

# Development of Teaching and Learning Processes

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## Brief Information on the Author

Markus Höffer-Mehlmer, was born in 1958, and is a private lecturer at the Johannes Gutenberg University Mainz.

He studied social pedagogy at the University of Cologne and education at the University of Frankfurt. After many years of working in the field of institutional education, youth welfare work and political education and as a house-husband, he worked from 1989 as an academic staff, university assistant and lecturer at the University of Mainz, and as a stand-in professor at the University of Koblenz/Landau and as a visiting lecturer at the Universities of Valencia (Spain) and Istanbul and Muğla (both in Turkey). He completed his doctorate in 1993 with a thesis on "Modernisation and Social Work in Spain" in the field of Pedagogy, Spanish, and Comparative Linguistics. The postdoctoral qualification in the field of Pedagogy with a historical research on literature on Parents' Guide followed in 2001.

His work focuses on comparative education and social research, education management and artistic-cultural education.

Publications (selection):

- Elternratgeber. Zur Geschichte eines Genres. Baltmannsweiler 2003.
- Hg.: Bildung. Wege zum Subjekt. Mit Beiträgen von Joseph Aigner u.a., Baltmannsweiler 2003.
- Modernisierung und Sozialarbeit in Spanien, Bremen 2009.





## Learning Objectives

This course module deals with the development of instruction and learning processes. When you have finished working through this study text, you should be able to do the following:

- tell the difference between important terms of scientific methodology in education and teaching development
- explain the link between teaching development and quality teaching as well as standards.
- expound upon the link between teaching development and professionalism on the one hand as well as teaching development and the level of self-direction of the students.
- Know and apply essential strategies and methods of teaching development, e.g. the development of school based curricula methods that inculcate systematic professional group work, a method based on feedback system, peer coaching and teacher training.

Based on these goals the following structure results:

- In the chapter one we will deal with curriculum research and teaching development. We will begin by looking at the differences and similarities of the two and then at the significance of international comparative studies for teaching development.
- In chapter two we will deal with the essential aspects of learning and instruction relevant for teaching development. This covers learning styles and types of learners and the basic concepts of the methods of instruction relevant for teaching development.
- Chapter three analyzes the possibilities for examining teaching in the field. To this end we focus first on tests, then questioning and finally observation as methods for possible applications.
- Chapter four deals with strategies and techniques for teaching development using examples of peer observation, peer coaching and teacher training.
- Chapter five summarizes the essential aspects with regards to their significance for school development.

Here a comment regarding the Internet sources: Unless otherwise indicated, the cited pages were last called up in August 2009.





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## Glossary of Terms

### **Action situation**

Action situation is a method concept with which the components of interaction in teaching-learning situations are described which can be regarded as "deliberately designed und with meaning infused interaction units" (Meyer 1994a, p. 116).

### **Differentiation**

Differentiation is a term used in didactics to express the taking into account of the different conditions of students. A distinction is generally made between forms of inner differentiation in the classroom and the outer differentiation, whereby pupils are arranged in possibly homogeneous groups. Differentiation may, in extreme cases lead to individualisation and thus to individual lessons.

### **Evaluation**

Evaluation is the systematic determination of the value and significance of something or someone according to certain criteria.

### **Extended form**

Extended forms are the basic types of organised learning and teaching, "more or less firmly anchored typical teaching/learning methods with different objectives and recognisable methodological organisational elements" (Meyer 1994a, p. 143) such as courses, training or lectures. They are historically developed and institutional, and are also generally anchored in the everyday consciousness of teachers and learners.

### **Group work**

Group work is one of four social forms. In group work a larger group (classroom, seminar group, etc.) is divided up into smaller units that either all do the same tasks, or different, often complementary tasks.

### **IEA (International Association for the Evaluation of Educational Achievement)**

The International Association for the Evaluation of Educational Achievement (IEA) is an association of national research institutions and government research agencies related to education. The IEA founded in 1958 is an independent organisation. The headquarters is situated in Amsterdam. See TIMSS and PIRLS.

## **Individual work**

Individual work is one of four social forms. Under individual work, individual learners occupy themselves with learning and practical exercises.

## **ISCED-97**

“The International Standard Classification of Education (ISCED) was designed by UNESCO in the early 1970’s to serve ‘as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally’. It was approved by the International Conference on Education (Geneva, 1975), and was subsequently endorsed by UNESCO’s General Conference when it adopted the Revised Recommendation concerning the International Standardization of Educational Statistics at its twentieth session (Paris, 1978).” (UNESCO 2006, p. iii) The ISCED is categorised into the following levels: Level 0 – Pre-primary education, Level 1 – Primary education or first stage of basic education, Level 2 – Lower secondary or second stage of basic education, Level 3 – (Upper) secondary education, Level 4 – Post-secondary non-tertiary education, Level 5 – First stage of tertiary education, Level 6 – Second stage of tertiary education.

## **ISEI Learning strategies**

The International Socio-Economic Index of Occupational Status (ISEI) are used in large scale assessment studies like PISA studies as a measure for the socio-economic status and is based on international data on income and education levels of members of different professions. The ISEI can have values between 16 (unskilled labour in the agricultural sector, cleaning staff) and 90 (judges).

## **Literacy**

“Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society.” (UNESCO, cited after UNESCO Education Section 2004, p. 13)

## **Mathematical literacy**

“Mathematical literacy is an individual’s capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage in mathematics in ways that meet the needs of that individual’s life as a constructive, concerned and reflective citizen.” (OECD 2003a, p. 24)



## **Objectivity**

Objectivity is the independent description of a fact by the observer. Objectivity belongs together with validity and reliability to the most important quality criteria for empirical research.

## **OECD (Organisation for Economic Co-operation and Development)**

OECD (Organisation for Economic Co-operation and Development) is an international organisation comprising of the 30 most developed countries with representative democracy and free market economy. See PISA

## **Partner work**

Partner work is one of four social forms. In this case, two learners work together. As is the case with the group and individual work, it is expected that this work takes place within the context of the overall group (the school class, the seminar group).

