”This is not an Environment“–
Re-Construction of Objective Knowledge Production about Geographical Spaces and Possibilities of Re-Subjectivations

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Abstract

Palavres chaves: Knowledge (Re-)Construction, Theory of “Bildung” (human self-development), Self-organized System Design

1. Introduction: The Culture-historical Activity Theory as Mediator between Idealism/Constructivism and Empiricism/Materialism

The surrealist artist René Magritte created a well-known artwork: Under an image of a pipe on a blackboard he wrote with the hand-writing of a schoolboy “*This is not a pipe*”. This is astonishing: without any doubts, there is a pipe! Then it seems that very fast we understand René MAGRITTE: He likes to make clear that this is (only) an image of a pipe and not a real, concrete pipe. But, the Philosopher Michel FAUCAULT (1975) augments in his interpretation of this artwork the uncertainty: What is really the function of the sentence “*Ceci nest pas une pipe*”? Is it directed to the image and commenting it? Or has it the quality of a calligram which is covering up the oldest contrasts of our alphabetic civilization: showing and calling, representing and saying, reproducing and articulating, imitating and significating, imaginating and writing?

Suddenly a simple image becomes the function of a paradigmatic example for our fundamental epistemological questions about the re-construction and the construction the world. We can try to systemize this process in an idealizing way: an idea of a pipe at the beginning - the production of the object based on the idea – a graphic representation of the object – a linguistic representation of the object – a construction of sign systems – a creation of (un-) possible worlds with the sign systems – etc.

It is obvious and understandable that such a complexity is very difficult to overlook and to handle. Therefore, we develop epistemological approaches to *knowledge about the construction of knowledge* (ver: WALGENBACH 2002). The simplest way is to see the reality as given and to say, for instance: “This is an environment”. Then our knowledge seems to reproduce a given reality and to represent it. In this direction the Empiricism and the simple Materialism argues: Knowledge is only productive and acceptable when the construction is ascending from the concrete to the abstract. Only by an empirical way we come to productive results which can orientate us to recognize and to transform the world. But, HEGEL (1992) made clear in his

“Phenomenology of the Spirit” that the sentence ”This is a tree” is not – as it seems at first – the most concrete knowledge, but, the most abstract. Only when we know many trees – young trees, old trees, healthy trees, sick trees, subtropical trees, nordic trees, etc. – we can have a richer knowledge about an object. Against our normal common sense (and the Empiricism and the simple Materialism) for whom it is clear that knowledge construction is an ascending from the concrete (the given reality) to the abstract (the theories) HEGEL propagates a radical new view: the knowledge is ascending from the abstract (our ideas) to the spiritual concrete (a more and more by us constructed knowledge about given and possible realities). But, this leads very fast to an Idealism in which the human ideas are the most important base for the construction of knowledge, for instance, by the more or less unjustified idea “My environment has to be conserved in the state as it is”. As a variant of the Idealism can be seen the Constructivism which is based on the hypothesis that the human brain is a self-organizing system which cannot be influenced, but, only perturbed from the outside.

The fundamental problem of the Empiricism and the simple Materialism is that they don’t give enough value to the human creative subjectivity. The Idealism and the Constructivism don´t respect enough the existing reality and the objectivity. An intermediating position takes the Dialectic Materialism (“Marxism”) or – in a modern form – the Cultural-historical Activity Theory (represented by scientists like LEONTJEV 1978, VYGOTSKY 1978, ENGESTRÖM 1987, etc.). Like already introduced by HEGEL the fundamental assumption of Activity Theory is that neither the subject nor the object is given and dominating the other side, but, both sides are constituted and intermediated by the human ***activity*** (in the terminology of HEGEL and MARX “human labour”): In his activity the human subject is transforming the object/the reality, and the object is transforming the subject (for instance, by the experiences the subject is making with the resistance of objective material). Instead of a static relation a dynamic evolving relation is constituted.

