3. METHODOLOGICAL ORIENTATION IN ADULT EDUCATION

3.1 The Constructivist Justification of Modern Adult Education

Upon closer examination, constructivist considerations are not so new. Already long before Kant, Xenophanes, and later the Pyrrhos School and Sextus Empiricus as well as Giambattista Vico took the "appearance" of all human knowledge as the starting point for their philosophy. "In the Third Century A.D. Sextus Empiricus pointed out: 'We can only always compare our perceptions with our perceptions, but never with the object of our perception the way it was before our perception'" (Schmidt 1990, p. 50). Similarly, the works of Piaget, Sivio Ceccato (see Gumin/Meier 1992, p. 29) and the fundamental uncertainty in connection with quantum physics, can be considered "precursors" of a constructivist learning theory, "(…) and the unanswered question, whether or to what extent the image conveyed to us by our senses corresponds to the objective reality is still today a weak spot of the theory of knowledge" (v. Glasersfeld 1990, p. 25).

The so-called "radical constructivism" (Schmidt 1987; 1992) strengthens the relativistic view of reality and points towards the fact that everything is interpretation. And far stronger than its precursors in the theory of knowledge, this radical constructivism stresses "(…) that the world we believe we live in we owe to ourselves" (v. Glasersfeld 1990, p. 17). Characteristic of the radical constructivist view of reality is the complete separation of representational thought, i.e. of the idea that knowledge is the "search for iconic coincidence with the ontological reality (ibid., p. 37): "We do not see the 'space' of the world, we live in our own visual field; we do not see the 'colours' of the world, we experience our chromatic space" –thus is Maturana's and Varela's description of the human cognitive situation, and they add: "Nevertheless, we undoubtedly find ourselves in a world" (Maturana/Varela 1987, p. 20). However we can no longer assume, in naïve realism, that our sensory impressions and our thoughts shall ever coincide with an absolute ontic reality. That is why radical constructivism postulates an essentially different relationship between the observer (see Luhmann et al 1990) and the observed world, whereby –as Luhmann states in his "Constructivist Per-

spectives"– "Nothing has changed: an observer cannot see what he cannot see. He allows himself to become dazzled by the evidence of the form that convinces him" (Luhmann 1990, p. 69). Consequently, the human being, as an observer of the world, does not simply reproduce it, but constructs and creates that which he thinks he recognises in the act of observation itself, exactly as Escher artistically expressed in his picture "Hands Drawing Hands, that Draw Hands that Draw Hands".

What conclusions can be drawn for education as a science and its practical application from this newly sharpened consciousness of the relativity and subjectivity of all knowledge?

The Pedagogical Consequence: Farewell to Didactic Linearity

For education and didactics, the constructivist viewpoint is simultaneously continuative and restrictive.

The learning theory suggested by constructivism is **continuative.** Considering the constructivist view of the learner's dependence on all knowledge, Teaching namely can no longer be considered –as in almost all didactic models– as the direct cause of learning. In fact, we should recognise that both behaviour patterns, teaching and learning, are also the expression of subjective self-referenced, i.e. "self-contained" development processes (of the individual who teaches and the individual who learns), that refer back to themselves. Consequently, learning is the reinterpretation of what is already known, or at least that which is already known flows continuously into the learning processes; learning does not consist in the mere adoption and acquisition of what is new, but follows the rationale of a "biographical synthetisation" (Ziehe 1982, p. 191). That is why more "open" curricula should be designed, with a stronger action and learner orientation (Mauri 1990). Learning contents are not transmitted linearly, they are constructed. In this regard, we read in Isabel Solé's work:

"In this framework, the idea of learning is insolubly linked to the concepts of constructive mental action and of social interaction with other people – peers, parents, teachers … and education agents in general" (Solé 1990, p. 58).

Therefore, the task of the teachers is also to help construct contents (ibid., p. 76; see Coll et al., 1998, p. 14 et seq.).

This constructivist shift in didactics is thus **restrictive** because teaching aids and tutorial models, as is often expected in practice, can hardly be developed,

since didactic models also turn out to be constructions, i.e. the expression of a process of scientific knowledge that is also self-referenced. Here we can apply Luhmann's statement that "(…) already when establishing differences and names (i.e. for the observations), there are no correlates in the environment of the system" (Luhmann 1990, p. 40).

Even so, the concern of not only seeing and stressing the disciplinary aspects in the learning process gains renewed strength from constructivism, particularly in view of the growing rate of obsolescence associated with this disciplinary aspect and the growing importance of the extradisciplinary or rather interdisciplinary aspects of this knowledge ("the capacity to explore knowledge on one's own", "the capacity to acquire knowledge through the division of labour", "autonomous problem-solving capacity", etc.). However, with this kind of exploratory and creative knowledge management, teachers have to be competent not only in didactic and methodological knowledge, but also qualified to autonomously manage or construct and reinterpret that knowledge. Even so, in my opinion it is not "enough" for teachers to acquire in addition, or parallel to their specialised competencies, "learner-oriented didactic knowledge"; what they should acquire is, rather, *another attitude about their specialised knowledge*. To this effect, and regarding specialised and technical knowledge, they also have to let go of the illusion of that which is factual, they have to recognise that this knowledge is constructed, it is also incomplete and temporary, and that an active attitude is required for the development, exploration and application process of such specialised technical knowledge. Holger Wyrwa describes this different attitude vis-à-vis technical/specialised knowledge with the following words:

"For teachers as well as for those who transmit knowledge, this means that the command of "pure" knowledge merely represents a basic qualification. It is far more important that teachers first recognise that there is no such thing such as "correct" knowledge and secondly, that their chances of influencing the "correct" transmission of knowledge are very restricted. Teachers offer knowledge, they do not transmit it. They have no influence on the learner's cognitive processing of the offered knowledge. (…) The pure transmission of knowledge is far 'less' important than the processing of knowledge, the handling of knowledge and recognising its constructive and relative nature. The aim is to provide the learner with alternatives from which to choose" (Wyrwa 1995, p. 39).

Conclusion 1: Considering the proposals set forth by constructivism, it is not enough to merely "extend" the professional pedagogical view to the disciplinary and extradisciplinary dimensions; rather, a fundamentally different mode of managing knowledge (constructivity mode) is involved.

"The way is the goal" Methodological Competence and Didactic Professionality

Due to the fact that according to the teachings of constructivist education, people acquire new knowledge, perspectives and experiences against the background of their biographically acquired interpretation patterns and in the context of their personal learning projects, it is imperative that all professional educators create the conditions for the learners' self-organisation and facilitate their self-activity and autonomous knowledge-exploration processes (see Arnold/ Siebert 1997, p. 91). Experience has demonstrated that this is best achieved with activation methods (Arnold 1996 d). However, the decisive issue is in what didactic context and with what types of "tasks" the corresponding methods are applied. Not every kind group work or pair work can be applied to self-guided knowledge acquisition. And the opposite is also valid: not every frontal classroom situation hinders autonomous knowledge acquisition. Furthermore, the myth of a widespread practice should be cleared up, namely that of alternating methods. Alternating methods in itself is no guarantee for professional teaching; this depends far more on **who** alternates the methods and which methods are being alternated: those that are "teacher-centred" and do not promote much autonomy or the "learner methods".

Conclusion 2: It is not the method itself or the variation in the methods which is decisive, but rather the underlying didactic concern and the issue of preparing the learners to actively manage the constructivity of knowledge.

Self-guided and Action-oriented Learning

Another central consequence of the constructivist learning theories is the demand for self-activity on the part of the learner, a requirement that has recently been gaining popularity under the title of "self-guided learning" (see Dohmen 1997 b, Moore 1983, Nuissl von Rein 1997, Reischmann 1997, Straka 1997, Straka/Nenninger 1995). The constructivist didactic debate also assigns fundamental importance to the activity of the learner. Teresa Mauri writes:

"The construction of knowledge on behalf of the learner is made possible thanks to the activities they perform to assign meaning to the school contents that are presented to them. Pupils are active if, among other things (…) efforts are made in selecting relevant information, organising it a coherent manner and incorporating it to other existing knowledge that is familiar to them.

