
PSYCHOLOGICAL TABLES AND DEFINITIONS

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LICEU PSICOLÒGIC

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CLASSIFICATION OF SCIENCES

| <i>Morphological Sciences</i> | | | <i>Functional Sciences</i> | | | <i>Technological Sciences</i> |
|--------------------------------|---|--|----------------------------|-----------------------------|------------------------------|--|
| <i>Distribution</i> | <i>Composition</i> | <i>Manners</i> | <i>Quality</i> | <i>Quantity</i> | <i>Evolution</i> | |
| Human Geography Demography | | Anthropology and Historical Narrations Synchronic and Diachronic Linguistics | Sociology Economy | Sociological Laws | History | Politics |
| | | Synchronic and Diachronic Differential Psychology Psychopathology Comparative Psychology | Psychology | Psychological Laws | Developmental Psychology | Education |
| Animal and Vegetable Geography | Anatomy Zoological and Botanic Class | Ethological Descriptions | Biology Physiology | Biological Laws | Evolution and Growth Biology | Medicine Psychiatry |
| Physical Geography | Mineralogy Geology Astronomy | | Physics and Chemistry | Physical and Chemicals Laws | History of Universe | Engineering Architecture Computation |
| Logic | | | Mathematics | | | |
| Formal | | | Disciplines | | | |

Table 1

Legend Table 1

1. Science means socially systematized knowledge.
2. There are different types of science according to their goals and methods
3. Morphological sciences are descriptive. They take the extension criterion - situation, constitution and manners of behaving of the things studied- as the foundation of their classificatory knowledge (see Table 3).
4. Functional sciences are explanatory. They take the movement criterion in its qualitative, quantitative and evolving dimensions, as the foundation of their knowledge. Movement criterion means to focus on the functionality or animation of natural things, ordinarily referred to in spatial and bodily terms. On the other hand, functional sciences act in an analytic and generalizing manner (see Table 3).
5. Technological sciences are manipulative with an empirical and pragmatic criterion. They synthesize and particularize the knowledge from other types of sciences in order to manipulate, modify or control the natural functioning of things, eventually creating instruments or machines.
6. Formal disciplines are conceptual procedures that act as operative rules in scientific research.
7. Psychology is a functional science. Secondarily it is a morphological science. Most psychologists work in technological activities.