## **Pattern of action**

Pattern of action are routine interaction situations in the classroom, where each party acts in accordance with typical scripts. Typical patterns of actions are for example, teachers ask questions and pupils answer.

## **PIRLS (Progress in International Reading Literacy Study)**

The Progress in International Reading Literacy Study (PIRLS) is an international study of trends in reading achievement in fourth graders from 35 different countries, conducted by the IEA.

## **PISA (Programme for International Student Assessment)**

The Programme for International Student Assessment (PISA) is a triennial world-wide test of 15-year-old school children's performance, coordinated by the OECD.

## **Progression form**

Progression form refers to the phases of teaching. Examples of progression forms are: entry, mediation, processing and closing.

## **Reactivity**

Under reactivity, the influence of the measurement process on the reactions (= data) of people being investigated is understood. Example: The presence of an observer during a non-covert observation causes the observed individuals to behave differently than they otherwise would.

### **Reading literacy**

“Reading literacy is understanding, using, and reflecting on written texts, in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society.” (OECD 2003a, p. 108)

### **Reliability**

Reliability: The reliability or trustworthiness is a measure of the formal accuracy or dependability of scientific investigations. Highly reliable scientific results are virtually free of random errors, i.e. a repetition of a test or experiment under the same conditions would achieve the same result. Reliability belongs together with objectivity and validity to the most important quality criteria for empirical research.

### **Science literacy**

”Scientific literacy is the capacity to use scientific knowledge, to identify questions and to draw evidence-based conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity.” (OECD 2003a, p. 133)

### **Social desirability**

Social desirability (Social Desirability Response Set) is a distortion that occurs in surveys in the social sciences, whereby those questioned give answers, which they believe would be more acceptable than those that are actually the truth.

### **Social form**

Social form is a concept of methods by which the type of organised collaboration in learning is designated. There are four different forms: whole group instruction, group work, partner work and individual work.

### **TALIS (Teaching And Learning International Survey)**

The Teaching And Learning International Survey (TALIS) is an international survey carried out with school principals and teachers on teaching and learning in schools on behalf of OECD. The first results were published in 2009 (OECD 2009).

### **Taxonomy**

Taxonomy comes from the Greek *táxis* ”order” and *nómos* ”law”). It is the classification of objects or events into conceptual groups (*taxa*) or in categories. In the research on teaching, taxonomy is understood as the hierarchically structured order of learning and teaching objectives.

## **TIMSS (Trends in International Mathematics and Science Study)**

The Trends in International Mathematics and Science Study (TIMSS) is an international assessment of the mathematics and science knowledge of fourth- and eighth-grade students around the world. TIMSS was developed by the IEA.

## **UNESCO**

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is an agency of the United Nations specialised in educational, scientific and cultural subjects, established on 16 November 1945.

## **Validity**

Validity or the legality of empirical studies is spoken of in two contexts. Firstly it refers to the validity of the methods and instruments used. The question here is: "To what extent does the test instrument measure what it is suppose to measure?". Secondly validity refers to the resilience of the statements or conclusions made based on the measurements. Here the question is: "To what extent is it true that X influences Y?" Validity belongs together with objectivity and reliability to the most significant quality criteria of empirical research.

## **Whole group instruction**

Whole group instruction is one of four social forms. During whole group instruction, a teacher stands opposite a whole group of learners. At school, where this term was originally used, the class lesson or classroom teaching was the typical expression of this social form. In adult education, this refers to lectures and similar arrangements.



# 1 Teaching Research and Development of Teaching

In the first study text of this module we looked at various studies dealing with student accomplishment but also with the quality of instruction. In this chapter we will address differences and similarities between teaching research and teaching development. Then we will present the relationship between international comparative studies and teaching development. Overview

## 1.1 Teaching Research and Development of Teaching: Similarities and Differences

No doubt there is a difference between researchers dealing with the matter of instruction and teachers and headmasters at schools dealing with them. But what are the differences and where is the common ground? How can teaching research inspire development of teaching? These are questions we will pursue in this section.

One thing research and development of teaching in schools most certainly have in common is that they both desire to improve instruction and along the way to gain clarity with regards to how instruction proceeds and what results it produces. Teaching research does not occur in a bubble. Rather it works hand in hand with research and exploratory measures. Therefore it is not a bad idea in teaching development to orient oneself according to the procedures and fruits of teaching research. Mutuality

However, the measuring sticks vary drastically. The international comparative studies are based on large numbers of schools, students and various lessons. This is necessary in order to come to universally valid findings. In the first study text of this module we saw that great care was taken in setting up the random samples for the individual studies in order to come to a representative average by using precise criteria for example, school size, location and population etc. On the contrary teachers or headmasters are looking at a smaller sample size. What they learn about the conditions, aspects and results of lessons in their respective schools need not be representative. It must be accurate for their school. The improvements based on their observations need not be effective for other schools, with other students or for other teachers. Rather they must be effective for their school. Differences

Another difference is that development of teaching is concerned with making recommendations for action. Comparative studies are of course interested in improving instruction. However researchers are rightly cautious about recommending or rejecting certain things. Instruction is a complex process and below

we will deal more explicitly with the various influences on this complexity. The complexity makes it impossible for researchers to give simplified tips or instructions to do this or that in order to improve teaching. By contrast teachers or headmasters are under pressure to take action. It is almost incomprehensible to think that one would spend time and other resources on examining instruction in one's school only to say in the end that one has hypotheses for further research but could draw no practical conclusions. It can be beneficial in teaching development not to expect concrete conclusions for immediate implementation but rather to allow some time for sustainable improvement to be attained.

The resources available for studies are much more limited in the area of development of teaching than for research. One reason for this is that data regarding the personal background of students or the school environment that must first be gathered for a study are already known in an individual school. Nonetheless it can be interesting to implement suggestions made by studies. For example, do you know what role books and reading play in the everyday life of students' families?