Pupils are active, for example, when they ask or attentively observe in order to figure out how to count, how to read a word or the best way to skip an obstacle, when they prepare to execute these processes paying attention to everything that does not adjust to the initial idea, reviewing it when they interpret that the success of the action is at stake; students are active when they have to approach problems that arise by resorting for help to someone who has more experience and who can guide them or serve as a model, when they use this process to approach new situations with similar characteristics. Students are active when they observe a fight between classmates and they inquire about the reasons, they ask an adult or other classmates what they consider has been done fairly or badly and then relate this reply by contrasting it with what they think; they are fully active people when they observe the differences between this situation and other situations that they had gone through before and that allow them to reflect on what is correct or incorrect in their reasoning. Students are active when they can establish relations between diverse objects, identify similarities and differences according to objective criteria and are able to name them" (Mauri 1998, p. 73).

The adult education debate on self-guided learning again takes up much of what the action-oriented learning concepts already postulated back in the 1980s. "Action-oriented" is a technical term that can be defined as follows:

> Conclusion 3: "Action-oriented" is a way of learning, whereby learners do not only "move" and "gather" knowledge with their heads and minds, but through which the learners themselves "move", i.e. they perform activities. Performing activities can –but need not necessarily– play a role in learning in the form of practical actions with hands, arms, feet, etc.

Far more decisive, however, is a further aspect of action, that of "being responsible", of being able to plan and design one's own learning process: "The preparation of 'ready-made' knowledge material, no matter how competent it may be didactically, is no longer the focal point, but rather the organisation of active, targeted, transparent activities –of actions– that make thought the 'meta-action' of doing" (Gudjons 1992, p. 58), i.e. thought accompanies doing, and knowledge arises from the experience gained through self-action.

This is still "learning", but in a form that has been consciously "designed" as a self-action process: in action-oriented learning, pupils, students or adults can *act on their own* as often as possible. Self-guidance or self-organisation is a fundamental characteristic of action-oriented learning.

"Self-guided didactic models assume that self-guided learning is necessary due to the global educational goals of autonomy, self-determination and legal maturity and due to the characteristics of the human being's learning capacity and information processing. Because the goal is the independent interaction with the environment and the society in which one lives, an attempt is undertaken to make this individual–environment polarity the basic learning model and refrain from directly influencing the learner through "presentation" or "elaboration" tied to the teacher's "apron strings". It is not assumed –as in antiauthoritarian education– that learning takes place without any influence at all. It is believed, rather, that if the learning environment is designed so that the learner can enter into it and interact autonomously, then fairest justice is done to the education and learning objectives as well as to the learning processes" (Einsiedler et al. 1978, p. 23).

The responsibility and the new role of the teacher in self-organised learning has thus been addressed, and I shall refer to those in the following section.

The New Demands on the Role of the Teacher: Pedagogical Serenity

The decisive factor, both in the positive and negative sense, for ensuring such different –live and self-organised– learning is the teacher. Teachers have to "accept" a redefinition of their roles. This is precisely where the personal pretence of dominance –often also biographically and psychologically conditioned– and which is "clothed" in the well-known defensive and protective arguments, and on the basis of a pessimistic image of the human being, such as that which underlies the notion of "dead learning", hangs on to the role of teacher, leader, mentor, "enlightener", and "protector of the truth". Pestalozzi, however, had already recognised the questionable character of this pedagogical pretence of dominance, and in his well-known work *"Wie Gertrud ihre Kinder lehrt"*[1], written in 1801, he states in a self-critical manner: "I did not find weakness anywhere, but (…) in myself, because I wanted to guide where one should not guide" (quoted in Litt, 1965, p. 26).

The arguments in favour of live and self-organised learning are therefore closely linked to the requirements of redefining the professional role of the teacher (see Coll et al. 1998, p. 7 et seq.). Self-organisation can only be organised "at the expense" of external organisation. Live learning follows the maxims: "Where there is external organisation there should be self-organisation!", and "Teaching should be superseded by learning!" However, these demands by no means im-

1 Translator's note: "How Gertrude Teaches her Children"

ply a complete rejection of external organisation in the learning processes. Such an interpretation would be illusory and impossible to reasonably sustain. In 1956, Theodor Litt had already warned in his book "*Führen oder Wachsenlassen*"[2] against the "sentimental romanticism" based on the illusion that "only cautious patience and refraining from premature intervention are needed" (Litt, 1965, p. 64) in order to enable the natural development of that "which human beings bring along 'with' themselves" (ibid. p. 63). It is not the "cautious patience" and "refraining" from interventions that characterise the role of the teacher in action-oriented learning; in fact they undertake a different role, which is not situated at the core of the events, but still has a central function from the didactic point of view.

Conclusion 4: Teachers continue to arrange the learning situation –and are therefore still "responsible" for the learning process, *but they plan and design the learning process not so much in the form of impetuses and permanent lectures – or rather permanent domination–, but more in the form of questions, cues, aids and advice, in order to put pupils and students in a position to explore the new knowledge in a self-organised manner, i.e. in a live manner, and to increase the scope of their professional possibilities.*

They thus create the conditions for the learners' self-organisation. In other words, teachers no longer "produce" knowledge that "should go into the (students') heads", but "facilitate" self-active and independent processes for exploring and acquiring knowledge[3].

Pedagogical "serenity" quite rightfully turns out to be the guiding concept for an attitude that has set aside the illusion that complex systems and processes are feasible, and can be managed and planned. Whereas technocratic models are characterised by the ultimately naïve assumption of being able to "handle" the growing complexity and uncertainty with increased and more precise planning, constructivism and the newer systems theories focus on increasing the adaptability **within the process itself** (no more pre-planned process adjustment). If, in view of the interlinking, contingency and multiplicity of interrelated effects during the education processes, we cease to be able to distinguish between the causes, consequences and side effects, then the didactic concept of optimisation through planning is not realistic either. Far more necessary is internal guidance in the sense of adjusting to that which is alive, i.e. a "behaviour that is fitting to the evolution" (Jantsch) that presupposes equanimous concentration and a human-

2 Translator's note: "Guide or Allow to Grow"

3 Consequently, this form of self-organised learning by no means takes place "by itself", it –paradoxically– requires external organisation, but a more discreet form of external organisation which is more related to the learning conditions than to the learning contents.

istic concept of man, both of which are expressions of biophilia (E. Fromm). E. Fromm underscores this attitude with the following words:

"Care, sense of responsibility, respect and knowledge are closely linked to one another. They constitute a syndrome of attitudes in mature human beings who have productively developed their personal strength and who only wish to have the result of their own work, who have abandoned their narcissistic dreams of omniscience and omnipotence and have acquired the humility that is rooted in an inner strength as can only be conveyed by an authentic productive activity" (Fromm 1981, p. 459).

It is not teaching in the sense of "giving" new knowledge, but rather the consolidation of the old and the new that proves to be the didactic quintessence of the stimuli provided by constructivism. This consolidation of perspectives involves, in the first place, a change in mentality with respect to the contents of the teaching-learning processes. It involves becoming aware of the constructivity of the contents and of the planning as well as the capacity to create learning arrangements. In this regard, Erhard Meueler advocates overcoming the head waiter syndrome in adult education –"he serves what he has to serve", and is unaware of the wishes and the potential of the individuals he addresses (Meueler 1993, p. 213).

"In the classic social teaching form, the description and presentation of one's own concept of contents and the feeling of superiority provided by the scientifically validated contents leads to the unknown entity opposite the teacher not really being taken seriously. These "unknown entities", whose names are of no interest at all and who are not even asked first, have to learn what is taught and not more; if they ask questions, these should not interfere with the flow of the transmission process, let alone scratch the teacher's façade of competence" (ibid., p. 208).

Conclusion 5: Education should release itself from such simple didactic transmission illusions and develop a professionality for "teaching from the perspective of the other". The basic building blocks for such facilitation didactics are an open-minded attitude and multifaceted learning arrangements, the preferred application of learner and activity-centred methods, the conscious and systematic promotion of self-exploration competencies on the part of the learners and the reduction and vitality of the teaching inputs –which are unfortunately or meaningfully still necessary.