PSYCHOLOGY

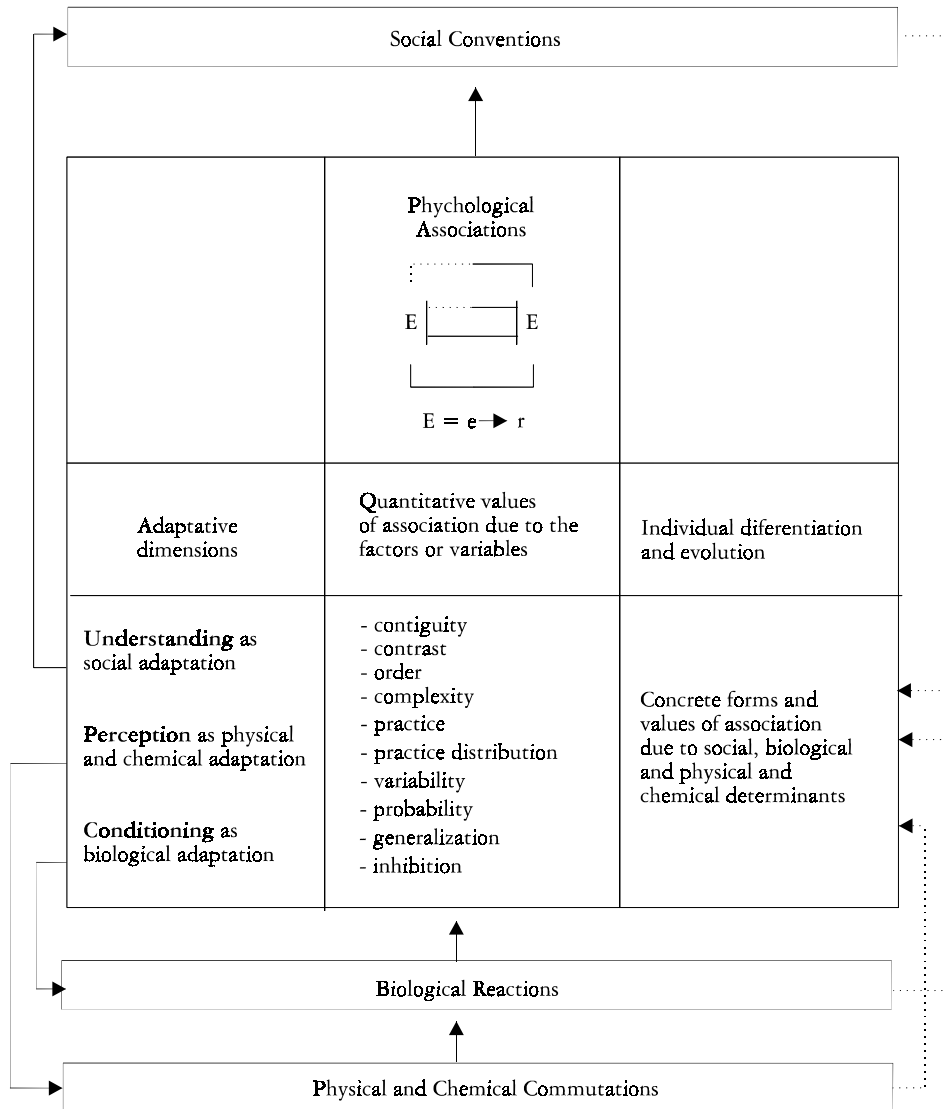


Table 2

Legend Table 2

0. Psychological events are associative fields. That is: ontogenetic relations between biological reactions.

The psychological functional field cannot be defined in morphological terms as internal or mental, or as external or behavioral -understanding behavior as physical action. The Cartesian conception of human beings as composed of body and mind is not a functional conception but the most traditional and popular morphological conception.

The field model takes into consideration the associative functional relation between reactions, not the reactions themselves neither the competencies - the ways through which the functional relations are measured- like physiological reactions, motor performances or oral expressions.

Psychology as a functional science is the study of associative phenomena.

- 0.1. The material elements of psychological association are the biological reactions. Biological reactions, not the stimuli and the responses, are the material elements of psychological events.
- 0.2. Two fundamental types of association seem to be sufficient in order to cope with psychological events: The rigid association and the changing association. The first refers to the simple relation of occurrence of two or more reactions, the second refers to the establishment of relations between the changing values of reactions. The picture, in the upper part, of Table 2 attempts to represent these two types of association, simultaneously: Continuous lines mean rigid association and discontinuous-continuous lines mean changing association.
- 0.3. When these two levels of association are specified in temporal, modal or both, temporal and modal parameters, cover the universe of basic psychological phenomena.
The concept of parameter permits one to see association in different and complementary perspectives and implies, at the same time, a renewed understanding of association as a **consistent relation between biological reactions**.

1. The associative phenomena, within the qualitative definition of psychological events, are adjustative. Which means to say that association is always a teleonomic phenomenon. The behaviorist definition of psychology as the study of the adaptation of the organism to its social, physical and chemical, and biological environment underlines this adjustative dimension of psychological events.
- 1.1. Understanding, Perception and Conditioning are presented as the three fundamental psychological phenomena because they signify social, physical-chemical and biological adaptation.

The Table that follows -developing the left column of the picture of the Table 2 - acts as a table of basic psychological phenomena taking into consideration the levels and parameters of association on the one hand and, on the other, their adjustative dimensions:

| | | <i>Finality</i> | <i>Psychobiological Adjustment</i> | <i>Psychophysical Adjustment</i> | <i>Psychosocial Adjustment</i> |
|----------------------|---------------|--|------------------------------------|----------------------------------|-----------------------------------|
| Form | Parameter | | Conditioning | Perception | Understanding |
| Rigid Association | Time | E ——— E | Temporal Conditioning | Temporal Constancy | |
| | Time and Mode | E ——— E └────────┘ | Temporal and Modal Conditioning | Temporal and Modal Constancy | Temporal and Modal Knowledge |
| | Mode | E ——— E └────────┘ | Modal Conditioning | Modal Constancy | Modal Knowledge |
| Changing Association | Time | E ····· E | | Temporal Configuration | |
| | Time and Mode | · · · · · E ····· E └────────┘ | | Temporal and Modal Configuration | Temporal and Modal Interpretation |
| | Mode | · · · · · E ····· E └────────┘ | | Modal Configuration | Modal Interpretation |

Table 2.1.