In the first study texts of the module we saw that empirical research and everyday perception differ due to the systematic ways of proceeding and the demand for objectivity and repetition of observations and examinations not demanded of the latter.

- The validity of the procedures and instruments used as well as the validity of the conclusions is a requirement made of the empirical studies.
- The reliability of research procedures is another. The results of research should be free of random mistakes such that when a test or experiment is run again under the same conditions it produces the same results.
- A third criterion is objectivity, that the description or examination of data is independent of the person providing the description or performing the examination. Complete objectivity is present when a third party using the same instruments comes to the same conclusions.

Mutuality It is correct to make these requirements of empirical research but they are also legitimate expectations for teaching and learning in individual schools. Testing is a clear example of this. When teachers wish to test student learning, they need to make sure that the test they use is appropriate for measuring what was covered in instruction. That is the test should be valid. The test results should not be the result of chance. Rather conditions should be reliable so that the results are not products of chance. We would certainly deem it wrong and unjust if a teacher allowed his or her prejudices or assumptions about individual students to influence his or her grading of tests. That is, the test should be objective as possible.

**Activity 1:**

Using examples from lessons or school, explain where problems with validity, reliability or objectivity arise in the testing or evaluation of student achievement.



## 1.2 International Comparative Studies and Development of Teaching

The comparative studies presented in the first study text of this module included all the feedback provided by the schools participating in the study. This is a reciprocal service provided in return for the “expenses” incurred in participating. Besides the feedback is meant to assist in gaining acceptance for the large scale assessments by offering, in the form of a feedback, a product with immediate usefulness.

Feedback to participating schools

Feedback regarding the background of students (i.e. social background) or influences such as motivation and level of achievement at individual schools can spark pedagogical discussions in schools despite the fact that one can draw only limited general conclusions.

The comparison of data from an individual school with national data or that of other schools with similar student bodies and environments can also contribute to discussion and further development.

However it must be emphasized that the purpose is not to evaluate individual schools.

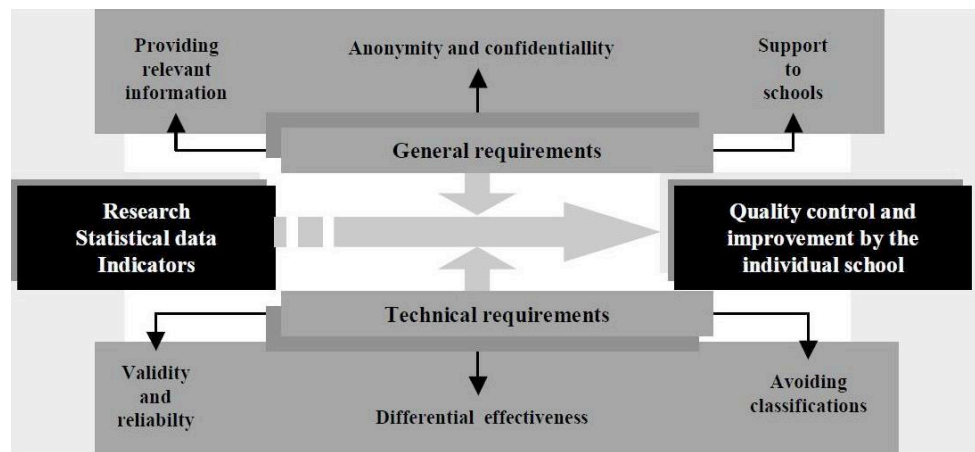
- An explicit evaluation of a school would require a research design that a) conforms to the educational goals of that particular school and is supported by the school and b) is cross-sectional so that the results can be correlated to school work. In the PISA study, which is limited to central, predetermined components, examines only small student samples and is longitudinal, this is neither possible nor necessary.
- From the school feedback method one should not expect that immediate school development will immediately follow. Experience of other countries as well as from other school development research show that the diagnosis of testing conditions and results are by no means automatically the basis for further development. This requires opportune institutional conditions and external support. (Stanat et al., p. 40)

Feedback for PISA 2000 was set up for example thus:

1. the scientific significance of the research in each school (to what extent was there full participation in the test, were students willing to make a concerted effort on the PISA test)

2. students' family background, the social demographics of the student body, also as compared to other schools of the same type
3. students' motivation and reading habits
4. results of the PISA tests in the areas reading, mathematics and natural sciences, mid-range test results in reading (emphasis of PISA 2000), divided into five levels of competency
5. students' and parents' level of satisfaction with the school

**Anonymity** For the feedback care is taken that the individual schools remain anonymous to one another and to the public. A school cannot compare itself to other concrete schools but only to other anonymous comparable schools.



**Figure 1.1:** *Feedback model of the international comparative studies (Pettegem/Vanhoof 2004, p. 262)*

In Figure 1.1 you see various general and technical requirements that were made of the comparative studies and the feedback.

**Far-reaching impact** In addition to the direct feedback given to participating schools, a far-reaching impact is often ascribed to the international comparative studies. Trautwein and Koeller point out that instruments developed as a part of the TIMSS could be made useful for individual schools. “The subject achievement tests and additional measurement instruments from TIMSS which covered a broad range of motivational, emotional and social variables on the part of students as well as important characteristics of instruction and school organization, offer still another special opportunity for the evaluation of individual schools: these instruments cover the essential aspects of schools and instructional quality that were addressed in the self-evaluation as part of the school development processes.” (Trautwein / Koeller 2001, p.105)

We will look at these more closely in the next chapter.



## 2 Learning and Instruction

The task of the school and of instruction is learning. In this chapter we will address the characteristics of learning as related to instruction. In order to do so we will first look at variations and types of learners and learning in order to then be able to address a number of dimensions of instruction.