Accordingly, this involves two things: "the art to cease teaching" and "the art of teaching". With respect to such a shift in the learning culture, there is a whole series of open issues, from among which professionalisation would be the essential one, i.e. the question of how to succeed in making future teachers overcome the head waiter syndrome and develop professionality in facilitation didactics.

Berthold Brecht wrote the following on the "art to cease teaching":

"Me-ti said: every teacher should learn to stop teaching when the time is due. This is a difficult art. Only the fewest are in a position to allow themselves to be substituted by reality at the fitting moment. Only the fewest know when their time for teaching is up. It is undoubtedly difficult, after one has tried to save learners from making the same mistakes that one has made, to see that they are making those same mistakes again. As bad as not receiving any advice is not being allowed to give any" (Brecht 1965, p.69).

3.2 On the Didactic Justification of Actologic Methods

In the didactic discussion, there is a predominant definition of the word "method", which – based on the Greek etymology of the word – is used to describe the "way of investigation", the "representation form of something" (Benseler/Schenkel, 900, p. 526). According to this widespread perspective, "methods" are "instruments" or "means" for achieving learning objectives or transmitting contents. The objectives and contents appear to be *given* by the knowledge and the curricula; and it is quite clear that it is the teacher's task to perform the smoothest possible "transport" of knowledge, capacities and skills by applying the appropriate methods. Schools and teachers thus fulfil a "traditional" function: *They "guarantee" the transmission of ready-made stocks of knowledge and historically acquired competencies".*

In my opinion, this traditional view of the methodological problem is rooted in a triple misunderstanding, which is also partly responsible for the fact that we cannot easily imagine a different methodological or learning culture at our schools:

- In the first place, the point of view that methods are merely instruments or means to transmit tradition is based on a *mechanistic illusion*, according to which learning can function in line with the Nuremberg funnel model: knowledge is "incorporated" or "transferred" to a learner, and this is then at his or her disposal. However, learning is linked to the cognitive structures that are already present in every individual; their transformation and further devel-

opment, as well as the result of learning are, in the end effect, always a "blend" of that which is one's own and that which is not, of that which is old and that which is new. Therefore, learning is always an "acquisition" and not just a "transfer". And "acquisition" has a lot to do with the "subjective reasons for learning" (Holzkamp 1993, p. 391), whereas "transfer" places the teacher and the curriculum in the foreground. A factual result of such a mechanistic teaching-learning illusion would be –as Klaus Holzkamp states "with a certain sense of anxiety"– :

"an individual that has been so broadly 'educated at school' [who] (if it were 'feasible) would represent nothing but a mere product of that which others have devised for him as knowledge or competencies that are worthwhile having, an educational monster 'produced' by school discipline, whose 'education' is inevitably self-annulled because it is not his personal education" (Holzkamp 1993, p. 396).

- A further misunderstanding is based on the *concretistic illusion* that the contents, knowledge or other specialised contents are "in themselves" given objectively, codified in the curricula and "as such" can be cognised and transmitted in a relatively problem-free manner. In contrast, one should take a closer look in order to understand that there is no such thing as contents "in themselves": "During the process of the lesson, the contents thereof are 'created' by the actors of this process" (Klingbert 1983, p. 764). Therefore, it is realistic to assume, that the contents do not determine the methods in the first place, neither do they determine them in "general", but it is the methods that actually *constitute* the learning contents. As a result, there is an interdependence between contents and methods since: "Thinking about the 'contents as teachable' implies involving the methodological aspect" (Heimann 1983, p. 764). Ewalf Terhard writes in this regard:

  "It is primarily the security-promising element, 'the thing' itself, that rapidly becomes the real factor of uncertainty. Since, depending on the value that is assigned in general to the thing, to the learning object, to the teaching and learning matter, and based on its special significance for acquiring knowledge and the development potentials of the students and learning subjects, this results in different positions when determining the tasks, possibilities and limitations of the method, when things and students meet. For the notion of the thing is always linked to an idea of the learning subject, of the student. A given understanding of the learning object is (explicitly or not) always linked to a given understanding of the learning subject – and both in turn with the teacher and his or her methodological tasks" (Terhart 1989, p. 41).

Therefore, when teachers select and apply a method, the image they themselves have of the value assigned to the thing, and what value they will assign to the thing when addressing the students, are of fundamental importance. If they see the thing as something that is given "objectively", then they will merely reduce the method to making the thing "accessible" to the subject, i.e. they will generally "instrumentalise" the teaching methods. However, if they assume that the learners themselves can make contributions to the thing and that other important aspects should be included in the class as well, then they will systematically "provide for" methods that enable an active role of the individuals with respect to the contents during the learning process. These methods can then be viewed as ways by which the learning contents can be constituted in a lesson. Therefore, the teacher's task is not merely that of "transferring" the given knowledge in the most motivating, skilful and comprehensible manner (Krüssel 1993, p. 176); the teacher's task – expressed in constructivist terms – is rather that of selecting suitable methods for "supporting and guiding their students in the conceptual organisation of certain areas of experience" (v. Glasersfeld 1987, p. 291). The technical and specialised learning contents shall then become a "supporting medium" for developing of extra or interdisciplinary competencies. This tendency to mediatise contents can be especially observed in modern vocational education:

"Personality-related key qualifications cannot be transmitted on their own, but require a "supporting medium", i.e. specific contents and situations, with the aid of which they can be called forth. These are always real and specific action situations and, in the case of vocational training, they are part of the corresponding disciplinary, occupational and entrepreneurial context.

Such action situations can be consciously selected, prepared and developed pedagogically. They are always complex and contain multiple demands on the technical, personal and social competencies in a natural context, in which their interaction and specific application in real situations can always be experienced, without having to artificially isolate or reify them. Teachers should perform a conscious methodological exploration of these demands or learning opportunities. The respective technical and specialised contents are, evidently, also one of the levels of the learning challenges. With regard to personality related key qualifications, however, instead of being a learning objective they become a learning instrument. Neither the design of education or training programmes, nor the formulation of a general education curriculum is sufficiently met by simply enumerating the required specific technical contents" (Brater/Bauer 1990, p. 65).

Therefore, when selecting methods, one should "inquire" about their potential valences (values) with respect to facilitating learning and self-action opportunities.

- The third misunderstanding of the methodological concept linked to contents is the *illusion of retaining*, i.e. the idea that the learners would in effect retain the knowledge transmitted to them at school and during their training and that, because of this, the methods would have the function of facilitating and guaranteeing this long-lasting and sustainable learning by preparing and structuring the learning path of the learning subjects. Setting aside the issue of the amount of knowledge that was taught at school and that was effectively retained, we still have the problem that today, in view of the exponential growth of the obsolescence of knowledge, there is less and less knowledge that is "worth retaining", and that is why the model of the knowledge-retaining school is becoming increasingly obsolete, and we face the question of whether we need more intensive "skill and capacity training". In this context, we also cannot help but recognise that "retaining" and "remembering" are not merely passive learning attitudes, but presuppose an activity on the part of the learning subject or that he/she benefits from this activity (see Schmidt 1991), as is expressed in a popular (Chinese?) proverb: "What I hear I forget, what I see I remember, what I do I understand".

Dimensions of the Methodological Problem

In the face of the traditional perspective of the methodological issue, an approach should be developed – on the path from the knowledge-retention school to that of skill and capacity training – in order to avoid the above-mentioned misunderstandings. This necessitates a "reflexive" attitude which inquires about the acquisition and exploration of learning contents on behalf of the subject and supplements the methodological dimensions of the "encounter with the thing" (see Terhart 1989, p. 40 et seq.) and the "institutionalised transmission" with personal, methodological and social competencies. The point is to place the question on the valences of the methods in the foreground, i.e. to also ask what learning, exploration and co-operation opportunities are provided or excluded by certain methods. One could in fact start from the assumption of a fundamental ambivalence of learning and teaching methods and characterise them globally, as Hilbert Meyer did, as both a "straitjacket and deliverance in one" (Meyer 1988, p. 54), but in doing so, one cannot overlook the fact that, at the same time the different methods, under that global characterisation, have very different connections to features such as "teacher guidance", "learner self-action", "cognitive learning", "action learning", etc.

