Smart Device Usage Survey

Please select multiple options if applicable.

Which of the following devices you own:

1. Laptop
2. Smartphone
3. Desktop
4. Tablet (with Wifi only)
5. Smart Assistants/ Smart Homes (Smart home/ Alexa)
6. Smart watch (wifi only)

Please read the scenario and answer the following questions.

**Scenario:**

Suppose you want to watch a video when you are alone at home.

Please select multiple options if applicable.

1. Which of the following type of input would you like use to perform this task?
   1. Voice-based input
   2. Gesture-based input
   3. Touch-based input using virtual/digital keyboard on a screen
   4. Text-based input with a digital pen/Stylus
   5. Text-based input using physical keyboard
   6. The input modality does not matter to me
   7. If anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_

2 How would you like to multitask (e.g., use other functionalities) on the device while executing this task?

1. Use/view another application through text-based input
2. Use/view another application through voice-based input
3. Use/View another application through gesture-based input
4. The modality of input (text-based,voice-based, or gesture-based) does not matter as long as I am able to use another application
5. Please specify, if there is any other device features through which you would like simultaneously perform another task on the device\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Being able to do something else simultaneously on the device does not matter to me

3. Which aspects of any device would make it easier for you to use them for this purpose?

1. It should be easy to find and understand the relevant features of the device.
2. The device should provide few and simple steps to complete the task.
3. The device should provide any task related information visually to be able to see any task related information on a screen.
4. The device should be able to provide any task related information as an audio response
5. If there is any other feature that would make it easy for you to use any device for this purpose, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Ease of use do not hold any relevance for me

4. What aspects of mobility do you expect to have for performing this task?

1. Being able to move around while performing the task
2. Being able to perform the task anytime
3. Mobility of the device does not matter to me

5. What level of efficiency or accuracy do you expect the device to achieve for executing this task?

1. It should be able to execute the task without any errors
2. The device can make some errors, but it should correct itself by learning from my previous actions or more interaction with me.
3. The device can make some errors only when multitasking (e.g., while listening to music on voice-assistant it might not completely understand another command)
4. Level of efficiency or accuracy does not matter to me while performing this task

6. What level of involvement in terms of providing relevant information and control over how task is performed would you expect to have as you use any device to accomplish this task?

1. Only to provide one-time initial setting/information while executing command
2. In addition to providing any initial information, device should prompt me to provide any missing or unclear information
3. When it is possible through to execute the task through multiple alternative features, device should give me an option of choosing the feature(e.g., placing a call over internet vs. cellular network)
4. Device should ask for my input and approval while executing all the steps related to this of task (e.g., requires to enter all task related inputs, information, and sequence of steps)
5. I don't care about my level of intervention, but I should be able to predict the consequences/results of executing this task.
6. I don't care about my level of intervention while performing this task

7. Presence of which of the following features would help you in reaching the desired level of trust so to be able to perform this task on any device?

1. To be able to define access control (Security)
2. To be able to control where my personalized information is stored (e.g., solely on the device and not shared with anyone) (Privacy)
3. The learning process of the device is transparent (e.g., it explains how is it learning user preferences)
4. Building trust is not an essential component of my decision to use a device for performing this task

8. What sort of personalization or customizability do you expect from your device while performing this task

1. More informal and human-like conversational style (e.g., device referring to me by first name)
2. Customization of features based on current context, urgency, and past interactions (e.g., such as notification volume and tone of voice assistant )
3. Recommendation of further actions based on my current activities and surroundings (e.g., based on your location and past choices)
4. Personalization is not essential for me in choosing the device to perform this task.

