Chapter 1
Learning across Social Spaces

Gilbert Ahamer
Austrian Academy of Sciences, Austria

Josef Strobl
Austrian Academy of Sciences, Austria

ABSTRACT
This case explores the mutual link between education, structural evolution, social spaces and institutional change. It develops theoretical perspectives and illustrates them by practical cases. Three approaches of learning (psychological, evolutionist and ontological) lead to specific targets for successful learning settings, both for individual and societal learning. A series of structural transitions seems to best characterize the genesis of economies, civilizations and targets. “Space” is here understood as being created by social, esp. communicative action and can hence be generated anew by pervasive learning processes. Learning across social spaces means both intercultural and interdisciplinary learning and places learners into diverse systems of meaning. In a series of cases for learning settings, especially dialogic intercultural learning is identified as a key path to a harmonious development of nations.

QUESTIONS AND ANSWERS
1. What theoretical standpoint should we adopt towards learning?
2. Can our lessons learned from individual learning also be applied to societal learning?
3. What does civilisational evolution tell us about suitable targets and methods of learning?
4. Does “institution building” have a natural place in civilisational evolution?
5. Is it helpful to think of social space as a substrate and tool for our learning procedures?
6. Will the emerging “network society” support the creation of meaning, i.e. societal learning?

The following chapters will provide answers and the case studies will show implementations.

DOI: 10.4018/978-1-61520-779-4.ch001

Copyright © 2010, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.
WHAT IS LEARNING?

Several basic approaches can be taken towards learning. The direction in which one understands learning predetermines the learning setting considered as optimal. Consequently, it is a prerequisite to reach clarity about how one might understand “learning”. This chapter proposes:

1. learning as mental structural change (psychological approach)
2. learning as leapfrogging biological and evolutionary cycles (evolutionist approach)
3. learning as creating new (mental, existential) spaces by reflection (ontological approach).

In any case, it will be useful to keep in mind both learning of individuals and learning of society.

Learning is Mental Structural Change

According to a psychological approach, learning is understood as mental structural change that leads to change in real-world behaviour. In this view, learning would be only successful if it results in changes of the person’s real actions. Let us undertake a “tour d’horizon”, in which contexts we may find a similar viewpoint and how fixed or loose border conditions for such learning should be:

Here we examine any type of learning, especially life-long learning for adults (Strobl & Car, 2009, Lenz, 2005) and we draw conclusions from decades of our own teaching, learning and training experience in both roles, active and passive. Often, learning is most productive when taking the role of a trainer. We adopt a constructivist stance, under the philosophical auspices of John Dewey’s Pragmatism (Berding, 2000, Haack, 2004, Grippe, 2002). In the resulting picture, in order to reach the mentioned structural mental change, the core action is dialogue and exchange of views in a discourse, constituting Dewey’s “education for responsible democracy”.

As does democracy, education deeply involves ethics: it is based on the “principle of responsibility” (Jonas, 1984, Stähli, 1998, 2005, Werner, 2003). Here, preference is given to teleologic (target oriented) ethics as opposed to deontologic (duty oriented) ethics – stressing the result of any human action as preferred to theoretical and subjective conviction.

For facilitating such dialogue, a very helpful approach is: “learning through gaming” (Prensky, 2001, Ahamer, 2004). Symbolically, a gaming setting means to leave a “play” in the rigid mechanisms of traditional reproduction of content by allowing for trial and error in a modelled (“game”) scenario. Coherent with the affiliation of the authors, such endeavour of responsibility-oriented teaching encompasses both the area of e-learning and (human) geography (Popke, 2003: 298, Cloke, 2002: 589). An “ethics of encounter” (Popke, 2003: 300, Cutchin, 2002: 660) is both facilitated by e-learning tools and geo-referenced in a multicultural sense. Supported by web-based tools and e-learning didactics (and especially by virtual globes: Strobl, 2007a, 2001, Strobl & Linder-Fally, 2007), we are led to say: “out of sight, but in mind”.

Let us consider another perspective on learning: according to design literature, iterative oscillation occurs between the problem space and the solution space (Maher, 2003; Dorst & Cross, 2001: 434). Such loose type of oscillating interaction between the two “spaces”, namely to act and to reflect, is also well characterized by the pedagogic concept of “reflection-in-action”, a pedagogical and managerial principle combining sequences of contemplative and actionist aspects (Schön, 1983, 1986: 62, Lawless & Roth, 2001) that has been applied to learning individuals but also to learning organisations.

In an influential article that has prompted a series of responses and comments, Roth et al. (2001) instead propose the notion of “Spielraum”
Learning across Social Spaces

– a word that the Canadian authors import into English language from German. It has the meaning “room to play” both in the sense of game-based learning (Pivec et al., 2004) and in the sense of machinery as the desired clearance a joint has in order to allow for motion. So, there should be a playful element or “game” in learning in both senses. The symbolic usage of the word “play” suggests allowing students to enjoy a near-to-real-life situation without fearing the merciless real-world sanctions of suboptimal behaviour (Fresner et al., 2007: 21).

Concluding from the above, “leeway for wits and senses” (Tröhler, 2007) should be allowed in any learning setting. *Spielraum* is “elbow room” (an effective existence radius of the self) according to Jaros (2007) who stems from spatial planning and argues that “the self depends for its ability to recognise itself primarily on collisions that suspend the flow of spatialised complexity”.

After decades of classroom experience narrated in vivid examples, Roth et al. (2001: 183) “propose ‘Spielraum’ as room to manoeuvre, as a concept that describes the reality of teaching much better than reflection-in-action, especially when there is no time out for reflection.” They “therefore see [themselves as teachers] always at some point in time and space which means for them to take into account the specific individual situation of students in the given classroom. Readiness for appropriate action, whatever the unfolding events, means that the agent has Spielraum, the room to manoeuvre appropriately in the current situation. According to Heidegger (1977), *Dasein* (being here) “combines self and world into a single irreducible entity, being-in-the-world, in the face of all the contingencies real-time interactions pose to the participants involved” (Roth et al. 2001: 186) and “constitutes the location from which a person negotiates the world” (Popke, 2003, 302). Not the teacher’s but “the students’ own questions guide or scaffold students because they always test the outer edge of their students’ current reality. The questions therefore can neither be completely in the teacher’s reality nor completely internal to students’ reality, but always along the interface of the two. Students are the builders of their own reality” (Roth et al., 2001: 186-201).