Figure 6
DIMENSIONS OF THE METHODOLOGICAL PROBLEM

Reflexive view	Method	Traditional view
Personal and methodological competence		Encounter with the thing
Social competence		Institutionalised transmission

Figure 7
THE METHODOLOGY TABLEAU

Table of methodological valences and functional criteria for selecting live teaching methods

Stage / Level	I. Introduction	II. Development	III. Presentation	IV. Closure
A. Topic	Opening Lead-in (Pre)structuring	Task-setting Arranging information Presenting information	Presenting results Structuring and visualisation Discussion, correction	Assuring results Feedback Transfer
B. Person	Motivation (?) Warm-up Clarifying expectations Concentration and participation	Acquisition of working, learning or self-exploration methods Self-activity Learning how to learn	Self-confidence Identification with the result and the process	Insight into the development status of one's own methodological competence
C. Group	Clarifying rules of procedure (division of work) Communication, breaking the ice in the group, getting to know each other	Promoting co-operative division of work Social learning (communication capacity) Conflict management	Describing, presenting, and arranging results of group work Forms of discussion and decision	Feedback on group development and cooperation Meta-communication

Arguments in Favour of Increased Self-organisation in Educational Policy

In order to design and develop the learning cultures of the future, we should "copy" nature's tricks and operating mechanisms (see Arnold 1993). It has been impressively demonstrated again and again that isolated interventions in complex systems, which fail to take into account their interconnections and inherent dynamics, or in short, that overlook their live nature, very often lead to counterproductive effects. This is also applicable to educational policy: Detailed and elaborate curricula and guidelines do not necessarily promote classroom activity, they also restrict self-organisation and stifle one's "own capacities". In dealing with complex natural and social systems, we had to learn to be humble and recognise that even the best reform or regulation intentions can lead to negative consequences. Live systems are to a certain extent autonomous, i.e. they are self-regulated. This can also be applied to the school system and the educational/pedagogical interaction systems. That is why in educational policy, we first and foremost need a deregulation offensive if we really want to have live learning. What else can a reform-oriented educational policy and teacher training do but strengthen the self-organisation capacities of all those involved and promote their confidence in their own capacities?

An educational policy that strives to create the conditions and structures for live learning can only be credible and plausible if it also follows the logical principles of self-organisation itself. To this effect, it is useful to follow the concepts of modern management theories that have long cast aside the illusion that complex systems (businesses, organisations) can be centrally managed and developed. Systems development management theory has already started to understand that live organisations that are capable of development require a different kind of leadership philosophy: it is essential to work with the strengths of the system themselves, to promote their dynamics and encourage the participants' confidence in their own capacities. At the same time, the fact that leadership is more than "occupying" a hierarchical position is also starting to be taken into account in practice. Leadership involves the development of teams, the implementation of visions and conceptions as well as securing the acceptance, commitment and confidence (see Götz 1994). Is it totally absurd to consider whether the following regulation, which has already been implemented in some companies, couldn't also "catch on" for the occupation of hierarchical positions in the education system? Leading positions are appointed "from above"; however, it is the faculty members who decide –after two or three years– whether that person remains *permanently* in that position, and that is where the issue of confidence and acceptance is decisive, i.e. whether the executive personnel are viewed as being capable or not, of having the drive to promote and develop the co-operation and learning culture. For, in the end, what can con-

tinue to motivate a person in a top position when he or she (no longer) receives acceptance or confidence?

In this century, there have already been numerous arguments in favour of a different learning culture, of more live and sustainable forms of teaching and learning –although with little success, at least that is the impression one has when observing the current teaching and learning practice at our schools. In the meantime, even the press has taken up the subject: on 24 January, 1994, Focus magazine proclaimed "School – never again!" on its cover page, and a few months later, "*Der Spiegel*" also dedicated its cover story to the subject. Here is just a sampling:

"The German school system is trapped in a crisis: An increasingly violent atmosphere, heated up by right-wing extremist slogans and growing xenophobia, has rendered the inherited educational methods obsolete (…). Parents blame public education institutions for the fact that their classes only reflect the widespread confusion of a society that has become unsafe due to unemployment and the crisis of sense, instead of developing the talents of their offspring. (…) School education has long since lost pace with the rapid growth of knowledge. (…) In the future, those who were drilled to receive orders will find it more difficult to find their way in the highly-mechanised and complicated society than the children who have learned to make decisions. In 1979, the Club of Rome, the international association of scientists, had already called for an "intellectual revolution" in order to master the future, and reproached the schools for "squandering the potential of human learning". (…) Individual competitors obsessed with their speciality areas and top-of-the-class students are not in demand, but rather versatile team members. (…) However, the outmoded teacher training system in the Federal Republic [of Germany] produces mostly specialised scientists, and students are not trained to become educators". The following was published in *Der Spiegel (Fit für die Zukunft*,[4] 1994, p. 41 et seq.).

Is it radical to end up thinking that, in view of this situation, things can no longer continue to be the way they have been so far, and that the changes that are awaiting are considerably more far-reaching than the often mere cosmetic corrections of the past? And is it presumptuous to ask whether the gigantic efforts of the guidelines, planning and controls that "regulate" learning at our schools are really worthwhile, particularly when they are accompanied by the fact that we can only imagine school as an "administration office", as a state-regulated space? If one examines the lasting effect of the school learning processes, devas-

4 Translator's note: *Focus* and *Der Spiegel* are two of the most relevant weekly magazines in Germany. The title of the article in *Der Spiegel* is "Fit for the Future" *(Fit für die Zukunft)*.

tating results emerge, often based on the example of one's personal learning biography. Years of endless hours a week of encyclopaedic Greek lessons are reduced to remembering the meaning of a sentence, and those who could still recite parables at the final secondary school examination, find it difficult in adulthood to explain the difference between algebra and arithmetic.

Why is it –one dares to ask at this stage– that, encouraged by public dissatisfaction with school, we waste the lifetime of the younger generations in a gigantic ritual, in which we introduce them to the extravagance of an overabundance of technical data, knitting further on the myths that everything that is taught is also learnt, and that everything that is learnt is also retained? Our schools still attempt, in many cases, to continue as "knowledge-retaining schools", although we have long since left behind the times in which it was possible to transmit and "retain" stocks of knowledge. *We do not need any knowledge-retaining schools, but rather skill and capacity training*; this idea is not new in fact, but it is up-to-date as never before. Skill and capacity training inescapably presupposes practising capacities, and therefore self-action. A "self-action school" (see Gaudig 1969) is a school that promotes discovery and experience. In such a school, teaching is no longer in the foreground and learning has taken its place. Its primary objective is not the transmission of knowledge that has to be retained, but strengthening of the discovery and exploration capacities in the learning individual. It is necessary to "re-think schools", as Hartmut von Hentig claims. According to him, this involves "allowing life to enter in", because "school is a vital area – together with the vital areas of family and home, and street and neighbourhood, and nature" (v. Hentig 1993, p. 205).

With this new conception of school as a school of life, or to be more precise, as a school of experience, the traditional –and now in fact diluted– ideas on education clearly begin to falter. With this faltering and collapse of the fossilised structures, the real foundations of European educational thinking, which had been buried for a long time by the ideologies of a material education, now become visible again, and one recognises with astonishment that a self-action school can be erected on exactly those same foundations. In a self-action school, the spirit of "modern Faustus-like self-liberation" (v. Hentig) can be transmitted. In it, the discovery and exploration capacities of the learning individual can be stimulated and strengthened, and the members of the teaching staff can themselves develop their own capacities, and release themselves from the "accomplished task mentality" (Rumpf) of lesson-based school education, by freeing themselves, among other things, from the pressure of having to teach continuously, and by experiencing themselves how productive self-organisation can be. In this regard, Carl Rogers refers to the teacher as the "facilitator", the facilitator of the learning process, and states with inimitable clarity:

"The way I see things, too many people have been instructed, guided and directed. I therefore arrive at the conclusion that, in effect, I mean what I say. To me, teaching is quite an unimportant and to a great extent overvalued activity (…). As soon as we concentrate on teaching, the following question arises: What should we teach? Viewed from our lofty standpoint –what should the other person know? In this modern world, I ask myself whether the bold assumption is justified that we, the elders, know about the future, whereas youth has no idea. Are we really so sure about what they should know? Then we have the absurd question of the subject matter. What all should be offered in a course? This concept of the volume of subject matter is based on the assumption, that that which is taught can also be learnt, and that that which is explained, can also be processed".