Overview

### 2.1 Learning

Usually learning is understood as a process leading to more or less permanent changes (in behaviour or the behavioural willingness) of a living being as a result of experience, not simply of maturation or ageing processes (compare Hoeffler-Mehlmer 2004).

Overview

One distinguishes between perceptive, motor, verbal, cognitive and social learning depending on the behavioural mode. Many learning process link different types of learning. Take the example of learning a foreign language. This involves verbal learning (of vocabulary, expressions etc.), cognitive learning (grammar, sentence structure etc.) but also social learning necessary in order to be able to communicate and motor as well as perceptive learning necessary to be able to produce and recognize unusual sounds. For people whose first language is German being able to produce and recognize the important apical dental speech sound “th” is one such example of motor and perceptive learning.

Various styles of learning

In general learning occurs as the interaction of a number of types of learning (compare Hoeffler-Mehlmer 2003). In addition to differentiating according to types of learning, one often distinguishes between planned, consciously desired and goal-directed learning on the one hand and happenstance, incidental learning on the other. Between the two extremes there are various transitional and mixed forms.

Planned vs. incidental learning

Organized learning, that is learning that is guided by others and methodical, is distinguished from self-directed or autodidactic learning. Here again there are various transitional and mixed forms.

Planned vs. incidental learning

Humans are beings that are exceptionally capable of and in need of learning. Thus learning is always a central topic when thinking about people. In the development of scientific theory and research about learning, there have been and continue to be fundamental differences as to the essence of learning, adaptivity and the need to learn. Highly simplified, the two extremes may be distinguished thus:

- The one extreme assumes that a human being essentially comes into being through learning. A favourite image is that of humans entering the world

as a blank slate (*tabula rasa*) which is then written upon through the processing of external impressions. This process can be left unguided with all sorts of undesirable societal consequences or consciously and carefully guided. Here biological factors or inborn cognitive structures and maturation are of little significance. Instead rearing and the responsibility of persons or institution involved in rearing or education are the significant factors. This was more or less the position of earlier behaviourists but could also be found already in John Lockes' theory at the beginning of the eighteenth century.

- The other extreme gives more weight to the genetic inheritance of a person or his inborn cognitive structures and mechanisms. Learning can only occur within these given parameters. The possibilities to learn and educational influence are seen as having a more limited impact.

Behaviourism was of significant importance for the research and creation of models of learning. Its adherents attempted to discover the natural laws of learning with scientific exactness. To satisfy this demand, among other reasons, they examined learning in terms of externally observable and measurable influences and changes. Consideration of mental processes etc was regarded as pure speculation. With the coming of the “cognitive revolution”, interest in the mental processes connected to learning grew in psychology and with it the goal-oriented, exploratory search for learning requirements.

Cognitive science, a field that has expanded tremendously in the last few years, offers important ideas for and points of reference in questions of learning. Through improved research methods (e.g. in the form of imaging technology with which measurement and localisation of mental and nervous system processes could be made, compare the overview by Roth, 2003; 124 ff and Spitzen 2009) a bounty of new insights and models were found. These are significant with regards to questions of learning and education especially the connection between perception, processing and learning. But they are also important for precise localisation of developmental windows, that is periods in the process of growing up during which the foundations of spatial vision or language comprehension for example are laid in interaction of external stimuli, demands etc. and internal differentiation and the concentration of neuronal nets.

In addition to the distinction between various levels of complexity and types of learning, the question of learning strategies is significant for organized learning. Learning strategies are basically complex procedures used consciously or unconsciously by individual learners.

Mnemonic sentence

The basic assumption is that humans do not “simply” learn. Rather they have clear plans, ideas and habits for learning new things. Learning strategies may be divided into different systems. One widely-used system distinguishes between cognitive and metacognitive strategies and resources.

Cognitive strategies

Cognitive strategies act directly on the object of learning. Among them are repetition, organisation and elaboration.

- Repetition or practice is rightly seen as an evil, but in many areas of learning it is a necessary evil. Repetition or practice, when necessary to the point of virtual mastery, is in the basis for more complex achievement in many areas (for the honourable rehabilitation of practice see Bullnow 1978). The above mentioned example of the learning of a foreign language illustrates this. Complex learning achievement in the areas of learning rules or problem solving are only possible if the prerequisites have been practised and learned. If this must always happen successively is yet undecided. Learning is particularly intense and successful in situations where learners are mildly challenged. It is common to use a wide variety of practice exercises or to disguise practice in the form of games or play in order to avoid the boredom often associated with it. Repetition and practice
- Organisational strategies describe all activities by which learners process, save and keep accessible the material to be learned. A common means of this is a mnemonic device using word associations or the like. They increase what can be retained by assigning a mean to the material which does not actually belong to it. Examples of this technique include assigning a symbol to something (the swan as symbol for the number “2”, the triangle for “3” etc.) in order to be better able to remember the sequence of numbers or rhymes (“righty-tighty, lefty-loosey” for remembering which way to turn a screw, nut or bolt) Composing written summaries or creating mindmaps are further examples of organisational strategies in which material is structured. Organisational strategies
- Elaboration is used to describe strategies in which the details and systematic structure of learning material are dealt with. One common elaboration strategy is the ordering of single facts or material to be learned into hierarchical systems (belongs to verbs of type xy conjugation). Elaboration strategies

These cognitive strategies can be illustrated using the example of the taxonomy of the types of learning that was introduced above. Imagine for example you were studying for an examination and wanted to (had to) memorize this taxonomy. You could do this by repeatedly outlining the model or by summarizing it in the form of a brief text. These would be practice and repetition approaches. If you think of sequences of learning that you yourself have experienced and associate them with the various stages and thereby anchor the taxonomy in your memory, then you are using an organisational strategy. Finally, if you look at the Gagnés model as related to other models of learning and with regards to its inner logic, then you are using the learning strategy we have called here “elaboration”.