Legen Table 2.1.

Temporal Conditioning is present in the cycle regulation of life. The circadian regulation of sleep, activity, anger and the rest of physiological parameters in plants, animals and human beings is included here as a relevant illustration of this psychological parameter.

Temporal and Modal Conditioning is present in all situations of life where changes in reactions present a rigid consistency in time and mode. The avoidance performances-escape conditioned responses- and the classical experimental situation of conditioning are also included in this psychological parameter because they usually involve modal and temporal adjustment.

Modal Conditioning is present in conditioned reactions between all kind of biological changes, underlining those classified as emotional.

Temporal Constancy is present in ontogenetic orientation to the time interval between stimuli, in all kind of physical and chemical adaptation. The anticipatory performances in physical activity, sports and professional situations especially when machines are involved, reveal the existence and relevance of this psychological parameter. The acquisition of rhythm performance is also included here.

Temporal and Modal Constancy is present in all situations where a rigid temporal and modal coordination is needed. Machines require not only temporal but also modal adjustment—the correct action in the proper moment in such a way that there is always a temporal but also a modal anticipation to changes in stimulation. Rigid motor coordinations are also included here.

Modal Constancy covers the traditionally called “perceptual constancies” as color constancy, form constancy, weight constancy, etc.

Temporal Configuration is a psychological field that represents all situations where a temporal adjustment to velocity is performed. Driving automobiles, as an example, implies this type of physical adjustment.

Temporal and Modal Configuration is a psychological field that represent all situations where adjustment to movement is performed. All performances dealing with moving objects or also moving subjects, as happens in sport, mean a temporal and spatial adjustment to the changing values in speed and direction of the objects or also of the subjects.

Modal Configuration is a parameter that includes psychological adjustment to the changing values of physical and chemical stimulation. The judgement of object size in changing distance is a typical situation illustrating it.

Temporal and Modal Knowledge is a parameter that includes rigid social interaction of an individual with others. Daily encounter situations, professional interactions and automatic behaviors with “intelligent” machines are examples of this type of psychological adjustment.

Modal Knowledge is a parameter that includes what nowadays is called cognitive behavior. School knowledges about different subjects or matters or the norms or linguistic rules of daily life, constitute examples of modal knowledge.

Temporal and Modal Interpretation is a parameter that covers the continuous and changing adjustment in social interaction. The change of position needed in activities like collective sports or the moment to moment reconsideration of our role in a professional encounter or activity, are illustrations of this psychological parameter.

Modal Interpretation is a parameter that includes the upper level of cognitive performance where the meaning of words is continuously changed and negotiated according to the current context of reasoning. The use and creation of metaphors in science and in artistic productions, the presence of cues and connotations in linguistic interaction, are illustrations of this psychological parameter.

Legend Table 2.2.

2. The associative phenomena show variation or quantitative changes and these changes are explained when factors or variables of the psychological field are identified.

- 2.1. The **structural** factors identify the variables rooted in the characteristics of the association itself.
The historical factors identify the variables related with the repetition of associative relation.
The situational factors identify variables that affect the force of an association in its present occurrence.

The psychological field factors and psychological laws are summarized in the table that follows, developing the central column of Table 2.

| <i>GENERAL DEFINITIONS OF PSYCHOLOGICAL FACTORS OR VARIABLES</i> | <i>GENERAL FORMULATION OF PSYCHOLOGICAL LAWS</i> |
|--|---|
| <i>Structural factors</i> | <i>Structural laws</i> |
| <p>Contiguity: Relational proximity between the elements of an association</p> <p>Complexity: Number of relations that compound an associative activity.</p> <p>Disparity: Separation or contrast between the elements of an association</p> <p>Order: Regular disposition of elements in an associative compound.</p> | <p>For a closer proximity, more increase in the associative performance and viceversa.</p> <p>For a larger number of relations, more difficulty in associative performance and viceversa.</p> <p>For a stronger contrast, more increase in the associative performance and viceversa.</p> <p>For a greater regulation, more increase in the associative performance and viceversa.</p> |
| <i>Historical factors</i> | <i>Historical laws</i> |
| <p>Practice: Number of times that an association is repeated.</p> <p>Distribution of practice: Presence of time periods between practices.</p> <p>Variability: Consistency degree in the presentation of the elements of an association.</p> <p>Probability: Proportion of presentations of an element of an association respect to the other (s).</p> | <p>For a larger number of repetitions, more increase in the associative performance and viceversa.</p> <p>For a broader temporal distribution, more increase in associative performance and viceversa.</p> <p>For a more pronounced consistency, more increase in associative performance and viceversa.</p> <p>For a greater proportion, more increase in associative performance and viceversa.</p> |
| <i>Situational factors</i> | <i>Situational laws</i> |
| <p>Generalization: Present separation of an associative element respect to the habitual value.</p> <p>Inhibition: Presence of a strange element respect to an association or absence of an habitual one.</p> | <p>For a longer separation, more decrease in associative performance and viceversa.</p> <p>The odder the element is or the more unusual the absence is, more decrease in associative performance and viceversa.</p> |