Carl Rogers reaches a result which I share: "I am unaware of an assumption which is so evidently false as that" (Rogers 1979a, p. 104).

Live learning processes involve much more than merely "the thing", i.e. than the technical knowledge, curricular contents or learning objects. In fact, they simultaneously involve the promotion of social competencies and – personal – methodological competencies, and there is much in favour of the fact that these two extradisciplinary competence levels should constitute the real lasting elements of school learning. Whereas technical and specialised knowledge changes more and more rapidly and –if it is not applied immediately and continuously– starts to fade and is forgotten, social and methodological competencies are reflexive and self-sharpening competencies. With these competencies, people can adjust to change and meet new demands. This is the outline of a new general education model that expects teachers and schools to release themselves from the contents and subject-focused approach. We need schools where people learn to be versatile and remain open to change. And methodological and social competencies are more enduring than the possession of technical, specialised knowledge that rapidly becomes obsolete.

In practical terms, this means that learning processes have to be developed in such a way that makes it clear that learning involves an object, the learner, and a group where learning jointly takes place. These three levels should be constantly kept in mind, since learning invariably takes place at the level of contents and processes, but also at the level of rules of procedure, where students clarify the procedures and reflect on the norms and values that favour or hinder learning. Thus, with this type of reflexive learning, not only the "product", the result of the action, is brought up and discussed, but also the path for finding the solution.

"Many things have to be changed so everything can remain as it was" – that is how the quintessence of my didactic considerations on educational policies could be summarised. What is needed is a different learning culture, and such a culture can only thrive on the basis of a realistic vision of what is relevant. "Realistic" is a vision that reflects on the falsifications that are originated in one's own interest. "What would teachers do if general education shattered?" – asks Johannes Beck in his book "*Der Bildungswahn*"[5] They, too, are interested in what they call foolishness, disability, educational deficit or need for promotion" (Beck 1994, p. 17). This is also applicable to students' live learning and self-action: what interest could a teachers have, after having invested many years of their lives in perfecting and profiling their competencies, in students acquiring learning contents without their help? Is it not understandable that teachers also cling, following the mechanism of dissonance reduction, to their familiar, proven and tested interpretation patterns, which probably accounts for the fact that in many faculties the set phrase "yes, but" is one the most commonly used expressions?

This scepticism is understandable, but not justifiable. For, where could a change in our learning culture be originated, if not at school? Who are the "born" agents of such a change, if not the teachers? The German Education Council had already demanded this in its structural plan:

"Education institutions should (…) possess the capacity to adjust themselves to the needs that arise from the changes in society" (…) The education system cannot rigidly determine the teaching objects, teaching methodologies and learning procedures. In fact, what is important is that the space should be created for learning procedures that can be modified, teaching methods that can be further developed and learning objects that can change" (*Deutscher Bildungsrat*, 1972, p. 39).

The German Education Council began this plan with a task description for teachers, which apart from "teaching", "educating", "assessing" and "counselling", included "innovating" as a fifth function:

"It is part (…) of the responsibility of teachers to critically receive and process all the methodological, didactic and curricular approaches that come within their reach. Innovations have become a special aspect of their profession. (…) With this set task, they become the first and major agents of the progressive school and education reform" (ibid., p. 220).

Those who are in charge of innovating must have also had, as part of their education, systematic encouragement to go their own ways. Those who have the

5 Translator's note: "The Educational Delusion"

task of innovating cannot have been socialised in an atmosphere of fear of failure. If we are demanding innovation and the courage to implement live teaching from our teachers, then we also have to start to profoundly reflect on the type and purpose of the demonstration lessons and evaluations.

From Action Under Pressure to Practising Confidence in One's Own Capacities

To conclude, I will *not* approach the most exciting and important question, namely whether the graded demonstration lessons are not –in the sense of live learning– contradictory in themselves –and much speaks in favour of this– *neither* shall I discuss the important issue regarding to what extent teacher training itself does not have to be designed as a live system, if teachers are to be qualified in innovative didactic action (see Arnold 1992a). Instead I shall restrict myself to the question: *How can the lesson be evaluated in live learning processes?*, because it seems to me that evaluation is the pivotal point around which it is finally decided whether something new can emerge or not.

Whereas the current evaluation criteria generally focus too much on the person or "personality" of the teacher and the teaching object, in my opinion it would be relevant to evaluate the teacher's performance against the background of the outlined requirements of live learning didactics (learn mapping, learning loops, student's methodologies) –e.g. with the aid of the grid in Figure 8– to determine whether and to what extent the teacher was successful in:

- facilitating access to contents,
- promoting social learning, and
- strengthening students' methodological competencies.

At the same time it becomes quite clear that this kind of attitude on the part of the teacher is nothing else than the capacity to productively lead complex teaching-learning systems by means of motivation. The basis of this systemic capacity (= capacity to productively handle self-guided systems) is –as stated– a professional serenity, that cannot be developed in an atmosphere of fear of failure, intimidation and humiliation.

Teachers who wish to innovate and change the learning culture at our schools need to have joy, commitment and calmness, if they are to motivate self-action in people in a live manner. Surely this kind of serene pedagogue –to express this with an image from Ed Nevis which I frequently use– has much more in common with Detective Columbo than Sherlock Holmes:

Figure 8
ASSESSMENT GRID FOR DIDACTIC ACTION IN ADULT EDUCATION
(Arnold/Schüßler 1998, p. 217)

Evaluation Grid for Didactic Action

Teacher's attitude

	1	2	3	4
Facilitating access to contents				
(1) Generates transparency on what is to "come"				
(2) Where possible and meaningful, "tackles" the students' methodologies				
(3) Links the classroom plan with issues that are topical and taken from life				
(4) (Helps) subdivide into approachable units				
(5) Links to already existing contents (knowledge, experiences)				
Promoting social learning				
(6) Allows processing of tasks				
(7) Clarifies the group's rules of procedure				
(8) Provides assistance without dominating				
(9) Prioritises interruptions				
(10) Discusses (reflects on) the task-solving process				
Strengthening methodological competence				
(11) Allows space for self-exploration				
(12) (Allows) self-exploration methods to be utilised				
(13) Encourages documentation of the processes that were developed (freely configurable media)				

Note:
For the purpose of the evaluation, please apply the following definitions of the ratings as a reference:
1 means: "This feature is not positively expressed"
2 means: "This feature is starting to be positively expressed"
3 means: "This feature is positively expressed"
4 means: "This feature is very positively expressed"

"Quite unlike Sherlock Holmes, who is well-organised, precise, knowing, superior in his perceptions and in his rational argumentation, Columbo is (apparently, R.A.) naïve, clumsy, slow (…). He seems to have no precise points to clarify, nor does he seem to know what step to take next. When moving around the scene of the crime, it seems as if he does not know where he will put his foot next. Whereas we hardly ever see Holmes make a false move (…), Columbo appears to flutter around like a moth. We could say that Columbo acts like a sponge, in the sense that he dives into his milieu and waits for relevant clues that are brought to him like the pieces of metal drawn to a magnet. On the other hand, Holmes is more like a well-trained hound that attacks its environment; he never stays still, until he has put together the different pieces of the puzzle" (Nevis 1983, p. 361).

3.3 Multimedia-based Learning in Adult Education

with **Markus Lermen**

Over the past thirty years, the demands on education that is suited to adults have changed radically (see Arnold/Lermen, in print). The issues are those of a *continuing education society* (see Arnold/Gieseke 1999) and *lifelong learning* (see Dohmen 1998). The lack of qualified *continuing* education staff, rising costs and high organisational expenses are the major difficulties that traditional further training and continuing education have to face. The options offered by the *new media* have been increasingly propagated in recent years as the carriers of hope for a "new" form of adult education. These new information and communication technologies have already penetrated across all spheres of life and it is to be expected that they will open up new opportunities for learning, by offering a potential for new forms of further training and continuing education. Multimedia-based and e-learning[6] offers are gaining increased relevance and almost seem to have become the remedy per se, particularly in the field of education.

