

Karl lashley  
psychology essay  
sample



**ASSIGN  
BUSTER**

Karl Lashley is a well known researcher in the field of psychology, and is most famous for his work on the theory of anti-localization. Lashley had performed many interesting experiments in the past with the intention of proving his theory that localization does not exist within the cortex. It is important to note Lashley does not oppose the idea that there are specialized functional areas of the brain, mainly the sensory functions that are localized. The visual cortex is probably the best example of a specialized area of the brain; damage to the visual cortex produces a direct proportion to the damage of visual ability in an animal. Lashley performed experiments with the intent on proving that a memory trace, which is the basic building block on cognition and learning could not be located in any one single portion of the cerebral cortex.

In one experiment Lashley had trained rats to run through a maze without turning down any dead ended isles. He then created lesions in the cortex of the animal, before initial training in some, and after training in others. The rats with lesions showed impaired ability of learning or retention of learning. This proved that the part of the cortex with lesions was responsible for learning or retention of a learned trait. However the animal was capable of relearning the pathway through the previously mentioned maze even with lesions to the cortex. This evidence supports Lashley's theory of equipotentiality, or the ability of cells within a functional group to create equivalent functions (Lashley, 1930, pp 1-14).

This experiment shows strong evidence that the brain does not have specific areas that only allow learning and cognition for a single task. It shows that

there are numerous cells in the brain that can adapt to produce similar functions as in other parts of the brain.

In another experiment Lashley had created a lesion in the striate cortex of a rat. This produced an inability to discriminate the brightness of objects. However this lesioning also interfered with the ability for the rat to navigate a previously learned maze. According to Lashley this supports his theory on anti-localization by proving that a specific area of the cortex can have an effect on several different types of functions within the brain (Lashley, 1930, pp. 1-14).

The findings from the following experiments provide additional support for Lashley's argument. In one such experiment he had found that lesions in any area of the cortex of more than fifteen percent would hinder a rat's ability to navigate a complex maze, yet the animal would still be able to get through a simple maze with lesions up to fifty percent of cortical area. This experiment was also duplicated in monkeys, which were trained to open a set of simple boxes and another set of boxes with latches. Then the frontal or parietal lobes of the monkey's brain were destroyed or removed. Afterwards the box opening experiment was repeated. Lashley had found that the ability of performing simple tasks such as opening boxes were unaffected yet the monkeys were not able to perform the more complex procedure such as opening boxes with latches (Lashley, 1930, pp. 1-14).

These findings support the idea that a given area of the cortex has a direct impact on different levels of complexity of a similar function. Thus the

limitations of ability to perform certain task i. e. intelligence is a function of undifferentiated nervous energy.

Through experimentation Lashley and his colleagues have also found an interesting fact that strongly supports the anti-localization theory. They have found that it is not possible to abolish any single skilled movement, memory, or single sensation by creating lesions on the cortex. This provides evidence that the brain does not function at a level of single reactions or conditioned reflexes, but as a whole in which a single reaction creates a spontaneous chain of events throughout the cerebral cortex.

Lashley has found evidence that the brain is self-regulated. In other words no matter how badly the brain is damaged or injured its functions are still organized. The injured brain will carry on tasks in an organized and intelligent fashion, within its capable limits following the damage or injury. Thus this evidence provides more support that the brain works as a whole rather than individual localized units of functioning.

I think Karl Lashley has provided us with a large quantity of evidence that supports the idea that the cerebral cortex functions as an entire unit, and that intelligent functions such as thought and memory do not exist in any one definite area within the brain. I support Lashley's findings but would not argue that there is a certain level of localization in the cortex, mainly sensory functions such as vision and hearing originate from definite areas of the brain. However from the evidence provided by Lashley I believe the neural energy responsible for memory and cognition is spontaneously distributed throughout the cortex. Therefore I feel the quest to find the source and

pathways that provide memory; cognition and learning in the human cortex may not be within our ability at our current level of understanding the brain.