In addition to cognitive strategies we also constantly use metacognitive strategies. People do not blindly learn one thing after the other, rather to a certain extent they are able to watch themselves learn. One plans and monitors learning processes and evaluates whether or not the desired goals have been achieved. This planning, monitoring and evaluating is summarized in the concept of metacognitive strategies. “If we did not know how to check our answers or how to use our work time or how to check if we have saved the relevant knowledge Metacognitive strategies

in our memory, we would approach every learning task as if it were the first and learning would be an infinitely difficult process. Metacognitive abilities make learning easier.” (GAGE/BERLINER 1996, p. 321) When one says that learning must be (or should be) learned, then one is referring to these metacognitive strategies that make it possible to optimize our own learning. Finish the sentence, “I learn best when . . .” and you will have not only a statement about your own learning preferences but at the same time will be using a metacognitive strategy.

**Resources** Additional factors and approaches influencing learning processes are often summarized using the term “resources”.

- Internal resources include learning motivation, that is the desire or volition to learn, the ability to strive to translate this wish into learning action over a long period of time and time management abilities. One common motivational strategy is, for example, setting a reachable goal and rewarding or celebrating reaching the goal. The ability to deal with one’s own emotions, for example handling frustration or stress, is also an inner resource.
- External resources describe the conditions such as the place of work or learning, the medium used, the learning assistant or the social learning environment that influence the learning process.

In aiming toward complex learning goals, success can only be achieved through the use of a variety of strategies. According to the basic assumption of systematics, successful learners must have the appropriate cognitive strategies at their disposal, be able to make metacognitive judgements about which strategy can be used when and be capable of relying on their internal (motivational, volitional etc.) and external resources for learning processes.

Let us take a look at the various type models with which learners can be distinguished.

**Various learning speeds** One simple model distinguishes between the learning speeds of fast, middle and slow learners. According to everyday experience, people learn at different speeds, and the speed can vary from one area of learning to another. This means that the appropriateness of methods is dependent upon the learning speed of the learner and how heterogeneous the group of learners is. Methods with a higher information saturation, e.g. lecture type methods, may be efficient for fast learners but much less appropriate for slow learners.

**Learning and sensory modalities** A somewhat more complex model distinguishes between the learning preferences of visual, auditory and haptic learners. According to this distinction, the efficiency of teaching-learning methods depend on which sensory modalities are activated and which are preferred by learners.



## Activity 2:

### Types of Learners

Here you find excerpts from the test, “What Type of Learner am I?” (Source: <http://www.philognosie.net/index.php/tests/testsview/150/>). Possible responses are “true, somewhat true, false”. Which learning preferences are being appealed in each of the following? As seen here what conclusions may be drawn from the learner typologies for designing instruction?

I can remember well objects or mechanical models that I have touched, held or physically examined.

I can follow oral explanations in lectures well even if the material is complicated.

I can learn drawings, tables and diagrams well and quickly. When I listen to a lecture, I create my own image.

When I explain something I emphasize it using gestures and facial expressions, e.g. I count with my fingers when listing a number of points about a particular topic.

I can easily and quickly understand and accurately retell things I have heard (e.g. cassettes or stories told aloud).

I learn the best when I myself write down the material to be learned. It helps me very little to read or listen to information.

The preferred sensory modality or learning speed are comparatively simple means of reference for the learner typologies. In differentiating between field dependent and field independent learning one asks to what extent learners are influenced by their environment in appropriating learning material.

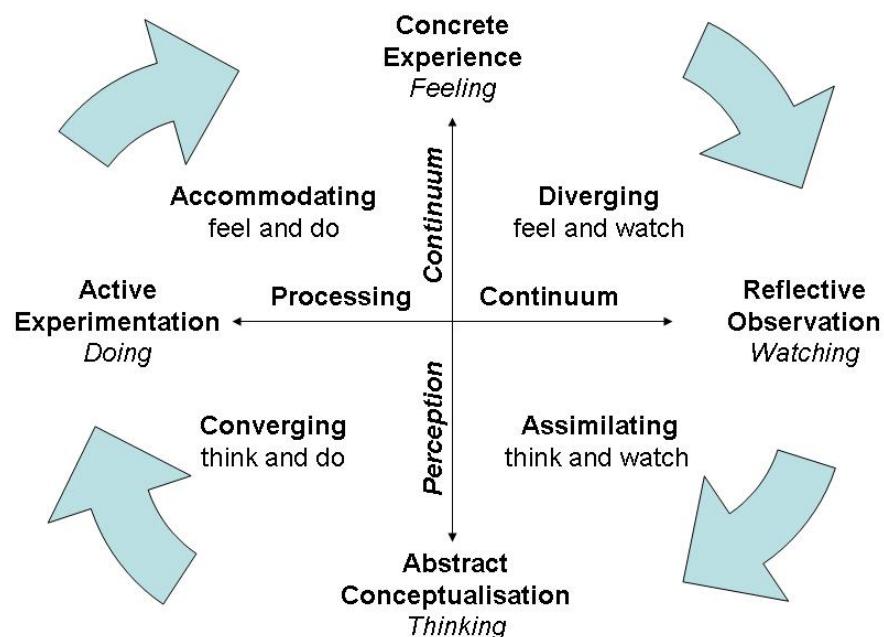
Field dependent and field independent learning

- Field dependent learners learn better in clearly structured situations than when they must localize and structure information in complex surroundings. Social interaction is important for them.
- Field independent learners like to experiment and prefer to develop their own concepts in order to be able to deal successfully with complex demands and in which the necessary information can be sought and structured. Social interaction is not important to them with regards to learning.

This distinction examines which cognitive style is used most preferably. Children are primarily field dependent. With age, life and learning experience the field independence usually increases, that is, fundamental differences in learning preferences develop.