The following considerations examine the question of whether such offers are automatically appropriate for learning suited to adults, and what advantages these new media ultimately offer.

6 E-learning can be defined "as an umbrella term for all the internet-based variations of teaching and learning offers" (Kerres 2001, p. 14), i.e. learning in *virtual information and communication networks.*

The Term "Multimedia"

There is no standard definition of the term *multimedia*, although the most diverse of meanings and concepts have been applied to the term. This article is based on the interpretation that multimedia-based applications and the *new media* are characterised by integrating different storage media as well as different character and sign systems and by including the aspect of interconnectedness (see Fischer/Mandl 2000). These media are network based in the sense that, on one hand, they can use the internal network *(intranet)* of organisations or enterprises, or the worldwide Internet for disseminating data. On the other hand, however, network-based means that the new electronic media open up the option of interrelating information and thus the networking not only of technical systems but also contents.

A new dimension emerges through the option of integrating communicative functions with the aid of *interactive media*, and thus supplementing the contents with a social context. The development and dissemination of network technologies enable new forms of co-operation between learners and teachers on one side, and between learners and their peers on the other – which was something unthinkable in traditional further training and continuing education (ibid.).

Scenarios for Multimedia-based Applications

Over the course of time, different scenarios have emerged for utilising the new media within the scope of educational programmes, which can be classified according to the degree of virtualisation. In the following, two models will be presented that achieve this differentiation, in each case according to the different dimensions: one categorisation regarding the different applications of media-based forms to different classroom modalities at universities, in the context of e-learning, as developed by Bremer (2002) and based on Bachmann et al. (2002), as well as Lehmann's (2002) strategy-centred model.

According to Bremer (2002) three scenarios can be distinguished for the use of media-based applications in regards to the classroom modality. At the first level, media can be deployed to assist (traditional) presence teaching (enrichment concept), in which multimedia-based applications are presented during the class or are offered for pre-preparation or later processing. In this model, new media are used as media for distribution or visualisation, as well as for self-learning preparation or later processing modules. At the second level, multimedia components are used to supplement presence teaching (integrative concept). In this case, there is an increased use of the network-based communication op-

tions. This involves applying hybrid courses, which combine presence teaching and online phases. At the third level, the multimedia-based offers substitute presence teaching (virtualisation concept). In this case, traditional classes are fully substituted by pure e-learning offers (e.g. by virtual seminars), which nevertheless should be reinforced with presence phases (usually at the beginning and at the end).

On the other hand, Lehmann (2002) distinguishes between four optimal modes that describe the ideal application of the new educational media within the framework of strategy development for universities or other adult education institutions.

Figure 9
DEVELOPMENT OPTIONS (see Lehmann 2002, p. 231, modified)

Additive Mode	Mixed Mode	Partial Virtualisation Mode	Full Virtualisation Mode
Start-up	Strategically relevant experimentation field	Virtual careers	Virtual education institutions
Expansion of interaction opportunities Digital distribution Supplementary offer of virtual contact modalities	Virtualisation of some classroom modalities, partial components or courses, and preserving presence teaching elements at the same time	Virtualisation of some or several *careers* without an alternative presence teaching offer	Fully-developed virtual education institutions All the functions of an institution are displayed on the network; the campus is "dissolved".

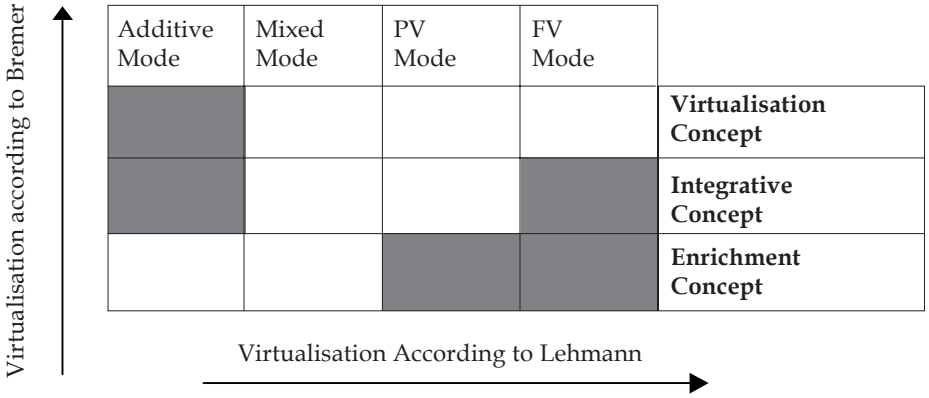
The additive mode corresponds to a *digital declaration of intention*, an "initial approximation to the information era" (Lehmann 2002, p. 232). In the first place, a simplification of the administration is achieved (e.g. in the form of newer, simpler distribution possibilities), as well as an expansion of the opportunities for interaction (e.g. student consultation via e-mail). The mixed-mode describes a model that extends the existing forms of teaching and learning, where virtual online components are combined with traditional presence components. The

important thing is participating in the technological change in the learning culture, rounding up contents and improving quality (e.g. through tutorials). The partial virtualisation mode is mainly directed at user groups who, for different reasons, cannot or do not wish to attend traditional educational institutions. To this effect, individual or multiple courses of studies are exclusively offered online. This contributes to decreasing the required space, and the use of existing decentralised facilities can be optimised through co-operative association. The fully virtualised mode –viewed in perspective– can serve as a networking agent for the mixed-mode components. This includes not only the implementation of virtual teaching programmes, but also the "transformation of all the administrative functions" (Lehmann 2002, p. 231).

This can also facilitate resource-sharing (e.g. with other education institutions).

The comparison of both models clearly illustrates the opportunities for using multimedia-based teaching and learning programmes from a strategic-didactic perspective (see Figure 10):

Figure 10
STRATEGIC-DIDACTIC OPTIONS OF MULTIMEDIA-BASED TEACHING PROGRAMMES

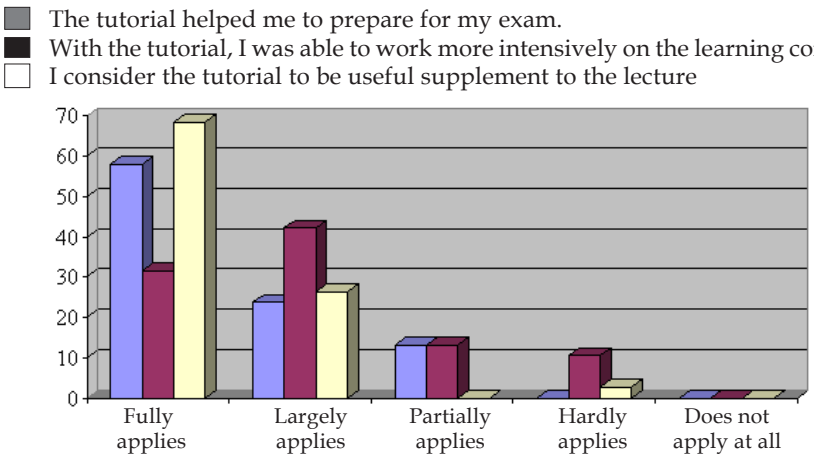


The "*Pädagogik Online*" ("Education Online") project at the University of Kaiserslautern (seeFig. 11) is currently implementing a selection of modes.

Figure 11
RESULTS OF THE QUESTIONNAIRE STUDY
(Data in Percentages)

The "Pädagogik Online" Project

The "Pädagogik Online" project began in April 2002 at the Department of Education at the University of Kaiserslautern. The objective of this project, funded by the Ministry of Science, Further Education, Research and Culture of the German Federal State of Rhineland-Palatinate, is to analyse the basic educational science courses for the teaching professions, in order to determine to what extent the proposed objectives can also be achieved through multimedia and web based classes. The project is embedded in the general context of the VCRP*, which is the central educational gateway for students and teachers at the universities of Rhineland-Palatinate. The VCRP concept consists in "bringing together", at the federal state level, the multiplicity of programmes pertaining to educational courses of study that are currently already available on the Internet, to make them accessible and use them systematically.



