

# **Creatology from 1977 to 2007.**

## **The First Thirty Years of a New Science of Creativity**

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This paper presents a small sample of the results Creatology has achieved during its first thirty years of existence from 1977 to 2007. The main chapters below deal with the short prehistory of Creatology, its paradigmatic framework and applications. The author's ambition was to first and foremost outline the theoretical foundation, because the pragmatic work in this domain is over-represented at the expense of the theoretical minimum obligatory for any scientific enterprise. The article contains descriptions of what it calls the "Big Bang" of Creatology and the mainstream view about creativity based on the generalized market structure.

Keywords: Creatology, Creatology matrix, product, process, personality, culture, organization, group, quantitative, qualitative, factual, normative, anthropology, genes, economic psychology, pedagogical axiology, economics of culture, language theory of art, creativity, work, game/play, mainstream, market model.

### **Short "prehistory" of Creatology**

Creatology as a new discipline was born „officially” on the International Sociology of Science Conference in Budapest, Hungary in 1977. The title of the paper presented on Creatology at the very first by this author was: „About the Necessity of Complex Creatology”. In 1979, this paper – with other presentations given at the abovementioned conference – appeared in the book “Sociology of Science and Research” edited by János Farkas, Akadémiai Kiadó (Academic Publisher), Budapest, 1979. Pp. 175-182. When and why did the idea of a new science emerge? As a matter of fact, most of the psychologists who were interested in creativity treated the subject as if either the meaning of creative product had already been defined or they denied the necessity of such kind of definition, regarding the concept in question as self-evident. There were also psychologists for whom the creative results should be identified in the domains that they belong to. Among others Carl G. Jung maintained this view (Jung, 1932). A small sample of outstanding thinkers in psychology – like e.g. Carl Rogers and Herbert A. Simon – clearly admitted the lack of knowledge as for the creative product (Rogers, 1954. Newell, Shaw, Simon, 1963). Psychologists as a rule concentrated on the process of productive problem solving or on the ability to create. European psychologists before the Second World War tried to understand the process of problem solving, whereas USA psychologists after the Second World War emphasized the question of creativity as an ability following the path J. P. Guilford had founded (Guilford, 1950, 1975, 1987). Thus, the whole organic domain of creativity had been cut into two pieces, namely: process and ability on the one hand and product – actually banished from psychology – on the other hand. To make

matters even worse, Europeans divided the problem solving into the so-called reproductive thinking and productive thinking (Szekely, 1950), identifying productive thinking only with creative problem solving. “Productive” in this model equals “the new” to the problem solver mind itself.

It was impossible to agree with such a narrow understanding of creativity, which had both been reduced to a kind of process and ability even within the science of psychology and had no valid justification on the level of cultures and civilizations. For example, an achievement can be extremely creative for a person, however, at the same time as dull as ditch water for professional elite and/or the majority of society where the “inventor” resides. This type of considerations forces us to switch from psychological approach – which investigated merely into process and ability – to the meta-psychological perspective, preserving of course the psychological level of reasoning as well. After all, an achievement could be creative – or noncreative – for different subjects. Moreover, it is also possible (and necessary) to arrange in a way the subjects we speak of here. For example, to put them in a rank order from the largest/greatest to the smallest. This has led us to a basic paradigm shift in the studies in creativity and far beyond the merely psychological understanding of the subject matter. The hope was that the reunification of the artificially divided domain of creativity would shed more light on the real nature of creative process and creativity as ability. It seemed to be quite natural to start with the product studies because product is the most tangible – that is the most factual – area of the reunified domain. Incidentally, facts are – in our understanding – rather epistemological than ontological entities. We define a fact as anything, which needs to be explained. Thus, it is self-evident to think of the facts as not “all-or-nothing” incidents or phenomena. Essentially, a fact is a dimension of reality on which the more tangible is the more factual and vice versa. Furthermore, everything can be either a fact or an explanation. In this respect, the epistemological nature and significance of an entity depends on the direction from which we are approaching it. Thus, the most important facts of creativity are the products. And this is why we have to start our research with them.

Another consequence inherent in the previous paragraph about the aforesaid paradigm shift was the changing of the initial level of studies in creativity. Instead of starting the research by and within psychology, it seemed much more fruitful to start it on the level of cultures, civilizations and their history. In such a way, the main task appeared on the scene: ***what is the creative product for and in the framework of culture(s)?*** There was no science, which would have been interested in formulating and answering this question. While all the problems connected with the creative process and creative ability, could be identified as the areas and terms of explanation of creative products. Which does not mean at all, that both the creative process and ability to create cannot be studied factually, where the stimulating effect of creative products has to be acknowledged as well. A long-lasting rigorous empirical investigation into a large set of unanimously accepted achievements – reached by the greatest thinkers and scholars in human history – had made it possible to define creative results on the level of culture, even before the term Creatology was coined by the present author. ***A creative product on the level of cultures is a new for a whole culture result, which is ethically acceptable in that culture; raises or/and solves the existential problems of the culture in question and by this it contributes to a further development – or survival – of that culture. These features of creative results are not visible without their special analysis*** (Magyari-Beck, 1976).