The psychologist Mihaly Csikszentmihalyi described the feeling of being com-

pletely absorbed in an activity as flow and first studied it in athletes participating in extreme or risk sports (Csikszentmihalyi 1990). Today one speaks of flow experiences or state of flow with regards to mental activities. The emotional state of flow occurs when the skill of the individual and the difficulty of a situation strike a balance in which a mild challenge arises. If the challenge is too great, stress and anxiety rather than flow set in. Full concentration or immersion in the activity are key parts of the flow experience. One's sense of time changes. Looking at the distinction between field dependent and field independent learners, one might suspect that flow states set in in different situations in the two types since each experiences being under- or over-challenged, stress and boredom under different conditions.



**Figure 2.1:** *Kolb's Style of Learning Model* ([http://www.skagitwatershed.org/~donclark/hrd/styles/learning\\_styles.jpg](http://www.skagitwatershed.org/~donclark/hrd/styles/learning_styles.jpg))

Various learning styles Kolb's style model (cf. Figure 2.1) is widely known and accepted (Kolb 1976). Kolb asked how experiences are gathered and processed and what role thinking and abstract conceptualisation play. He contrasts concrete experience and abstract conceptualisation as well as active experimentation and reflective observation such that the pairs of opposites results in four learning styles:

- Diverging: here imagination, concrete experience and reflective observation are significant. Diverging learners tend to be interested in people and cultural matters and are often involved in arts.
- Assimilating: reflective observation and abstract conceptualisation or modeling are central here. There is less interest in the social than is the case with the diverging learner. Assimilating learning focuses on the

inductive gathering of facts and subsequent development of terms and concepts.

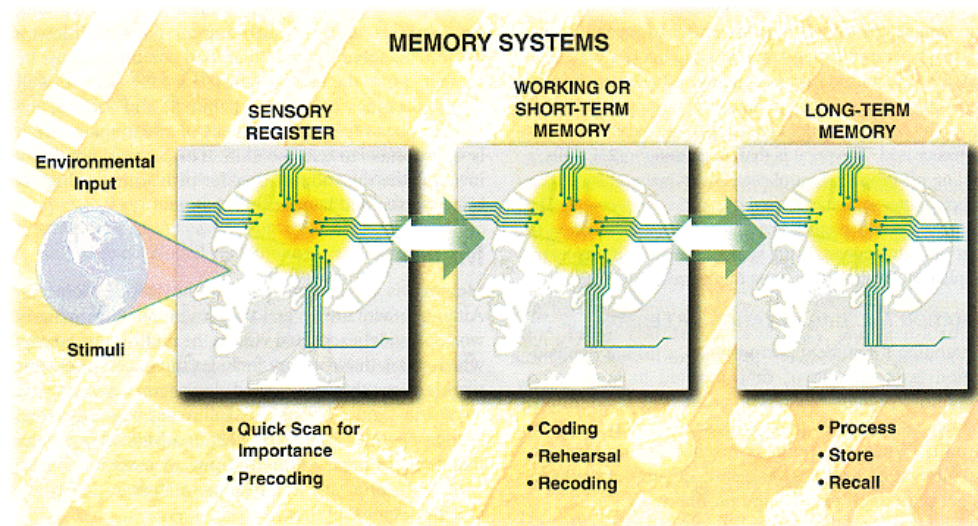
- Accommodating: active experimentation and concrete experience characterize the learning processes here. One intuitively seeks solutions to problems, has little interest in developing concepts, but is very interested in other people.
- Converging: as with assimilating, there is a strong interest in abstract conceptualisation, but here it is combined with active experimenting. Said more precisely the former follows the latter in a hypothetical-deductive manner. There is only a weak interest in the social aspect but strong interest in objects or theories.

As seen in the figure above, when we speak about accommodators, divergers or assimilators we are not speaking of particular personality types but of preferred ways of taking in and processing the new. The learning style plays a specific role in choosing an apprenticeship or field of study, choice and exercising of a career although there has been no complete clarification as to the significance of existing preferences and that of subject or domain specific training. For the typical careers named for accomodators are managers, for convergers are engineers, for divergers are counsellors and for assimilators are mathematicians or natural scientists.

Below we will look more closely at the didactic significance of experience. Next we will examine how experience results from perception. The order and relationship between the two based on cognitive research is as follows (cf. Figure 2.2):

How experience results from perception

- In perception the incoming sensations of sensory stimuli are selected and organized. This selecting and organizing is based on innate physiological characteristics as well as experience and practically speaking serves as a protection against stimulus satiation.
- Only stimuli that are noticed reach the so-called sensory register and from there travel mentally attended and carefully scrutinized to the short-term memory, and in some cases continue into the so-called working memory. Here a small number of elements can be saved for a short period of time.
- From there an extremely limited selection of processed information reaches the long-term memory where it is stored in fixed connections called engrams. Here the information is compared with other previously stored information and based on its relationship to it, integration in the existing inventory.
- In the opposite direction the perceptions and short-term processing are influenced by the elements and patterns found in long-term memory. Sensory phenomena are evaluated for example as to whether they are significant, known or threatening accordingly.



**Figure 2.2:** *Memory Systems* (<http://www.dynamicflight.com/avcfbook/learning-process/1-9.gif>)

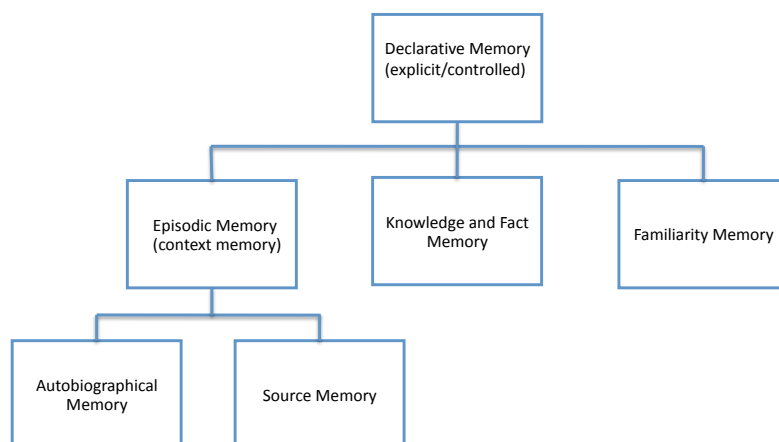
Available resources are employed as sparingly as possible to the various stages of perception and processing. In selecting what is not to be suppressed or ignored cognitive structures play a role. Perception is an active process, not simply a matter of passive reception. According to the famous Geneva psychologist, Piaget, “the organizing action of the subject should be considered as important as the relationships inherent to the external stimuli” (Piaget/ Inhelder 1986, p. 16f.) In the authoritative model he developed, assimilation, in which “every new relationship is integrated into an established schema or an existing structure”, (Piaget; Inhelder 1986 p. 16) plays a major role. It contrasts ‘accommodation’ of the existing schemata. Building of experiences occurs for one in that information, experiences, impressions etc embedded in existing structures and in doing so made to fit them but also for various reasons and as a result of different causes existing structures are changed or accommodated.

