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A PSYCHOLOGICAL – MATHEMATICAL APPROACH TO TENSIONAL PSYCHOLOGICAL MECHANISM AND CONSTRUCT

Habilitation Thesis

Abstract

The habilitation thesis comprises 10 years of preoccupations in building a coherent theory of tensional psychological dynamics. Although our interest has been directed towards the psychological field since 1995 when we embarked on a Ph.D doctoral program, an 11 years period, between 1995-2006 was marked by explorations and evaluations concerning the capacity of research instruments to catch the essential feature of psychological functionality; at the same time we were preoccupied by clarifications concerning the possibility to identify a theme capable of explaining human behaviour as a whole.

We are still devoted to the conviction and to our own definition that psychology is the science of the subtle psychological tensions. Our own interrogations concerning the support that these tensions are based on, the mechanisms that allow their modulation, strengthened our conviction that a subject of large perspective and amplitude in psychology can be delimited by the theme of the tensional psychological mechanism and construct.

The tensional psychological construct must respond to a purpose. Surprisingly, although this construct is guided by the principle of finding pleasure and avoiding the disagreeable, its functionality seems subordinated to a desideratum that concerns the human species directly, namely its progress. It's obvious that the functionality of a construct must respond to the purpose it was built for; when we speak about many constructs, in order to be able to explain their behaviour we have to identify a higher reason that aims at all the constructs taken into consideration and to allow their interactions.

On the other hand, we have invested much thought in the input that assures the functionality of the psychological construct, trying to eliminate all the entrances that are produced by subjective interpretations. The evaluation of these entrances leads to vague results and many similar results explain the similarity of the outcomes of input appreciation that can, by no means, explain the functionality of the construct. So we considered that the fittest input measure, capable of describing objectively the functionality of the psychological construct, is the psychological tension free of interpretation.

Any complex mechanism functions based on certain specific constants. The temptation to associate the psychological construct with a psychological engine is great, taking into consideration its capacity to generate behaviours inside the interaction environment, behaviours that are the object of transaction. As any other engine, the psychological one must be characterized by certain performance constants. The curiosity to find constants (invariants) in

any science - and psychology is a science - is another reason for us to treat the psychological construct in our attempt to identify the laws that govern its functionality.

Our personal research was materialized in the theory of the construct and of the register of tensional psychological mechanism in the field of fundamental research.

This habilitation thesis has 7 parts and it includes 5 chapters, with annexes and bibliography. The first chapter presents the main aspects of my professional career. After graduating from the University in 1988, I worked in research for some 13 years, at the Institute of Metallurgical Research Bucharest and at the Romanian Academy of Science. Since 2001 I have been working as professor at Lucian Blaga University of Sibiu, getting, successively, the university degrees of lecturer, senior lecturer and professor.

The next 2 chapters present our personal contribution to psychological research, materialized in our own theory of the tensional psychological mechanism and construct.

Chapter 2 treats the tensional psychological construct. Why is a theory of the construct needed? Human existence is governed by three planes: physiological, psychological and scenic. Each of them is based on a support of the construct type, governed by well defined rules and principles. In its turn, human behaviour is determined by the synthesis of the internal, physiological, psychological and environmental evaluation consciousness. If the internal evaluations define an action potential, the environmental evaluations generate projections of the chance of the action been integrated in the surrounding environment. What generates the reaction to the environment? Any behaviour has a tensional component. The psychological system's capacity to operate with tensions gives credit to the idea of the existence of tensional information, readable by the reader who transforms it into a tensional reaction.

The synchronic functioning of the two instances, the conscious and the unconscious, generates simultaneous, conscious and unconscious reactions. Research led to the identification of four pairs of tensional information, which correspond to the two instances capable of explaining the tensional psychological dynamics, from the first to the last moment of life.

On the other hand, the psychological tonus, present for a lifetime and conditioned by the generation of information in the interactional social environment, must be consumed. In order for it to be consumed, this energy needs to be turned into tension. The conversion can be explained in a coherent system of representations that define the tensional psychological construct.

Intimately connected to the functionality of the tensional psychological construct, the second chapter presents pro and con arguments concerning free will, the hypothesis of tensional states germination as well as a series of rules and principles governing the construction of the tensional construct.

Chapter 3 is destined to the identification of the mathematical laws that define the tensional psychological mechanism. Thus, we tried to identify a category of measures capable of describing the tensional psychological dynamics, associating the category with a reactive psychological potential. The potential is defined as a multitude of tensional psychological measures capable of synthesizing the neural-psychological reality, the capacity of representing the amplitude of the tensional psychological states as well as the capacity to valorise the stimulus depending on the capacity of the stimulus to attract the attention of the person. We

studied the behaviour of the reactive potential at the level of the information receptors and at a superior level of informational synthesis. Our results show that, at the peripheral level of analyzers, the behaviour of the reactive potential is characterized by construct constants.

On another hand, at the level of information synthesis we obtained the metrics of the time – psychological tension continuum. Starting with the basic hypothesis of this thesis, this result was determined by the assumption, that events at the deepest psychological levels are represented in terms of the mentioned continuum. Another important result derived from the identified metrics is represented by the mathematical formulation of the tensional regulation mechanism.

Chapter 3.3 presents the performance of the tensional psychological mechanism. If, in the case of the psychological construct theory, its constitutive aspects are generic, valid at the level of the entire human species, at the level of the tensional psychological mechanism the specific characteristics are different from person to person. These specific characteristics explain the interactions and transactions of offers, conscious and unconscious, generating progress at the personal, group or macro - group level. The effort to evaluate the relations defining the psychological performance also revealed another important result that confirms the time – psychological tension continuum hypothesis; ie the activation speed of psychological pulses, constant at the person's level. Returning to psychological performance, we identified the mathematical relations defining it the personal level; and these are shown by the following constants: the activation speed of psychological pulses, the unconscious psychological experience and the speed of information processing.

Chapter 3.4 presents the problem of the psychological stimulation need and of the emotional mechanism. Research has led to the conclusion that the psychological system is self-stimulated, having its own need - generation capacity. Thus, the conscious behaviour is determined by the extraordinary capacity of the conscious instance to interpret the needs generated by the psychological system in many different ways.

Treating the emotional dynamics in terms of the tensional continuum, we identified the emotional mechanism in the shape of a group of transformations that do not change the equation of the tensional state.

Chapter 4 presents synthetically the research projects with the business environment, the coordinated research activities and the preoccupation of supervising student research. Of the 5 research projects coordinated by us one is linked to the topic of this habilitation thesis and four are on psychometric topics (test validations and standardization in educational field). At the level of the coordinated research activities there are mentioned those that come under the Center for Psychological Research of the University of Sibiu (2008-2012) as well as the Laboratory for Modelling and Epistemic Psychology of the same Center.

Chapter 5 makes a presentation of the current directions of our career, focused on two components, teaching and research. There are presented arguments for the development of the university curricula in order to bring some plus in the development of the students' authentic analytical thinking and in that of the students learning for a master's degree in psychology. There are also presented the research directions aiming at the development of the theoretical approach, the development of an acceptance theory having as support the theory of the tensional

psychological mechanism and construct and the effective accomplishment of an artificial intelligence engine.

The last chapter of the thesis is devoted to the literature.