## The Paradigmatic Framework of Creatology

Before outlining the paradigmatic framework of Creatology, let us take an example in order to illustrate/apply the definition of creative product on the level of culture. Be this illustration/application the top period in arts and sciences: Italian Renaissance. The challenge came from the Arabian market economy in the Middle East and North Africa and threatened first of all the medieval Italy. The challenge was economic, military and cultural. There is no place and time here to imagine what would have happened if Italy had neglected the threat. However, the appropriate response – learning the Arabian model by imitating it at the very least partially – seemed to be also threatening in the European environment of those days. We should keep in mind that Italy – because of the papal residence in Rome – occupied the place of leading country in Western Christianity. Well, the general answer to this challenge was a switch from the dominance of *medieval* moral values to the dominance of aesthetic ones. Under the umbrella of this new value system Christianity could be preserved and the first market economy introduced into medieval Italy. Incidentally, the cult of beauty was not new in this country for it was the son of Venus who – according to ancient legends – founded Rome. The whole population of Italy worked on this “revaluation of values”, without which the survival of European culture vis-à-vis the Islam would have been perhaps unthinkable. All the pieces of art, science, innovations in the economic life of Church – often scandalous for northern peoples of Europe – can be understood and estimated as parts of the great historical response Italy gave to the Islam. The products of creative activity, which emerged in Renaissance – e.g. the clash between and the re-synthesis on a wider scale of moral and aesthetic values in works of Dante – can and have to be appreciated in the framework of this tremendous historical crisis of European culture (Magyari Beck, 2006).

The next steps from the summit concept of Creatology can be taken either back to the process and ability or below, to the smaller parts of social edifice: organizations, groups and personality. As a result, we arrive at the Creatology Matrix (Magyari-Beck, 1984, 1990). We shall present it here in its original form.

Table 1. Creatology Matrix

	Ability	Process	Product
Culture and Civilization	Creative Culture and Civilization	History	Creative Product on The Level of Culture
Organization	Humanistic Organization	Research, Development, Introduction, Production, Sale	Innovation
Group	Team	Group Problem Solving	?
Personality	Creative Personality	Individual Problem Solving	Subjective Creation

However, the matrix in this form did not show important differences between many details to be distinguished obligatorily. As, in all sciences, it is an everyday practice to use qualitative and quantitative approaches to any pieces of scientific information, it would be wise to indicate them on Creatology Matrix. This requirement can be repeated in the case of factual and normative studies, which correspond with the basic and applied research. Thus, it is possible and desirable to divide every square of the above matrix into four sub-squares following the simple rule of  $2 \times 2 = 4$ , where every “2” is a subdivision indicated above. The result is shown on Table 2.

Table 2. Methodological Subdivision of all the Squares of Creatology Matrix

Factual Qualitative Studies	Normative Qualitative Studies
Factual Quantitative Studies	Normative Quantitative Studies

If we stick to this subdivision of all the Creatology Matrix’s squares, the overall picture will be a little bit different as indicated by Table 3.

Table 3. An Elaborated Creatology Matrix

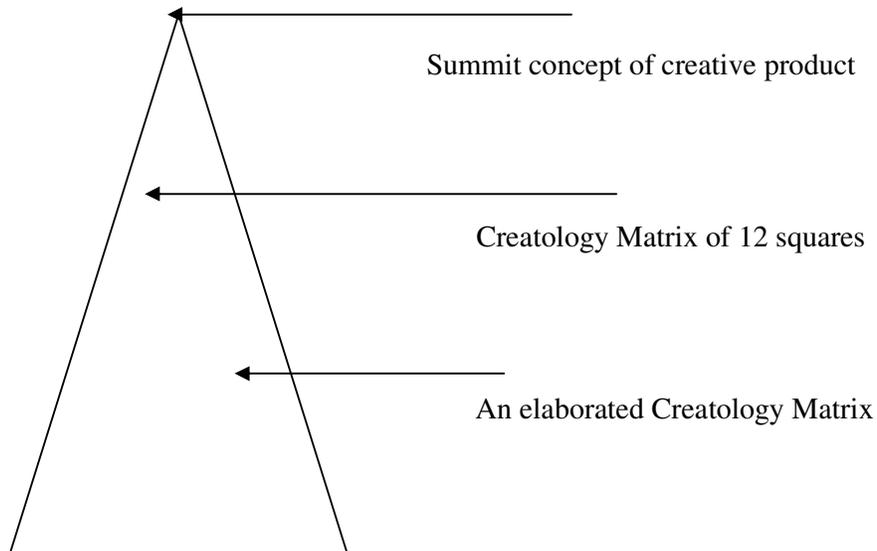
Ability		Process		Product	
Creative culture and civilization	Plans and utopias	History as a process of creative problem solving	Theory and practice of normative future	Definition of creative product on the level of cultures	
				e.g. scientometrics	
Models of creative organizations	Practice of: entrepreneurship management organization	Research, development, introduction, production, sales	e.g. quality circles	Theory of innovation	
The structure and the members of creative teams			Creative techniques	No special features of creative products by the teams have been found yet	
Mathematical description of the structure of information flow within the teams		Experiments on teams’ problem solving			
Theory of creative personality		Individual problem-solving	Creative education	What is subjective creation?	
Measurement of personal creativity		Artificial Intelligence			

