

The principle of Action-Oriented Learning

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1. Concepts of professional core skills – Action-oriented learning

Globalisation and international interdependence of production and commerce increasingly require the capability of applying acquired abilities and skills on new situations in professional life. Acquired professional knowledge expires faster and faster due to the technological change producing new production methods in shorter and shorter cycles. The integration of international markets is forcing structural reforms, exposing professional profiles to ever-increasing changes. In Germany, the concept of professional core skills has a longstanding tradition.

Up until the 1950s and 1960s mono-professional training was dominated by highly specialised, sometimes even repetitive and externally organised work. At the end of the 60s and beginning of the 70s the character of professional requirements underwent a change toward wider qualification and hence into the direction of concepts favouring basic vocational education with subsequent specialisation. One strove for individual flexibility that allowed coping with unattached partial processes, which were in part to be implemented independently. Since the 1980s and even more so during the 90s partially autonomous and self-organised, company-related work processes were increasingly introduced and in correspondence with education and further training, competence and key qualifications were defined, taking the whole work organisation into account.

The process can be summed up to the effect, that this change of "professional abilities" with a high percentage of specialised professional competence leads through concepts of wider professional qualification to the acquisition of flexible professional core skills.

The argument about competence and an equivalent education is nothing new for Germany. Since the introduction of progressive education, the concepts of Kerschensteiner and Gaudig are being discussed in professional training, who intended to use their working school concepts

also in order to form and train general personality traits. "For us, personality is not conceivable without a conscious, planned design, and self-design that is. We don't understand personality as a gift of nature, but as a work of human liberty; a work that shows the human being facing itself in terms of creating it's self." Gaudig 1923, p. 5).

New in the current argument is, however, the fact that since the 1990s, companies have increasingly developed a strong interest in competence-based education and further training. An example for this is their intention to advance in addition to professional competence also technical, human and social competences through education and further training. By now competence-based education is of great significance in all educational sectors, including schools and universities.

The purposive education of competences can be applied to the areas of practical crafts and related cogitation as well as behaviour. The reference to work contains professional and basic specialist core skills; the reference to cogitation emphasises methodological competences while the reference to behaviour thematizes social and participative competences in particular.

The first, clearly dimensionalized competence concepts distinguished already in the late 80s between personnel and social competence, vocational capability and professional competence. But in order to create more specific indications for the teaching and learning process, longer lists of indicators were developed for the different areas of competence based upon empirical work analyses.

While during the early years competence-oriented drafts for education and further training were normative pedagogically justified, recent development shows that today the actual and empirically to be ascertained professional tasks of experts require competence-oriented education and further training.

The Latin American reform of the professional training systems also proceeds on the assumption of a concept of professional core skills that is wide in scope. The objective of the, in many countries accelerated, reform of the technically oriented secondary school sector is to generate wide-ranging qualification profiles that are useful both for the transfer into university and the integration into the labour market. Modern production has equally provoked in Latin America the demand for widely qualified technical personnel. But the traditional professional training institutions count as well on the training of high-quality technical personnel with social and methodological competences.

We have to start from the point however, that particularly in regard to the reform of the technological secondary school, only a small percentage of the trained adolescents will find a job in the modern sector. In Argentina, for example, the problem is shifting, because dependent on the sector, the number of juvenile graduates from technical high schools seeking further education in the tertiary sector, ranges between more than two thirds and 80 per cent.

It is my opinion; however, that guiding training consistently according to the principle of action orientation will create social and methodological competences that could serve as a good foundation for independent work in the informal sector.

2. The principle of action-oriented learning

In spite of all progress made in trying to introduce competence-based learning into the various levels of training and further education, conceptually there remains one problem that has been solved only to some extent. In principle we are not sure how to achieve more complex competencies by instrumental learning. The science of education, and the didactics of professional training in particular, offer us only rough clues about how to employ which method in order to learn competence unit. We have to make do with an approximation and an assessment of experiences. Empirical knowledge, however, shows us, that action-oriented concepts are far better suited to facilitate the learning of even rather complex competence units.

