

Methodology

The interventions that we have deployed in Stages 3 and 4 of the project are derived from Activity Theory and have their roots in Vygotskian psychology. Vygotsky's central concern was to study human functioning as it developed rather than considering functions that had developed. He referred to this methodology in a variety of different ways. We will use the term 'dual stimulation' in this paper. The essence of this approach is that subjects are placed in a situation in which a problem is identified and they are also provided with tools with which to solve the problem or means by which they can construct tools to solve the problem.

The task facing the child in the experimental context is, as a rule, beyond his present capabilities and cannot be solved by existing skills. In such cases a neutral object is placed near the child, and frequently we are able to observe how the neutral stimulus is drawn into the situation and takes on the function of a sign. Thus, *the child actively incorporates these neutral objects into the task of problem solving*. We might say that when difficulties arise, neutral stimuli take on the function of a sign and from that point on the operation's structure assumes an essentially different character. (Vygotsky, 1978, p. 74; italics added)

By using this approach, we do not limit ourselves to the usual method of offering the subject simple stimuli to which we expect a direct response. Rather, we simultaneously offer a *second series of stimuli* that have a special function. In this way, we are able to study the *process of accomplishing a task by the aid of specific auxiliary means*; thus we are also able to discover the inner structure and development of higher psychological processes.

The method of dual stimulation elicits manifestations of the crucial processes in the behaviour of people of all ages. Tying a knot as a reminder, in both children and adults, is but one example of a pervasive regulatory principle of human behaviour, that of *signification*, wherein people create temporary links and give significance to previously neutral stimuli in the context of their problem-solving efforts. We regard our method as important because it helps to *objectify* inner psychological processes... (Vygotsky, 1978, pp. 74-75)

The essence of this approach, when it is applied to examining professional learning, is that it directs attention to the ways in which professionals solve problems with aid of tools that are provided by researchers and become modified in the course of expansive learning.

Vygotsky, L. S. (1978) *Mind in society: The psychology of higher mental functions*. (Cambridge, Harvard University Press).