**Emotional assessments** In addition to this comparison of mental structures and contents of perception, emotional assessments also play an important role. So that filtered and processed perceptions can become experiences, they must be encoded stored in one’s memory. One usually distinguishes between declarative or explicit memory and non-declarative, i.e. implicit or procedural memory. The contents of declarative memory are conscious and can be linguistically expressed whereas this is only true in a limited sense of non-declarative memory.

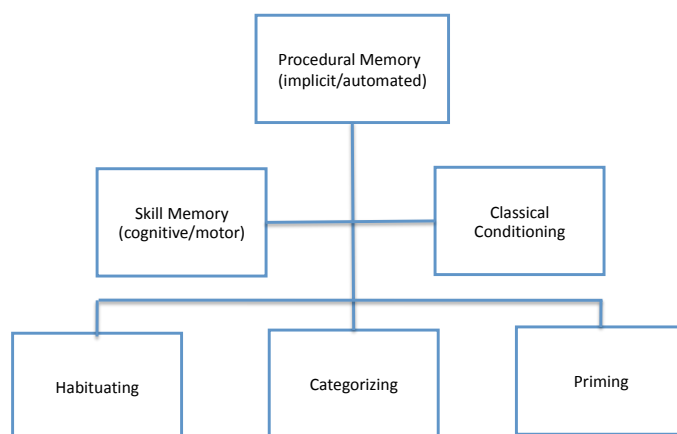
**Declarative Memory** Declarative memory encompasses the so-called familiarity memory, the knowledge and fact memory and the episodic memory which is made up of the autobiographical memory and source memory (see Figure 2.3). The familiarity memory “makes it possible for us to be able to determine whether a particular object or particular event is familiar or not” (Roth 2003, p.155). The fact memory contains knowledge about facts while in the episodic memory the spatial and chronological context of memory contents can be found. These contents may be related to a person or his surroundings (autobiographical memory) or how one obtained specific pieces of knowledge (example of source memory, ‘I learned



this song from my music teacher.’) These partial memories have a hierarchical structure which means that only the familiar can be recalled as fact. One can only recall when and where one learned something for only very few facts.



**Figure 2.3:** *Declarative Memory (slightly modified according to Roth 2003, p.154)*



**Figure 2.4:** *Non-declarative Memory (slightly modified according to Roth 2003, p. 154)*

Non-declarative memory (cf. Figure 2.4) stores physical but also mental skills that we usually know we have command over without knowing their details. Actions that are commanded by these skills sometimes are only performed without mistake if they are carried out without conscious reflection. (Think for example of the well-known millipede who is unable to take another step after having been asked how he coordinates his one-thousand feet.) Whereas at the beginning of the acquisition process, new skills are performed very consciously (for example: piano playing, bicycle riding, speaking of a foreign language) the learning process at the level of classical conditioning is largely unconscious. Habits are developed often via repetition but are also governed by success/failure or reward/punishment or the lack thereof. In this regard but also in terms of consciousness and the possibilities of articulating the development of experience, it takes a middle position between acquisition of skills and classical conditioning. Categorizing, that is ordering material into certain schemata (“This is a tree.”) occurs more or less automatically. Learning or memorization processes that

Non-declarative Memory

occur only on a subliminal level, that is unconsciously and with very little stimulation are described as 'priming' or initiation.

Important insights about the significance of various memory systems were gained through the examination of people in whom certain areas were damaged. This showed, for example, that deficiencies in the area of explicit memory could go hand in hand with unreduced performance ability in the area of procedural memory. People could forget many names, terms or facts but remained able to carry out a learned activity.

Emotional Memory Dividing into explicit and procedural memory is by no means a perfect explanation of how and where experiences are stored. "In all likelihood, one will assume that emotional memory is the third basic type of memory along with declarative and procedural memory. (Roth 2003, p. 157)

## 2.2 Teaching

Achievement tests The results of the international comparative studies are sometimes reduced to the results of the achievement tests. The model in this case would be: one measures student achievement and, based on those results, makes conclusions about the quality of instruction students receive. The underlying assumption is that instruction as input automatically leads to learning as output which can in turn be measured based on learning performance.

We have seen that performance tests are only part of the research design used by the international studies. Another part consists of investigations using questionnaires with various groups of people. Here the underlying assumption is that school performance and thus performance on the comparative test cannot be explained one-dimensionally but only multidimensionally. Teaching is a complex process in which the following dimensions may be distinguished:

- Dimensions of teaching
- Extended forms: It is possible to distinguish the overall basic forms of instruction that have developed historically. Examples include training courses, projects, courses, work placements or excursions.
  - Action situations or patterns of action: The single elements comprising the sequence of instruction are often described as action situations. When speaking of action situations that are practised regularly and are well-known and common, we are referring to patterns of action. Examples of patterns of action include lecturing and listening, modeling and imitating or demonstrating and careful observation.
  - Social forms: This designates the type of organised collaboration that can occur in whole groups, divisions into smaller groups or partnerships, or individual work.
  - Progression form: Here the temporal dynamics of instruction take centre stage. Typical progression forms include beginning and closing phases,

the introduction of new material and the deepening of what was already learned.

