

Designing User Experience: Integrating Memory, Attention, and Cognitive Workload Analysis

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Abstract:

A thorough grasp of cognitive processes is necessary for optimizing user experience on e-commerce platforms. In order to improve user interaction with digital interfaces similar to Amazon, this paper explores memory and attention through the application of cognitive workload analysis enabled by CogTool.

1. Introduction

New developments in cognitive modeling software, like CogTool, offer priceless insights into patterns of user engagement. UX designers can improve the e-commerce experience by fine-tuning interfaces to line with natural cognitive processes by examining these patterns (Benyon, 2014).

2. Memory and CogTool Analysis

When it comes to interacting with and navigating digital platforms, memory is essential. This interaction can be measured with CogTool's analysis. The task analysis screenshot, for instance, shows that consumers perform a number of "Think" and "Move" actions, which reflects the mental and physical demands of visiting an online store.

2.1 Cognitive Workload in Navigation

The findings show that the cognitive strain varies between tasks. The first few frames (Frames 1–5) exhibit shorter 'Think' intervals, which may indicate interface familiarity. The 'Think' periods in later frames (Frames 17–19) are longer, which may indicate more intricate decision-making processes or memory retrieval.

3. Attention and User Interface Design

According to CogTool's analysis, attention directs users' whereabouts of focus when interacting with digital platforms. The 'Eye' motions in Frame 19 imply a change in focus, which can be important to comprehend how people look for and interpret visual information.

3.1 Minimizing Divided Attention

Interspersed with cognitive 'Think' actions are sequential 'Move' actions that represent cursor movements. The aforementioned pattern highlights the significance of creating interfaces that reduce the requirement for divided attention, hence facilitating a more efficient navigation experience.

4. Quantitative Analysis of Cognitive Workload

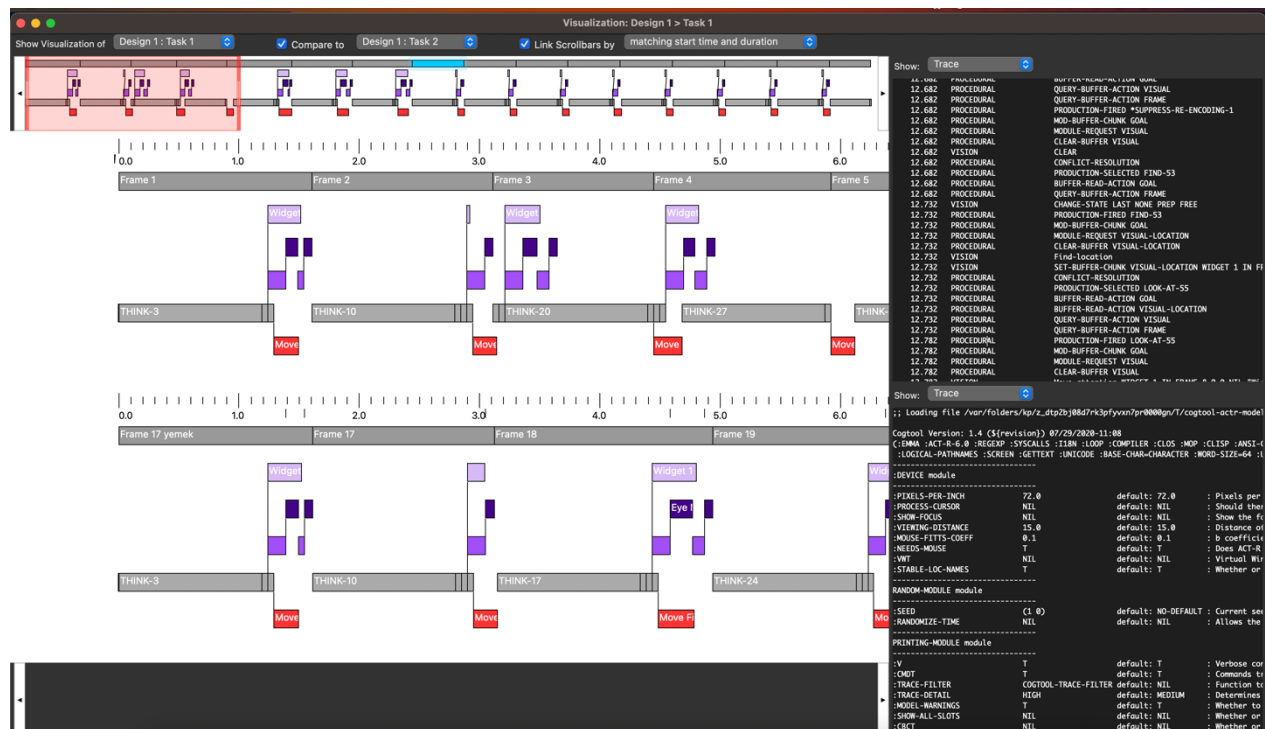
We used CogTool to perform a quantitative analysis and found that there were significant differences in the cognitive effort between two well-known e-commerce platforms. The average time to complete a task was 25.1 seconds for Trendyol and 17.8 seconds for Yemeksepeti. The reason for this discrepancy is that each platform requires a greater number of interactions and more intricate navigation.

4.1 Implications for Trendyol

Trendyol users may feel more cognitive strain as a result of the higher cognitive workload, which could have an impact on their purchasing experience. Reducing the number of steps required to accomplish a task and streamlining the navigation process could help to lessen this strain.

4.2 Efficiency of Yemeksepeti

On the other hand, Yemeksepeti's reduced cognitive burden suggests a more effective user interface, which probably results in faster task completion. As a result, users may have a more satisfying experience and spend less time making decisions and carrying out tasks.



5. Conclusion

CogTool's quantitative analysis combined with theoretical knowledge gives a solid foundation for e-commerce UX design. It makes it possible for designers to produce user interfaces that are sensitive to users' cognitive needs, which promotes a more effective and entertaining online shopping experience.

References:

Benyon, D. (2014). Designing User Experience: A guide to HCI, UX and interaction design (4th ed.). Pearson Education.