

CS6750 Homework 1

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1 QUESTION1

The activity I choose is using calendar app. I would use this in daily work, e.g. checking upcoming meetings, rearrange meetings. And this is also used when I go online shopping, the live streamers will ask people to make appointments and add this to calendar by clicking a link.

There are some constrains using calendar in multiple contexts. When sitting at the desk, I have screens and keyboard and need to interact with the calendar app in detail. I would need the app to review and edit events, set reminders and organize schedule with relative ease. When scheduling a shopping appointment through a live streaming interface, switching focus from the live stream to the calendar interface might be disruptive. One may have difficulty multitasking or miss important information if need to leave the stream to schedule an appointment. Also, the process of scheduling an appointment needs to be quick and seamless. Delays or complicated steps can lead to user frustration and lose opportunities.

Some adjustments can be made. In stream integration, implement interactive elements within the live streaming interface, such as clickable overlays or a side panel that allows users to schedule appointments without leaving the stream. For instance, a scheduling button could appear as part of the live stream's interface, allowing users to book appointments with a few clicks. Provide real-time, contextual alerts or pop-ups that offer scheduling options related to the content being streamed. For example, if a product is being promoted, users can instantly schedule a shopping appointment with a click. design the scheduling interface to be highly responsive and simplified, with pre-filled options and a quick booking system. Ensure that users can complete the process with minimal interaction, preserving their engagement with the live content.

2 QUESTION2

Process of submitting a question to the Ed Discussion form: Sign in and go to home page of Ed Discussion, create a new project where we can raise our questions. Select the subject classification of the question, give it a name and send it out. After selecting the subject classification, we can see similar questions other people raised before. And we can also select to make this post public or private. After questions get posted, we can check notifications (there will be red dots near the icon) to see others' reply.

Gulf of execution: 1) Formulating the Intention involves translating what the user wants to achieve into actionable steps. Ed Discussion's interface typically provides a structured workflow for creating and submitting a question. For instance, upon signing in and navigating to the home page, users see clear options to start a new project or raise a question. Ed Discussion helps by providing clear labels and a structured workflow. However, ambiguity in labels or lack of introductory guidance can hinder understanding.

2) Selecting and Executing Actions: The execution is successful in that it gives an intuitive form design. After selecting a subject classification, Ed Discussion shows similar questions that others have asked. This feature helps users refine their questions and ensures they are not duplicating efforts, making the execution of the task more efficient. After selecting a subject classification, Ed Discussion shows similar questions that other users have asked, which is a kind of real-time suggestion. It has relatively clear action buttons that allow users to complete the submission process. Since steps to create and submit a question are not clearly laid out or if the navigation between different stages of the process is confusing, users may struggle to complete their task.

3) Understanding System Feedback: After submitting a question, Ed Discussion usually provides immediate feedback, such as a confirmation message via email, indicating that the question has been successfully posted and we can track by go to dashboard list. This feedback reassures users that their action has been completed. Ed Discussion provides immediate confirmation and visibility of

submissions, aiding users in understanding the outcome of their actions. Issues might occur if feedback is delayed or unclear, or if status updates are insufficient.

Gulf of evaluation: 1) Perceiving the State of the System: This stage refers to whether students can perceive what has happened after they take an action, such as posting a question or receiving feedback. After posting a question, students receive clear visual indicators, like red notification dots, to signal that there has been a response. These dots help students easily perceive that something has changed in the system (e.g., they have received feedback). When students create a new post, Ed Discussion provides immediate feedback by showing the post within the selected category, confirming that their question has been successfully posted.

2) Interpreting the System State: At this stage, students need to understand what the feedback or notifications mean. Ed Discussion typically provides detailed notifications. When a red dot appears, clicking on it shows exactly what has changed, whether it's a new reply to the student's question or an update to a discussion. This makes it easy to interpret the meaning of the notification and action that has occurred. When similar questions appear after classifying a new post, students can easily understand that the system is showing relevant past queries. This helps them interpret whether their question is unique or if it's already been answered. 3) Evaluating the System State: This stage involves determining whether the outcome meets the student's goal—whether the system is working as expected and has fulfilled the intended action. After a question is posted, students can see their query on the homepage or in the subject category they selected. This clear visual confirmation allows students to evaluate that their question was successfully submitted. When students receive a reply, the red notification dot and the ability to read others' responses directly help them evaluate the success of their action (i.e., their question has been answered).