In the following will be shown how a on the category “activity” based view can be used as a productive means in Environmental Sciences and Environmental Education. Re-constructed will be the historical and systematic development of Geography which can be seen as fundamental for environmental approaches

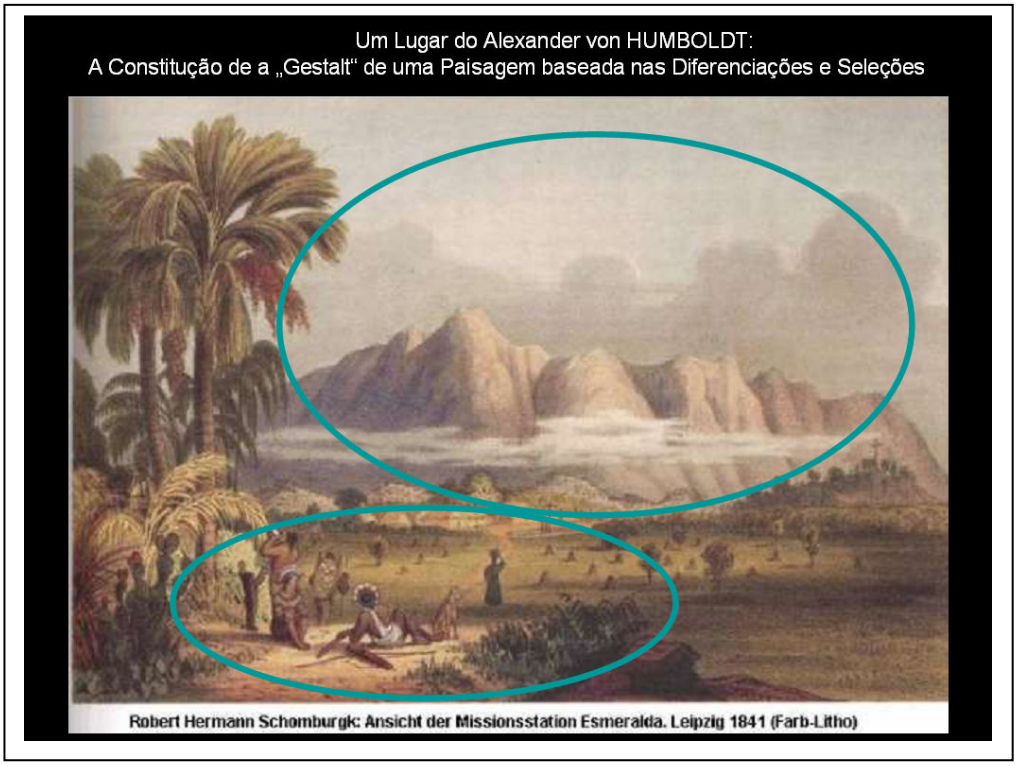
because in many cases the selected environment is a landscape, or, more general, a geographic space. From here can be derived very easy orientations also for handling with other types of environments.

2. Re-construction of the Historical and Systematic Development of Modern Geography from an Epistemological View

Until today the German scientist Alexander von HUMBOLDT (1769-1859) is a well-known scientist also in Latin America which was one of his main research fields. His work was always based on a high respect to the individuality of a geographical space and it inhabitants. Already in his youth he was dreaming to make an expedition to this part of the world. Because he invested his whole heritage in this adventure he was independent from all official support and with it connected obligations. Therefore, he could work about the borders of certain disciplines and constitute himself as one of the earliest Ecologist who made nature research in an interdisciplinary way.

When Alexander von HUMBOLDT arrived in Latin America he was confronted with an unknown terrain. There was not a certain landscape, but, he had to constitute in a first creative scientific act “his” landscape as an organic whole. Then he could start to discover the characteristics of this environment and produce in this way an idiography/biography of the geographical space.