The novelty we can discover on Table 3. is that many sub-squares are empty in the elaborated Creatology Matrix. This state of affairs gives a lot of possibilities for

research. Two main general directions can be mentioned as introductions to these sets or lines of investigations. The first one is based on the squares, which are filled in, whereas the second one comes from the empty squares quite naturally. It was Jon Michael Fox – at the Center for Studies in Creativity, State University of New York, College in Buffalo – who started working in the first direction (Fox, 1988). His result was a large system of improvable records, which contains the results of/literature on the investigations into creativity. However, the elaborated Creatology Matrix can function not only as the frame of records concerning the past but as the basis of projects to be worked out in the future, as well. For example, if we cast a short glance at the elaborated Creatology Matrix, it will immediately be obvious that Creatology now is far from being a mathematically well-founded discipline /right in the historical age when sciences are accepted as sciences if and only if they are applied mathematics/. While we have artificial intelligence – which frequently is in fact artificial stupidity – no signs of artificial creativity have been detected so far (Although, I located artificial intelligence on one of the squares of Table 3., however, only because intelligence is a part of creativity). In this respect we have two options: either creativity is going to be a mathematically well-founded science, which will compete with human resources via a suitable engineering (quantitative normative studies and their results in terminology of Creatology Matrix) or Creatology never reaches the status of ideal science but will instead save the human factor by preserving the only inimitable ability of mankind, namely the creativity.

We are gradually approaching the contemporary model of Creatology following the suggestions of levels given by the summit notion of creative product, Creatology Matrix and the Elaborated Creatology Matrix. Perhaps the most convenient figure to present them in their unity would be a triangle or pyramid in the following way:

Table 4. Creatology Pyramid



It is clear from this Creatology Pyramid that there are a lot of ways to multiply the levels of elaborations, that is we can introduce a number of – different from the point of view of elaboration – Creatology Matrixes. Moreover, we can alter the types and sorts of matrixes on the same levels of elaboration. The framework is not only the most comprehensive among the frameworks of creative studies offered in literature (Scott G. Isaksen's opinion in: Coleman, 1993. on p. 119) but it is extremely flexible as well. Two characteristic features can be discovered studying the Creatology Pyramid. Firstly, it is a container of a great number of already known and discussed in scientific life pieces of knowledge without a rigid structure. Likewise, this Pyramid contains also a great number of empty niches for discovering and applying a huge number of new facts and relationships. In the respect Creatology introduces itself as a postmodern science open in every direction. On the other hand, the framework itself – represented by definitions, matrixes and the pyramid – is “made of steel”, which prevents the discipline from falling into unrelated to each other pieces.

### The Unexpected, Sudden “Big Bang” of Creatology

If you find the term “Creatology” on the Google, an enormous “Big Bang” of the concept will be visible for you. Briefly speaking, Creatology has fallen into pieces. What has happened? The answer seems to be simple. While the word Creatology spread all over the World, the Creatology Matrix and its elaborated forms have been either rejected or remained unknown. This happened in spite of two important international conferences held in the United States. Both conferences pursued the goal of establishing a new science of creativity under the auspices of the Center for Studies in Creativity in Buffalo. The first of them was a very large conference – the Fourth International Networking Conference on Creativity and Innovation, and the Conference on Creativity Research – in 1990 (Isaksen, S. G., Murdock, M. C., Firestien, R. L., Treffinger, D. J., 1993a, 1993b), whereas the second was a smaller but very intensive and interactive International Creativity Working Research Meeting (Coleman, *ibid.*). Creatology Matrix was presented and discussed on both of them. I guess that the reason of blocking the dissemination and development of the original Creatology – with its paradigmatic matrix – should be searched for in the money-problem. In the late eighties and early nineties, we lived in the golden age of creativity studies. Psychology made a lot of money by studying and making use of this unique phenomenon and of course did not want to lose such a wonderful source of income. I – as the first initiator of the complex Creatology – faced a vast amount of artificially created poor arguments against the interdisciplinary science of creativity. Some worldwide known famous specialists in psychology of creativity simply “could not figure out” why we should go beyond the limitations of whatever single science so as to grasp the essence of creative functions and neglected even the most simple and convincing self-evident arguments for a new scientific enterprise in this domain. Morris I. Stein was not among them. He gave me as a present his book “Making the Point” with the next inscription: “To István Magyari-Beck, the première creatologist! May we all follow in your footsteps. Thank you for your classification system and best wishes, Morris Stein.” It happened on the 1990 Buffalo conference (Stein's book was published in 1984).