Summing up this subchapter 1.1, readers may believe that the following views are helpful:

- learners construct their own reality
- learners benefit from less pressure of real-life consequences
- in the optimal case, trainers and teachers have a set of reactions at their disposal ready to implement them even without lengthy reflections
- learning individuals proceed on a largely unpredictable path; and trying to understand learners’ unforeseen explanatory constructions dissolves and replaces immature concepts in teachers’ mindsets. No theory whatsoever sufficiently describes real learning paths of individuals.

To continue, we propose one step of reasoning: what applied to individual learning (i.e. of students), may apply also to societal learning, namely to the long-term evolution of countries.

The findings for individual learning deduced from this section in the above four bullets will be adapted to societal learning in the four bullets of the following subchapter 1.2.

**Learning is Leapfrogging Biological and Evolutionary Cycles**

Recently several universities have launched initiatives in “intercultural learning” (e.g. Global Studies, 2009) which means that students are trained to better understand divergent cultural and ethical concepts. Thinking of states, countries, economies and cultures (instead of students), we may conclude:

- countries construct their own realities and their own national rationalities and sense
– which might harmonise or not with concepts of sense in other countries or other populations (Castells & Arsenault, 2006: 285)

- the understanding of other cultures and their civilisational trajectories is likely to benefit from loosening the tightness of pre-fabricated explanatory patterns – for example macro-economic theories of one kind or another that state “how economies develop and grow” (Mankiw, 1990: 1646, Coats, 1985: 1718) and believe to be correct even in a historical sense (Heilbronner, 1990: 1097)

- the ones considering themselves as leaders are not likely to act based on thorough, reflected or even scientific understanding of ongoing complex procedures but rather based on “preconceptive understandings”, visions, or “preanalytic cognitive acts” (Schumpeter, 1949, Heilbronner, 1990: 1109), similar to an elbow room in the strict sense

- economies proceed on a largely unpredictable path when developing; trying to understand such real techno-socio-economic development quickly unveils the tremendous limitations of economic theories, be they (neo-)classical or Keynesian. No theory whatsoever sufficiently describes real learning paths of societies.

As a consequence, it is proposed to follow the real-world paths of evolutionary development instead of following the results of theoretical concepts boiled down to a set of formulas. Purely formula-centred understanding of economics tumbles down the abyss of non-perceived complexity, it remains painfully simple. Priority to phenomena! Freedom from formulas! To promote “reflective science”, the sociologist Bourdieu has created a method of letting the phenomena speak for themselves (Robbins, 2007: 87).

Current Theorising on Global Structural Evolution

Learning on the societal level means also the creation, development and strengthening of new emerging societal institutions (Papenhausen, 2009: 5). These might be likely to appear cyclically (Freeman & Louca, 2001), according to Kondratieff’s famous analysis of economic long waves that he performed in the 1920s. Which other shape could a developing trend show? Linear, curvilinear, a sequence of saturation states (Menzel, 1996: 35ff, Mensch, 1975, Wagner-Döbler, 1998: 67) or just a complex pattern of syndromes? No single “theory” (reducing itself to a simple cause-and-effect style) is capable of explaining consistently the complexity of global historical dynamics – even if several explanatory patterns were applied, such as the unsatisfying “climatic explanation” for differences in economic and cultural development (Landes, 2000, Mokyr, 1990).

Hence we take the pragmatic standpoint to just take into account what we see in civilisational evolution, even without being able to explain it. A series of saturation states is proposed (Figure 1) as a long-term meta-pattern of civilisational evolution (and hence of “societal learning”) that hypothesizes that institution building and generation of societal structures takes place after each saturation phase has matured (compare Raskin et al., 2002, Mensch, 1995 cited after Menzel, 1995: 35). The evolutionary magnitudes in Figure 1 might be for example population, nutrition
per person, meat share in nutrition, agricultural efficiency or similar systemic variables.

Sometimes it is believed that data series not covering complete centuries are the main obstacle to describing a wide range of evolutionary stages (Menzel, 1996: 15) because they cover only some decades. Instead, the method of the “Global Change Data Base” GCDB (Ahamer, 2001) suggests ordering countries along GDP/cap instead of historic time. This allows to reconstruct patterns along “evolutionary time” (approximated by GDP/cap) in the same way as reconstructing an antique vase from several fragments with supposedly repetitive design. Additionally, such waves of development do not run in parallel for all countries within historic time (Menzel, 1996: 16) but rather within recalibrated “evolutionary time”. As shown by data analysis, to the approach of evolutionary economics (Saviotti, 2007: 2), economic development creates new structures, new institutions and organisations – also educational institutions – which is at the heart of the theme of this entire volume (Mukerji & Tripathi, 2009).

Therefore this paper tries to derive pedagogical targets from long-term dynamics of social development, namely that learners should become apt to master the specific challenges of their countries’ evolutionary phase.

Other attempts have been made relying on a cyclical historical world view (Papenhausen, 2009: 12) identifying pedagogical trends characteristic for each Kondratieff cycle; but we prefer an evolutionary world view suggesting a series of maturing civilisational themes leading towards a “society of sense” (Horx, 2007). In any case, the innovation of institutions, especially the genesis, development and maturisation of educational institutions (Tripathi & Mukerji, 2008) might still be co-determined by long economic waves (Papenhausen, 2009: 7).

The following three sub-chapters provide quantitative examples for the hypothesis of global structural evolution behaving in the pattern hypothesised in Figure 1: both the agricultural and energy system are described by a simple array of quotients that allows attributing change rates to each one of the logical subsystems quantified by the respective quotient.

Figure 1. A series of saturation states is hypothesized as the long-term dynamic pattern of civilisational evolution along centuries

![Figure 1. A series of saturation states is hypothesized as the long-term dynamic pattern of civilisational evolution along centuries](image)
The Example of Global Agricultural Evolution

The example of the evolving global agroeconomic system is graphically shown in Figure 2. The main logical chain of cause and effect is demonstrated by a sequence of parameters \( y_n \), global levels and their change rates, see in the rectangles). However, the structural properties of the system are better described by the quotients of subsequent rectangles \( (y_{n-1} / y_n) \), global levels and change rates, see in the rhombuses).

The sequence of themes along this logical chain of rhombuses reads: land as production factor in the economic sense (first three boxes), percentage of crops other than cereals, cereal area productivity, cereal trade, cereal distribution, cereal amount for food, and population (growth); or as formula:

\[
\text{Arable land use} = (\text{arable land} / \text{cereal area}) \times (\text{cereal area} / \text{cereals produced}) \times (\text{cereals produced} / \text{cereals supplied}) \times (\text{cereals supplied} / \text{cereals as food}) \times (\text{cereals as food} / \text{capita}) \times \text{population}
\]

This logical structure of Figure 2 is very simple, but allows already to describe the development over the course of historic time for each of the mentioned themes (e.g. quotients as a function of time). However, much clearer patterns of graphs are obtained when these quotients are depicted as functions of GDP/capita – which may be cautiously interpreted as economic level or “evolutionary time”.

