



E4 A Case for Using Mixed Method Research to Investigate the Relationship Between Art and Science in Forensic Facial Reconstruction

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After attending this presentation, attendees will be aware of the ill-structured, liminal, superorganic, multistable nature of the facial reconstruction process.

This presentation will impact the forensic science community by opening a methodologically informed conversation within the forensic arts about mix method research and the art/science of the work.

There is an unexamined operational confluence of art and science associated with the working process of developing a forensic facial reconstruction. The commingled art and science of this working process has characteristics of an ill-structured problem.^{1,2} Ill-structured problems, as opposed to well-structured problems, require multiple procedures to reach a single correct solution. Social, economic, and political controversial issues are examples of ill-structured problems.

The intent of this presentation is to make a case for the use of mixed qualitative-quantitative research methodologies as an appropriate means to investigate the ill-structured, commingled contributions of art and science in the facial reconstruction process.^{3,4} Mixed research methodologies are better suited to represent a balanced account of the contribution of subjective art — image making — and how it flows together with the objective science — anatomy — in the facial reconstruction process. A mixed-methods accounting for the elements of facial reconstruction process throws light on its overlooked ill-structured nature.

The ill-structured aspect of the facial reconstruction problem exhibits the combined qualities of: (1) a superorganism; and, (2) the concept of liminality.^{3,5}

A superorganism is a large collective social organism comprised of smaller member organisms that each have specific divisions of labor; these work in concert toward mutual welfare and the larger organism's collective common good. A honey bee hive is an example of a superorganism in which its members (the queen, the workers, and the drones) have individualized labor tasks that collectively ensure the hive will survive. The art/science relationship within the facial reconstruction working process is analogous to a superorganism. Art and the science, as individual organisms, have specific contributions to make toward the outcome of the finished facial image. The balanced input of both art and science are required for a reasonable likeness of a facial reconstruction to be achieved.

Liminality, an anthropological term, is derived from the Latin word for threshold.^{3,5} It refers to the feeling of disorientation when passing from one state of being to another state of being. The rite of passage is the best example of this concept. There are two fundamental perspectives from which to understand the working process of a facial reconstruction: the objective scientific aspect and the subjective artistic aspect. A mixed methods investigation into the working process of the art/science relationship of a facial reconstruction will highlight its liminality. A state of disorientation occurs when whichever conceptual orientation toward facial reconstruction one holds changes, as the passage from art to science or science to art is made. The disorientation of liminality also has the conceptual effect of being in the condition of multistability.⁴ A scientific example of multistability is the Schroedinger's Cat thought experiment, in which the cat can be considered to be both dead and alive at the same time. A convenient artistic example of multistability is a Necker Cube, in which all orientations of the Cube are present as the same time.

Treating the facial reconstruction process as a combination of both science and art can result in the benefits of each.

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