The Night Out Task: Everyday Functioning Assessment of Older and Younger Adults

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Introduction

- Although cognitive functioning varies as a result of a number of genetic and environmental factors across the lifespan, there is a positive association between increasing age and decline in specific cognitive abilities (e.g., executive functioning, speeded processing).
- A decline in cognitive abilities can negatively impact the way older adults complete tasks in their everyday life.
- This study evaluated age-related performance differences on a laboratory performance-based task, the Night Out Task (NOT), which is designed to capture skills involved in more real-world complex planning, problem-solving, and multitasking.
- A limited number of testing measures are designed to evaluate everyday functioning while taking place in a laboratory setting, which as a result may make the NOT an important addition into the neuropsychology field.
- Additionally, interdisciplinary collaboration has taken place to work on creating a tablet version of the NOT, with the goal to make the assessment more reliable and user-friendly for clinicians.

Methods

Participants

- 18 young adults (11 males, 7 females) with ages ranging between 18-36 years old ($M = 21.0$, $SD = 4.12$).
- 19 cognitively healthy older adults (7 males, 12 females) with ages ranging between 65-83 years old ($M = 71.37$, $SD = 4.60$).
- Exclusion criteria for older adults: Meets criteria for mild cognitive impairment.

Procedure

- Participants completed the NOT, which requires the execution of eight different tasks to prepare for a night out while in a laboratory setting (see Table 1 & Figure 1).
- Experimenters observed and coded the participant's performance. For each task, participants could receive one of four possible completion scores dependent on their performance on each specific task (see Table 2).
- The total time to complete each task, as well as total task execution time, was recorded in seconds.

Table 2. NOT Completion Scores

Completion Scores
1 = Complete – Efficient
2 = Complete – Inefficient
3 = Incomplete or Inaccurate
4 = Not Attempted