An initial implementation of an online course took place in the summer semester of 2002 in the form of a tutorial that supported and complemented the lecture on *Guidance and Intervention in Pedagogical Processes* ("Educational Theory") that was being given in parallel by Prof. Dr. Rolf Arnold. Two-thirds of the students who attended the lecture participated in the tutorial, with an evidently strong variation in the individual participation in terms of the number of times the network was accessed (from one to 100 times). The overall feedback obtained from the participants was very positive**, as is shown in the graph.

* Virtueller Campus Rheinland-Pfalz (Virtual Campus of Rhineland-Palatinate) (URL: http://www.vcrp.de/)

** Complete information on the evaluation, with the detailed analyses, are available on website of the department's website: (URL: www.uni-kl.de/paedagogik)

Practical Experiences

In the course of the experiences in recent years with the use of multimedia in teaching, arguments are increasingly raised in favour of *blended learning* (see Sauter/Sauter 2002). *Blended learning*, which is derived from the English term *to blend* (= mixture), refers to the combination of network-based learning forms with traditional learning methods or presence teaching. Different learning and social forms are combined with different media, which result in a media portfolio that is adapted to the corresponding target group, in order to take advantage of the benefits of network-based and traditional learning forms and create synergetic effects (ibid.); this corresponds to Bremer's *integrative concept*.

In our opinion there are four points that are especially relevant for the application of multimedia-based offers:

- the need for learning counselling (see Pätzold 2001);
- the need for forms of social interaction (see Döring 1999);
- gradual extension of media-based competence as the fourth cultural technique (see Baacke 1999);
- modification of the role of the teacher (see Arnold/Schüßler 1998).

Experiences with the Application of the New Media

The new media offer, by virtue of their possibilities, a multiplicity of potential opportunities for the application of multimedia and telecommunications-based learning. However, research has not been able to demonstrate a greater effectiveness of these applications compared to traditional offers. Particularly in the United States, a great number of comparative studies have been conducted between online learning and presence teaching, mainly at the university level. In general, no significant differences were observed in the effectiveness, or only few advantages in favour of on-line learning ("*No Significant Difference Phenomenon*", Saba 2000[7]). The results of the research that has been conducted so far on hypermedia systems are rather disappointing, and can often be ascribed to insufficient competence in handling the new media (see Dillon/Gabbard 1998; Tergan 2002). In this context, Kerres (2001) relativises the arguments that are often brought up in the discussion on the advantages of the new media. Accordingly, there is no clear empirical evidence that the application of new media may lead directly to an increase in learning motivation, learning success or the effectiveness of educational offers (see Kerres/Petschenka 2002).

7 Also see: http//teleeducation.nb.ca/nosignificantdifference

As a conclusion to these research studies, it can be stated that the potential of the new media continues to depend, far more than has been often assumed, on the didactic design of the learning environment. This has also been demonstrated by the results of an extensive Australian study[8], according to which good quality in teaching with the new media is based on the same success criteria of traditional teaching forms, namely on the didactic capacities of the educators (Alexander/McKenzie 1998, quoted by Bremer 2002).

One of the problematic points of deploying new media is that many of the multimedia-based programmes are a reproduction of traditional teaching or learning methods. Using multimedia tools, they recreate textbook learning or the lesson that has been determined by the teacher. Learning media for learning geared towards adults should, however, be designed in a radically different manner. A basic potential of the new media lies in the option of "a *different* kind of learning" (Kerres/Petschenka 2002, p. 241); the mere media-based replication of traditional learning processes is not enough.[9]

Thesis: Multimedia-based learning does not have –or barely has– "inherent" didactic problems, but rather genuine problems related to adult didactics.

It can also be observed, that these five principles of an active, self-guided, constructive, situational and social process can be implemented (or not) both in traditional settings and in multimedia-based settings. However, learning as a social process is easier to achieve in traditional learning environments than with the new media[10]. The didactic advantages of the implementation of the new media are not provided merely by the possibilities of using a multimedia-based application. Two and three-dimensional graphs, colour images, audio and video sequences, etc., can also be applied with the "old" media. Individualisation, interaction and other opportunities for self-guided learning can also be implemented in traditional settings.

The time and location-independent possibilities for use are often mentioned as an essential advantage of the utilisation of the new media, as compared to the traditional (presence) teaching modalities. However, this also principally occurs

8 The study "An Evaluation of Information Technology Projects in University Learning" researched over 100 projects that had implemented the new media in teaching.

9 There is a justified and repeated reference to the "didactic deficit" in the planning and implementation of e-learning. However, this applies to both multimedia-based and presence teaching programmes. The new media-based learning offers are often assessed with standards that are tacitly overlooked in the traditional teaching forms (e.g. learning effectiveness, efficiency …).

10 Regarding the difficulties of CMC (Computer Mediated Communication), see Döring (1999).

in a typical distance-learning or correspondence course situation with "traditional" media, although it is not as fast or comfortable.

If the new media are added cumulatively to the existing structures, then it is feared that the already existing structures (e.g. information infrastructure) will continue to receive the greatest attention. However, what is needed is a sustainable "change in the learning cultures" (see Arnold/Schüßler 1998): it is only through a new learning culture that the implementation of multimedia-based offers can lead to a positive balance.

At the same time, an excessively strong influence of traditions should be avoided. The fact that certain teaching tasks are very closely linked to certain classroom management forms (e.g. introductory lecture) can easily lead to the fact that, when evaluating alternatives, the analysis is less focused on whether they meet the teaching objectives, and more on whether they are as productive in this context as compared to the usual traditional teaching forms.

Consequently, based on the theoretical considerations and on the experience we obtained from our "Pädagogik Online" project, the following points can be determined as inherent to the new media:

- greater convenience
- better standardisation options
- ease of reproducibility, and
- activation potential.

The fundamental advantage of new media lies in the greater convenience offered by this integration. This alone does not result in a didactic advantage, however, only in a more convenient and faster possibility of use. The better standardisation options enable the cross-institutional use of learning contents, in the sense of co-operation between different education institutions. The simpler reproducibility especially facilitates the updating and "maintenance" efforts of the learning contents – although only in a long-term perspective. Finally, the activation potential provides the opportunity to reach new user groups.

Regarding the implementation, it should be guaranteed that the new media are applied using *pedagogical* (educational science) models. This is the only way to contribute to the improvement of the learning culture. An advantage of implementing multimedia-based learning offers lies in the possibility of separating cognitive acquisition and practical exercises: if the theoretical basis is prepared with an online course, then the teachers will be able to concentrate more on application-based education during the presence teaching phase.

Although the "Pädagogik Online" project takes place in a university context (the same as many of the above-mentioned projects and research studies), general conclusions can still be drawn for the adult education debate. The advantage of the university lies in the fact that research can be integrated into the teaching and courses, and thus students can actively participate in the research study. We hope to obtain useful knowledge from the next project phase, in order to improve multimedia-based offers. The initial results of the current courses show, for example, that there are difficulties and shortcomings in the area of media competence, although there is a high willingness on behalf of the students to develop this area of competence.

3.4. Learning Differently in Adult Education

Learning in preparation for a profession has always been linked –both in vocational training and at university– with more than "just" transmitting specialised knowledge and skills (specialised competencies). Beyond the development of a comprehensive occupational action competence, it was always necessary to also develop, at least basically, learning and working techniques (methodological competence) as well as the capacity for team work and communication (social and leadership competence). However, whereas in the past the triad of specialised competence, methodological competence, and social and leadership competence were clearly dominated by the weight of technical competence, this situation is increasingly starting to change in vocational training: "Even more important than the command of the corresponding specialised contents", as is stated in a report for the"Future Educational policy – Education 2000" inquiry commission of the German Education Council, "is what is personally learnt and experienced with these contents and when dealing with them, in terms of basic interdisciplinary qualifications and internal attitude" (Bojanowski et. at 1991).