Figure 3 shows each of the quotients of the above formula as a function of GDP/cap for each country for the past decades as one averaged line. It can be seen that (1) even if there is considerable dispersion of the levels due to individual characteristics of the country, (2) the change rates for each country seem to unfold along almost the same direction which is suggested by the structure of parallel lines. In other words: may the global agronomical system show considerable divergences, yet its movement into the future is much less divergent. The “underlying law of motion” for the global agricultural system seems to exhibit rather constant change rates, even if starting from different levels.

Especially the parameters “area efficiency of cereal production”, “the share of crops other than cereals”, “cereal distribution” and “cereal intake per person” show parallel geometric structures.

This allows imagining that underlying societal structures develop in a largely analogous way in all countries of the world, a hypothesis that could even be extended to educational structures and institutions. Synchronicity is defined not so much by historical time \( t \) (such images would be tremen-
Learning across Social Spaces

Figure 3. Land use as arable land is understood here as the product of six quotients which allows to discern dynamics arising from different aspects of life, as described in the text above. Each country shows an averaged path of development along the past decades along the horizontal direction describing the economic level (GDP/cap). For many of the six quotients, a visible increase of decrease of these six structural variables occurs on the path to higher GDP/cap.

...dously scattered) but by GDP/cap. Consequently, institutions might be both the (1) result and (2) precondition of suitable humanitarian and social development; the first mechanism being suggested by the above findings (sometimes correlated with “social capital”, Mohan & Mohan, 2002: 196, Burt, 2000, Adler & Kwon, 2002) and the second mechanism lying at the core of any institutional educational promotion, often soberly labelled as “human resources” or “human capital” (Mukerji & Tripathi, 2004: 14, 2005) and representing one of the key findings of classical “growth theory”. For “growth theories”, GDP grows by investment in “human capital”, in other words education: authors such as Barro (1991, 2001), Mankiw et al. (1992), Nonneman & VanHoudt (1996), Stokey (1991), Rosenzweig (1990), Becker et al. (1990) stress the importance of schooling, higher education and technological know-how as key factors to economic progress.

In this evolutionary picture of Figure 3, “successful societal learning” would mean that a country jumps forward on the path of developing its systemic parameters towards values that would normally correlate to a higher GDP/cap. In brief, learning means “leapfrogging material evolution by enhanced mental and social restructuring”.

The Example of the Global Economic Structure

If a similar quantitative analysis of the long-term structural shift in the sectoral structure of the global economic system is undertaken (analogous figures in Ahamer, 2005a: 10-14), again a fundamental underlying trend of historic dimension can be detected: the percentages of sectoral GDP are significantly changing along the move towards a higher GDP/cap. When examining the subject in more depth (versus seeing only the widely known transition from agricultural to industrial and further on to service oriented economic structures), one perceives the following trends:

- Needs of the individual → needs of society
- Single (building) projects → implementation of a collective (built) structure
Learning across Social Spaces

Figure 4.

\[
\text{CO}_2 = (\text{CO}_2/E_{\text{prim}}) \cdot (E_{\text{prim}}/E_{\text{final}}) \cdot (E_{\text{final}}/\text{GNP}) \cdot (\text{GNP}/\text{QL}) \cdot (\text{QL}/P) \cdot P
\]

Legend: \(\text{CO}_2 = \) \(\text{CO}_2\) emissions, \(E = \) (primary or final) energy, \(\text{GNP} = \) Gross National Product, \(\text{QL} = \) quality of life, \(P = \) population.

• Material targets (quantitative growth) → well-being (qualitative growth).

Also here, long-term developments are not proceeding on a linear path but are characterised by saturation effects similar to Figure 1. According to evolutionary economics, co-evolutive autopoietic structural change is reorganising institutions (Saviotti, 2007). The economic sector “education” is situated at the very end of the detected evolutionary chain and can therefore be expected to increase in GDP share in all economies worldwide in the long run. Such a general diagnosis tends to positively impact on any tedious effort of improving educational structures in any world region.

The Example of the Global Energy System

... Each wreath of smoke

Appeared to him but as the magic vapour

Of some alchymic furnace, from whence broke

The wealth of worlds


In analogy to the global agricultural system in above sections, this section quantitatively analyses the long-term structural changes of the global energy system. Also here, the logical chain of cause and effects for the global CO\(_2\) emissions (formula below) stretches across several scientific disciplines described by the quotients in the following formula: carbon content of fuels, technological efficiency of energy conversion, economic effectivity of energy use, economic input per quality of life, quality of life of the population (See Figure 4).

When looking at quantitative figures (Ahamer, 2005a: 15-24), it becomes apparent that each of the consecutive quotients starts to optimise in a given evolutionary period and then reaches saturation. Starting from “smoking stacks” (\(\text{CO}_2/E\)) in Charles Dickens’ and Lord Byron’s times (see poem above), to the eras of ever more efficient machinery in the 19\(^{th}\) and 20\(^{th}\) centuries (\(E_{\text{prim}}/E_{\text{final}}\)), to “demand oriented energy management” (\(E_{\text{final}}/\text{GDP}\)) at the end of the 20\(^{th}\) century, to our present period when no longer the target of optimising GDP/cap but rather of QL/cap decently comes into sight – a global long-term shift occurs from maximising material targets towards optimizing qualitative targets. Such shifts are called “transitions”. This perception is not inferred from an a priori perspective but deduced from the data in the interdisciplinary “Global Change Data Base” (GCDB).

Figure 5 shows these “transitions of targets” again in a graphical manner, which we read from left to right: to the extent that one quotient was optimised (i.e. nolens volens having represented a target), it becomes fulfilled, levels out and falls out of the focus of societal perception because “the story is finished up”. Even the sign of optimisation changes: smokestacks no longer denote areas of progress but of environmental pollution.

What was a desired value in an earlier phase (e.g. GDP), is likely to turn into an undesired effort after a transition has occurred. Mathematically, the
Learning across Social Spaces

Figure 5. The hypothesis is made that societal targets shift from left to right to the extent they are fulfilled along civilisational evolution

Learning Means to Create New Spaces by Reflection

In this section, we will understand learning as the creation of new spaces (ontological approach), be they "only" mental or existential spaces.