3 QUESTION3

Select an activity: An activity that struggles with a large gulf of execution and evaluation in my regular life is setting up a smart home system, particularly connecting various devices to a smart hub (such as lights, thermostats, and security cameras).

Why the gulf is wide: The gulf is wide due to the complexity of both execution (how to perform the task) and evaluation (knowing if the task has been successfully completed).

The process of pairing devices with the hub is often unintuitive. Each device has its own method of connection (Wi-Fi, Zigbee, Bluetooth), and the instructions for pairing are usually spread across different apps and manuals. The app interface used to control and configure the devices is often poorly organized, with settings buried in layers of menus. It's not always clear where to find the controls to set up new devices, adjust settings, or customize automations. Different devices may require different apps or protocols, leading to fragmented control. This lack of standardization makes execution feel disjointed, as the user must switch between multiple interfaces. (Execution side)

When attempting to connect a device to the hub, it's not always clear if the process is successful or why it fails. Error messages are often vague, and troubleshooting tips are sparse. Once devices are connected, the feedback on their current status (e.g., whether a camera is recording, whether a thermostat is functioning correctly) is often delayed or missing entirely. It's hard to know if the system is working as intended. Setting up automated routines (such as turning lights on at sunset) is often done blindly. You don't know if the automation worked until you observe it later, and there's little in-app feedback or testing features to confirm its success upfront.

Failures of current Interface: The interface for setting up and managing smart home devices typically fails to: 1) Users are forced to switch between apps and protocols, making the process more difficult than it should be. 2) The setup process is often overwhelming, with poor onboarding for new users and little hand-holding through complex steps. Error handling is weak, and the system rarely explains why a connection attempt failed or provides useful suggestions for fixing it.

Similar activity does a better job: A similar activity that does a better job bridging the gulf of execution and evaluation is setting up a smartphone with a new operating system (such as iOS or Android).

Why a narrower gulf: First, the guided setup process is more complete. Smartphones typically provide a step-by-step setup wizard when first powered on, walking users through tasks like connecting to Wi-Fi, logging into accounts, and setting up security features (e.g., Face ID or fingerprint). Each step is clearly explained and follows a logical order. Besides, it has a unified interface. Everything is done through a single, well-designed interface, with all settings and configuration options presented in an intuitive flow. Users rarely need to switch between multiple apps or platforms during the setup process. Smartphones suggest optimal settings based on user input, reducing the need for guesswork. For example, they automatically detect time zones, connect to available Wi-Fi networks, and suggest apps to install based on previous usage patterns. (Narrower execution)

Actions like connecting to Wi-Fi or enabling security features give instant feedback—if the connection fails, clear instructions for troubleshooting appear, and success is indicated immediately through notifications. Smartphones allow users to easily test if the system works as expected. For example, users can immediately test the security settings or download apps, and they receive instant feedback confirming success or failure. Once set up, the operating system provides clear status updates on system health, storage, connectivity, and account synchronization, making it easy to evaluate if everything is working correctly. (Narrower Evaluation)

Overall, the smartphone setup process is much smoother and more transparent compared to setting up a smart home system. The guided flow, real-time feedback, and consistent interface make the process intuitive and reduce user frustration.

Lessons borrowed: To resolve the wide gulf in smart home setup, lessons from smartphone setup could include a guided onboarding process, leading users step-by-step through device pairing and configuration. A unified interface should centralize all devices and controls, reducing fragmentation. Smart suggestions could streamline settings and automations, while real-time feedback would immediately confirm successful connections or provide clear troubleshooting steps for failures. Additionally, status monitoring could offer transparent device

health updates and automation testing, ensuring users understand if their system works correctly without needing to wait or guess.

4 QUESTION4

Ethical concerns using ChatGPT as a Therapist: While advanced in language processing, ChatGPT lacks true understanding, empathy, and professional qualifications that human therapists possess. Users may not fully understand that ChatGPT is not a licensed therapist and that its responses are generated based on patterns in data rather than professional judgment. Ethical use requires clear communication about the tool's capabilities and limitations. Overreliance on the tool could also exacerbate mental health issues if users do not seek appropriate human intervention when needed.