Action-oriented learning is not just a method, but a principle. According to this principle, professional action can be learned at different learning locations. The point of professional training is to confront apprentices in vocational training and/or as well pupils of professionally oriented educational careers of secondary schools with practice related tasks that have to be solved. The background is always a specific profession-related and, above all, complex situation; subsequently instructions are commissioned that have to be worked out. From a didactical point of view, these tasks of apprenticeship and work are the creative instruments of instructors and teachers.

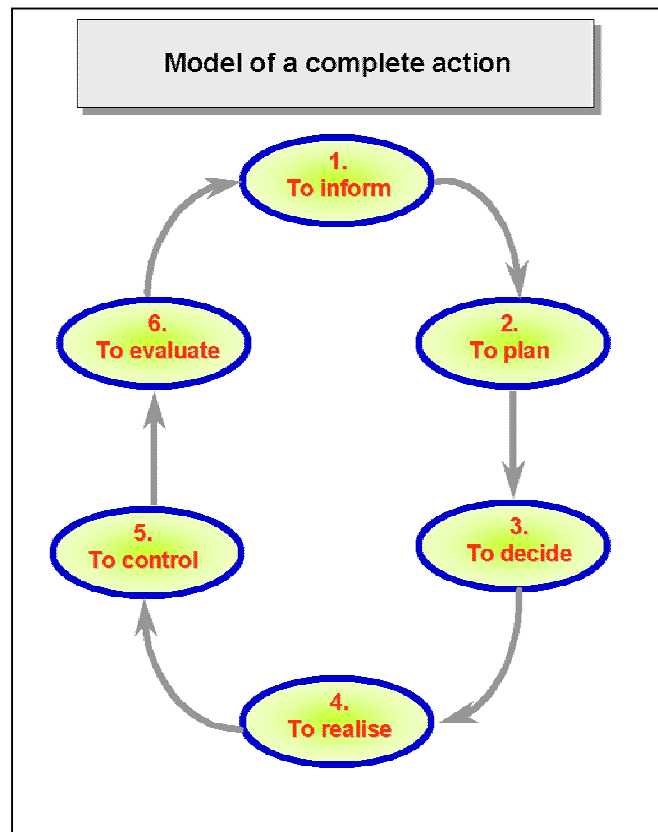
In this, the situation from the working routine may serve as a context providing the scope for finding the solution to a problem. Now the possibilities for design consist in formulating more or less complex tasks depending on the previous knowledge and existing competence of the learners. In practising the international cooperation (EZ) it may be helpful to explore the local innovative economies together with the actors when introducing action-oriented learning. If projects are already existing in the promotion of trade and industry, co-operations should be sought there with the objective, to devise realistic learning and working tasks.

Action-oriented learning is more than the doings, the execution of the task. What matters, is the increasingly independent planning, execution and evaluation. Furthermore it includes the tasks of being capable to distinguish between different methods of solution, getting to know different techniques and being able to evaluate them. Finally learners have to decide on one work routine, complete the task and control, if the quality criteria have been observed. At last the work result will be evaluated, in terms of fact that means to compare the execution with the planning in order to facilitate the evaluation of the proper learning development. In the sense of construction (mode of constructivity in the sense of constructivistic approaches of learning), new knowledge, skills and abilities learners should be guided bit by bit with the purpose of enabling them to identify their future learning fields independently. An evaluation of the learning result has to be understood in the sense of creating new learning objectives. Here, the co-operation with other learners is another basic principle of action-oriented learning, because individual values and evaluations can be compared and discussed with those of the other ones only here. In this sense action-oriented learning refers to all the techniques that have to be implemented with and within the group.

The foundation of action-oriented learning is the planning and implementation of the task as well as the subsequent control and evaluation. Thus by the term action orientation the whole and complete process of combined learning and working is to be understood. The learning objective of action-oriented learning is the extensive professional core skills.

Independent action is learnable (Uhe Meyer, 2001). It opens up the possibility to manage impending tasks purposefully, creatively and successfully with the intention of being able to react on new professional challenges. Action-oriented learning proceeds on the assumption of action as a whole, which includes the three big areas of planning, implementation and control. For learning, these three areas are further subdivided, that is into the six steps of informing, planning, deciding, implementing, controlling and evaluating.