9. How would you expect your device to help you keep track of your activity or its progress?

1. Through voice reminders
2. Through text reminders
3. Through persistent alarms till I take action
4. Through email based reminders
5. Through reminders on other devices
6. If anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Device helping me to keep track of my activity or its progress does not matter to me

10**.** What features do you expect to have in your device that help you understand how to use it to perform the task

1. Through a tooltip that explains the functionality of a widget on the device
2. Through an interactive help/search menu that can answer my questions about the features of the device as I use them
3. Through an graphic icon that conveys the meaning of a widget on the device
4. Through a voice assistant that can assist me in understanding how to use appropriate features to perform the task
5. If through anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. The level of assistance provided the device to help me understand its features while I am executing this task does not matter.

11. How you expect the device to provide feedback or respond to your actions as you perform this task?

1. Through lights, vibrations
2. Through voice based notifications/responses
3. Through text notifications/responses on screen of the device
4. If through anything else, please specify \_\_\_\_\_\_\_\_
5. As long as feedback is unambiguous and easy to follow, mode of feedback does not matter to me.
6. The way in which device provides feedback or responds to my actions does not matter to me

12. Which of the following design components of a device would help you to develop an intuition about how to best perform this task?

1. Optimized and adaptive display of information so as to reduce the cognitive burden on me (e.g., by changing the layout of the menu according to how often menu items are used )
2. Icons, buttons and other tools should be designed in such a way that I can easily understand their purpose and how to use them (Familiarity).
3. In case of no screen, the device should guide me through voice commands/instructions
4. Design components in a device help me to develop an intuition how to best perform this task does not matter to me

13. Which of these maintenance features affect your decision to use a device to perform this task?

1. Amount of battery life and impact of performing the task on battery life
2. The effect that the need of updating software/hardware have on overall ease of using the device.
3. Ease of recovery of data and task related information in case of any hardware/software malfunction
4. If there are any other features, please specify …………..
5. The maintenance features do not matter to me.

14. Which of the additional artifacts would you like to be able to connect/download on your device to execute the task?

1. Physical hardware (e.g., keyboard, screen, headphones, speakers)
2. Software application (e.g, apps on your cellphone to visualize task related information from activity trackers, plugins)
3. If anything else, please specify \_\_\_\_\_\_\_\_
4. The ability to connect/download an additional artifact does not matter to me.

**Part 2 of the survey** have same questions but framed differently to elicit information on anticipated affordances. This time these questions will be not in reference to a scenario but in reference to the device itself.

Which of the devices that you own would you use for this purpose please select (can be multiple options):

1. Laptop
2. Smartphone
3. Computer/Desktop
4. Tablet(with Wifi only)
5. Smart Assistants/ Smart Homes (Smart home/ Alexa)
6. Smart watch (wifi only)

Please answer the following questions based on the device you pick.

1. Which of the following type of input do you use while executing a command on <device>
2. Voice-based input
3. Touch-based input using virtual/digital keyboard on a screen
4. Gesture-based input
5. Writing with a digital pen/Stylus
6. Text-based input using physical keyboard
7. If anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. The input modality does not matter to me

2 How do you multitask (e.g., use other functionalities) on the device while executing this task?

1. I use/view another application using text-based input
2. I use/view another application using voice-based input
3. I use/view another application using gesture-based input
4. The modality of input (text-based,voice-based, or gesture-based) does not matter, as I am able to use another application simultaneously
5. Please specify, if there is any other device features through which you simultaneously perform another task on the device\_\_\_\_\_\_\_\_\_\_\_
6. Being able to do something else simultaneously on the device does not matter to me

3. Which aspects of <the device> makes it easy for you to use it for this task?

1. It is easy to find and understand the relevant features of the device.
2. The device provides few and simple steps to complete the task
3. I can visually see any task related information on a screen.
4. I can hear any task related information as an audio response from the device
5. If there is any other feature of the device that makes it easy to use it for specified purpose, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Ease of use do not hold any relevance for me while using this device

4. Which aspects of mobility does <your device> provide as you perform this task?

1. I can move around while performing the task
2. I am able to perform the task anytime
3. Mobility of this device does not matter to me

5. What level of efficiency or accuracy does your <device> provide when executing the task?

1. It executes the task without any errors
2. The device makes some errors, but improves by learning from my previous actions or more interaction/input from me.
3. The device makes some errors only when multitasking (e.g., while listening to music on voice-assistant it might not completely understand another command)
4. Level of efficiency or accuracy does not matter to me while using this device

6. What level of involvement in terms of providing relevant information and control over how task is performed is provided to you by <the device> to accomplish this task?