Table 2.2.

Legend Table 2 (developing the right column)

3. The psychological differentiation and evolution is due to social conventions, biological reactions and physical-chemical commutations that determine the concrete associations that define each individual.
An individual is, psychologically speaking, the integration of specific understandings, perceptions and conditionings with their quantitative variations.
The psychological differences between animals and human beings are closely related to determinants affecting them.
- 3.1. There are two types of determinants: Determinants of the psychological forms of Understanding, Perceiving and Conditioning and determinants of the elements of an association in those psychological universes.
 - 3.1.1. Social conventions determine concrete forms of Understanding, Perceiving and Conditioning and their quantitative values.
Social conventions determine the way we speak and the contents of the same. They also determine the perceptual and motor abilities necessary in professional activities, sports and other current abilities of daily life and determine also our biological particular functioning as habits of food intake or emotional reactions to things, animals, persons or ideas.
Social conventions determine the values of the factors affecting the force of an association when they mean, for example, a specific amount of practice or the presence of an inhibitory stimulus in a particular situation or the emotional reaction needed against something.
 - 3.1.2. Biological reactions determine only conditionings but as a material basis of psychological events, the presence or absence of biological elements and their alteration, affect psychological associations both in quality and quantity.
Biological functioning produces specific and particular conditionings because relations between the different reactions of the organs occur in each individual life.
Biological functioning determines also psychological specific associations because it puts the basis of disposable associations and affects specific associations when its functioning is altered.
 - 3.1.3. Physical-chemical commutations determine only perceptions but, as a material basis of biological reactions, determine the presence or absence of biological elements and their alteration, affecting psychological associations both in quality and quantity.
Each physical and chemical environment and the motor activity of an organism in it, implies specific perceptions in each particular situation and development.
Physical and chemical commutations determine biological reactions and, through them, determine specific psychological associations.

