid animations makes it visually appealing.

Immediate Emotional Impact: The moment a user picks up an iPhone, the cool metal body and smooth glass feel premium. The vibrant screen and smooth performance create a sense of excitement and satisfaction.

Behavioral

Good Design makes a product

- Understandable
- Useful

Good Design is

- Innovative
- Thorough down to the last detail
- As little design as possible



— Behavioral level is about user experience

Bad user experience, no matter how good your product is, can cripple users' expectations, drive anger & frustration which ultimately results in users not using your product.

— Behavioral level is about understanding how users use your product

Its not just about building the user experience, it is also about understanding how users use your product, getting the right feedback so you can improve your product's user experience.

— Behavioral level is about expectations

It is about what users expect from your product. In other words, the product should deliver what it promises to the users. e.g., Dropbox should allow its users to put stuff in their Dropbox and get to it from their computers, phones, or tablets.

User Experience – A poor UX can frustrate users, leading to unmet expectations and abandonment of the product. Even if the product is well-designed functionally, bad UX can be a deal-breaker. Understanding

User Behavior – It's not enough to just build a good UX; you also need to understand how users interact with your product. Gathering feedback helps in improving the experience over time.

User Expectations – A product should deliver what it promises. If users expect a certain functionality (like Dropbox allowing easy access to files across devices), the product should meet that expectation seamlessly.

REFLECTIVE

Good Design is

- Honest
- Environmental Friendly

Reflective Level

— Reflective level is about memories

The joy users get using your product that lasts forever.

— Reflective level is about the relationship with the product

If users like your product, they are going to be more attached to it. They build a relationship with the product. They are proud to use it.

If users do not like your product, they are not going to use your product. Period.

— Reflective level is about the overall impression of the product

The more users like the product, the more they are going to keep using it. Not only use it, but recommend it to others.

Memories (Joy That Lasts Forever)

Apple iPhone – Many users remember their first iPhone experience and how it felt revolutionary. This memory creates lasting loyalty.

Nintendo Switch – People associate it with fun times spent gaming with friends and family, making it a memorable product.

Relationship With the Product

Tesla – Tesla owners often feel a strong emotional connection to their cars, even giving them names. They are proud of their purchase and become brand advocates.

LEGO – Many people who played with LEGO as kids continue buying them as adults, showing a lasting relationship with the product.

Overall Impression of the Product

Airbnb – A smooth and delightful experience makes users return for future trips and recommend it to friends.

Starbucks – People don't just go for coffee; they go for the experience, ambiance, and brand image, leading to repeat visits and loyalty.

Don Norman's three levels of processing in the brain 10 Principles of Good Design based on Dieter Rams

Visceral

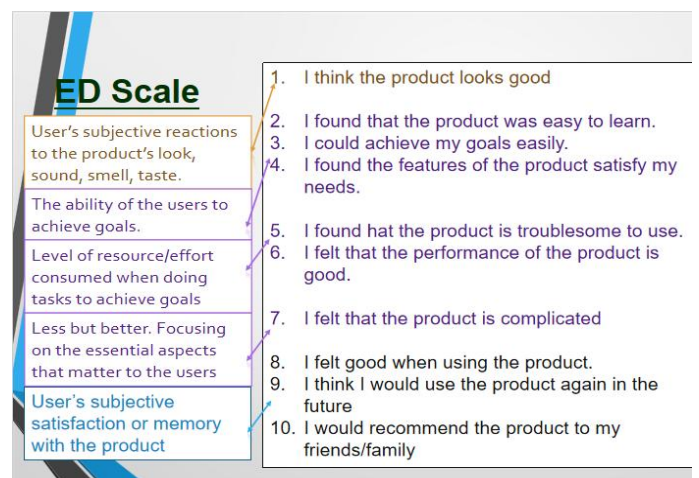
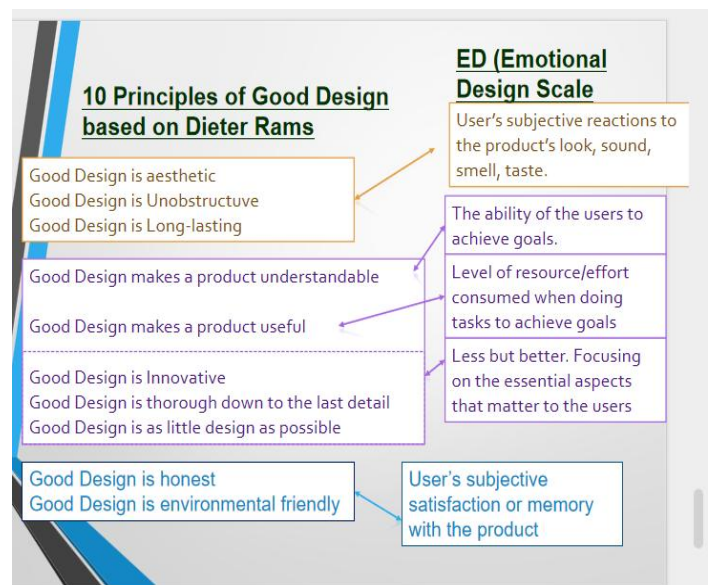
- Good Design is aesthetic
- Good Design is Unobstructed
- Good Design is Long-lasting