However, the arguments for an interdisciplinary science of creativity – and the scientific and pragmatic constellations behind them – preserved their validity and yielded a lot of different Creatologies. Most of them did not hit the target. Why? The answer is not too complex. These Creatologists all represent this or that kind of

reductionism instead of supporting a larger and more complex view than purely scientific psychological one. One can find a lot of evidence of this state of affairs if (s)he is wandering on the Internet. Recently, the author of this paper found a claim attributed to a well-known USA psychologist Robert Sternberg as if he were the first to propose the application of name Creatology to the studies of creativity. In his letters to me, Robert Sternberg distanced himself from being the author of this claim. Now, the reader can find a much less pretentious claim by Dr. Sternberg, namely: “The psychologist Robert Sternberg has proposed to apply the name “creatology” to scientific studies of creativity”. But these studies all remained – in Robert Sternberg’s understanding – merely psychological by their topics and nature. The reader of this paper remembers that the place of psychology on the Creatology Matrix is mainly in its bottom where the aspects of personal creativity – ability, process and product – have their places/squares in our taxonomy. Long before the appearance of the aforesaid claim, a paper by Caroline L. Davies announced that Creatology is the “Brain Science for the 21<sup>st</sup> Century”. Brain science – as a part of psychophysiology – can of course be an important part of Creatology but its appropriate place on Creatology Matrix would be *within* the common square of Ability and Person. Another example is that of the Sayed Mahdi Golestan Hashemi from Iran. The Iranian scholar – who introduces himself as a developer of Creatology – defines the field in the following way: an “Interdisciplinary and Multidisciplinary Science of Creativity and Innovation”, which is absolutely correct. However, the main emphasis he puts on the Genrich Saulovich Altshuller’s TRIZ (Theory of Inventive Problem Solving), an “important sub-discipline of Creatology”. Sayed Mahdy Golestan Hashemi and his colleagues made an appreciable effort to build a serious institutional background for the studies in Creatology. They established a Research Center for Creatology, started the Iranian International Journal of Creatology. It is a great pity, that we have not find yet the main paradigm(s) of Iranian “Interdisciplinary and Multidisciplinary Science of Creativity and Innovation” on the Internet. Thus, in the absence of the necessary knowledge of these bases, we tend to put Altshuller’s creative technique in the qualitative and normative sub-square of that part of Creatology Matrix where the Group and Process meet. *The reader, who followed the description of facts of this short sample, can see that the main point is not the problem of priority – however, the priority question is by no means negligible – the main point is the problem of preserving the space of domain, which makes it possible to study the parts in their relationships. There is no way to understand the closely related to each other “sub-disciplines” of Creatology without a suitable frame of reference. This is why it would be extremely important for any Creatologists to work together on the basis of a widely accepted basic paradigmatic framework, like, for example, the Creatology Matrix and Creatology Pyramid.*

### Toward the Applied Creatology

While the basic science of Creatology deals with filling in the factual columns of Creatology Matrix, be they qualitative or quantitative, the applied science of Creatology does the same as regards the normative columns. Here, we shall specify the domains and fields where the Creative Paradigm has already been used to illuminate the essential nature of the subject: anthropology in economics; economic psychology and behavior (Magyari Beck, 2000); pedagogical axiology (Magyari Beck, 2003b); economics of culture, the language theory of art (Magyari Beck, 2006); creativity at work. Only a set of principles will be outlined below. University curriculums with corresponding publications – books, papers – were built on and

taught using these principles, which have found their ways also to large audiences of different conferences and workshops, both national and international.