The opening of "spaces of understanding" is evident especially in intercultural learning, where more than one different type of learner is to understand more than one "object" of learning", namely the individual perspectives in complex interdisciplinary and international matters (logically m:n learning, such as peace research or diplomacy). Much more simple structures are scientific learning (1:1 learning: viewing one object from the perspective of one discipline, e.g. mechanics) or interdisciplinary learning (1:n learning: viewing one object from the perspective of several disciplines, e.g. environmental protection).

Learning means to create perspectives. Perspectives – in an audacious definition – are the elements of reality (Ahamer et al., 2009: 1), not atoms. Analysing space is a core activity of geography, more interestingly the intrinsic connection of space and time (Car, 2009). What composes space? This question can be answered with more than just "North, South, East, West".

Parameter changes its position and goes under the fraction line. In other words, societal values in a growth phase stand in contrast to societal values in the saturation phase. By evolutionary necessity(!), societal values change along evolution.

Thinking further radically, a consequence would be that "improving the world" could mean: speeding up (structural) evolution. Societal "learning" in this picture would mean to accelerate evolutionary time (as opposed to physical time) – which means to accelerate structure building. Precisely this is the target of the present volume for educational structure building.

In the next section we will see that (social) structures are enhanced by enhanced density of (communicative) interaction among the system’s elements and sub-systems.
Learning across Social Spaces

Fundamentally, space is a social product, a way to view reality. Space is the result of the interaction of the viewer and the viewed object – and therefore an object even of quantum mechanics. Space is the genuine outcome of an interaction (i.e. the perceiving and acting human) – not only the prerequisite for an interaction taking place somewhere.

Adopting a system analytic standpoint (Sterman, 2000, Umpleby, 2009, ASC, 2009, Ossimitz, 2009) leads to the assumption that the crucial parameter is the density of interactions in a system (the number of interactions between elements divided by the number of the system’s elements) which increases the likelihood of (positive and negative) feedback circles which are ultimately responsible for the endogenous and intrinsic autopoietic dynamic of the system. Consequently, increasing interactions within a system makes a system (i) more dynamic in the systems analytic sense, (ii) more mature in the evolutionary sense and (iii) more stable in the ecological sense. At this point, it is easy to apply such logical deduction to systems of learners and learning – optimally to m:n (i.e. intercultural) learning settings: the higher the density of interaction, i.e. dialogue, i.e. reflection (cf. from the section titled “Learning is mental structural change”) is during the learning endeavour, the more mature and vital will be the outcome – namely the dialogically learned mutual understanding of individual world views. Along this train of thought, we have again reached the conviction of the section titled “Learning is mental structural change”, namely that an optimal learning strategy is to optimize dialogue and discourse.

Exactly this is an opportunity to make use of asynchronous and synchronous web based technology: discussion forums and chats as described in Ahamer (2005b).

Regarding the “ever new construction of space”, the journal “Progress in Human Geography” contains several articles redefining space; e.g. for Smith (2003: 562) it seems likely that spaces and times are multiple. “Space is an ontology of movement, networks, flows, fluids and folds”. “If spaces and times are created, there is no particular reason why they should be consistent with one another” – how true, especially in intercultural settings or political conflicts.

One of the most widely read writers redefining space is Manuel Castells (2001) who speaks of the space of flows and fluids (apart from the usual space of places) as a distinctive entity in the upcoming network society and renders the conviction of “the one and objective space” obsolete.

Smith (2003: 546) sees other fathers of abundance in space models: “In short, with Dandieu we learn that geographical scales (or spaces) are no more than degrees of abstraction. With Foucault, we move beyond the duality of space proposed by Dandieu between concrete and abstract scales to begin to argue for a skein of networks that is characterized by non-linear experiences”. Smith (2003: 574) quotes Latour: “time and space are the consequences of the way in which bodies relate to one another”.

In the same journal – and with a view to deriving quality criteria for learning – Cutchin (2002: 661) supports an ‘ethic of encounter’: “A geographical pragmatist ethic is not relativistic [but] it suggests moral rules as principles that need to be creatively, flexibly and intelligently applied in ever-changing circumstances.”

Summing up, valid learning means to understand formerly foreign spaces (of understanding) and to be able to move and live in them, unconsciously, without effort, just as an experienced car driver is capable of conversation while driving. In short, learning means to harmonize perspectives with reality and to create common spaces of understanding.

What is Social Space?

In this section, we will pose the question: “What are (social) spaces?”

To start from scratch, we must ask: what is “space” at all? Most basically, “being not on
the same spot” hinders communication for a paleolithic human. All the rest is more difficult to think and construct: the superimposed metric equals hypothesized travel time from spot to spot, on foot and on even ground. Already, very high grass, high snow and not so high mountains overthrow any simple metric even for paleolithians. The paleolithic deconstruction of space consisted already in fire signals, bow and arrow and did not have to wait for theoretical geographers in the 21st century (Demeritt, 2002). Even long before that monkeys swinging from branch to branch might have become jealous seeing birds flying over which made them consider revenge by creating other means of communication birds might not have…

Let us merely recapitulate: “space” enables communication (when being on the same spot) but hinders communication when being “spatially” separated. At the moment, we do not know much more than that. Following Piaget (1955), the construction of space is one of the earliest achievements in childhood. “Space” is created by the wish to eliminate it through travel. We are not really sure if we will ever define “space” much better than this, but for the sake of continuing this article we will adhere to said assumption for now.

Inspired by pre-paleolithic monkeys, e-learning strategies (Strobl, 2007b, Ahamer, 2004: 39) play a vital role in enlarging social and communicative spaces.

Hence space is a projection of one’s own communicational possibilities.

Similarly, theoretical physics and quantum mechanics speak of the “space of options” (“Möglichkeitsraum” after Sander & Vollbrecht, 2000, as a realm of possibility for development) which spans up all possibilities of a particle to move and accelerate. Space means reified options, decisions, bifurcations, implementable paths through time.

If time reduces itself to the substrate in which procedures happen (Ahamer et al., 2009: 2), then in the same vein space would reduce itself to the substrate in which interaction and communication happens. In any system, space is what embeds interaction.

Space is the substrate for decisions, whereas time is the substrate for processes. This is why space has several dimensions, whereas time has only one.

Such a definition is not new: reviewing Lefebvre (1991), Canete (2004) identifies space as a social construct founded on interactions, especially the communication procedures taking place in this space (Strobl, 2004, 2007a: 7). Lefebvre does not believe in abstract space. He develops what he calls “a conceptual triad” in explaining how space is produced: (1) Spatial practice, (2) Representations of space, (3) Representational spaces. Similarly, from a spatial planning perspective Taylor (2007: 198) claims that spaces are constructed.

