**SAQ sample: Localization of function**

* [Student resources](https://www.thinkib.net/psychology/page/35934/student-resources)
* [Biological approach](https://www.thinkib.net/psychology/page/35936/biological-approach)
* [Writing samples:Biological](https://www.thinkib.net/psychology/page/24192/writing-samplesbiological)
* SAQ sample: Localization of function

The following sample SAQ addresses the question: *Describe****one****study related to localization of function.*

The sample below is an exemplary response.

An annotated copy of the sample response can be found at the bottom of the page.

**What is the question asking?**

* Localization of function should be clearly defined.
* A study related to localization of function should be described, including the aim, procedure and results of the study.
* The actual behaviour that is localized – as well as its location in the brain – should be clearly stated.
* Students should not use research from the 19th century – that is, studies like Phineas Gage and Broca.

**Sample response**

Localization is the theory that specific parts of the brain have specific functions that are related to specific behaviours.  Often, however, behaviours are quite complex and involve several different parts of the brain. Although specific parts of the brain may have specific functions, they work together with other parts of the brain to create behaviours.  One example of localization is the role of the hippocampus in memory consolidation as seen in the case study of HM.

HM had an accident when he was young which resulted in epileptic seizures.  A surgery to stop the seizures, a lobotomy of the temporal lobe, resulting in severe memory loss – HM was not able to recall his recent past – a condition called partial retrograde amnesia.  He also could not create new memories – or anterograde amnesia.  HM could no longer create episodic or semantic memories.

Milner carried out a case study of HM.  In order to carry out her research, she used many different strategies including IQ testing, direct observations, interviews and cognitive testing.  The cognitive tests included memory tests and learning tasks.  One such task was asking him to draw an image while looking in a mirror.  Over time, HM learned how to do the task, showing that he could create procedural memories, but he could not remember actually doing the task, an episodic memory.

Corkin later did an MRI to determine the damage that was done to HM’s brain.  She found that the hippocampus had been severely damaged in the surgery.  Damage to the hippocampus explains the problem of transferring short-term memory to long-term memory as this is the area where the neurotransmitter acetylcholine is believed to play an important role in learning and formation of explicit memories.  Through this study researcher determined that the hippocampus is responsible for the consolidation of episodic and semantic memories from short-term to long-term memory.

**309 words**

**What are the common problems for this question?**

* Many students describe lateralization, rather than localization. This often happens when they describe the studies done by Sperry & Gazzaniga.
* The behaviour must be clearly identified. The fact that the cerebellum is responsible for balance, or that the thalamus directs sensory stimuli within the brain, is not an acceptable response.
* The study is not clearly described with a clear aim, procedure and statement of finding.  This is often the case when writing about HM where the procedure of the study is very limited or missing, focusing only on the results of the study.
* The exact area where the behaviour is localized is not identified

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