### **Anthropology in Economics**

Economics needs an anthropological basis so as to be a well-founded science valid for any place, time and culture, without the pars pro toto manner (that is without economics' imperialism). Thus, economics has been trying either to work out or to borrow a coherent picture of man during its history. The most characteristic for and elaborated by the economics picture of man is that of the homo oeconomicus. Homo oeconomicus is a utility maximizing creature. Both "utility" and "maximizing" are grasped in a very individualistic way. Whatever you do is a priori useful for you on the highest possible level. This is why you do it. A human creature – in this understanding – is the God of his/her life, which can be found by definition everywhere, and – just because of this – there is no room to falsify this either quasi-science or quasi-religion. But the frequent facts of regret and sufferings gradually undermined this rose-colored view of humanity. The way out of this deadlock was the borrowing instead of elaborating. Economists recently started to borrow a comparatively new and stable concept of man from the biology. At present, the most convenient for economics theory of man was found in Neo-Darwinism where man – like any other animal – is regarded as a gene-machine (Richards, 2000). Although, Neo-Darwinian picture is stable but seems highly incoherent. Up till now, four paradigms of human economic behavior got an alleged "genetic underpinning": traditional, rationalist (in economics = selfish utility maximizing), altruistic and irrational. Evidently, the elements of this sample are contradictory to each other. In all likelihood, the way out of the confusion can only be the denial of gene-machine concept of man. Perhaps the basic phenomena/elements of human beings are not the genes. They are the problems themselves. Traditions, rationality, altruistic behavior, even irrationalism – should all be identified as different classes of solutions explainable as the instances of creativity in different circumstances. Man became man because of a sequence of natural catastrophes – sudden changing of flora, climate and so on –, which destroyed the rigid genetic programs of our ancestors well before they were able to adapt to the new challenges via the genetic mutations. James D. Watson himself spoke of the human genome as a subsystem, which is full of "junks" without any functions and only two percent of our genome has definite functions (Watson and Berry, 2003. p. 203). The culture as the means of survival emerged not genetically, but – in the absence of adaptive genetic programs – creatively. It is the creative paradigm, which illuminates human behavior in economics as well (Magyari-Beck, 1996, 1999, 2000, 2003a).

### **Economic Psychology and Behavior**

There is a noteworthy difference between psychology and economics. While economics strives to have a general theory/concept of man, psychology regards the latter as a dish of the so-called psychological phenomena to be studied empirically. Psychology of personality is the only exception, which raises the difficult problem of relationships between psychological phenomena and – in the process – willy-nilly outlines a variety of conceptions on human beings. The Neo-Darwinist approach with its gene-machine conception intrudes on psychology of personality naming itself evolutionary psychology (Richards, 2000). Our problem here is the alleged nature of genes, which – according to the "ism" in question – are closed systems, incapable of

learning, and influence the living organisms only in one-way direction. That is, the genes – which are essentially the atoms of life (Dawkins, 1976) – are able to work on the basis of all-or-nothing feedback. This means that they either survive – following their fixed programs – or die out. The only kind of change they can generate is mutation, a stochastic restructuring. Briefly speaking, a gene’s ability is limited to a machinelike function either dying out or restructuring by way of chance. It is true that the science of genetics arrived at the hypothesis according to which the genome is a hierarchical system, where the “leader genes” can switch on and off subordinate specialized genes (Watson and Berry, 2003. p. 232.). However, we have not found yet the utilization of this data in order to solve the problem of culture’s appearance in the natural history of mankind. Two cardinal questions arise from this view. The first one is empirical and is related to the experimental studies in the field, which were able to falsify this mechanical dogma (Koestler, 1971). The second one is theoretical and casts doubt on the existence of closed systems in the large. A generalized Gödel’s theorem can be expressed in the following way, important for this problem: no system can exist out of a larger, embracing it system. If this interpretation is correct then the gene must *also* be an open system, able to learn within certain limitations and pass its new knowledge to descendants. One of the consequences – unavoidable to mention here – is that the border between the living and dead matter should be redefined very soon. One thing is certain: personality cannot be deprived of creativity by which a system builds its hierarchical layers of meta-systems and thus makes itself coherent repeatedly in a number of times. The reestablishing of its inner coherence is a permanent/repetitive task from levels to levels. These considerations are crucial not only for the psychology of personality but also for economic behavior we all practice and experience.