However, benefits do exist. ChatGPT can provide immediate, accessible support for users who may not otherwise have access to mental health resources, offering a form of preliminary help or a supplementary resource. It can serve as a non-judgmental first step for individuals who may be hesitant to seek professional help due to stigma or other barriers.

Therefore, before using ChatGPT as therapist, it is better to provide some disclaimers or constraints. Explicit statements that ChatGPT is not a substitute for professional therapy or medical advice and recommendations for users to seek help from licensed mental health professionals if they need support are needed.

So overall the risks come from lack of true understanding and empathy, false sense of security and overreliance. ChatGPT, while capable of mimicking conversational patterns, does not possess real emotional insight or the ability to tailor interventions with the nuance a human therapist would provide. Users may mistakenly believe that ChatGPT can provide the same level of support as a licensed professional, leading to delayed or inadequate treatment for serious issues. Users might substitute real therapeutic help with ChatGPT, exacerbating mental health problems by not seeking professional support.

Why Benefits Outweigh Risks: With proper disclaimers in place, ChatGPT's role as a supplementary tool for reflection or preliminary guidance can be beneficial.

As long as users understand its limitations and are encouraged to seek professional help when necessary, ChatGPT can provide a helpful layer of support without replacing essential care. The immediacy and anonymity it offers can help those in need take initial steps towards healing.

Experiment Proposal: A new feature should be added to enhance user outcomes in therapy-like interactions by providing more nuanced support and guidance.

Feature Description: The modification could involve integrating a triage system that assesses the severity of user needs and directs them to appropriate resources or provides tailored interactions based on user responses. For example, users could be assessed through an initial questionnaire that determines if they need immediate professional help or if they can benefit from general advice and resources.

Experiment Design: **Control Group:** Users who interact with the current version of the chatbot. **Experimental Group:** Users who interact with the modified chatbot with the new triage feature.

Metrics for Evaluation: User engagement levels; Self-reported satisfaction and perceived helpfulness; Referral rates to professional resources; Follow-up surveys to assess longer-term impact on mental well-being.

Recruitment and Consent Procedures: I would give a recruitment message like this: Join our study to help improve our chatbot's ability to support mental health. We're testing a new feature designed to enhance user interactions. Participation involves using our chatbot, providing feedback through surveys, and possibly participating in follow-up interviews. Your insights will directly contribute to advancing mental health support technologies. Click [here] to participate.

Following this, I would give a message for consent: Thank you for considering participation in our study. By joining, you agree to: Use our chatbot with or without the new feature. Provide feedback via surveys and possibly interviews. Participation is voluntary and you can withdraw at any time. Please note, our chatbot is not a replacement for professional therapy. If you need immediate help,

seek a licensed mental health professional. Your data will be kept confidential and used solely for research. Click 'I agree' to consent to participate."

This approach ensures participants are informed of their rights and the chatbot's limitations, protecting their autonomy and privacy. It also addresses potential biases by striving for diverse recruitment and neutral feedback collection.

Compatible with ethical requirements:

The recruitment and consent procedures are ethically sound as they ensure informed consent by clearly outlining the study's nature, the chatbot's limitations, and participants' rights, including their right to withdraw at any time. The consent message emphasizes that the chatbot is not a substitute for professional therapy, thereby safeguarding users' mental health needs and ensuring transparency about the tool's capabilities. Confidentiality is maintained, as participant data is used solely for research purposes, protecting privacy.

Possible biases in this procedure:

Self-Selection Bias may occur, as individuals interested in mental health technology or those already using chatbots might be more likely to participate, which could skew results towards more positive feedback. Response Bias might also be present, with participants possibly providing socially desirable answers or altering their behavior because they are aware of being studied. To mitigate these biases, efforts should be made to recruit a diverse sample and design feedback mechanisms that minimize influence from participants' expectations or awareness of the study.

5 REFERENCES

[1] **Tech.co (2023)**. *AI Therapy Chatbots: Pros, Cons and Ethical Risks*. Retrieved from tech.co

[2] **Poggi, J. (2023)**. *Can AI Replace Human Therapists? Experts Weigh In on Ethical Concerns*. The Guardian. Retrieved from [guardian.com](https://www.guardian.com)