The person who wants to execute an action has to begin with informing himself about the precise objective of his assignment. He devices a working schedule and decides upon a mode of execution. He further sets up the order in which he wants to execute the work, where and how he is going to cooperate with his colleagues and which instruments and material he will need and employ. Then he carries out the job. The planning is the independent test action of the later implementation of the task. The working routine is so to speak mentally anticipated. In this sense the learner has visualised, drafted the end product. After that he generates a mental construction plan. As a check, it is important that learners are guided to develop and subsequently keep quality criteria. Control can be preceded by the acquisition of a control sheet. On this sheet the criteria are set up along the lines used to control them. By the implementation of work tasks measure tolerances can also be supplied here, giving the margins for the quality of the end product. Afterwards learners will evaluate together with the instructor or teacher if all steps of planning, decision and implementation went in the best possible way. Simultaneously the working routine gets inspected and all together are going to establish which mistakes can be evaded in the future.



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With that we have reached another principle of action-oriented learning: the learning takes place in a cycle of process-product-process. The solution of a task ends in a product, the product represents in a manner of speaking the process, it is the process turned real. The product now facilitates another process, the process of reflection. The reflection is the starting point for the new act of a complete action, induced by a new learning and working task, that will do justice to the future learning demand, which was jointly acquired during the reflection stage. In this sense action and reflection are taking turns. The evaluation or assessment in the pedagogical sense takes as a target to expose qualification deficits in a participative fashion and make the learners to understand them. The longer pupils or apprentices are learning with the principle of the complete action, the more they learn as well to ascertain independently their qualification deficits. The learners acquire their own way of learning that is supposed to follow the objectives supplied in the curricula.

“The proto-type of specific action knowledge is the ‘movement (of the hand)’” (Aebli 1993, S. 127), which indicates the behaviourist origin (habit). Nowadays, however, the cultural historical school of Vigotskijs and Leontjevs as well as the more recent research based upon Piaget offer theoretical learning access. The principle of action orientation becomes in the sense of a con-

structivistic learning comprehension a method of a problem solving procedure. With that I refer to the Leont'ev's theory of activity and its revitalisation in the modern constructivistic theory of learning. The inter-personnel action in the social system is followed by the intra-personnel action of higher psychic functions. It is a matter of constructing a structure of knowledge.

Terms receive their respective connotation through the action of the underlying working process. The respective actions within a project of a learning group give the teachers the opportunity to explore the individual areas of learning. Three elements are decisive for learning: firstly, it is a matter of the abilities and the learning strategies the adolescent possesses. Given that new contents are going to be integrated into or attached to already existing ones, previous knowledge and the readiness for expanding the knowledge establish the second element. Finally the learner needs suggestion contents, that have to be supplied in learning surroundings to be designed. Thus, the instruments and the tools, the laboratory, the information corner and the curriculum are proposed to enter as the third element.

The acquisition of action knowledge takes place by means of active problem solving in complete

Constructive learning surroundings

Constructive learning surroundings according situational learning...

- ... favour self-controlled and co-operative forms of learning and ...
- ... self-controlled problem-oriented case methods are specifically suited for the requirements of adolescent learning

➡ They develop their potential only connected with instructional aid

➡ Instruction and construction are complementary

actions, where in addition to technical, also over-arching methodological, social and personal competences will be acquired. As we have seen, the focus of interest is not exclusively the work result, but rather decisive is the way of getting there, given that it opens the space for reflection, which is a crucial contribution to the construction of new knowledge and

skills. In designing learning-efficient surroundings importance has to be attached to the fact "that the pupil sees the work emerging before his eyes and ears and simultaneously reads the technique from the emerging work; the explanation of the technique, inasmuch as the work is not explanation itself, then provides insight into the reasonability of the chosen method of working." (Gaudig 1969, S. 25) The apprentices are learning to proceed actively and self-controlled, are searching for solutions. But in order to model and design those searching movements we need methods that follow the paradigm of problem-solving action.