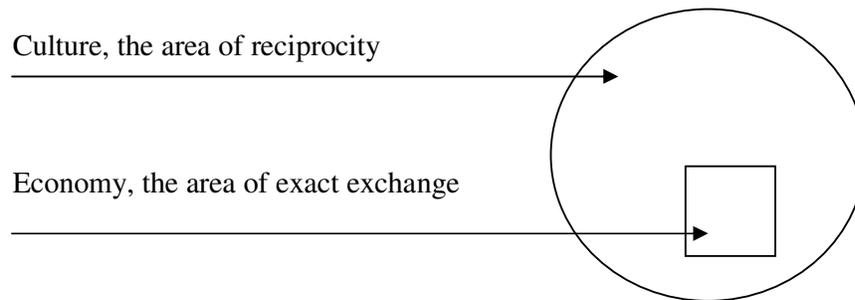
### **Pedagogical Axiology**

Though the question of values is valid *theoretically* for the whole universe (even without the acceptance of Universal Darwinism), *practically, pragmatically* is an everyday problem for the members of mankind. Perhaps because we have no strictly determining programs on any levels of our body and life. The values make us self-reflecting, conscious creatures. The most proper metaphor – metaphor and not an exact model – for describing the man’s conditions would be the Pascal’s cask full of water, where the pressure extends in every direction with equal force. Returning to the human beings, their energy (pressure) will find its way out through the weakest resistance or counter-pressure. As both our body and mind has only a minimum inbuilt resistance or counter-pressure, we have to artificially produce and reproduce them always planning our actions or behavior in the process of life. The basis on which this architecture of body and mind’s movement repeatedly emerges we call values. These are also examples of the “act of creation”. (Koestler’s term, 1964). The presence of values in human behavior indicates the necessity for creativity not only of freedom but the limitations as well. As we humans have a *relatively* small amount of limitations built in our body and mental structure, we learn, combine and put the limitations on their appropriate – for our purposes – places. The sub-discipline, which deals with the nature and nurture of these limitations, that is values, is called Pedagogical Axiology (Magyari Beck, 2003b). Psychologists and educators have not discovered up till now any fact and phenomenon, which is outside the scope of interdisciplinary science of creativity. In all likelihood, this is valid for all the branches of humanities.

### Economics of Culture and the Language Theory of Art

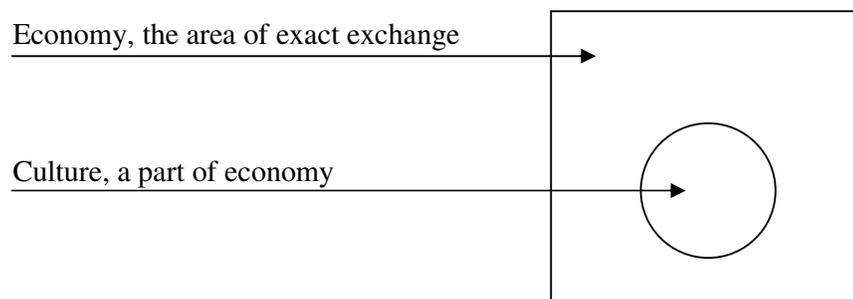
In spite of the fact, that the most intriguing question has always been the origin of culture, the age of economy and economics is interested less in the type and more in the price of commodity called culture. The classical view of culture expresses the antithesis of Nature. In social life, everything, which is not Nature, must be called culture, and economy functions as its subsystem. The specific feature of economy vis-à-vis its cultural meta-system is the exactness of reciprocity, that is the exchange. To put these relationships in a drawing:

Table 5. Culture and Economy, the Classical View.



In the so-called modern, pan-economic view, economy subordinates culture calling it a special commodity, which as a rule enhances one's emotional life. Table 6. illustrates the pan-economic view, the antithesis of the classical one.

Table 6. Economy and Culture, the Pan-Economic Model



The pan-economic view does not allow the lack of exactness in exchange, thus, the culture as a commodity has also its exact price. Or to put it in a clearer way: any piece of culture has its exact price. The flourishing of culture can be measured by the GDP generated in the field of culture. The competitiveness of a culture vis-à-vis the other branches of economy – like for example farming – depends on its being more marketable – measured by GDP – than e.g. the farming. What is the source of exactness of prices in modern economy? This source is the relationship between the demand curve and supply curve, which depends on the huge amount of subjective decisions to produce and buy a product. The aggregation of these decisions makes them measurable in an exact way. Thus, there is no way to escape from exact prices

within this approach. Relations between the culture and economy have been turned upside down and economy has become the all-embracing term instead of culture. As one of the results, it is high time to search for the anthropological origin of economy instead of that of the culture.