PSYCHOLOGICAL CRITERIA,
CATEGORIES AND CONCEPTS

| CRITERION | | EXTENSION | EXTENSION | EXTENSION | EXTENSION | | EXTENSION | EXTENSION | | EXTENSION | EXTENSION | EXTENSION | EXTENSION | EXTENSION | EXTENSION | EXTENSION | EXTENSION |
|------------------------------|------------------------------------|---------------------------------------|---|------------------------------------|---------------------------------------|--|--|---|---|---|---|--------------------------------------|--------------------------------|------------------------------------|---|-------------------------------|--|
| CATEGORY | | Mental <i>Action</i> | Organism's <i>Action</i> | Present <i>Effect</i> | Future <i>Effect</i> | | <i>Action</i> | <i>Adverbial Locution</i> | | <i>Action of Others</i> | Micro <i>Process</i> | Macro <i>Process</i> | Process's <i>State</i> | State | Pathological <i>State</i> | <i>Disposition</i> | <i>Disposition</i> |
| BASIC PSYCHOLOGICAL CONCEPTS | | Volition, Perception, Cognition, | Conditioned Reactions, Behavior, Habit. | Anticipation | Remembering | | To Practice | Force of Will, Habit, Response, etc. Degree or Level of Knowledge | | To Cause | Learning | Development | Period Phase | | Psychopathology cal Diagnosis | Subject's Faculty (Being) | Subjects Capacity (Having) |
| OTHER CONCEPTS | Conditioning | To Love, To Hate, To Feel anger, etc. | Psychological and Emotional Conditioned Reactions. Appetitive or Aversive Behavior. | React previously, React in advance | Remembrance, Reminiscence, Remind of, | | To Relate, To Associate, | Degree of affect or aversion, Magnitude of the Response Latency, | | To Condition, To Reinforce, To Punish, To Extinguish, To Manipulate, | To Become Conditioned, To Have Experiences, | To Maturate, To Grow Emotionally, | Emotional or Maturation Phase, | Affective state | Anxiety State, Delirious State, Paranoid State, | Sensible, Neurotic, Normal | Sensibility, Neuroticism, Emotional Selfcontrol, Memory, |
| | Constancy Configuration | To Perceive, To Imagine, | Perceptual and Motor Behavior. | Anticipate, | Retain | <ul style="list-style-type: none"> -Contiguity -Complexity -Disparity -Order -Practice -Distribution of Practice -Variability -Probability -Generalization -Inhibition | To Repeat, To Train, To Exercise, | Reaction Time, Level of Accuracy, Level of Skill or Ability, Degree of Attention, | Social Determinants | To Teach, To Show, To Correct, To Educate, To Reeducate, To Teach, To Instruct, To Facilitate, To Modify, To Influence, To Disturb, | Acquisition of Skills, Perceptual and Motor Learning, | Perceptual and Motor Development | Psychomotor Period, | Attention or Concentration, | Motor Dyscontrol, | Capable, Skilled, Coordinate, | Capacity, Skill, Coordination, Memory |
| | Knowledge Interpretation | To Know, To Understand, To Think, | Intelligent Behavior (Problem solving, Discriminate, etc.) | Know, | Remember, Recognize, Remind of, | | To Study, To Memorize, To Investigate, To Analyze, | Amount of Knowledge, Intellectual Level, Level of Retention, | Biological and Physical and Chemical Determinants | | Reasoning, Thinking | Intellectual Genetics or Development | Intellectual Period, | Cognitive State, Conscious, Lucid, | Confusional State, | Conscious, Clever | Conscience, Intelligence, Talent, Memory, Intellectual Quotient, |
| BASIC FUNCTIONAL CONCEPTS | Association | | | | | Variable or Factor | | (Quantification) | Determinants | | | | | | | | |
| CATEGORY | <i>Functional Relation (cause)</i> | | | | | <i>Functional Relation (Cause)</i> | | | <i>Functional Relation (Cause)</i> | | | | | | | | |
| CRITERION | MOVEMENT | | | | | MOVEMENT | | | MOVEMENT | | | | | | | | |

Table 3

Legend Table 3

There are two main forms of talking about natural events which represent two conceptions of the same: the first way is to refer to them in terms of extension, the second is to refer to them in terms of movement. These two forms are criteria; which is to say: ways of referring and conceiving nature in the most general way.

1. The extension criterion means to refer all things as corporal and which act in an extended spatial world.
 - 1.1. The ordinary language referred to in psychological events is based on this extension criterion. First, ordinary language refers to psychological events in terms of a subject -spatially defined- and in terms of what this subject does. Second, the ordinary but also the pseudoscientific psychology refers to this subject as a spatial entity, with a body and a soul, or a mind, inside. Third, the pseudoscientific psychology, concordant with ordinary language, refers to psychological events in terms of an organism and the environment surrounding it.
 - 1.2. Ordinary linguistic categories, defined as abstract notions that include most of the psychological concepts, have their conceptual foundations in the criterion of extension.

These categories are:

- 1.1.1. **Action**, defined as what a subject does. The subject can be the mind inside the body or both, the mind and the body together. The subject can be also an organism, the acting subject or the other subjects affecting its action.
 To talk about the mind's action -internal- or body's actions -external- or also about the organism's action upon the environment and the environment's action upon the organism, means thinking in terms that assume a spatial conception of the world.
 It can be said that "mind is action", but if the extension criterion is the conceptual context of this expression, it is not acceptable from a scientific point of view.
 It can be said also that "mind is behavior" but if it is assumed that this behavior is the behavior of an organism, this means to explicitly assume the extension criterion.
 The so called "cognitive alternative" means going back inside the organism, without ever abandoning the extension criterion.