To implement such theoretical convictions, contemporary technology extends a helping hand: According to Castells (2001, p. 4), “the Network Society deals with the ‘new techno-economic system’ and is defined “as a social structure which is characterised by networked communications technologies”. “This includes such social phenomena as economic interdependence among nations as well as globalisation and social movements related to individual identity. Based on this definition, Castells hypothesises that “the network society is organized around two new forms of time and space: timeless time and the space of flows. Space of flows infers that physical distances are closer among organizations in the society, and information can be easily transmitted from one point to another by new communication technologies. This means abandoning the logical concept of space. For example, the hyperlink on a webpage eliminates the succession of things in time and space, because it takes one from one location to another in an instant. Space and time, the material foundations of human experience, have been transformed, as the space of flows dominates the space of places, and timeless time supersedes clock
time of the industrial era.” Castells is defining space as the physical support of the way we live in time. The space and time we are used to, ‘real world time’, is referred to by him as a space of places.” (Wikibook, 2009).

Manuel Castells (2001: 4) calls “a complex system of institutional relations ‘the network state’, because, in fact, it’s a network of interactions of shared sovereignty”. “In a world of global flows of wealth, power, and images, the search for identity becomes the fundamental source of social meaning.” Such a view is excellently compatible with what Figure 5 proposes, namely the epochal shift towards non-material targets, towards human well-being, towards meaning, towards a “society of sense” – as Horx (2007) puts it. For the extremely long run single authors see space and time even as an illusion in the sense of the dissolution of time and space as we know it now (Renard, 2003).

In this view, the basic civilisatoric aim is to create meaning.

The linkage to e-learning becomes still more visible. For Castells (2004, 5), “the human consciousness is the source and the networks are programmed by human minds”. “Network patterns are characteristic for the most advanced economic sectors (this links directly to results of the above section titled “The example of the global economic structure”), highly competitive corporations as well as for communities and social movements. Identity-building itself is a dynamic motor in forming society. Identity is defined as ‘the process of construction of meaning’. The way social groups define their identity shapes the institutions of society” (Stalder, 2000). This brings us back to the subject of this entire volume (Mukerji & Tripathi, 2009), just formulated in the words of Manuel Castells.

HOW TO LEARN?

Based on the theoretical deliberations in the first section, in this part of the paper, their practical implications are analysed in a structured manner, following the four basic characteristics of learning put forth by the editors of this volume (Mukerji & Tripathi, 2009) – these are equivalent to the STEP factors described in the following four sub-sections.

Social Factor S: The Procedural Factors for Learning

The social factors (S) largely correspond to the procedural factors for learning and answer the question: how to design learning?

They coincide with Castell’s space of flows and they regulate the interaction between students and trainers and among students. We propose to:

- facilitate an interactive dialogue between trainers & learners and among learners
- make use of the chances of ODL to render the exchange of “flows” more massive
- allow for self-guidedness of learners (key word of self-adaptive e-learning material)
- suitably rhythmise procedures in order to facilitate optimal learning as suggested by
“Surfing Global Change” SGC (Ahamer & Schrei, 2006)
• establish clear and well-defined procedural rules and criteria for success for students in order to safeguard quality control
• use the concept of “spatial citizens” to denote the approach of personal responsibility of learners (Strobl, 2008)
• to make use of evolutionary long-term trends for the target of learning
• to promote leap-frogging matter-centred evolution by faster evolving mental and social reorganization of a country (inner re-crystallisation of a country’s society).

Technological Factor T: The Tools for Learning
• Web platforms (such WebCT or others) have been the object of suitability studies already a decade ago and have entered their annual routine at most universities. From being a critical bottleneck for communication-centred e-learning (because of alleged self-restriction to a mere behaviourist learning model) most platforms have made a consistent step forward to enabling communication-centred learning
• For the UniGIS curriculum (Strobl & Car, 2009, Car, 2008) the decision was made to use two technologies (Blackboard & MS live) in order to enhance e-literacy of learners.
• Promote formation of teachers and trainers to incorporate peer communication among learners
• To enhance autopoiesis, i.e. self-creation of (knowledge) structures such as wikis
• Include digital globes for learning.

Economic Factor E: The Material Basis for Learning
• Which resources are necessary for learning? In Europe, many universities provide each resource in the necessary amount.
• In the view of the GCDB analysis (section titled “The example of the global economic structure”): Education is part of the sector “social services” encompassing personal care-taking, (mental) health and communication services and can be expected to grow further as a long-term global tendency. Analysis of the evolution of fore-running economic sectors calls for suitable maturity of both learning infrastructures and learning motivation, namely to “create meaning by education”.
• In the view of the section on social space life meant the generation of meaning and sense. “Sense” equals forward-linking of values into the future (in Latin: re-ligio). Investments in e-learning therefore are based on a minimum accountability and foreseeability of individual careers. Vice versa, e-learning should foster skills that are independent of short-term business cycles.
• Evolutionarily, we slide into an “era of a society of sense”: acting in order to produce meaning becomes gradually more important than acting for a material target – to the extent that material targets are already fulfilled. A “natural succession” of life’s targets for any learner may be hypothesized.

Political Factor T: The Structural Basis for Learning
• Connectedness to other organisational entities on the labour market, among firms, within administration is the materialization
of the “network society” (section “Learning means to create new spaces by reflection)

• Human, social, institutional structures and tissues complement traditional “hard skills”

• The reliability and openness of political structures must guarantee that learners can implement their democratic social skills in real-life careers in real-life institutions.

THE CASES

List of Cases

The following cases are explained in the coming sections. More insight is available from the literature and the links provided as well as in (Ahamer & Jekel, 2010):

• UniGIS (“Learn, but learn together”) – a collaborative web-based study framework

• Twinning Projects (“Learn while living together”) are the main programming tools for EU accession and applied also to European Neighbourhood Nations: examples with the authors’ collaboration range from Slovakia and Slovenia to Armenia, Georgia and Azerbaijan.

• “Global Studies” are curriculum initiatives in Graz, Vienna and Salzburg (“Learn, how to live together”) training professionally for intercultural understanding and in-depth cooperation.

• UniNET (“Live together, but while learning”) is the largest bilateral university network between a European country and Asia; the authors have organized several conferences in Kyrgyzstan and Nepal

• ESD (= European Forum for the Promotion of Sustainable Development) creates radically new visions prompted by the economic-environmental crisis by dialogic authoring of a book

• Environmental Systems Analysis (USW) is a unique curriculum in Graz focusing on interdisciplinary dialogue.