Let us return to the culture regardless of economy and economics. The original concept of culture usually presupposed that Nature and culture are two mutually impenetrable or even hostile phenomena. Only on this basis was it possible to turn the original culture-economy relationship upside down. However, if we accept culture as an artificial system of symbols, which was able to occupy the place of seemingly destroyed genes in genome – that is in “junks” – then we can look for the pieces of evidence regarding the basis of culture in personality. There is no irrational element in this reasoning, because in all likelihood the genome – and not the brain or central nervous system – may be the natural information center within the living organisms. This hypothesis provides us with a better understanding of the depth the culture has in personality. The main point we arrive at in this direction is a new image of our body full of artificial signs and symbols in the neighborhood of the merely physiological ones. Thus, there will be no purely physiological regulation and order in human body. Moreover, as the science of genetics has found “junks” in animal genomes themselves – but to a much lesser extent – neither the animals are merely gene-machines. Before raising the question again about the possibility of marketable culture, we shall have a look at the variety of cultural signs and symbols, without which no personality can be healthy. Human beings speak at least two categories of languages. Firstly, the modern verbal-type languages like English, Italian, Dutch and so on, and – secondly – the old pre-verbal languages, which were also born in prehistory. The set of prehistoric languages contains dance, vocal music, body language, drawing and so on. The latter proved to be the sources of art after the verbal language occupied the central position in the human communication (Magyari Beck, 1982). The necessity to preserve prehistoric languages came from their ability to express contents, which the verbal language cannot. Although this created a well-known for everybody problem of mutual translation of these languages into each other, with only a minimum loss of contents in the process, the existence of hidden at first sight knowledge in arts plays a tremendous role in the development of personality (Magyari Beck, 2006). The fact of the abovementioned translation has a very close connection with what economists call consumption in the realm of culture. To conclude this train of thought, a large part of culture – especially within us – cannot be sold on the market as a commodity, which seriously questions the validity of pan-economic model (Table 6.)

### **Creativity at Work**

Creativity at work is one of the most important questions today. Because if creativity should be regarded as the leading specific feature of human beings in comparison with animals (Magyari Beck, 2000), then it is exactly the need for creativity at work, which leads to the need for workers at work. However, the problem of work is a horror in Euro-Atlantic culture of these days (Forrester, 1996). Work is disappearing. Work – in psychological understanding – is the repeated solution of a number of *well-structured*, convergent, similar to each other sequence of problems, which need certain but – as a rule – narrow specialization, skills, intelligence, full-insight, perfection of performance, risk-avoidance and last but not least bearing of monotony. The game/play on the other hand is the repeated solution of a number of *ill-structured*, divergent, different problems, which need certain – however – wide specialization,

creativity, partial insight, to perform without being able to evaluate the results immediately, risk-taking ability and last but not least monotony-aversion. Work is the child of game/play, for people in the early phases of anthropogenesis were not knowledgeable enough to pose or formulate well-structured problems. The author of this paper share the Johan Huizinga's view according to which the game/play is the original and basic behavior of humans. Work emerged and occupied the central place in production process during the First Industrial Revolution only as a result of organizational activity of factory owners.

What has *this* organization activity done? Organization of work is a creative process aimed to the lowering both the physical and mental difficulties of production so as to make it more effective in respect of profit. How can we lower these difficulties? As for the lowering of the physical difficulties, its essence is self-evident and needs no explanation. The mental difficulties and their lowering is another story. In this fraction of organizing the main goal has always been the lowering of the number of decision making till their disappearance. Briefly speaking, *the organization of work is itself a creative process, which pursue the goal of making the work as non-creative as possible*. The wisdom behind was that the stereotyped skills can be performed faster, more precisely and more reliable (three chief criteria of the theory of regulation). Not to speak of the possibility of mechanization and automation of a – simple from the point of view of mental requirements – production by which such a rebellious social layer as the working class can be excluded from factories. Or to put it more generally, decision-making will gradually be a privilege of the top managers everywhere in the universe of work. Today we are witnessing the continuation of a fierce attack of bureaucracy on the higher level, namely against the middle – or even the upper middle – class of intelligentsia. It can also be said that the creative intelligentsia – which achieved its amazing results in arts, sciences, philosophy, education, medical service and so on by legal way of intellectual game/play in the aforesaid psychological sense –, step by step is sinking and becomes the new proletariat in the so-called market economy of 21<sup>st</sup> century. The question to be posed at this point should at the very least be as follows: *Could all the forms and levels of value production be turned into machinelike activity? If yes, why? If not, where is the limit?*

The traditionalism of – even the most liberal – economics is hindering this discussion by the preservation its out of date terminology. For it, every kind of production is work (work = work + game/play), man is the labor force (labor force = labor force + game/play force), where I sell my labor force is labor market (labor market = labor market + game/play market), which all are logical nonsense. Similar objections can be put forward to the terms: consumption (E.g. how do you consume an opera?), utility (E.g. if any loss cannot be useful a priori, because what I have is allegedly always the result of the best choice by and for myself, then I must stick to my illness as well.), maximization (“Consumer prefers more of any one good to less of it” /Leftwich, 1984. p. 216./). Let's then eat 50 eggs – or even more – instead of 2 ones every morning!), and so on. The bureaucratizing, industrializing and economizing in art, science, education and so on resulted in a widespread use of intellectual schemas, clichés, stereotyped ways of reasoning, etc. The preference for the numbers of publications, citations, students to be taught, working hours, etc. leads to the decline in the problem solving ability of civilized societies. *We have three options: either to turn the whole structure and practice of society into an immense machine where*