I want to stress here, that the principle of action orientation is manifested in a mix of methods. Depending on learning progress and learning situation of the apprentice, methods have to be chosen in turn that lead effectively to the development of professional core skills. The key text method and project method are especially suited for that. But I also want to stress here that the performing methods we are familiar with don't belong to the past, quite the reverse. Performing methods have to be installed complementary in the learning process. A project is suited for nurturing the learning process with recurring short phases of purposeful learning, where for example by using the instruction method (informing, demonstrating, imitating, rehearsing) skills for the

workshop and abilities like employing mathematical knowledge for vocational circumstances can be acquired and practised.

3. Action orientation in the key text and project method

The key text method is directed at acquiring independently skills and knowledge. It is supposed to enable learners and apprentices to plan, execute and control working activities autonomously. To proceed according to the principle of the complete action will be acquired by learning so-called key texts. Autonomous planning, executing and controlling is repeated several times and therefore becomes the basic principle for coping with new tasks in working processes. The key texts contain several different methodological aids for the learners and apprentices. The key texts available in written form are supported by key questions and assistance by the teachers. The method promotes anticipative and purposeful thinking and acting and offers the opportunity to use co-operative forms.

To begin with, the method had been developed in the 1980s in Germany for the individual learning. The idea to apply this method as well for group work appeared with the demand for supporting social competences and hence received its expansion. The key text method is suited in particular for solving complex tasks, even if, due to their previous knowledge and experiences, learners are only capable of comprehending the complexity to some extent. In this sense they are guided systematically to handle learning and working tasks even if they are difficult.

With the project method, however, learners and apprentices are set with the task to manufacture a precise and functional product. The manufacturing process is supposed to activate as much skills, knowledge and abilities as possible in order to create new competences this way. Theoretical and practical contents are equally learned and correlated. The project contains the workshop and accompanying subjects like applied mathematics and technical drawing as well as exercises for interpreting technical information.

The great importance attached to the project instruction in the development of action knowledge is based upon several principles of theoretical learning: situational reference, practical relevance, participant orientation, process and product orientation, action orientation, orientation by holistic learning, self-organisation, team-orientation and cross-disciplinarity. These principles, which are attributed to project-oriented learning, are considered to be qualified in particular for supporting competence-oriented learning.

Key text method and project method differ in the degree of independent working. With the project method the planning rests already as comprehensive as possible with learners or apprentices. In this sense the learning and working task has been phrased more overtly. The creativity of the learners is demanded as well as developing and applying autonomously new methods, with errors permitted and making them subject of reflection. In the sense of the constructivistic paradigm the project method is tempting, given that it aims at the autonomous practice of the learners. However, since they still have to be taught to learn autonomously, it is advisable to link the key text method and the project method together. The didactical creative potential of instructors and teachers lies in the exact phrasing of the learning and working task. A sharply outlined task within a complex context can be phrased here with clearly defined key texts, that subsequently opens narrow action spaces for the learners, within which they learn and work. In practical terms, they are guided within narrow boundaries along the learning method. Only when the learners can employ the principle of complete action with all its six stages of procedure and therefore possess their instruments for methodological action, the learning and working tasks can be defined more overtly. We should avoid to organise failures by overcharging the learners, because action-oriented learning - when applied correctly - distinguishes itself in particular by

generating *sui generis* motivation and allowing the learner to achieve self-awareness in dealing with a problem. This process, however, has to be carefully monitored by teachers and instructors.

4. Teachers' and instructors' advanced training

By only determining the systematisation, categorisation and sequencing of competences in curricula, one can't achieve the desired results. It is very important that the pedagogical personnel is in control of the aforementioned learning principles and capable of employing in addition to that, appropriate teaching and learning methods that are suited for the advancement of the respective areas of competence.

A reform of the professional curricula can only be effective, if simultaneously intensive and high quality-standards realising education and advanced training of the pedagogical personnel in the vocational education are offered.

It is especially a matter of improving the competences of the teachers and instructors, that is: to extend the professional competence to dealing with the state of the art developments; to train the methodological competence in a way that provides for appropriate teaching and learning techniques; to endorse the social competence by using a co-operative situational oriented pattern of leadership and forms of learning advice; and to sensitise the individual competence, using for example the capability of meta-reflection of one's own pedagogical action in consideration of superordinate educational objectives.

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