Details on characteristics and on results of these cases can be found in Table 1.

UniGIS

What started as several local initiatives for open and distance learning (ODL) of Geographic Information Science and Systems (GIS) has become the largest global network of highly professional GIS curricula (Unigis, 2009) that are internationally not only recognised but defining standards.

The characteristic is a very clear definition of rules, criteria and procedures which allows to reach standardisation across a wide range of countries, universities and related working styles and cultures.

This networked and networking social system keeps proliferating: last year, the Central Asian node was formally founded as the “Austria-Central Asia Centre for GIScience” ACA*GIS (2009) in Bishkek, Kyrgyzstan after a series of preparatory workshops, conferences, projects and common projects that have constituted an evolution of networking flows.

Twinning Projects

We move from the world of education to the world of administration and national strategies. The European Union has developed a successful “tool” called “Twinning” for enhancing institution building in neighbouring countries that has been initially applied to preparing candidate countries for their accession to the Union. The core issue is “institution building” (EU, 2009) – again very similar to the intention of the present volume.

Twinning principles are: “Twinning must aim at developing structural reforms. At the end of a project, any new or adapted system must be self-
Learning across Social Spaces

A very clearly defined set of procedural rules has been moulded into a “Twinning handbook” a decade ago. Annually, over 100 Twinning projects with a typical budget of 1M€ take place on almost any aspect of administrative life. In the meantime, this instrument for strengthening institutions by sourcing from the own strength and conviction of the beneficiary country is also applied to interested non-candidate countries in the so-called European Neighbourhood Policy (ENP, 2009).

The main strategy is to create understanding by (i) daily collaboration for complex issues by peer-oriented collaboration with equal rights and mutual respect, (ii) keeping the driving force the main interest of the beneficiary administration, (iii) generous funding by the European Commission, (iv) personal contacts emerging after week-long repeated on-site collaboration of experts and (v) clear focus on voluntary adoption of parts of the European legal system for easier bilateral exchange.

Table 1. How the STEP factors apply to the cases of this article; these are explained in the earlier section

<table>
<thead>
<tr>
<th>Cases</th>
<th>S = Social factors</th>
<th>T = Technological factors</th>
<th>E = Economical factors</th>
<th>P = Political factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>UniGIS</td>
<td>Easy access for individuals, international network embeds</td>
<td>normlised catalogue of criteria for achievements</td>
<td>Costs paid by learners and supporting institutions</td>
<td>UniGIS is embedded in intl. and EU networks</td>
</tr>
<tr>
<td>UniNet</td>
<td>Lecturers and students are networking agents</td>
<td>Thematic orientation is secondary, real persons travel</td>
<td>One-way financial transfer from Austria to Asian universities</td>
<td>Developmental aid on academic level in mutual partnership</td>
</tr>
<tr>
<td>- Kyrgyzstan</td>
<td>Promote GIS and solar energy</td>
<td>Strengthen local institutions</td>
<td>~ODA + own effort to organise</td>
<td>Young democratic republic</td>
</tr>
<tr>
<td>- Nepal</td>
<td>Apply GIS for mountain areas</td>
<td>Partly e-learning, but focus on face2face, students travelling</td>
<td>Cooperation with Himalaya states</td>
<td>Strengthen local self-governance</td>
</tr>
<tr>
<td>Global Studies</td>
<td>Response to increasing students’ awareness and NGO work</td>
<td>Efforts made by students who also participate in practicals</td>
<td>The guiding idea of global collaboration is implemented</td>
<td></td>
</tr>
<tr>
<td>ESD</td>
<td>A NGO creates itself and provides orientation to others</td>
<td>Only “social software” directs interplay of self-responsible actors</td>
<td>No economic weight. “Just” development of societal strategies</td>
<td>Includes senior political figures with high profile &amp; individualism</td>
</tr>
<tr>
<td>USW (= Environmental Systems Analysis)</td>
<td>Institutionalising a pioneering university curriculum</td>
<td>Strong e-learning component but only as blended learning</td>
<td>Synergism with classical curricula boosts attractiveness for students</td>
<td>Slow diffusion through the traditional university system</td>
</tr>
<tr>
<td>Twinning tool</td>
<td>Main tool of EU enlargement &amp; reduce barriers</td>
<td>Self-motivated implementation of EU legislation</td>
<td>Better mutual exchange increases development</td>
<td>Smooth transition from EU to neighb. countries</td>
</tr>
<tr>
<td>- Slovakia</td>
<td>Candidate country wants to join</td>
<td>Improve air quality legislation</td>
<td>Reduced pollution improves life</td>
<td>Ex-communist country’s rebirth</td>
</tr>
<tr>
<td>- Slovenia</td>
<td>New EU member state joined</td>
<td>Implement water quality legislation</td>
<td>Water price covers external costs</td>
<td>New market economy stabilises</td>
</tr>
<tr>
<td>- Armenia</td>
<td>Discontinue Soviet safety syst.</td>
<td>Aviation security must be compatible</td>
<td>Switch from old to EU system</td>
<td>European neighbourhood policy</td>
</tr>
<tr>
<td>- Georgia</td>
<td>Leave behind Soviet security</td>
<td>Aviation will be compatible to EU</td>
<td>Integration in larger aviation area</td>
<td>Equilibration of strategic contacts</td>
</tr>
<tr>
<td>- Azerbaijan</td>
<td>Re-build agr. vocational training</td>
<td>Agriculture employs 40% of pop.</td>
<td>Agricult. value added is minimal</td>
<td>Wish to modernise non-oil sect.</td>
</tr>
</tbody>
</table>

sufficient and function under the auspices of the beneficiary country” (EU, 2009).
One author has worked during the last decades in such Twinnings on the subjects of air quality (Slovakia, 2000-01), water quality (Slovenia, 2007-08); and prepared Twinnings on the subjects of aviation security (Armenia, Georgia, 2008) and vocational formation (Azerbaijan, 2009) and is convinced of high suitability and appropriateness of such programmes of international co-operation.

Global Studies

Several independent initiatives of Austrian universities have led to the establishment of curricula on “Global Studies” (Graz and Salzburg) or “International Development” (Vienna). The national umbrella organisation “Mattersburg Circle of Developmental Studies” acts as forum for exchange while maintaining a critical stance towards globalisation. The speed of a genesis of structures here is much slower than in both above cases because the underlying tissue of convictions is still in the making, in a co-evolutionary sense. Three high-quality series of books and an internationally reviewed journal are the result of a decade of work in the Vienna initiative. No direct profit was generated from “developmental studies” in the home country, therefore the economic basis is modest and success is based on idealistic activity of individuals over decades.