*only a handful oligarchy have the right of decision making, or to go back to the original creativity in all kinds of production where the members of mankind can make use of their property having made and still making us humans, or to divide people into two large groups: people who serve as the parts of machine and people who live genuine human life creatively. It is impossible to discuss the relationship between creativity and work without making a responsible choice between these options.*

**An Instance of the mainstream conception of Creativity**

After presenting a very small selected sample of the results Creatology has achieved during its first thirty years, let us take a passing look at the “mainstream” view on creativity. The thesis to be put forward here will be that although this “mainstream” introduces itself as a basic science approach to creativity, *it is no more than an application of the subject matter by way of using the generalized market structure as an epistemological model.* Tables N: 7., 8., 9. show the mainstream in its – not necessarily explicit – development from the problem to the market of ideas.

Table 7. Step 1: The Structure of the Problem

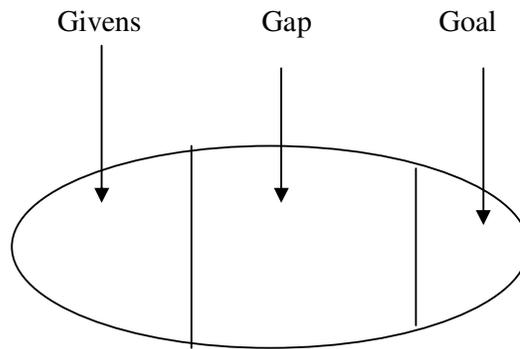
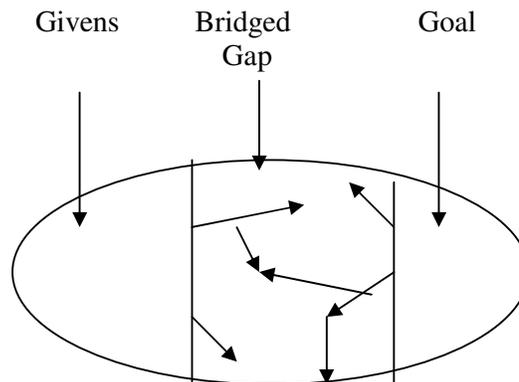
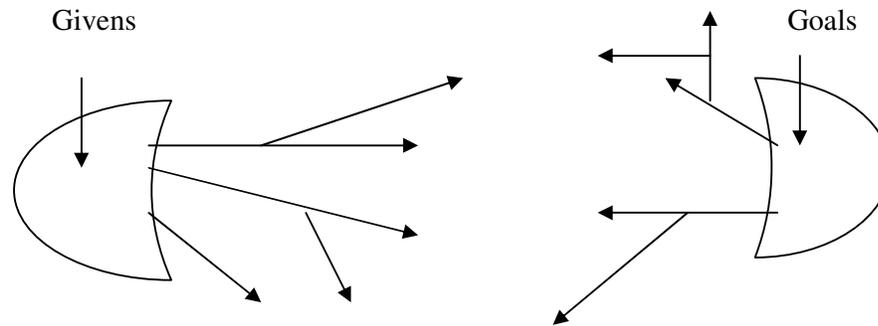


Table 8. Step 2: The Solution of the Problem



As Table 9. will show, the market of ideas appears after the problem to be solved has been divided into two separate from and independent of each other parts of givens and goals. In this case, the givens become the sources of supply in the form of idea generation and goal becomes the source of demand in the form of requirements.

Table 9: The Market of Ideas



In this model, creativity is reduced to and identified with the idea generation on/from the side of givens. However, although, in this case, people are not totally familiar with the goals to be reached – so they are ignorant of the problem as a whole – the only way of any idea generation is possible on the basis of problems, be they private and/or subconscious. There is no way of idea generation irrespective of problems, because ideas have no function without problems and, thus, are luxuries (unknown as such in living organisms). This is why it is just to say that, in this model, creativity rests on the exploitation of people's private problems without unfolding and solving them. This kind of reduction of creativity equals its application. *Quod erat demonstrandum.*

### **Closing remarks**

It would be very difficult to formulate closing remarks at the end of a work, which itself is a set of opening remarks. Thirty years is too a short period in the life span of a new science. Especially, when the postmodern reigns in ideology, supported by market economy in the practice. The centrifugal forces overcome considerably the centripetal forces, which not only leads to the destruction of already established fields but also prevents the emergence of the new ones. Instead of structures we must face sets of – sometimes very useful – ideas, however, in the manner of the mainstream view of idea generation. As if the old fashioned scientific positivism – anarchy on the level of facts – reappeared today on the level of ideas – anarchy on the level of thinking. The best that we can do now in the domain of Creatology would be the prevention of its premature death by repeated intellectual Big Bangs and work diligently on its already established bases.

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