What is design? Or, what is it to design? Defining what design is and creating a process of design is a critical aspect of the architectural profession. Bryan Lawson and Nigel Cross have different answers to these questions in explaining the process of design.

In his article, *How Designers Think*, author Bryan Lawson introduces a book that attempts to define design and the importance of its many processes. Because design is implemented in so many realms, it is done in many different ways. Lawson explains that the architectural meaning of design has to do with the creation of objects or places that have a practical purpose and are aesthetic and functional. Design is often brought upon by problems, and architects produce the solutions to solve them. In solving the problem, whether it is one of urbanity or spatiality, the factors contributing to the nature of the design situation are often those most associated with the final outcome or end product. This leads to a design emphasis on product outcome rather than design process.

Lawson explains that architectural education principles lead to the importance of identifying design processes. In balancing the importance of product and process, systematic design methods drawing on technique were implemented into the educational realm. However, teaching a process of design
was not an easily accomplished task. Because of its variability and complexity, Lawson explains that design has to be learned, not taught. Each individual has to acquire their own design process because they alone have to design with it.

Design is often classified by its end product. The end product, however, is something that is formed by the design process, and exists after the design process is completed. Lawson says the reason for this type of design classification has little to do with the design process and is actually a reflection of “increasingly specialized technologies”. His example of this compares an engineer to an architect in saying that despite the two uses of different design processes, the importance comes from their influence of different understandings of materials and project requirements. In continuing, Lawson says that designers adopt different approaches to different design situations, and he begins to ask what design involves. In the speculation of this question, it is explained that the designer must have a good understanding of the technology in his field, a well-developed aesthetic appreciation, and an understanding of the project users’ needs. The fascination of designing is the need to embrace so many kinds of thought and knowledge. However, despite the understanding of the designer, Lawson says we work best when we think the least about our technique, but there remains a need for an awareness of design processes and skills, leading to ever-continuing learning.

In Research in Design Thinking, Nigel Cross explains the research methods and findings of different architects’ design processes as having some
similarities and consistent patterns in three areas: how designers formulate problems, how they generate solutions, and the cognitive strategies they employ.

In problem formulation, Cross says that rather than conquering design problems by first attempting to define them, designers explore problem-and-solution together, using languages of drawing and modeling. The solution of a design problem doesn't directly arise from the problem. Designers use alternative solution conjectures as the means of developing their understanding of the problem. These conjectures should be used as a means of helping to explore and understand the problem formulation, says Cross. Designers solve the problem by generating alternative solutions as a means of exploring the problem.

In solution generation, Cross found that designers impose additional constraints that narrow the solution space and help generate design concepts, helping make a resolution to the design problem possible. Designers change goals and adjust constraints during the design process. The freedom to change these aspects of the design helps create and understanding of the problem to develop a definition of the solution. Cross says that designers also resist radical reformulations of solution concepts, meaning that they work from an individual design concept throughout the entire design process.

Cognitive strategies of the design process may be forms or styles of reasoning that are particular to design thinking. Designers treat problems as though they are ill-defined, “Design is a type of problem solving in which the
problem solver views the problem or acts as though there is some ill-definedness in the goals, initial conditions or allowable transformations,” said Thomas and Carroll. Cross found that designers use a solution focused cognitive strategy for problem resolution and a particular form of reasoning for different design problems.

Cross explains that even though these guidelines of the design process provide a picture of design thinking, a simplified paradigm of the process is still lacking.

These two authors approach the question of what the design process is, or if there is one, in very different ways. Lawson explains that the process is purely individual but is derived by the different influences that technology and other factors in the design field have on designers. Cross researches the characteristics of different architects’ design processes and finds similarities and differences in them to define the process of design. I think that a combination of the two would create a better understanding of the design process in that the influences of many different realms plays a significant role in defining a design process, thus creating many similar characteristics within the design process. However, the question still remains, is there a need to define what the design process is if every individual creates their own? For education purposes, this need remains active, but for professional use, it is more important to define your individual process on a project-to-project basis rather than defining one design process for the entire architectural design profession.