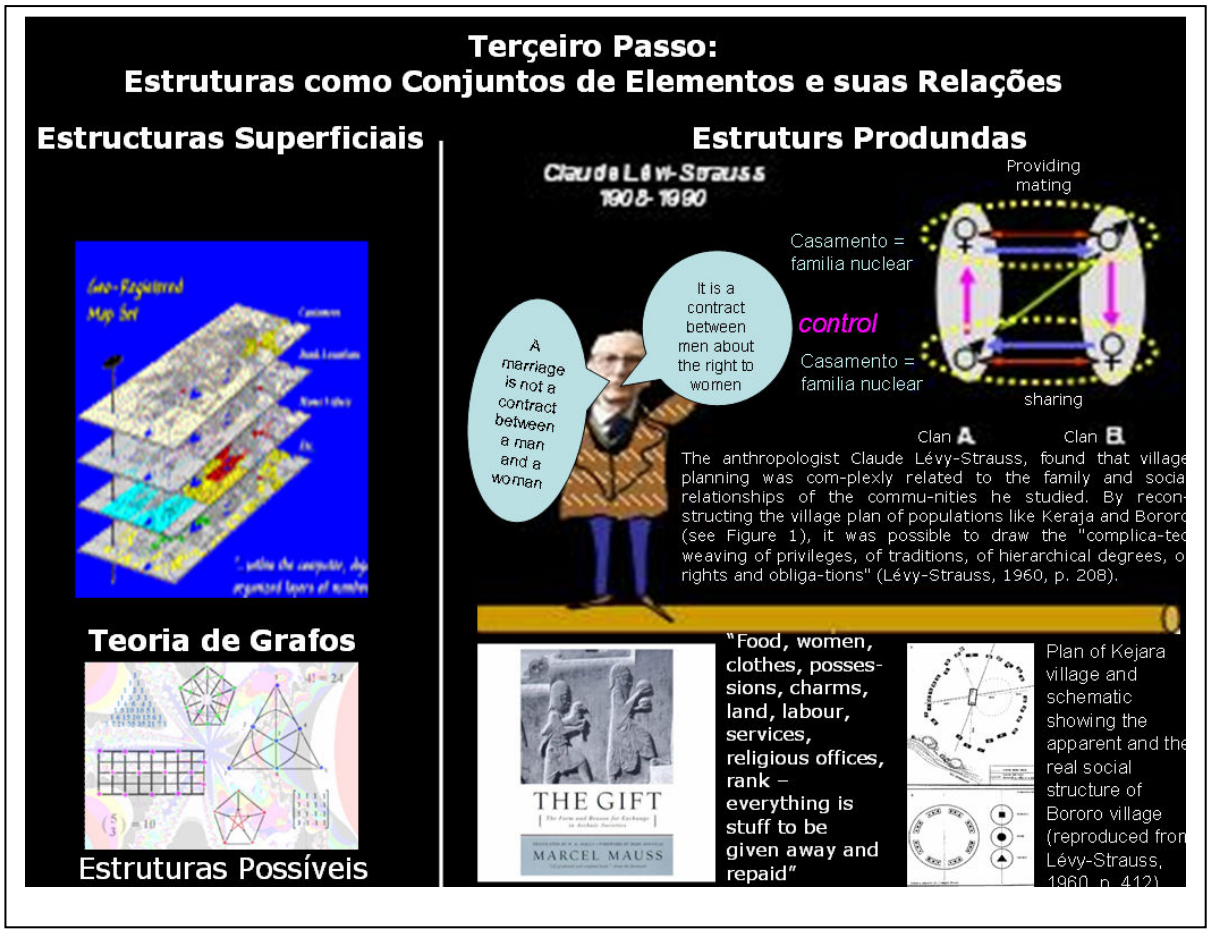
This first step in Modern Geography is named “Landscape History” (germ: “Länderkunde” = knowledge on the border of intuition and consciousness about lands). Because in this approach the human activity is based on a directly individual relation to an individual landscape as the object the research work has as characteristics an intuitive and imaginative view to the object and produces an image of it which is based on a productive interplay of intuition and rationality. The result is an organic whole which can be named “***Gestalt***” because content and form are, in this step, not separated from another, but, related to each other in a holistic way.