Eurasia-Pacific UniNet

A facilitator of a very wide range of university co-operations is the Eurasia-Pacific UniNet that developed out of the China Centre of Salzburg University. UniNet (2009) supports initiatives aimed at establishing lasting structures and has already resulted in at least five bilateral institutions on environment, medicine and technology.

UniNet’s procedural strategy dwells on a series of annual meetings, workshops and conferences that produces the communicational substrate for further institution building. Reiterated personal contact together with selecting areas of collaboration that promise mutual benefit lies at the heart of this very personalised strategic concept of building intercultural institutions on a peer level.

Personal contacts on the individual level constitute protective shells of social space in

Figure 6. A three-dimensional portfolio for all mentioned cases with axes named: one or more universities, single or multi-disciplines, one’s own or others’ motivation
Learning across Social Spaces

Table 2. Experiences with the cases of this article ordered approximately along the STEP factors, while taking the perspective as seen from the “learners”

<table>
<thead>
<tr>
<th>Cases</th>
<th>S ~ collaboration</th>
<th>T ~ dialogue tech.</th>
<th>E ~ interculturality</th>
<th>P ~ results</th>
</tr>
</thead>
<tbody>
<tr>
<td>UniGIS</td>
<td>Occasional questions among individual learners</td>
<td>An internal discussion forum + annual meetings</td>
<td>Only among German speaking students</td>
<td>Technical &amp; background GIS knowledge</td>
</tr>
<tr>
<td>UniNet</td>
<td>Among occasional Austro-Asian working groups</td>
<td>Co-author future project proposals with Asia</td>
<td>On the university level only; scientific exchange</td>
<td>Transfer of knowledge and skills</td>
</tr>
<tr>
<td>- Kyrgyzstan</td>
<td>Bridge heads in civil engineering university</td>
<td>Along annual conferences and staff exchanges</td>
<td>Review of papers in a scientific journal</td>
<td>Common publication and mutual insight</td>
</tr>
<tr>
<td>- Nepal</td>
<td>Bridge to an Asian multilateral research centre</td>
<td>Only personal exchange on the conference</td>
<td>Very broad range of cultures along the Himalayas</td>
<td>Scientific assessment harmonised on a conference</td>
</tr>
<tr>
<td>Global Studies</td>
<td>Students with strong multicultural inclination</td>
<td>Integrative core lectures + isolated specialised lectures</td>
<td>Interculturality extends to different scient. culture</td>
<td>Integration of explicitly opposing views</td>
</tr>
<tr>
<td>ESD</td>
<td>Panel of self-motivated idealists &amp; authors</td>
<td>Discussing chapters of the own visionary book</td>
<td>Representatives from academia &amp; industry discuss</td>
<td>Consensus view on very radical societal changes</td>
</tr>
<tr>
<td>USW (= Environmental Systems Analysis)</td>
<td>Five disciplines: economics, business administrat., chemistry, physics, geography</td>
<td>30% integrative core lectures done jointly plus 70% specialised lectures done in isolation</td>
<td>Offering a systemic approach to overcome barriers between social &amp; natural sci.</td>
<td>Environmental scientists mastering divergent scientific approaches</td>
</tr>
<tr>
<td>Twinning tool</td>
<td>Administrative representatives from EU &amp; candidate countries</td>
<td>Clear definition of deliable results worked out in 2 years project</td>
<td>Experts from diverse political cultures collaborate personally</td>
<td>Harmonisation of legal systems and their factual implementation</td>
</tr>
<tr>
<td>- Slovakia (SK)</td>
<td>8 SK + 8 AT authors: 12 reports</td>
<td>Monthly 1-day visits during 1 year</td>
<td>Ex-communist working habits</td>
<td>Air quality laws are on EU level</td>
</tr>
<tr>
<td>- Slovenia (SI)</td>
<td>10 SI + 10 DE + 6 AT authors: 3 r.</td>
<td>Permanent 3-days visits during 1 yr.</td>
<td>Similar approach, democratic state</td>
<td>Water quality &amp; pricing law is ok</td>
</tr>
<tr>
<td>- Armenia</td>
<td>Define workplan for EU aviation</td>
<td>Daily interviews with AM experts</td>
<td>Clear technical targets are easy</td>
<td>Defined results for future Twin.</td>
</tr>
<tr>
<td>- Georgia</td>
<td>Define workplan for EU aviation</td>
<td>Daily interviews with GE experts</td>
<td>Clear technical targets are easy</td>
<td>Defined results for future Twin.</td>
</tr>
<tr>
<td>- Azerbaijan</td>
<td>Define workplan for vocational education in agriculture</td>
<td>Trying to identify partners for daily interviews with AZ experts</td>
<td>Difficulties due to unclarity of own targets, low familiarity w. EU</td>
<td>Defined results for future Twinning including pilot voc. school</td>
</tr>
</tbody>
</table>

which professional and personal contacts on the group level and later on the corporate level may mature.

ESD

Another organically grown mycelium continuously working on novel views on globalisation and reworking them in a structured process (including publication of books) is the Vienna-based European Association for the Promotion of Sustainable Development ESD (2009). ESD strives to develop radically new concepts in the face of the global economic and environmental crisis and shows its rare strength in combining both challenges. Several dozen individuals have contributed to the normative book “Turn of the Titanic” (Rauch & Strigl, 2005) that has reached the highest ranking for national environmental and future books and serves as a starting point for
ongoing peer-oriented pluri-disciplinary discussions in Austrian NGO networks.

Environmental Systems Analysis: SGC & GCDB

At Graz University, the unique curriculum of “Environmental Systems Sciences” incorporates the faculties of natural, social and educational sciences and includes the five curricula of economics, business administration, geography, chemistry and physics.

The target is to provide students with the capacity to understand interdisciplinary matters from several scientific points of views. Therefore, a core feature is to actively participate in the “Interdisciplinary Practicals” (IP, 2009) that serve as a forum for debate, peer review, and consensus building. The most often used dramaturgic pattern for IPs is the web-based negotiation game “Surfing Global Change” SGC (Ahamer, 2004) that trains interdisciplinary consensus building in a five-level procedure among the 20 students. Material of the “Global Change Data Base” GCDB (Ahamer, 2005a) provides quantitative backing for building consensus on themes such as passive houses, locally disputed highway projects, future research, climate change and technology assessment.