- 1.1.2. **Effect or consecution**, defined as the result of an action done by a subject. There is a present effect and a future effect of psychological actions. The present effect is anticipation and the future effect is to remember, both showing the fundamental characteristic of psychological action: an organism's reaction, response or behavior adjusted to an eventual change without the physical presence of stimulation.
- 1.1.3. **Adverbial locution**, defined as descriptions of the quantitative changes in the subject's actions and their effects.
- 1.1.4. **Process**, defined as any continued set of natural actions or also the description of the steps or successive phases in an event's occurrence. When the concepts included in this category are rooted in ordinary language, they usually describe the development of a subject's actions. This is what usually happens when we talk about learning and development: It is always the learning or development of an organism or of a subject in general.
- 1.1.5. **State**, defined as a way of being or staying of somebody or something. Psychological concepts included in this category refer to how a subject is behaving at a specific moment or period of time. There are, on the other hand, concepts that refer to a state in a process, concepts for psychopathological states and also concepts for general and normal psychological states
- 1.1.6. **Disposition**, defined as a general tendency to act or behave in a particular way. This category shows clearly the confusing effects of the extension criterion: The tendency or propensity to act or behave in a particular manner is interpreted as something inherent in the subject or something that he/she has inside –somewhere- and that determines his/her action or behavior.
- 1.2. Differential psychology uses concepts and categories based on the extension criterion, closely allied to ordinary language
2. The movement criterion means to refer to all things in terms of the dynamics which animate them.
The concept of movement is used as a tribute to Aristotle and even when it can be easily associated to local movement or displacement or action, it is the most suggestive concept or metaphor to express that nature is better understood when we take into consideration the dynamic or the functioning that animate it.
In regard to the movement criterion we assume that nature, and particularly human beings, can be better understood taking into consideration the different dynamics that constitute them.

- 2.1. Natural sciences act and justify the movement criteria when implicitly or explicitly it is assumed that they study not things bodily conceived but "animations" of them.

When science studies –as an illustration- an athlete, it takes into account, first, the physical and chemical functioning, studying for example the biomechanical dynamic. Second the biological reactions involved, for example, in exercise. Third, science takes into consideration the psychological associations that permits the specific adjustment to the game played. Fourth, science also takes into consideration the social conventions that allow us to understand why the athlete is playing that game and not another. This is what science actually does: to study each animation that constitutes an athlete.

- 2.2. Psychology as a functional science deals with a level of organization of natural phenomena. Psychology does not deal with the mind inside the body; does not deal with the organism acting or interacting with the environment.; does not deal with individuals, nor deals with their action or the effects of action. Psychology deals with functional relations that define a level of organization present in human beings and other animals.

- 2.3. **Association** is the functional relation that defines the psychological phenomena qualitatively. Which is to say: the kind of functioning that allows us to talk about psychological events, to differentiate from other events and to relate to them.

Association is the ontogenetic constructed relation between biological reactions, meaning adaptation to social, biological and physical and chemical animations or movements (see Table2 and Table 2.1). Thus, association is a category completely defined in movement or functional terms, avoiding any spatial or corporal criterion, category or concept. Association does not occur in a place and it is not something done by somebody. It is a form of functioning; one dynamic that constitutes a human being or an animal.

Mind is relation. Associative relation between biological reactions. All subjects, organisms, internal or external entities or processes, all concepts based on extension criterion are rejected even when it can be shown, as is done in Table 3, correspondences between the opposed criteria.

The general functional notion of association but also the concepts of Conditioning, Constancy and Configuration, and Knowledge and Interpretation, are used meaning only functional relation, independently of their traditional or present use within the extension criterion.

- 2.4. **Variable or factor** is the category that denotes the changing values of the association relation, explaining quantitative variation in the associative performance. The definition of the factors situated above has been done in

Table 2.2, always in terms of functional relation. Internal and external variables and the rest of the factors defined starting from the extension criterion, like those referred to as internal variables, are rejected.

A secondary characteristic of sciences is that of quantification which permits a more accurate knowledge of the phenomena studied with respect to adverbial locutions in ordinary language.

- 2.5. **Determinant** is a category that denotes how other animation or functional levels of natural events cause the concrete associations and the concrete values of them in a particular moment and in the evolving perspective.

The consideration of these determinants complete the psychological field (see Table 2), without any concession to the extension criterion.

(A broader exposition of the ideas summarized here can be found in the "Psicologia. Una introducció teòrica" (Català) and in the articles published in Spanish)