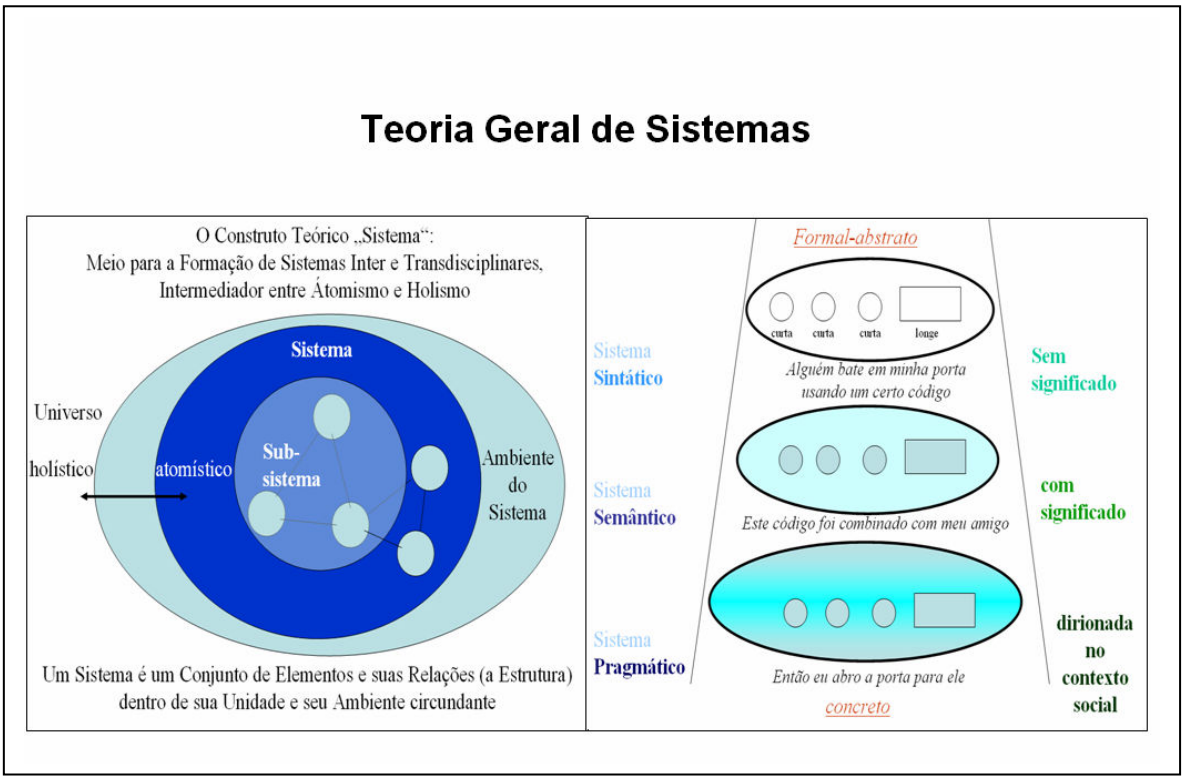
When scientists like Alexander von HUMBOLDT had produced such idiographies and biographies of a landscape it was possible to compare the results with another, to select common attributes and to construct general terms like “Subtropical Landscape”. In this way theoretical means were available to construct classifications, typologies and systematizations. But, one motive to construct such orders was also to organize the by the scientists sampled objects (like stones, plants, leaves, etc.) of a certain region and to present these, for instance, in museums or wonder- and magic chambers. The approach in Modern Geography which was mainly directed to those activities was named “Comparing Geography”, but, also “General Geography” because the research interest was more and more not directed to an individual landscape, but, to general attributes of landscapes.

Until the levels of Landscape History and Comparing Geography this discipline is an empirical discipline because it is making discoveries of the given by describing individual objects and ordering these by the ***form*** as central criteria. But, in this way Modern Geography could not reach the qualitative level of theoretical disciplines like Physics. A long time this discipline was an orientating discipline for all sciences because of the construction of theories which were not only means for the analysis of the Given, but, also for the construction of the (im-)possible. Physics were able to this because of created theoretical construct(ors) like “force” in the Classical Mechanics which are not understood as in the common sense as attributes of objects (“having force”), but, as a system of relations like in the formula “f= m x a”. Therefore, Modern Geography was searching for theoretical constructs which could also enable the empirical discipline to come to a higher level of a theoretical discipline. One possibility was to use the theoretical construct “structure” which can be defined in an elemental abstract way as a set of elements and its relations. Applied to Geography a space could be seen as an ensemble of elements like cities and villages and relations like streets, channels, ills, etc. In this way could be made not only a

discovery of structures by an analysis of a certain geographical space. In a special step could be also – orientated, e.g. by the mathematical sub-discipline Topology – constructed possible structural nets and used as means to transform certain geographical spaces by a selected structure.



As one step higher on the theoretical level can be seen the introduction of the conception “system” because with this can be developed a richer consistent means for the discovery and construction of realities. At first, the conception of “System” is more comprehensive as the conception “structure” because it includes also the whole of a system and, connected with this, the system and it surrounding. Therefore, System Theory can be seen as the first approach in the Sciences which goes, at the same time, to the elements and then, in the way back, to the relations, to the structures, to the system as whole and the embedment of systems in more complex systems. So, System Theory is bringing an atomistic and a holistic view in a productive interplay with each other (see to this: BLAUBERG, I.V., SADOVSKY, V.N., JUDIN, E.G.1977)