Relevance of the STEP Structure for these Cases

This section views the described institutional case studies along the four criteria proposed by the editors of this book: S, T, E, P (= Social, Technological, Economical and Political): Table 1.

It is possible to arrange these case studies in a portfolio (Figure 6) in order to make visible their relative position within the descriptors “one vs. more universities”, “one vs. more disciplines”, “own vs. others’ motivation”. This portfolio shows that societal learning strategies may be implemented adjusted to the most variable framework conditions of our social reality.

Practical experiences from these case studies are described from the perspective of “learners” (Table 2) and the perspective of “trainers” (Table 3) while approximately using the STEP factors.

---

### Table 3. Experiences with the cases of this article ordered approximately along the STEP factors, while taking the perspective as seen from the “trainers”

<table>
<thead>
<tr>
<th>Cases</th>
<th>S ~ How the (social, economic, technological) space is bridged</th>
<th>T ~ what kind of difficulties are encountered in practice</th>
<th>E ~ how/whether technology helped in overcoming barriers</th>
<th>P ~ how to learn from such international interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>UniGIS</td>
<td>By a tight compulsory schedule &amp; clear exercises</td>
<td>Lack of previous experience with GIS can be fatal</td>
<td>Online chats, webspace, tutors, annual meetings</td>
<td>Create strong personal initial commitment</td>
</tr>
<tr>
<td>UniNet</td>
<td>By own developmental interest</td>
<td>Shortage of time during pers. visits</td>
<td>Joint proceedings define achievement.</td>
<td>A clear, narrow discipline helps</td>
</tr>
<tr>
<td>Global Studies</td>
<td>By being in the same curriculum</td>
<td>Initially romantic attitudes prevail</td>
<td>Only personal experience ripens</td>
<td>Own long-year studies equilibrate</td>
</tr>
<tr>
<td>ESD</td>
<td>Weekly structured discussion rounds</td>
<td>Divergent value systems preferred</td>
<td>Book publication focused all ideas</td>
<td>Intensive personal dedication</td>
</tr>
<tr>
<td>USW (= Environmental Systems Analysis)</td>
<td>By drawing own identity from the first pioneering student generation</td>
<td>Lack of enthusiasm and working motivation of some students</td>
<td>Web platforms allow detailed communication between courses</td>
<td>To create a strong identity as pioneering entity within university</td>
</tr>
<tr>
<td>Twinning tool</td>
<td>By jointly defining the targets of the Twinning future project</td>
<td>Fundamentally different political views in different countries</td>
<td>Dialogic review during joint authoring of legislation and reports</td>
<td>Online cooperation helps only if intact personal ties exist</td>
</tr>
</tbody>
</table>
CONCLUSION

This text has provided an extensive overview of diverse concepts, philosophies and views.

Based on multiple experiences of “learning” of individuals and societies, a general view of the sense and the procedure of learning is proposed in this contribution: The target of learning is to maximise the change of real-world behaviour. Consequently, an optimal learning methodology is to put learners in a situation of dialogue with stakeholders having another view of the complex interdisciplinary issue at stake.

Such conclusion of seeing “facilitated dialogue” in the centre of any learning endeavour results from all three understandings proposed here (psychological, evolutionist and ontological approaches). Dialogue is the unit activity of approximating world views between persons.

The role of technology receives a clear place, namely to facilitate dialogue and discourse. Such has been corroborated by a series of cases of individual, societal and international learning.

Attempts to implement technology-centred learning environments without foregoing generation of the strong wish and persistent will of learners to reflect, exchange, discuss and reformulate own convictions would not yield optimal learning results.

This sequence seems promising: first create human attitudes for a dialogue and second support such dialogue by technological means.

Dialogue is the key element and the will to arrive at a consensus is the key motor for learning.

When designed in this order, technological support may become valuable for learning which is a deeply human act of questioning oneself and redirecting one’s behaviour.

A symbolic description of such learning effect is “to create new spaces of understanding”.

REFERENCES


Learning across Social Spaces


Ahamer, G. (2005c). How the use of web based tools may evolve along three generations of WBT, ICL05 conference in Villach/Austria, see http://www.icl-conference.org/accepted.htm.


**ADDITIONAL READING**


**KEY TERMS AND DEFINITIONS**

*Autopoiesis:* Self-steered generation of structures by living organisms; e.g. bio-molecules create membranes, individuals create states, cultures create meaningful values.

*Civilisational Evolution:* When understanding history as evolution (towards higher complexity, towards more meaning in individual lives and towards more humanity), not only biological species undergo evolution, but also society and societal patterns and institutions.

*Dialogue:* Exchange of views between individuals; explaining each other the understanding of reality in a repeated manner that includes repositioning of own views.

*Leap-Frogging:* Jumping a long leap across a way that usually has to be “gone on foot” with much slower speed. Symbolic for jumping across evolutionary phases as a result of societal learning that leads to much more developed societal structures than would be typical for the societies economic level (e.g. by means of information technology).

*Intercultural Learning:* Learning and understanding, how individuals in other cultures think, what values are developed and esteemed and what procedures can be followed in case of conflict.

*Ontological Approach:* Perceived realities are considered as being created by reflection.

*Social Space:* The entirety of social interactions that leads to cognising reality in a certain and individual perspective.

*Societal Learning:* Learning not of an individual, but of an entire society, nation or culture

*Spaces of Understanding:* An individuals perspectives onto reality constitutes it’s own “space”. If individuals (or societies) share some perspectives, their “worlds” are overlapping and they have in common “spaces of understanding”.

*Spatial Citizens:* Members of the “civil society” (i.e. individual showing strong responsibilities) that are very much aware of the spatial
aspects of any social procedures (e.g. in spatial planning).

**Spatial Planning:** Ordering infrastructure (such as buildings, roads, railways, harbours, parks) within a city in a planned manner, depending on administrative planning procedures.

**Structure Building:** It is hypothesised that during evolution gradually ever more structures are generated by the living organisms: biochemical compounds, algae, cells, organisms, states of ants, economic units, philosophical convictions, systems of values etc. – Also institution building (i.e. the genesis of differentiated administration) is a case of structure building.

**Twinning:** The European Union creates this project type as main program line for the enlargement of the EU. In Twinnings, administrations collaborate link brother and sisters (twins) and jointly master complex interdisciplinary and intercultural tasks, such as environmental protection, democracy reform etc. while empowering the EU candidate’s own administrative abilities. Twinning means “institution building”.