Table 1. NOT Tasks

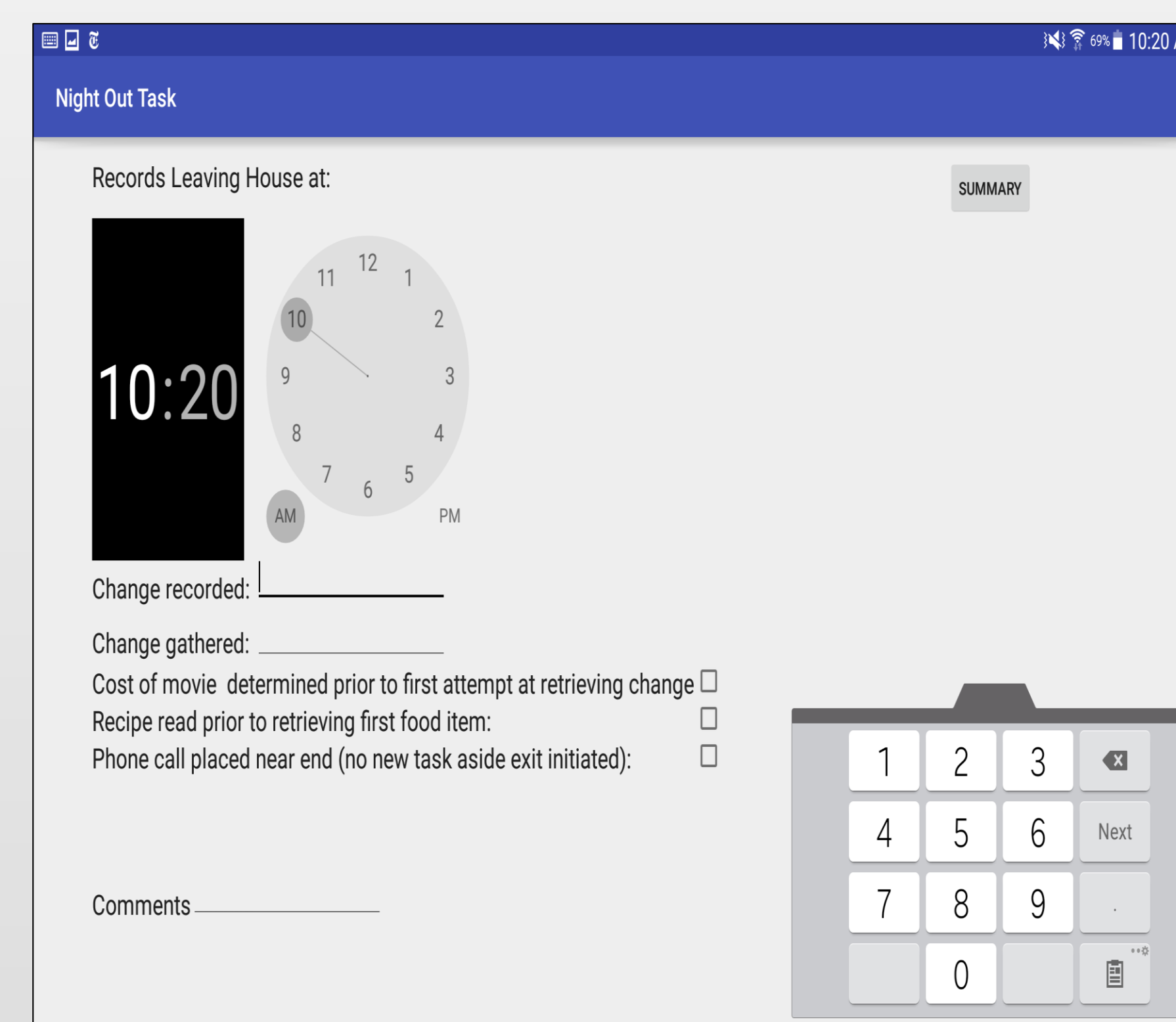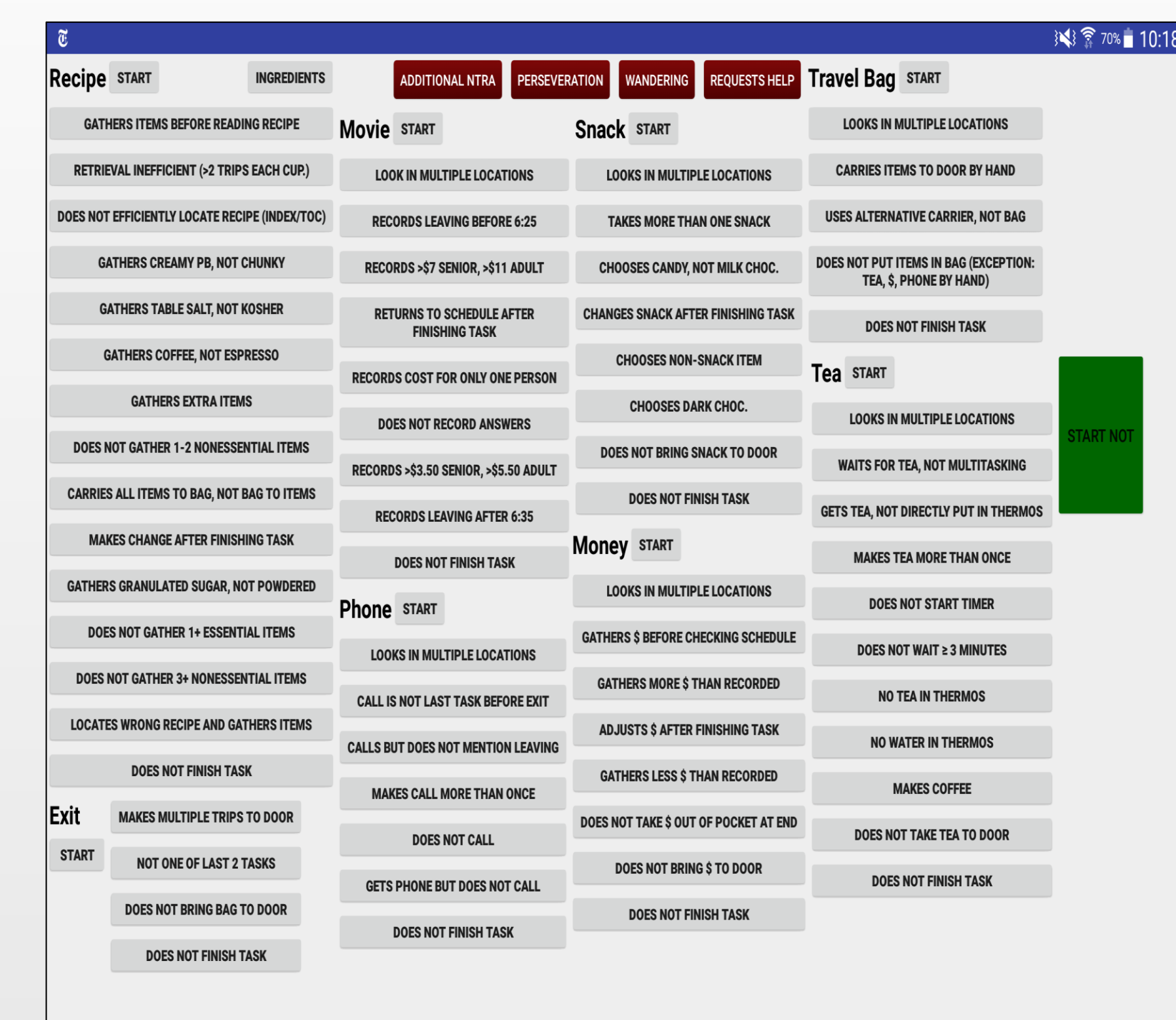| Eight Tasks |
|---|
| Movie Schedule |
| Tea |
| Snacks |
| Change |
| Phone Call to Friend |
| Recipe |
| Travel Bag |
| Exit |