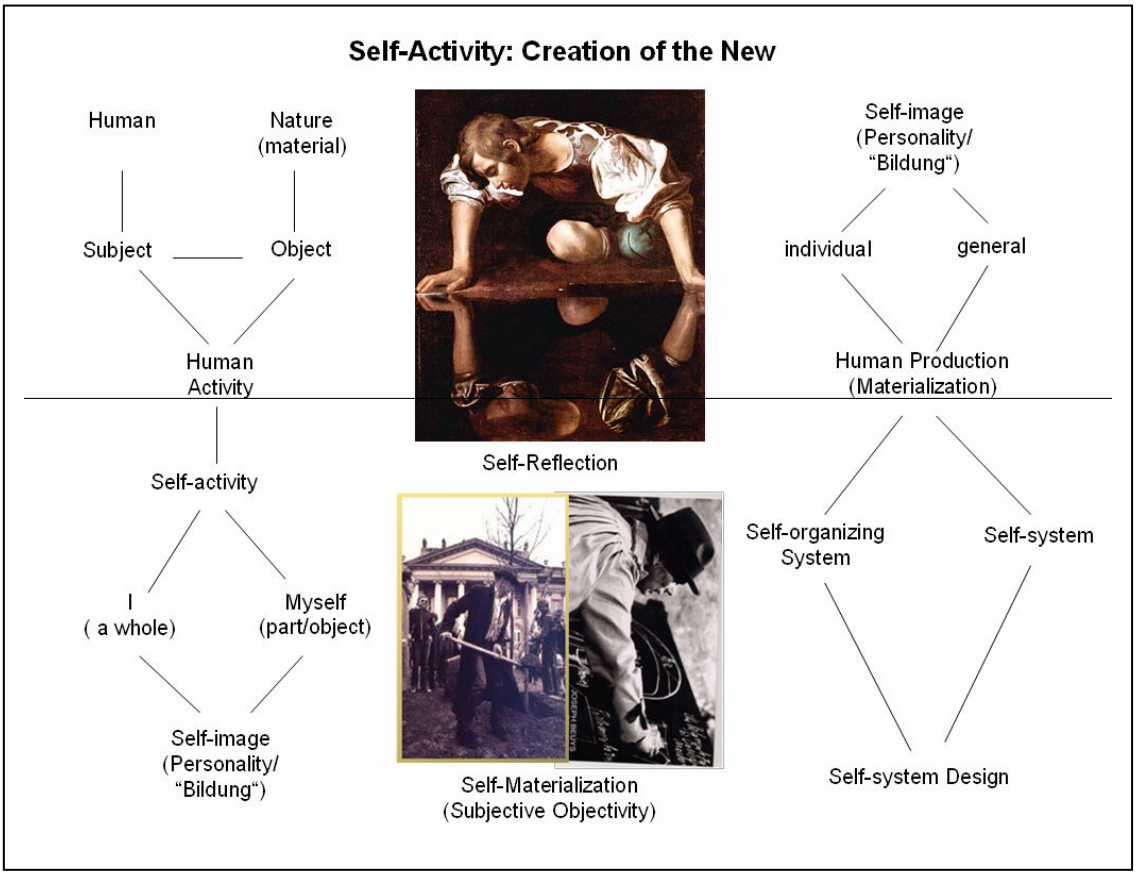
Also System Theory can be in a continuous, unbroken theory-based way unfolded from the highest formal-abstract level of “Syntactic Systems” to “Semantic Systems” and then to “Pragmatic Systems” (an example: the clock at the entrance is ringing three short and two long signs = syntactic system/ This grammar of signs I combined with my friend = semantic system/ I open the door for him = pragmatic system). Applied to Geography in a short way: On the level of Syntactic Systems can be constructed abstract possible patterns (also computer-aided as generated dot sets like in the Fractal Geometry), these can be means for the design of Semantic Systems by modelling, planning and simulating landscapes which leads to possible systems which can be discussed and used as orientations for the transformation of concrete landscapes.

3. Re-subjectivation of the Objective Development of Modern Geography: Everybody a Researcher

Like Alexander von HUMBOLDT his brother Wilhelm von HUMBLODT (1767-1835) is until today a well-known scientist in the field as well of Language Sciences/Linguistics

as Educational Sciences. Especially his ideas of a University are actually discussed, e.g., in the movement of the “Universidade Nova”.

Wilhelm von HUMBOLDT was one of the founders of the “Theory of Bildung” (Theory of Human Self-creation/see: HEIDERMANN, WEININGER 2006, 212 -231 and HOPMANN, S., RIQUARTS, K. 2000). The central category is “self-activity” which does not mean as in a simple understanding that someone is doing things by himself. Instead of this it is defined that in his self-activity the human subject is making himself to an object (therefore, self-activity can be understood as a specification of the more general category “activity”) and creates and develops a self-image (“Bild”) as an expression of his own personality. Because this personality is always original and unique the aim, the process and the result of self-activity is the “Creation of the New”. Education can give support to this process of “Bildung” only from the outside by elemental heuristic means = means for the creation of the New. So, self-activity can be seen as a specification of the more general category “activity”.



