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Faculty of Computing and Software

Human Computer Interaction

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1. Take a look around and select a commonplace product. Can you tell if the design is good or bad? Consider how simple it is to use and whether it successfully satisfies its intended goal?

Usability Evaluation Assignment

1. Evaluating a Commonplace Product Design

Selected Product: TV Remote Control:-The TV remote control is an essential device for operating televisions.

Evaluating its design:

- **Good Design Aspects:**

1. Clearly labeled buttons for essential functions (e.g., power, volume, channel selection).
2. Ergonomic shape that fits comfortably in hand.
3. Tactile feedback on physical buttons enhances usability.

- **Bad Design Aspects:**

1. Overloaded with too many buttons, making navigation difficult.
2. Small or unclear labeling on buttons can cause confusion.
3. Lack of backlit buttons, making it hard to use in low-light conditions.

2. Choose a software product you use regularly. Evaluate its user interface (UI) based on the following principles: Shneiderman's 8 Golden Rules and Nelson's Heuristic Evaluation Principle

Selected Software: YouTube Mobile App

- **Shneiderman's 8 Golden Rules Applied:**

- **Strive for Consistency** – The interface maintains a uniform layout across devices.
- **Enable Frequent Users to Use Shortcuts** – Double-tap gestures for fast-forwarding and rewinding enhance efficiency.

- **Offer Informative Feedback** – Progress bars, buffering indicators, and notifications provide real-time status updates.
- **Design Dialogs to Yield Closure** – Confirmation messages for actions like subscribing or deleting videos provide closure.
- **Prevent Errors** – Auto-suggestions for search queries and confirmation prompts for sensitive actions help avoid mistakes.
- **Permit Easy Reversal of Actions** – Users can undo actions like removing videos from a playlist.
- **Support Internal Locus of Control** – Users can customize settings, playlists, and recommendations.
- **Reduce Short-Term Memory Load** – The app provides a history feature to help users track watched content.

➢ **Nielsen's 10 Usability Heuristics Applied:**

- **Visibility of System Status** – Shows buffering status and video progress.
- **Match Between System and the Real World** – Uses intuitive icons and video-based navigation.
- **User Control and Freedom** – Allows users to skip, pause, and rewind videos with ease.
- **Consistency and Standards** – Maintains a familiar interface across mobile and desktop versions.
- **Error Prevention** – Displays warnings before deleting playlists or unsubscribing from channels.
- **Recognition Rather than Recall** – Suggests relevant content based on viewing history.
- **Flexibility and Efficiency of Use** – Supports both touch gestures and traditional button controls.
- **Aesthetic and Minimalist Design** – Simple, visually appealing interface with essential controls.
- **Help Users Recognize, Diagnose, and Recover from Errors** – Provides clear error messages for connectivity issues.
- **Help and Documentation** – Includes a help center with FAQs and troubleshooting guides.

3. Demonstrate the user interface prototype on question #2's chosen software.

The demonstration of a user interface prototype for the YouTube Mobile App incorporating improvements based on Shneiderman's 8 Golden Rules and Nielsen's Heuristics while maintaining its existing strengths.

Prototype Screens & Key UI Features:

Based on Evaluation from Question #2

1. Home Screen (Consistency & Recognition)

- **Layout**:Clean grid of video thumbnails with consistent typography/icons.
- **Shortcuts:**
  Double-tap sides of video to skip 10 sec (gesture hint tooltips for new users).
  Swipe left/right on video to browse related content.
- **Feedback:Loading spinner when refreshing.**

2. Video Playback (Feedback & Control)

- **Progress Bar:**
  Visual buffering indicator (blue = loaded, grey = buffering).
  Pinch-to-zoom for fullscreen (with a quick tutorial for first-time use).
- **Error Prevention:**
  "Are you sure?" pop-up if exiting a video with unsaved progress (e.g., unfinished upload).

3. Search (Error Prevention & Recognition)

- **Auto-suggestions:** Real-time search predictions with icons (e.g., for queries, for songs).
- **Recent Searches:** Collapsible section to reduce memory load.

4. Playlist Management (Reversible Actions)

- Undo Option:Toast notification ("Video removed from playlist") with Undo button.
- Drag-and-drop to reorder playlist items.

5. Settings (Internal Locus of Control)

- **Customization**:

  Toggle for “Dark Mode,” “Playback Speed” presets.

  “Not Interested” button on recommendations to refine suggestions.

6. Error Handling (Help & Documentation)

- **Offline Mode**: Clear message: “No internet. Tap to retry or download videos for offline viewing.”
- **Help Access**: “?” icon in settings linking to context-aware FAQs (e.g., “Why is my video buffering?”).

Prototype Tools Used

- Figma (for interactive mockups with gestures like double-tap/swipe).
- Adobe XD (for animated feedback, e.g., progress bars).
- User Flows: Demonstrates error recovery paths (e.g., undo deletion).

Why This Improves UX

1 **Shortcuts + Feedback (Shneiderman)**: Gestures speed up navigation; progress bars reduce uncertainty.

2 **Error Prevention (Nielsen)**: Confirmations and undo options minimize frustration.

3 **Minimalist Design**: Prioritizes content (videos) over clutter.

This prototype refines YouTube’s existing UI by emphasizing discoverability (e.g., gesture hints) and user control*(e.g., customization), aligning with both evaluation frameworks.

4. Compare and contrast Donald Norman's 7 Principles of Design with Jakob Nielsen's 10 Usability Heuristics. How do these sets of principles overlap, differ, and collectively contribute to the creation of effective and user-centred interfaces? Provide specific examples to illustrate your points

Norman's 7 Principles	Nielsen's 10 Heuristics	Comparison
Discoverability	Visibility of System Status	Both emphasize making functions easily findable.
Feedback	Visibility of System Status & Error Prevention	Feedback ensures users understand system responses.
Conceptual Models	Match Between System and the Real World	Both suggest designing interfaces based on user expectations.
Affordances	Recognition Rather than Recall	Affordances help users intuitively interact with elements.
Signifiers	Aesthetic and Minimalist Design	Clear signifiers guide user actions and reduce confusion.
Mappings	User Control and Freedom	Proper mappings ensure actions lead to expected results.
Constraints	Error Prevention	Constraints help prevent user errors by limiting invalid inputs.

Norman and Nielsen's principles overlap in many ways, both focusing on user-centered design. While Norman emphasizes conceptual understanding, Nielsen provides detailed heuristics for usability evaluation. Together, they help create effective, intuitive interfaces.

Final Thoughts:

This evaluation highlights the importance of usability in both physical and digital products. Applying design principles ensures that products and software remain intuitive and efficient for users.