Behavioral

- Good Design makes a product understandable
- Good Design makes a product useful
- Good Design is Innovative
- Good Design is thorough down to the last detail
- Good Design is as little design as possible

Reflective

- Good Design is honest
- Good Design is environmental friendly



ED Scale

1. I think the product looks good
2. I found that the product was easy to learn.
3. I could achieve my goals easily.
4. I found the features of the product satisfy my needs.
5. I found that the product is troublesome to use.
6. I felt that the performance of the product is good.
7. I felt that the product is complicated
8. I felt good when using the product.
9. I think I would use the product again in the future
10. I would recommend the product to my friends/family



Abraham Maslow's Hierarchy of Needs



FIG 1.2: Maslow's Hierarchy of Needs.

Translated Maslow's model of human needs to the needs of our users

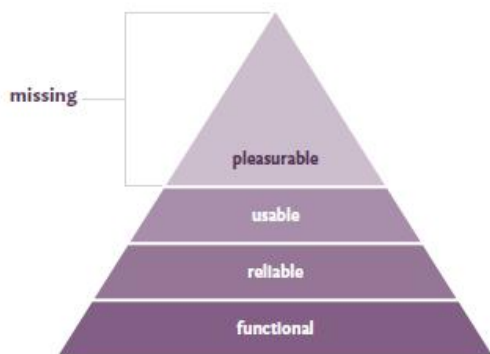


FIG 1.3: We can remap Maslow's Hierarchy of Needs to the needs of our users.

What is usability?

"The extent to which a product can be used by specified users to achieve specific goals with effectiveness, efficiency, and satisfaction in a specified context of use."

- *The International Standards Organization (ISO 9241-11)*

"Usability is an approach to product development that incorporates direct user feedback throughout the development cycle in order to reduce costs and create products and tools that meet user needs."

- *The Usability Professionals Association (UPA)*

"Usability really just means making sure that something works well, that a person of average (or even below average) ability and experience can use the thing—whether it's a website, a fighter jet, or a revolving door—for its intended purpose without getting hopelessly frustrated."

- *Don't Make Me Think, Steve Krug (2000)*

Common Themes

- A user is involved.
- That user is doing something.
- That user is doing something with a product, system, or other thing

Usability vs User Experience

Usability

- ability of the user to use the thing to carry out a task successfully.

User Experience (UX)

- Individual's entire interaction with the thing, as well as thoughts, feelings, and perceptions that result from that interaction

We take a very broad view of usability and examine the entire user experience.

Therefore, when we talk about "measuring usability," we're really looking at the entire user experience.

What are usability metrics?

Metric

- way of measuring or evaluating a particular phenomena or thing.
- Should be observable and quantifiable

- Reveal something about the user experience
- About the interaction between the user and the thing
- ✓ Effectiveness (ability to complete a task)
- ✓ Efficiency (amount of effort to complete a task)
- ✓ Satisfaction (happiness with the experience)
- Also measure something about people and their behaviors and attitudes

Metrics should answer

- Will the users like the product?
- Is this new product more efficient to use than the current product?
- How does the usability of this product compare to the competition?
- What are the most significant usability problems with this product?
- Are improvements being made from one design iteration to the next?
- Etc.

