# QUALIFYING EXAMINATION

## FUNCTIONAL RELEVANCE OF THE LATERAL OCCIPITO-TEMPORAL CORTEX IN BODY PERCEPTION

**HICRET ATILGAN, PSYCHOLOGY**

### Abstract

Understanding how human mind/brain works have been a great pursuit for scientists. It is also proven to be challenging because of its complexity and need for the contributions of multiple fields from neuroscience, psychology to mathematics and anthropology. In my projects that is discussed in this paper my goal is to understand how the human mind works by understanding functional organization of the human brain. Specifically understanding functional organization within visual cortex by studying the extrastriate body area (EBA) which is involved in the perception of human body and body parts. Then I also study how the functional organization of this region arise developmentally by studying blind individuals.

Even though now there is consensus among scientist that there are specialized brain regions for certain sensory and motor functions, the degree of functional specialization of the regions and whether those regions are responsible for low-level or high-level processing is still debated. Degree of functional specialization is debated because a region can be slightly more activated for a task compared to another or it can be exclusively activated for a specific single task. Additionally, level of processing is debated as whether functionally specialized regions are only involved in low-level sensory and motor processing, or can they also be involved in high-level cognitive processing.

I argue that some brain regions can be highly specialized for that process alone and EBA is likely one of them. My argument is supported by the findings that show specialized regions for high level cognitive processing of faces, places and bodies (Kanwisher et al., 1997, Epstein et al., 1999, Downing et al., 2001). I hypothesize that EBA has functional relevance for both haptic and visual processing of body parts (see study 1) and kinesthetic inputs from the sensorimotor cortex might be responsible for its development (see study 3), and its functional specificity is not visual experience dependent (see study 4 and study 2). I also hypothesize that other relative category specific regions might have similar functional architecture with EBA (see study 5).

**Monday**
**15 June 2020**

**2pm**

**Venue:**
**TEAMS Meeting**

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(continued…….)
With these projects, testing my hypotheses, I plan to contribute to the notion that specialized brain regions for specific cognitive functions can be essential structures on how mind/brain works.

### Proceedings

| Duration | Session |
|---|---|
| 5 mins | Chair Welcome & Introduction of Panel |
| 30-45mins | Presentation by Student |
| 15 mins | Q&A (by audience – faculty / students) |
| Break | Audience to leave the meeting |
| 30 mins | Q&A by Panel |
| 15 mins | Chairperson to ask candidate to leave the meeting<br>Private Panel Discussion and Decision on the Qualifying Examination |
| 15 mins | Candidate invited back by Chairperson<br>Feedback and Outcome of Qualifying Examination |

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