Based on this Theory of Bildung Wilhelm von HUMBOLDT reformed with a small group in an extremely short time of ca. 11/2 year the whole Educational System of Prussia. One central part of this reform was a conception for Universities which was based on fundamental new ideas like the following (s. MENZE 1991):

(1) *Linking of the subjective "Bildung" and the objective Science:* Objectivity has to be filled with Subjectivity, to organize is a productive interplay in which both sides are developing each other
(2) *Integrated whole of Research and Teaching:* Research and Teaching have not to be separated, but, reciprocal connected with another.
(3) *Research Community of Professors and Students*: Professors are not the teachers, students are not the learners. Both associate with another, the professors contributes with their long exercises and experiences, the students with new and spontaneous ideas (and today, for instance, a higher developed Computer Literacy).

Modern ideas and visions about the relations between the Sciences/Arts and the Society have similarities and nearness to the approach of Wilhelm von HUMBOLDT. But, they are no more restricted only to Universities, but, directed to the whole society: The artist Joseph BEUYS propagates "Everybody an Artist", the Scientist G.A. KELLY developed with his Theory of Personal Constructs an approach which is directed to the aim "Everybody a Scientist (of his own personality)".

Assuming that *research* is the common denominator of the Arts and the Sciences the ideas of BEUYS (1975) and KELLY (1986) can be generalized as **"Everybody a Researcher".** At the same time, this motto can be understood as a *possibility* that each human is able to be a researcher and as a *necessity* to be a researcher in a society which is making itself more and more to a scientific society.

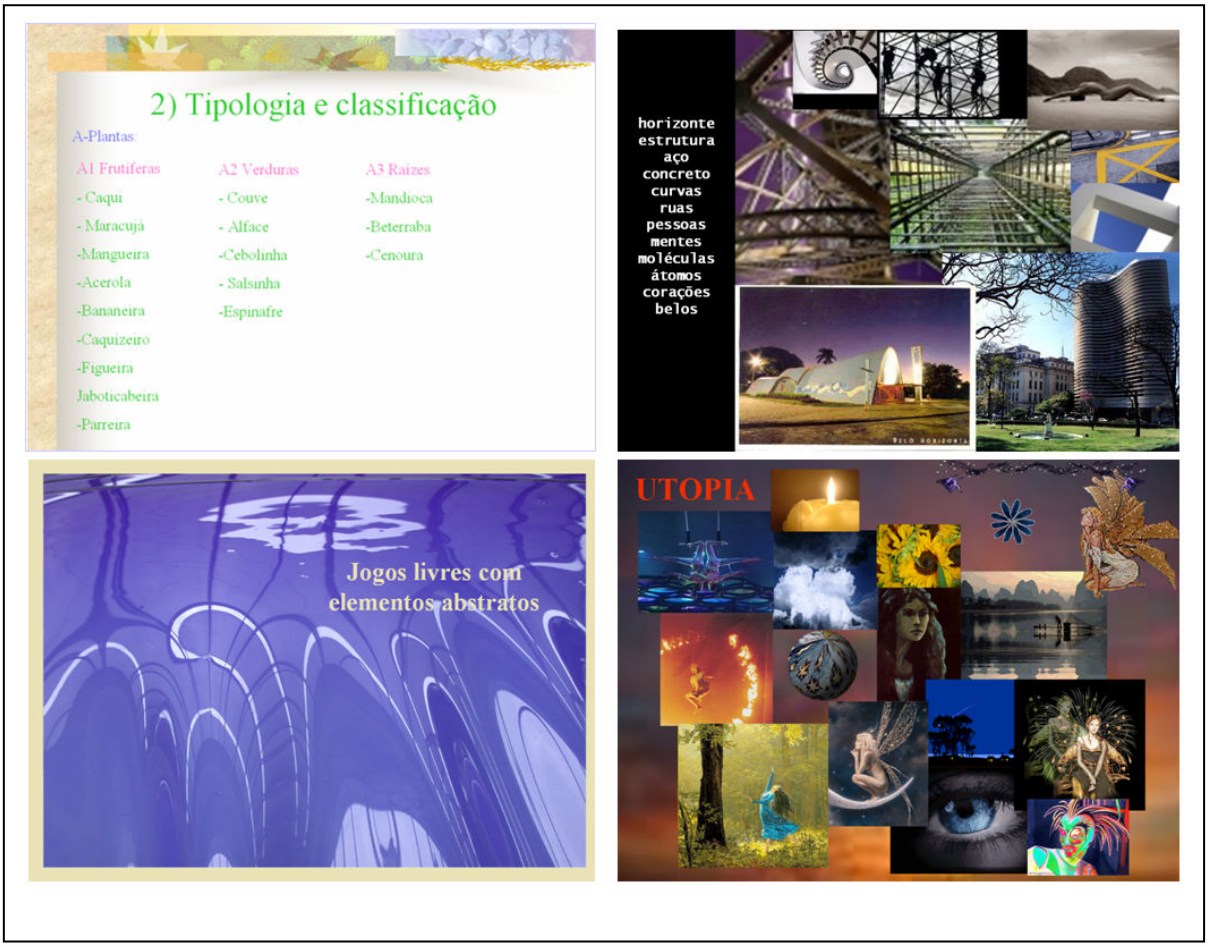
The central aim of the here presented work is to develop and to make research to this conception "Everybody a Researcher" as well in disciplinary as in inter- and transdisciplinary fields. Examples for conceptions and realizations are presented in AMARAL 2000 and 2006, GIEST/ WALGENBACH 2002, PERALTA 1997, WALGENBACH 2000 and ZANELLA 2005.