Metrics are measured in the context of a task.

Study Goal

Formative and Summative

The first decision to make when planning a usability study is how the data will ultimately be used within the product development life cycle. There are essentially two general ways to use data: formative and summative.

Formative

- What aspects of the product work well for users? What do they find frustrating?
- What are the most common errors and mistakes that the users commit?

Iterative in nature

- Its goal is to make improvements in the design
- Identifying or diagnosing the problems
- Making recommendations and then evaluate again

It is done before the design has been finalized

formative testing focuses on identifying ways of making improvements

Summative

- Did we meet the usability goals of the product?
- How does the product compare against that of competitors?
- Comparing several products to each other
- Summative testing focuses on evaluating against a certain set of criteria



User Goals

Performance and Satisfaction

When planning a usability study, you need to know something about the users and what they are trying to accomplish

Does the user simply want to complete a task, or is their efficiency the primary driver? Do users care at all about the design aesthetics of the product? All these questions boil down to measuring two main aspects of the user experience: performance and satisfaction.

Performance

- Relates to what the user does with the product.
- Time to perform a task
- Number of clicks
- Number of errors

Satisfaction

- What the user thinks about his/her interaction with the product
- Visually appealing
- Trustworthy

- Confusing
- Frustrating

10 Reasons to Conduct Usability Testing

1. Completing a Transaction

- Can the user complete a transaction?
- Examine
 - ✓ Task success
 - ✓ Drop off rate
 - ✓ Issue severity

2. Comparing Products

- How does your product compare against the competition's?
- Examine
 - ✓ Task completion
 - ✓ Efficiency
 - ✓ Satisfaction

3. Evaluating frequent use of the same product

- How easy is it to use an everyday product over and over?
- Examine
 - ✓ Task time
 - ✓ Learnability
 - ✓ Number of steps

4. Evaluating navigation or information architecture

- Can participants find a piece of information?
- Examine
 - "Lostness" - An efficiency metric that's useful for evaluating navigation and information architecture

5. Increasing Awareness

- Are participants aware of a feature or a new piece of information?
- Examine
 - ✓ Number of interactions with the new element
 - ✓ Participants' recall of the new feature
 - ✓ Eye-tracking

6. Problem Discovery

- What are the major usability issues of the product?
- Examine
 - ✓ Issues that arise during the use of the product

7. Maximizing Usability for a Critical Product

- Can the possibility of error be eliminated?
- Examine
 - ✓ Number of errors made while performing a task
 - ✓ Task success

8. Creating an Overall Positive UX

- Is the product engaging?
- Remember our lecture on ED
- Examine
 - ✓ Satisfaction
 - ✓ Exceeding expectations
 - ✓ Physiological metrics (levels of arousal)

9. Evaluating Subtle changes

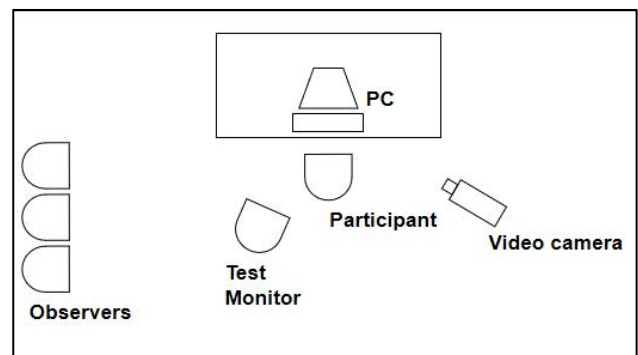
- What effect do subtle design changes have on the user experience?
- Examine
 - ✓ User feedback
 - ✓ Differences in behavior among groups exposed to slightly different versions of the same software

10. Comparing Alternative Designs

- Which design works best?
- Examine
 - ✓ Issues arising from the use of one design over another
 - ✓ Performance
 - ✓ Satisfaction

