

Participation-4

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1) Describe the relationship between UX and SA

We know that Situational Awareness is defined based on the following factors :

- Being aware of your environment
 - Current state
 - What's coming next
- Able to extract relevant information
 - The flow of information
 - Prioritization
- SA is assessed concerning the specific goals of a particular job
- Example :
 - The presence of other cars and obstructions for a driver operating a vehicle
 - Direction and speed
 - traffic laws and regulations

A doctor attending a patient;

- vital signs and symptoms
- Relevant patient history
- Best practices

A flight controller overseeing aircraft

- All aircraft's speed
- The weather
- direction and height

Considering the designer's responsibility, it is important to have a proper understanding of the relationship between UX and SA.

Users of your product should enjoy the experience

- The product should undeniably ease/improve the user's life
 - Increased productivity
 - Reduced anxiety / minimal frustration
 - Better performance/results
 - Consistency, integrity, reliability, etc.

This is only possible if there is a good understanding b/w the UX and SA while designing the process.

Relationship b/w UX and SA :

Information Presentation: A clear and understandable presentation of information is the goal of UX design. **Users must be provided with relevant data in a manner that enhances their situational awareness** when interacting with a system. To help users stay aware of their surroundings while travelling, a navigation app's UI, for instance, should offer real-time updates on traffic conditions, impending turns, and areas of interest.

Accessibility: Keeping things **accessible** is an essential component of UX design that **enhances situational awareness**. It is ensured that everyone can **successfully perceive and engage with the system**, regardless of their situational setting. Users with visual disabilities benefit from high contrast colour schemes and alternate language for pictures, for example, since it improves their situational awareness of interface components.

User Conceptual Model: The goal of UCD is to match users' mental representations with the design of the system.

This reduces cognitive strain and enables users to anticipate how the system will behave in certain scenarios.

Users' mental models of an interface help them be more situationally aware.

For example, users will find it easier to share displays and adjust audio during meetings when a video conferencing service uses familiar iconography and terminology.

Making it easier for users to predict system reactions improves their capacity to stay aware of their environment.

- 2) Give an example of a mission-critical system and describe how each of the following contributes to increased level 3 SA:
 - HCI design
 - User training
 - User experience

Considering the **Situational awareness Importance** and its **Levels**

That is :

- SA improves decision-making
 - Faster
 - Better
- SA facilitates appropriate automation
 - Normal is predictable and can therefore be automated safely
- SA better prepares the user for “exceptional”
 - The universe of exceptions is smaller and narrower and is therefore more manageable
- Level 1
 - Perception
 - Status, attributes, and dynamics of relevant elements
- Level 2
 - Comprehension
 - What does the data mean in the context of relevant goals and objectives
- Level 3
 - Projection
 - Predicting future state

EXAMPLE: Example of a mission-critical system: **Air Traffic Control (ATC) System**

HCI Design:

- Essential flight data is displayed clearly.
- Simple controls and a simple UI.
- Features with redundancy to ensure continuous functioning.

User Training:

- Situation-based learning to facilitate prompt decision-making.
- getting familiar with system interfaces.
- Get familiar with emergency protocols.

User Experience (UX):

- processes that are optimised for effective functioning.
- prompt response times and notifications for important occurrences.
- techniques for preventing errors to ensure correctness and dependability.

- 3) Identify 3 different categories of users for an eVoting system and specify the attributes which make each category unique.

- **System Developers and IT Personnel:**

- **Technical skills:** To design, implement, and maintain the eVoting system, developers and IT staff must possess experience in software development, cybersecurity, and database administration.
- Careful attention to detail is necessary during the **development, testing**, and system management processes in order to guarantee the eVoting system's correctness, dependability, and security.
- **Adaptability:** To maintain the eVoting system's security and ongoing improvement, developers and IT staff need to be abreast of new security risks and developing technologies.
- **Accountability:** IT staff and developers are responsible for the integrity and functionality of the eVoting system, including quickly resolving any problems or vulnerabilities.

- **Voters:**

- **Qualifications:** In order to cast a ballot, a voter must fulfil specific requirements (such as age and citizenship).
- **Requirements for accessibility:** A portion of the electorate may be disabled or need special accommodations.
- **Technological proficiency:** The comfort and familiarity that voters have with technological devices and internet platforms.
- Voters' expectations about privacy are that their personal information and ballot selections would be kept private and safe.

- **Administrators of Elections:**

- **Technical proficiency:** For the purpose of setup, upkeep, and troubleshooting, administrators must be familiar with the technical components of the eVoting system.
- **Security expertise:** To protect the integrity of the voting process and thwart manipulation, administrators are in charge of putting security measures in place and keeping them up to date.
- **Regulation adherence:** Administrators are responsible for making sure the eVoting system conforms with all applicable laws and rules pertaining to data security and elections.
- **Requirements for training:** To properly monitor and administer the electronic voting process, which includes voter registration, ballot distribution, and result tabulation, administrators may need to undergo specialised training.