Looking to the re-construction of the development of Modern Geography it is easy to recognize a process “Ascending from the Concrete to the Abstract and back to the (now theory-guided constructed) Concrete”. Not so easy to discover is also an opposite process “Ascending from the Abstract to the theory-based constructed Concrete”. Elemental for this process are categorical concept pairs like concrete-abstract, content-form, individual-general, etc. Such concept pairs were already elemental means for esoteric and religious approaches like Ying-Yang and the Alchemy, for Modern Dialectics of HEGEL and MARX, but, today also for Modern Evolutionary System Theories (JANTSCH, E., MATURANA, H., PRIGOGINE, I., etc.) which are operating with concept pairs like part-whole, order-chaos, self-organization (autopiesis)- determination (allopoiesis), etc.

The here available place does not allow to present a Methodology for sytzsematic operations with such categories on the base of a Complementarity Logic. But, an example shall be presented how the re-construction of the objective development of Modern Geography which is based on this Logic can be used in Environmental Education for a Re-subjectivation. In the following are shown results of a course “Environmental Education” at the Universidade Federal de Minas Gerais UFMG which was organized in cooperation with Paulina Maia Barbosa and Rogério Parentoni Martins, members of the Instituto de Ciências Biológicas ICB of UFMG.

Corresponding to the situation of Alexander von HUMBOLDT the task was given to the students to produce during one week a Multimedia-Presentation (PowerPoint-Presentation) to the subject “Me and a very important Place in my Life.” In orientation to the presented re-construction of the development of Modern Geography the students started to present with images (captured in the Internet) and short texts their selected place.

In the next two steps they sampled material which can be find in their place and ordered its. Deeper research led to the discovery of structures and combined with this to an already more abstract and formal thinking. In the fourth step they started to play – without connections to their selected place - with abstract elements. Then they went back the way designing semantic systems to the subject “Utopias for my place” and pragmatic systems to the subject “Concrete Utopias for my Place”.



6. Lugar no futuro

Área de preservação ambiental

"O meu lugar
é tão belo.

É tão belo
e tão breve
o meu lugar..."

(Geografia, José Fanha)

Natureza: uma questão de consciência

(Breno A.C. do Carmo)

Pense bem na natureza

Observe que ela tem uma esperteza

Esperteza de nos alimentar

Mas nesse caso a gente tem que colaborar.

5. Perspectives

Viewing back to the ideas of Wilhelm von HUMBOLDT the following concretizations and specifications can be stated:

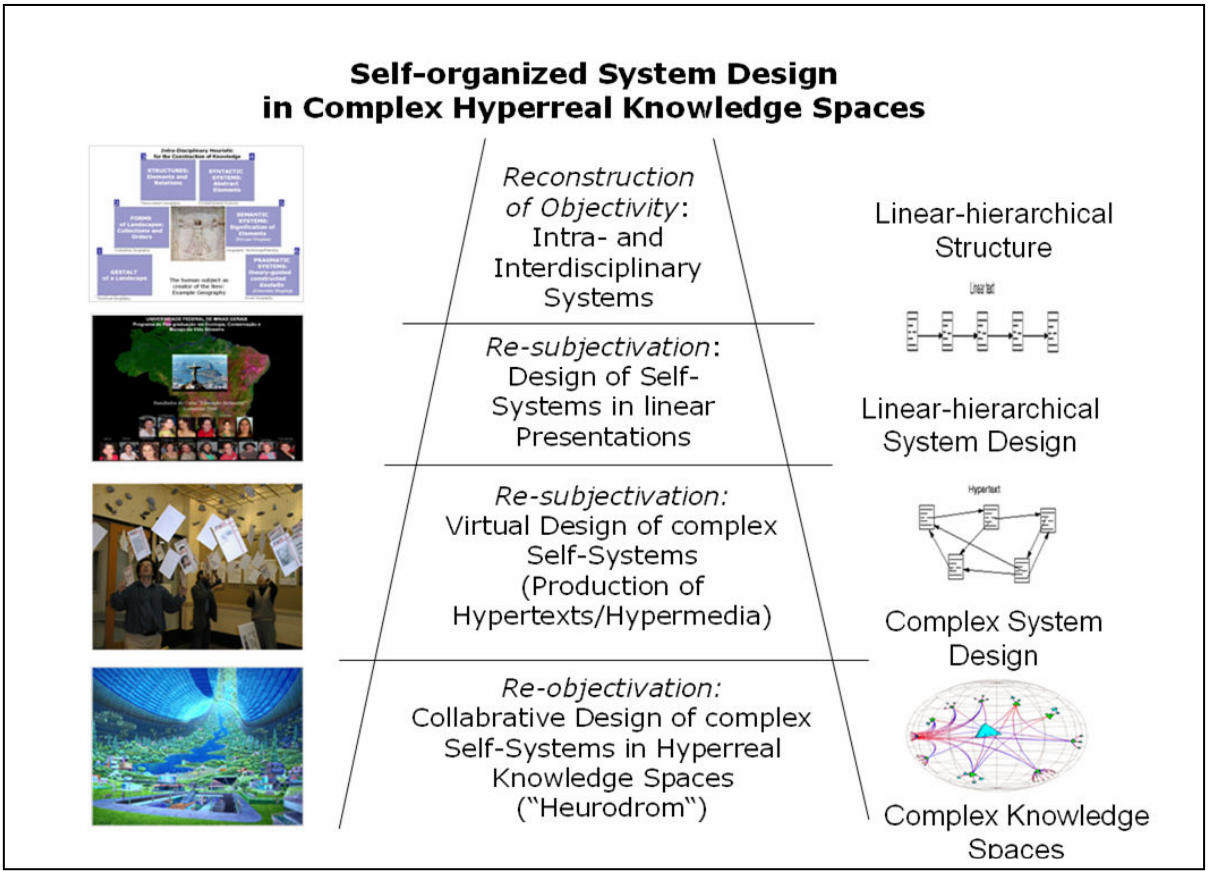
(1) *Linking of the subjective "Bildung" and the objective Science:* Objectivity is introduced by a re-construction of the historical and systematic development of Disciplines/Scientific Systems on the base of an epistemological view. Using categorical concept pairs an *Intra*-disciplinary Heuristic is constructed as a means for the participants to get basic information. At the same time, this *Intra*-disciplinary Heuristic is a fundamental orientation for the self-organized design of systems in the direction of a Re-subjectivation of Objectivity. Then this Objectivity is filled with Subjectivity by the organization of a productive interplay in which both sides are developing each other

(2) *Integrated whole of Research and Teaching:* Research and Teaching are not separated, but, reciprocal connected with another. On the one hand, objective information is introduced into the process. On the other hand, this information is used as means for self-organized system design and for an enrichment of objectivity by subjectivity.

(3)*Research Community of Professors and Students*: Professors are not (only) the teachers, students are not (only) the learners. Both are associated with each other. The professors contribute with their long exercises and experiences in scientific activities in Disciplines/Scientific Systems. The students contribute with new and spontaneous ideas, but also with special competences like a Computer Literacy, which will make them very often to teachers of Professors. A central role will also play the mistakes they are making because with them special aspects, problems, approaches, etc., can come into the view which are not respected in the planned research and learning activities.

The results of the system design by the students show an impressing productivity and creativity. Presented are no more only objective views to environments, but, a deep personal relation to them. The produced ***Subjectivity*** can be in a next step higher developed in direction to the criteria "objectivity" when the students start to exchange their results and to link it with another. In this way real and virtual communities can arise which are producing in a collaborative way ***Inter-subjectivity.***

A vision for the future is to re-objectivate in a final step this kind of Subjectivity and Inter-Subjectivity by bringing the virtual communities together in a real place. This shall be designed as a hyper-real knowledge space in which all kind of activities can be realized and integrated with each other. This place is called “Heurodrome” because here will be offered material and ideal-cognitive heuristic means for navigations and operations in complex knowledge spaces.



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