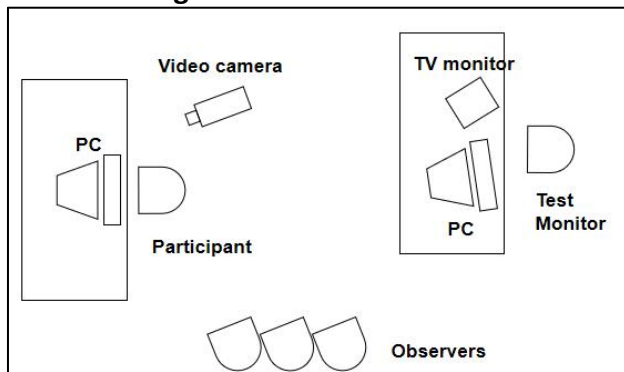
Testing Environment

Single-room



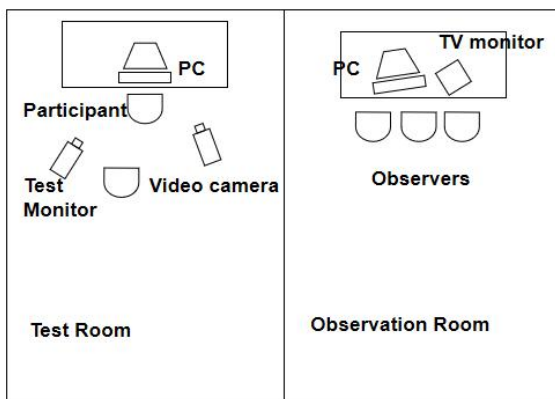
- Test monitor has close contact with participant
- Sense of teamwork
- Test monitor can provide encouragement
- Test monitor's behavior can affect the test
- Limited space for observers

Modified single-room



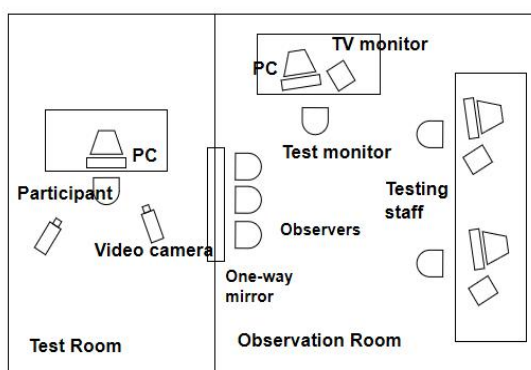
- Test monitor is more free to move about, take notes, etc.
- Remains within visual proximity to the participant
- Participant not isolated
- Setup encourages participant to think aloud
- Loss of proximity
- Participant can feel uneasy
- Limited space for observers

Electronic observation room



- All the advantages of single-room setup
- Observers get to view the test without worrying about interfering
- Test monitor can affect the participant
- Logistically difficult

Classic laboratory setup



- Unobtrusive data collection
- Testing staff can communicate freely
- Many observers
- Very impersonal
- Limited view of screen
- Not suitable for exploratory tests

Testing Roles

Roles

Test monitor

- In charge of the actual test
- Oversees testing
- Greets, interacts, and debriefs the participant
- Compiles and communicates test results

Data logger

- Classifies critical activities and events of a test into coded categories
- Assigns codes to expected activities of interest
- Makes sure that actions are easily identifiable

Timers

- Keep track of the beginning and ending time
- Often performed by the camera operator

Video recording operators

- Adjusting and operating the camera
- Ensuring test materials are visible

Product experts

- Familiar with the product under review
- Can intervene if there are technical problems

Test observers

- Anyone who attends

Test Monitor

- Most critical role
- Human factors specialist
- Marketing specialist
- Technical communicator
- External consultant

Characteristics of a Good Test Monitor

- Grounding in usability engineering
- Quick learner
- Instant rapport
- Excellent memory
- Good listener
- Comfortable with ambiguity
- Flexible
- Long attention span
- Empathic
- “Big Picture” thinker
- Good communicator
- Good organizer and coordinator

Improving Test Monitoring Skills

- Learn basic principles in human factors
- Learn from watching others
- Watch yourself on tape
- Work with a mentor
- Practice monitoring
- Learn to mediate
- Practice “bare attention”