In order to develop comprehensive occupational action-based competencies to meet the new demands of the co-workers' methodological as well as social and leadership capacities, the universities should also provide their students with opportunities to develop these comprehensive and extradisciplinary capacities. To this effect, it is necessary to undertake curricular changes that overcome the narrow disciplinary orientation of university education. A recommendation made by the *Verband der Deutschen Ingenieure* (German Society of Civil Engineers) (in July 1990) to integrate interdisciplinary contents to the curriculum of civil engineering states the following: "The curriculum of the majority of the technical universities is currently too intensely focused on specialised work, while the interdisciplinary integration of aspects of humanities, arts and social sciences into technical problem-solving has not taken place". However, in order to de-

velop methodological competencies and the capacity for teamwork and communication in addition to the required technical skills and specialised knowledge, it is not enough to just integrate interdisciplinary contents into university education. It is rather the university learning culture that has to be changed. It is necessary to put an end to externally-organised learning and give greater consideration to forms of self-organised learning. This need is becoming increasingly evident at all levels of our education system as an essential didactic necessity.

For this reason, teachers at schools as well as at vocational training institutions and universities should "rethink" the situation, as was expressed some time ago by the head of the Human Resources department at the Wolfsburg (Germany) based Volkswagen Group when interviewed by *Der Spiegel*: "They (the teachers, R.A.) are used to having the students dancing like puppets on a string. We should painstakingly teach young people to learn that a group can also function without a supervisor. This is the only way to do away with the obstacle of hierarchies in enterprises. Then, suddenly, people realise that learning and work can be great fun" (in: *Der Spiegel* 23/1992, p. 53).

How can interdisciplinary qualifications be developed? Technical, specialised, methodological, social and leadership competencies cannot be isolated from one another. A crash course for developing key qualifications is as absurd as a one-week course to develop teamwork capacities. What is needed is rather an integral development of the three aspects of a comprehensive occupational action competence, i.e. of technical/specialised, methodological, social and leadership competencies. To this effect, apart from the learning contents, the form of the didactic arrangements becomes a priority as well. Profession and job oriented training can no longer be solely determined on the basis of the technical or specialised contents, knowledge and capacities. Vocational guidance is replaced by the process orientation, i.e. the educational path is at the same time the educational objective. In order to achieve this, a wider perspective is required on the part of the teachers in the didactic planning of their technical and specialised subjects. They cannot continue restricting themselves merely to the preparation and transmission of technical and specialised contents; they have to dedicate themselves with much more intensity to the question of whether the selected didactic design facilitates or hinders self-organised learning and search activities, in order to attain a comprehensive development of technical, methodological, social and leadership competencies.

In this context, the hidden curriculum of frontal-teaching should be overcome. Teachers do not face the issue whether they only have to transmit technical/specialised competencies or technical/specialised competencies plus methodological, social and leadership competencies. Taking up a famous quote by

Paul Watzlawik, one could state that: One cannot not train in key qualifications! In other words, teachers who exclusively apply frontal teaching methodologies and only transmit technical and specialised contents should become aware of which "key qualifications" they are really –unintentionally– developing when they only apply frontal teaching methodologies and transmit technical/ specialised contents. Frontal teaching promotes "guard rail" thinking and action, i.e. it constrains learners' methodological and social action to function within predetermined lanes; teaching in this sense can become an obstacle to learning. Teaching that is almost exclusively centred on technical and specialised contents and frontal teaching methodologies hinders, in the truest meaning of the word, the development of integral occupational action competencies in terms of comprehensive qualifications consisting of technical, specialised, methodological, social and leadership competencies. In order to be able to develop the students' methodological capacities as well as the social and leadership competencies, it is essential to include live and action-oriented learning methodologies in addition to the technical/specialised knowledge and skills. In order to be able to develop key qualifications, the resolute step should be taken to cast aside the "dead" learning culture of frontal teaching and transmission of technical/specialised contents, which does not allow the learner to have any other role than that of an attentive listener. The dead learning culture of frontal teaching and transmission of technical contents should be replaced by a live learning culture of self-organised learning. In order to achieve this, the expansion of the methodological monostructure of university teaching becomes an imperative pre-requisite. In other words, the spectrum of university learning and teaching methods has to be expanded so that, along with technical and specialised competence, a methodological and social as well as leadership competence can emerge. If one compares the methodologies of transmitted learning with those of action-oriented or experience-oriented learning, it can be observed that only action-oriented methodologies can guarantee the integration of the three necessary dimensions of occupational action competencies. For example – just to mention some of the live learning forms – it is only when learning takes place in the form of projects or planned games as well as through the application of the guiding text methods or guiding question oriented individual or teamwork, that competencies can be developed, which reach beyond mere technical/specialised knowledge and competencies.

To guarantee the necessary expanded qualification for occupationally-oriented training at universities, it is necessary as well to promote a greater live learning culture at universities. A situation that has to be overcome is that which Steven Muller, President of the Johns Hopkins University at Baltimore –with regard to German universities– recently described with the following words: "Students at university (…) are instructed rather than taught. University educa-

tion is primarily based on the passive listening of too many participants in overcrowded and stuffy lecture rooms. An end to this frustrating and daunting experience is not foreseeable" (*Die Zeit*, 10th July, 1992, p. 33).

To implement live learning at university, the general university learning framework also has to be improved. At the same time, however, some of the inherent assumptions of those involved must be reviewed. These assumptions involve on one hand the institution's image of the learners as human beings, and on the other, the teacher's concept of effective learning and of his or her own role as teacher. Among other things, the questionable hypothesis that the mere fact of presenting information automatically leads to learning should be overcome. The intensification of this hypothesis, namely that the presentation of yet more information leads to even more learning, should certainly also be overcome. The concept of live learning, however, assumes that relevant learning always involves a change in the learner as a person and true learning is often exemplary learning. Learners have to be entrusted with the responsibility for their learning process; it needs to be recognised that they –as do all human beings– possess a natural learning potential, which can be promoted and fully developed through a better educational organisation. This humanistic psychological hypothesis substitutes to a certain extent the negative anthropology of externally organised learning, which considered learners as objects that can be manipulated and not as persons, and among other things, led to the interpretation that examinations are a suitable means to find out what occupational (vocational) qualifications students have acquired. Compared with this, it should be assumed that learning that is based on personal initiative is the most effective form of learning and therefore, that which has the most lasting learning effect. Lasting and significant learning therefore takes place –as we know from teaching-learning research– when the learning contents have been perceived by the learner as relevant to their personal objectives. Accordingly, university teaching and learning should also ensure that the learning contents can be perceived by the learners as relevant to their personal objectives. This is not only a question of selecting and exemplifying contents, but also a question of stronger action-oriented didactic arrangements.

However, in order to implement live learning at universities, the role of the educators should be changed. Previously, educators were instructors who structured their teachings, among other things, according to the principles of demonstrating and imitating or spoon-feeding. Nowadays educators assume the role of counsellors, who provide the students with tasks ("job assignments") and motivate them to think and work on these assignments on their own account. Previously, educators used to supply practically all the information and then guide the learners step by step, whereas nowadays they let students obtain much of the

Figure 12
FROM DEAD TO LIVE LEARNING (according to C. Rogers)

Dead Learning		Live learning
The mere presentation of information by the teacher automatically leads to learning.	⟺	Relevant learning always includes the transformation of the individual. Real learning is often exemplary learning.
Learners cannot be entrusted with the responsibility of their own learning process.	⟺	Learners possess –as all human beings do– a natural potential for learning that can be promoted and fully developed through a better educational organisation.
Learners are best considered objects that can be manipulated and not as persons.	⟺	Learning that is based on personal initiative, with the involvement of the person as a whole –feelings as well as intellect– is the most effective, and consequently, the one with the most lasting learning effect.
Examinations are a suitable means to find out what occupational (vocational) qualifications have been acquired by the learners.	⟺	Lasting and significant learning takes place when learners perceive the learning contents as relevant to their personal objectives.

necessary information on their own, they step back and observe the learning process, they are available for queries and wait to see if and when they should actually intervene. Previously, educators assisted the learners in reaching the correct solution. Today they accept personal experiences and solutions, and try to let learners, through their questions, find the correct way on their own (see Brater et. al 1988).