Assignment P4:
CS6750 Spring 2019

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Task Analysis (from Lesson 2.7)

Question 1: GOMS Model

(Enter Institutions Academic Portal)	
GOAL: Contact-professor-about-grade	
. [Select*:	
GOAL: Use-Direct-Message-METHOD	
. Select-Direct-Message-from-Menu	0.50
. Click-new-post-button	0.25
. Select-Post-to-Instructor	0.25
. Type-professors-name	2.00
. Type-Summary-header	3.00
. Type-detailed-message	600.00
. Click-Post-My-Message	0.50
GOAL: Use-Email-METHOD	
. Select-Email-from-Menu	0.50
. Click-Compose-button	0.25
. Type-professors-email	5.00
. Type-Subject-of-email	10.00
. Type-detailed-message	600.00
. Click-Send	0.50
]	
(Professor Contacted about Grade)	
Selection rule GOAL: Contact-professor-about-grade	
Rule 1: Select Use-Direct-Message-METHOD unless another rule applies	
Rule 2: If Direct-Message system is down or unavailable select Use-Email-METHOD	

Question 2

The hierarchical task analysis of the task of submitting this assignment to Canvas and subsequently receiving one's grade and feedback.

On Complete an assignment **Trigger** Submit Assignment (SA1)
On *Assignment Submitted* **Trigger** *1 Week Wait Timer*
On *Assignment Email Alert* **Trigger** View Grades (VG1)
On *1 Week Wait Timer* expires **Trigger** View Grades (VG1)
    If no grade **Trigger** contact-professor-about-grade

(SA1) Submit Assignment **Task**
    Load Canvas (LC1) Task
    Click Assignments link (on left navigation)
    Scroll to make specific Assignment visible
    Click Assignment Name
    Select Submit Assignment or Resubmit Assignment button
    Select upload method tab (File, Google, Box, Office 365)
    Login if necessary
    Select file from file to upload
    Submit Assignment **Trigger** *Assignment Submitted*

(VG1) View Grades **Task**
    Load Canvas (LC1) Task
    Click Grades link (on left navigation)
    Scroll to make specific Assignment visible
    Click Assignment Name
    Grade is visible in upper Right Corner
    Feedback is visible on Right of Browser Pane

(LC1) Load Canvas **Task**
    Open Browser on Mac (OB1) Task
    Enter Canvas URL
    Login if necessary
    Click Dashboard link (on left navigation)
    Select Course link (Center Browser pane)

(OB1) Open Browser on Mac **Task**
    Click spotlight search (top navigation bar)
    Enter browser name (Chrome, Safari)
    Select Application

Distributed Cognition (from Lesson 2.8)

Question 3

The system for navigating that we will look at in this question will be defined broadly and is comprised of the following: a married couple, a map, pen, paper and turn by turn directions derived from the map. We will assume that our couple has taken the time to construct the directions prior to leaving for the trip. Furthermore, we recognize the system contains additional components not specifically addressed.

The cognitive activities for the driver include a shared *perception* with the whole system which offloads the cognitive responsibility of *remembering* the list of turns that must be taken. However, the driver does need working *memory* to navigate the next immediate turn or to maintain speed and direction. The drive is responsible for *reasoning* about the specific actions to take, for example, to make the next turn the driver must review his speed and observer what other drivers are doing as well as taking concrete *actions* to slow down, change lanes, put the turn signal on, etc.

The cognitive activities for the passenger include a shared *perception* with the whole system which offloads the responsibility of watching the road for any obstructions or *remembering* all the miles and timings between turns. However, the passenger must keep in working *memory* the next turn, and they must *reason* about ways to best inform the driver, so the turn is not missed for example by pointing out landmarks, or distances until the turn. In addition to providing verbal queues, the passenger can also physically point to landmarks which adds additional information for the driver.

The cognitive activities for the map also include a shared *perception* with the whole system as we have seen with the other participants here the map is providing information that neither of the married couple alone

possesses. The map does provide a long-term *memory* of the geography of the area to be traveled which supports the current trip and many future trips. The map also enables *reasoning* over alternative routes by providing a visual tool to help determine distances and types of roads for example highways or back streets.

The cognitive activities for the turn by turn directions include a shared *perception* and short-term *memory* of the turns to be made that do not come easily from the map or the other participants. The directions also facilitate *reasoning* over when the next immediate turn is and the distance to that next turn as well as the estimating the time of arrival at the end of the trip. Additionally, the directions support the *action* of communicating that next turn by proving the text language for example "Turn Left onto Main St."

Now let's compare the lone driver using GPS

What does social cognition reveal about the situation that distributed cognition does not? The social cognition could allow the couple to share (recall) past experiences of places that they may encounter during the trip. It may also allow them to learn new things about on another which comes from traveling together and talking to one another. These items would not be revealed if traveling alone using GPS.

How might the social relationships among the parts of the system affect the success of the system as a whole? The perception that the husband or wife is becoming frustrated or tired during the trip is possible if the partners are observant of on another. These additional social queues can positively affect the trip by taking a break or switching the roles of driver and navigator. Even in an advanced car that could make observations about if the driver is tired or not these warning may be ignored by alone driver.

Question 4

The task that I have chosen for this question is “Starting a Movie using a voice-enabled smart speaker.” The task uses the following interfaces: The Alexa Voice Interface, the Amazon Prime Movie Service interface, the interface to the TV monitor and the Amazon Fire TV content streamer.

The system includes an Amazon Echo voice-enabled speaker, an Amazon Fire TV, and a TV monitor. Additionally, these devices must all be connected to a network which enables internet connectivity and has access to the Amazon Prime Movie Service.

The cognitive tasks performed by the human member of the system are that they must recall how to address the Alexa system appropriately, for example, they must know the wake word “Alexa," and they must know how to construct a request that will provide enough information to trigger the desired actions. “Alexa play Iron Man on the Livingroom TV."

The Alexa device has a *perception* of the entire environment including the user and where they are, Alexa also knows what other devices and services are available. Alexa uses this information and natural language understanding (NLU) to *reason* over the specific request. The Alexa Device then decides the *actions* to take to help fulfill the request. This includes passing from its short-term memory the name of the movie to be played to the Fire TV.

The Fire TV receives this request and uses its long-term *memory* to connect to the Amazon Prime Movie Service which uses its long-term memory to retrieve the movie and initiate streaming. The Fire TV *perceives* if the TV monitor is on or not and if it is not, it begins the action to turn it on. Once the TV monitor is on the movie content is streamed to the monitor, and the user enjoys the movie.