1. I am only required to provide one-time initial settings/information while performing this task
2. Device prompts me to provide any missing or unclear information
3. Device gives me an option of deciding how to execute the task, as it is possible to use multiple alternative features (e.g., placing a call over internet vs. cellular network)
4. Device asks my input or approval while executing all the steps related to this of task (e.g., requires you to enter all task related inputs, information, and sequence of steps)
5. I don't care about my level of involvement, as I am be able to predict the consequences/results of executing a task.
6. I don't care about my level of involvement at all

7. Which of the following features help you in reaching the desired level of trust to perform this task on <the device>?

1. It enables me to define access control
2. It enables me to control where my personalized information is stored (e.g., solely on the device and not shared with anyone)
3. The learning process of the device is transparent (e.g., it explains how is it learning your preferences)
4. Building trust is not essential for using this device for this task

8. What level of personalized communication does your <device> provide while performing this task

1. The device has an informal and human-like conversational style (e.g., referring to me by first name)
2. It customizes the features based on my current context, urgency, and past interactions (e.g., such as notification volume and tone of voice assistant )
3. It recommends further actions based on my current activities and surroundings (e.g., based on your location and past choices)
4. Personalization is not essential to me in using this device to perform this task.

9 . Which of the following features of < the device> do you use to keep a track of your activity or its progress?

1. Voice reminders
2. Text reminders
3. Persistent alarms till I take action
4. Email based reminders
5. Reminders on other devices
6. If through anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Device helping me to keep track of my activity or its progress does not matter to me for using it for this task

10**.** How does your <device> help you understand the features that you use to perform this task?

1. Through a tooltip that explains the functionality of a widget on the device.
2. Through an interactive help/search menu that answers my questions on the features of the device as I use them
3. Through an graphic icon that conveys the meaning of a widget on the device
4. Through a voice assistant that helps me to understand how to use its features to perform the task
5. If through anything else, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. The assistance provided by the device understand its features does not matter as I use it for this task

11. How does <your device> provide feedback or respond to your actions as you execute the task?

1. Through lights, vibrations
2. Through voice based notifications/responses
3. Through text notifications/responses on screen of the device
4. If through anything else, please specify \_\_\_\_\_\_\_\_
5. As the feedback provided by my device is unambiguous and easy to follow, mode of feedback does not matter to me.
6. The way in which device provides feedback or responds to my actions does not affect the way I use it

12. What design components does your < device> provide and you use that helps you develop an intuition about how to best perform the task?

1. The information displayed on screen is optimized to reduce the cognitive burden on me (e.g., by changing the layout of the menu according to how often menu items are used)
2. The design of icons, buttons and other tools is such that I can easily understand their purpose and how to use them (Familiarity).
3. As the device does not have a screen it guides me through voice commands/instructions
4. I do not need the device to help me in deciding the best way to perform a task

13. Which of these maintenance features in <the device> affect you as you perform this task on it?

1. Amount of battery life and impact of performing the task on battery life
2. The effect that the need of updating software/hardware have on overall ease of using the device.
3. Ease of recovery of data and task related information in case of any hardware/software malfunction.
4. If there are any other features, please specify …………..
5. I do not consider/evaluate maintenance features as I use this device

14. Which of the additional artifacts do you connect/download on your device to execute the task?

1. Physical hardware (e.g., keyboard, screen, headphones, speakers)
2. Software application (e.g, apps on your cellphone to visualize task related information from activity trackers, plugins)
3. If anything else, please specify \_\_\_\_\_\_\_\_
4. The ability to connect/download an additional artifact does not matter to me.