

Effective Logical Competence for People Centered Education and Creativity

Rodolfo A. Fiorini¹, Piero De Giacomo²

¹*Politecnico di Milano University, 32 Piazza Leonardo da Vinci, 20133 Milano, Italy
(rodolfo.fiorini@polimi.it).*

²*Department of Neurological and Psychiatric Sciences, University of Bari, 70121 Bari, Italy
(piero.degiacomo@tin.it)*

In every discourse, whether of the mind conversing with its own thoughts, or of the individual in his intercourse with others, there is an assumed or expressed limit within which the subjects of its operation are confined. According to Piaget, human adults normally know how to use properly classical propositional logic. Piaget also showed that the integration of algebraic composition and relational ordering in formal logic is realized via the mathematical Klein group structure. In the last fifty years, many experiments made by psychologists of reasoning have often shown most adults commit logical fallacies in propositional inferences. Relying on many empirical evidences, they concluded that Piaget's claim was wrong. According to experimental psychologists, Piaget was overestimating the logical capacities of average human adults. The Klein group structure generates squares of opposition, and an important component of human rationality resides in the diagram of the squares of opposition, as formal articulations of logical dependence between connectives. But the formal rationality provided by the squares is not spontaneous and therefore, should not be easy to learn for adults. This is the main reason why we need reliable and effective training tools to achieve full logic proficiency and competence, like the Elementary Pragmatic Model (EPM). EPM was developed in the late 1960s following Gregory Bateson's constructivist participant observer approach. Later it was applied to develop interactive psychotherapy strategies, online counseling and E-therapy. Since the new millennium application areas have been extended even to engineering problems like user modeling, constraint requirements elicitation, software system development, etc. EPM extension as "Evolutive Elementary Pragmatic Model" (E²PM) represents the latest contribution to current EPM modeling and simulation, offering an example of new forms of evolutive behavior by inter- and trans-disciplinarity modeling (e.g. strategic foresight, uncertainty management, embracing the unknown, creativity, etc.) for the children of the Anthropocene.