

Appendix I: GOMS analysis

Task 1: Find the building hours of the Media Union

Steps of the task: Finding the Media Union building hours can be achieved through the following steps:

Step 1: Touch the 'Things' link

Step 2: Touch the 'Hours' link

Step 3: Read the building hours

Time taken for the task: We will first find out the operator sequence involved in the task and then calculate the total time needed to execute the task.

Operator sequence	Time
Step 1: Initiate touching	70 msec
Step 2: Touch the 'Things' link	1550 msec
Step 3: Eye movement to find 'Hours'	230 msec
Step 4: Perceive 'Hours'	100 msec
Step 5: Initiate touching	70 msec
Step 6: Touch the 'Hours' link	1550 msec
Step 7: Read building hours	170 msec/syllable * 33 = 5610 msec
Total time	9180 msec

Time needed to do the task in real life: To see how our GOMS analysis measures up with an actual user's time to complete this task, we did the task ourselves in the exact same sequence and it took us 5 seconds. So our GOMS analysis gives a figure which is close to that number.

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Task 2: Find Michelle Beijan's phone number from the kiosk

Steps of the task: Finding Michelle Beijan's phone number from the kiosk can be achieved through the following steps:

- Step 1: Touch the 'People' link
- Step 2: Touch the 'MU staff directory' link
- Step 3: Touch the 'B' link
- Step 4: Read Michelle Beijan's phone number

Time taken for the task: We will first find out the operator sequence involved in the task and then calculate the total time needed to execute the task.

Operator sequence	Time
Step 1: Initiate touching	70 msec
Step 2: Touch the 'People' link	1550 msec
Step 3: Eye movement to find 'MU staff directory'	230 msec
Step 4: Perceive 'MU staff directory'	100 msec
Step 5: Initiate touching	70 msec
Step 6: Touch the 'MU staff directory' link	1550 msec
Step 7: Recall that her last name starts with 'B'	1600 msec
Step 8: Eye movement to find 'B'	230 msec
Step 9: Initiate touching	70 msec
Step 10: Touch the 'B' link	1550 msec
Step 11: Eye movement to find 'Beijan, Michelle'	230 msec
Step 12: Read her phone number	170 msec/syllable * 5 = 850 msec
Total time	7250 msec

Time needed to do the task in real life: We did the task ourselves in the same sequence mentioned above. It took us 9 seconds. Our GOMS analysis figure is again close to the actual time needed.

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Task 3: Find the Technology Assessment Lab from the kiosk

Steps of the task: Finding the Technology Assessment Lab from the kiosk can be achieved through the following steps:

- Step 1: Touch the 'Places' link
- Step 2: Touch the 'Labs & Studios' link
- Step 3: Touch the 'Technology Assessment Lab' link
- Step 4: Touch the 'Maps' link on that page
- Step 5: Touch the 'First Floor' link
- Step 6: Read 'Technology Assessment' from the map

Time taken for the task: We will first find out the operator sequence involved in the task and then calculate the total time needed to execute the task.

Operator sequence	Time
Step 1: Initiate touching	70 msec
Step 2: Touch the 'Places' link	1550 msec
Step 3: Eye movement to find 'Labs & Studios'	230 msec
Step 4: Perceive 'Labs & Studios'	100 msec
Step 5: Initiate touching	70 msec
Step 6: Touch the 'Labs & Studios' link	1550 msec
Step 7: Eye movement to find 'Technology Assessment Lab'	230 msec
Step 8: Initiate touching	70 msec
Step 9: Touch the 'Technology Assessment Lab' link	1550 msec
Step 10: Eye movement to find location	230 msec
Step 11: Read 'Room 1321'	170 msec/syllable * 5 = 850 msec
Step 12: Perceive 'Room 1321' = Technology Assessment Lab	100 msec
Step 13: Eye movement to find 'Maps'	230 msec
Step 14: Initiate touching	70 msec
Step 15: Touch the 'Maps' link	1550 msec
Step 16: Eye movement to find 'First Floor'	230 msec
Step 17: Initiate touching	70 msec
Step 18: Touch the 'First Floor' link	1550 msec
Step 19: Eye movement to find 'Technology Assessment Lab'	230 msec
Step 20: Read 'Technology Assessment' from the map	170 msec/syllable * 7 = 1190 msec
Total time	11720 msec

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Time needed to do the task in real life: It took us 17 seconds to do the task following the sequence mentioned above. Our GOMS analysis figure is off by only 5 seconds.

QUESTIONS

Do the information kiosks meet basic, already established heuristics? Is the kiosk's vocabulary and visual display consistent? Does the structure of information match the users' mental model? Does the system have adequate response time? Is there a help system?

METHODS

All group members completed a heuristic evaluation separately. Two people completed the Olson checklist and the other two completed the Nielson checklists. The results from these heuristic evaluations were then collected to form a comprehensive list.

RESULTS

- Labeling: “Things” is an ambiguous label and does not have a strong information scent.
- Maps Link: Goes to the same page where ever it is clicked from—even when it is clicked from a certain lab or studio page, it will not go directly to the map that contains the place. It also does not fit into the hierarchy.
- Main Screen Link: It is not clear that this is a link because it is not underlined.
- Feedback: The system does not let the user know that it registered a touch. It also does not let them know if they clicked outside of the link.
- Slow Response time: The system is very slow to respond to users' touch
- Map Page: Uses a small font and is difficult to read.
- Graphics: Inconsistent usage throughout the system.
- Links: The area is small.
- Page Format: Some of the screens in the labs and studios section do not provide the same information (e.g. some provide hours, others do not).
- Phone: Phone numbers are provided, but the phone is on the opposite side of the kiosk.
- Back: There is no real back button.

Appendix J: Heuristic evaluation

Checklists for heuristic evaluation

Nielson Checklist

Reviewer: Susannah

Category	Priority*	Problem
Simple and natural dialog	2	Layout is difficult on the places page. There is a list with 3 places/line, but they are not lined up in columns. It is difficult for the user to parse into different places.
Speak the users' language	3	"Things" is not a good label. It does not provide strong information scent for the pages it contains—building information.
Minimize user memory load	3	If the user finds a place and then clicks on the map link they are required to hold room number in memory so they can click on the correct floor.
Consistency	2	The top-level link is not underlined like all the other links.
Feedback	3	The system has very slow response time and does not let the user know that it registered a touch.
Clearly marked exits	2	The top-level link could be considered an exit. This is not well marked—it is difficult to tell that it is a link—it just says Media Union.
Good error messages	NA	
Shortcuts	1	The system provides navigational elements at each page that allow the user to get to the first and second levels of the hierarchy and the maps section with one touch.
Prevent errors	NA	
Help and Documentation	NA	The whole kiosk is really a help system.

*(1) no problem, (2) minor problem, (3) major problem, (NA) non-applicable