Figure 1. NOT Laboratory Testing Room

Results

- As seen in Table 3, the older adults required more time to complete the NOT than the younger adults.
- Differences between younger and older adults in the sequencing score and overall score did not reach a statistical level of significance.

Table 3. Older Adult and Younger Adult Performances on NOT Variables

	Older Adults (65+) N = 19		Young Adults (18-40) N = 18		T-Value	Cohen's d Effect Size
	M	SD	M	SD		
Total Task Execution Time (in seconds)	729.16	262.36	566.11	160.18	.003*	.75
Correct Sequencing Total	4.63	.96	4.67	.91	.679	.04
NOT Overall Score	12.26	2.56	11.39	2.17	.272	.37

* Indicates $p < .05$

Night Out Task: Tablet Version

- Up to this point, the NOT has been administered and scored using a basic paper and pencil model.
- Creating an application version (see Figure 2, 3, & 4) of this assessment will:
    - Improve standardization
    - Reduce administration complexity for clinicians
    - Allow for easier analysis of a larger number of variables
    - Code results quickly while reducing error

Figure 2. Test Administration Page

Figure 3. Additional Information Page

Figure 4. Results Summary Page

Conclusions

- It was found that older adults needed more time than younger adults to complete the NOT, but no significant group differences were found in sequencing total and NOT overall score.
- The results for NOT overall score are possibly suggestive of poorer performance in the OA group; participants will continue to be tested until a larger sample size is accumulated to determine whether group differences will emerge.
- The newly developed NOT application will:
    - Increase the speed of coding and the number of variables that can be coded, allowing for the data to be retrieved quicker.
    - Decrease the amount of time it will take to fully process a participant's data, increasing the capacity for testing more participants and improving the ease of use and efficiency of the assessment.
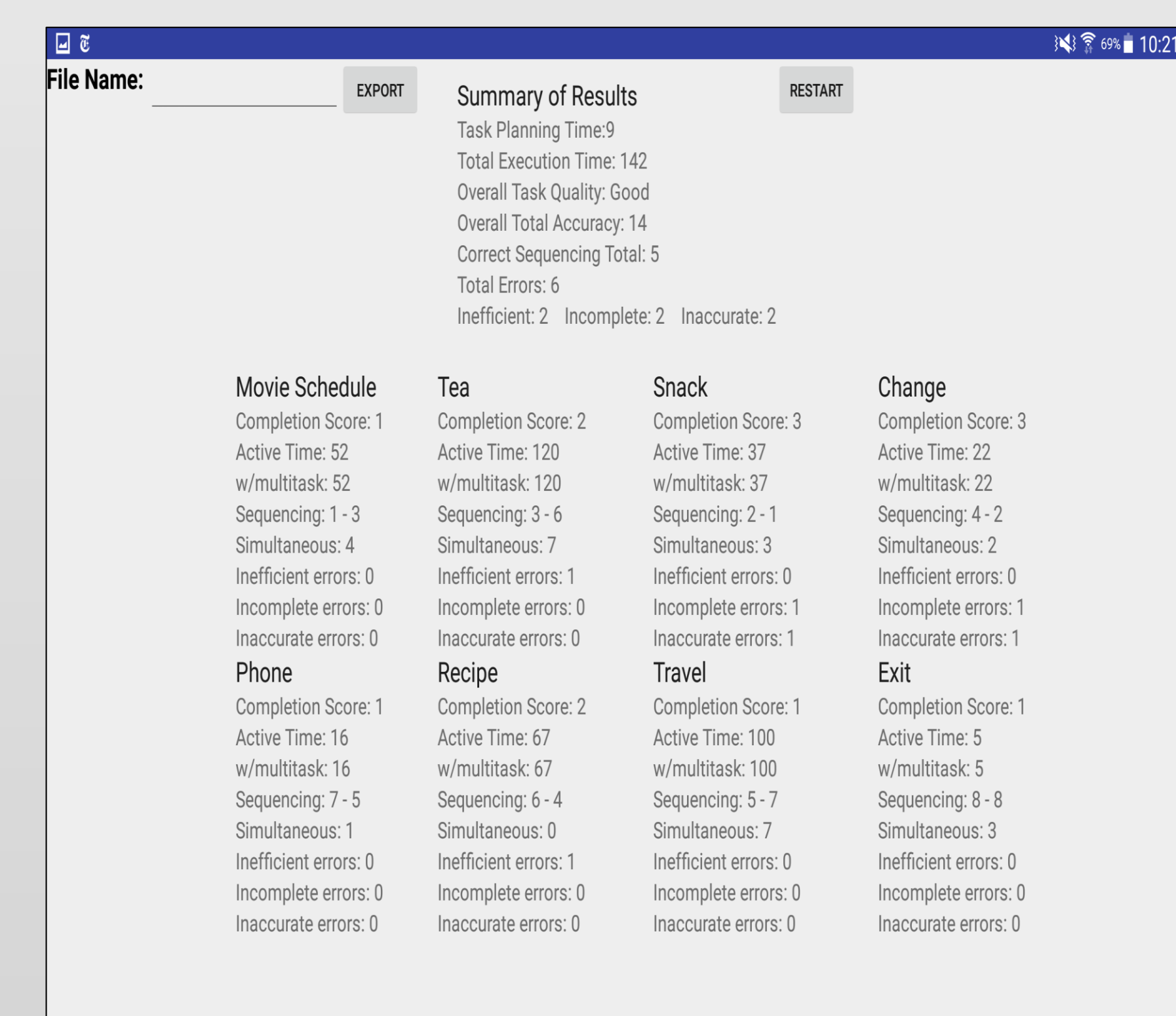
Future Implications

- Future work will be needed to determine whether older individuals with cognitive impairment perform poorly on the NOT; preliminary data indicates that individuals with mild cognitive impairment perform more poorly than healthy older adults on the NOT.
- The NOT is designed to be a proxy measure of everyday functional abilities that can be administered in the laboratory. Future work will be needed to determine the relationship between the NOT and other measures of everyday functioning. This is challenging as there is no "gold standard" measure for assessing everyday functioning.
- With the development of the coding application, future work can begin to look at more nuanced performance characteristics of the NOT. This may help distinguish between individuals who are having or are at risk for difficulties functioning independently, so that interventions can be initiated early to keep people independent.

Acknowledgements