2a | Introduction

In this module, we'll be talking about the brain, both its structure and its function. I'll begin by providing you with a brief overview of the main structures of the brain. Then we'll discuss localization of function. That is, how is it that we can find evidence of that certain parts of the brain are responsible for certain functions of cognition. We'll then finish this module by talking about some brain imaging techniques. Here, recent technological advances that directly measure either electrical activity or metabolic processes in the brain, have provided us with a window to view the inner workings of the mind.

Before we jump in and start talking about the structure of the brain and the localization of function using brain imaging techniques and others, I should note that the study of how the brain enables cognition is a relatively recent enterprise. Throughout most of the last 50 years or so when cognition was really booming as a discipline, the brain really did not have a central role in its study. For example, cognitive psychologists might have thought the brain is interesting, but it wasn't necessary or relevant to understanding how the mind worked. The assumption being, is that things going on in the brain are likely just too inordinately complicated and thus, wouldn't provide a comprehensible picture of how the brain enables complex cognition.

However, this is now changing. Increasing numbers of cognitive psychologists have become very interested in the function of the brain as an underpining of cognitive activity. This is partly due to the recent advances in neuroimaging techniques which have provided us with a more comprehensible view of the inner workings of the brain when people are performing cognitive tasks. Given these new tools that cognitive psychologists now have at their disposal, one of the ongoing challenges now is to develop new experimental paradigms that can conclusively link cognitive processes to underlying neural activity.

I want to end this introduction to Module 2 with an analogy. As we just talked about, cognitive processes are implemented in human brains. One can make the analogy that the mind is to the brain as software is to a computer. Here, the brain is the hardware and the cognitive processes the software, although the two aspects of functioning can be distinguished. To really understand either, we must have some familiarity with both and how they interact.