Even if these four dimensions of 'methods' are connected to one another, for example certain social forms imply certain patterns of action, the distinction is helpful for practical-technical reasons ("What is useful for what?") but also meaningful in dealing with questions of instructional quality. Let us look respectively at the four dimensions of instruction.

Extended forms are basic types of organised learning and teaching "more or less firmly anchored typical teaching/learning methods with varying objectives and recognisable methodological organisational elements" (Meyer 1994a, p. 143).

Mnemonic sentence

Common extended forms include courses of study, lecture series, trainings, workshops, work placements and excursions. Extended forms create frameworks in which the respective teaching can occur. They are historically developed and institutional and are also generally anchored in the everyday consciousness of teachers and students. If you call to mind the expectations with which pupils set forth to go to class instruction, a work placement or on an excursion, you can see what is meant by "anchored in the everyday consciousness". The extended form as rubric delimits a certain realm of expectations and specific goals being explicitly or at least implicitly aspired to. Let us look more closely at some of the common extended forms in order to understand them more precisely.

In a course, conveyance of knowledge and skills takes centre stage. "For a course, a decisive gap between the skills of teachers and students, trainers and trainees is typical" (Meyer 1994a, p. 143). Courses are usually set up with a cascading structure. The learners are systematically introduced to knowledge and skill areas. Often it is about the conveyance of declarative knowledge, that is language-based knowledge and the associated motor skills.

Course

Training programs are similar to courses, and the two terms are often used synonymously. However, the amount of practice and repetition is greater than in courses. Thus, trainings are often offered when dealing primarily with motor skills that need to be rehearsed in some cases even to the point of virtuosic mastery.

Training programs

In the project method pupils are given or develop their own complex tasks (projects). The desired knowledge or skills is acquired by working on the task. The American philosopher and educator John Dewey (1859-1952) is generally regarded as the mastermind of the project method or respectively project instruction. He developed alternatives to school instruction based on the point of view of the so-called pragmatism (insight is generated by and for action – knowledge is acquired for the purpose of action). According to Dewey, school learning is actually an exception. "Under normal conditions" learning is the "product and reward for the engagement with material. Children do not consciously set out to learn to walk or speak. [...] One learns as a consequence of direct activities." (Dewey 1966, p.169) The project method should lead to

Projects

such direct activities and the resulting learning processes and successes. The results of projects are often, but not always, products or objects in the literal sense, i.e. handmade or artistic things. In many cases these take the media form of immaterial project work, e.g. films, documentaries and exhibits originating from the framework of projects. Projects need not always be an extended form, but can be overlapping forms used in training programs or the like.

Study trips and excursions As a method of extended forms, study trips and excursions are important above all in schools with older pupils.



### Practical Exercise 3:

Please compare two extended forms of your choice with regards to their demands on teachers and students.

Now we come to the second dimension, the action situations. Action situations is the name for the components of interaction in teaching-learning situations. They are “deliberately designed interaction units infused with meaning and significance” (Meyer 1994a, p. 116).

In teaching-learning situations, social action takes place. According to Max Weber’s classic definition, this is action that, “by virtue of the subjective meaning attached to it by the acting individual(s), it takes account of the behaviour of others and is thereby guided” (WEBER, M.1980 (5), p. 1).

We have command over an abundance of verb pairs with which related forms of social action can be expressed: speaking - listening, writing – reading, giving – taking and so on. To a certain degree continuing education courses are like a long chain in which action situations are the links. The agents’ actions are linked to one another, interrelated and possess an inner dynamic. The question pushes toward an answer, the example toward a generalization, the concrete toward an abstraction, the provocation toward a reaction, the confusion toward clarification, the contradiction toward resolution (Meyer 1994a, p. 120).

Mnemonic sentence

The single elements of action are not constantly reinvented, rather their linking and sequencing has a long tradition and usually a great amount of routine. The term pattern of action describes common linkages and coherent, lived progressions of action sequences. Let us look more precisely at a few such patterns of action.

Narrating and reporting as patterns of action

The psychologist and student of Piaget, Hans Aebli dealt with narrating and reporting as a basic form of teaching prevalent in all cultures. “Parents narrate to their children and the old narrate to the young. Gifted and experienced narrators entertain the less gifted and experienced with their stories.” (Aebli 1997, p. 33) The pattern of action in narrating and reporting is that of speaking and listening, referring to one another in complementary manner.

Even if in the purely linguistic sense this communication appears to be a one-way, there is nonetheless feedback between speaker and listener. This may be linguistic, for example when questions are posed, or metalinguistic

(“mmh”), but certainly always occurs nonverbally (facial expressions, gestures, proximity or through distance or similar means of communication). “Increased physiological tension or sympathetic physical attention always communicates interest. Rejection of the material being offered or of the teacher himself is expressed by physical avoidance, boredom or declining attention, or by physical atony” (Aebli 1997, p. 33).

What actually happens in narrating and reporting? Hans Aebli analysed this process from a psychological point of view: the speaker begins by first activating a singular element of meaning. These may be notions, concepts or thinking operations, that is “objectively determined contents of the intellectual life” (Aebli 1997, p.46).

Added to these are feelings, moods and especially in the case of narratives, “value experiences” (Aebli 1997, p.46). The speaker encodes these in language but also in non-verbal and para-verbal signals. He produces speech sounds, words, sentences, texts and at the same time communicates through facial expressions, body language and movement (nonverbal) as well as through sound volume, emphasis, clearing of his throat etc. (paraverbal).

Encoding and producing are usually highly automatic processes that one is, to a great extent, hardly aware of. The sentence, “How should I know what I think before I have heard what I say?” exaggerates this fact, but pay attention just once to how little you normally have to think about narrating or reporting in order to be able to narrate or report something to someone. Automatism of encoding

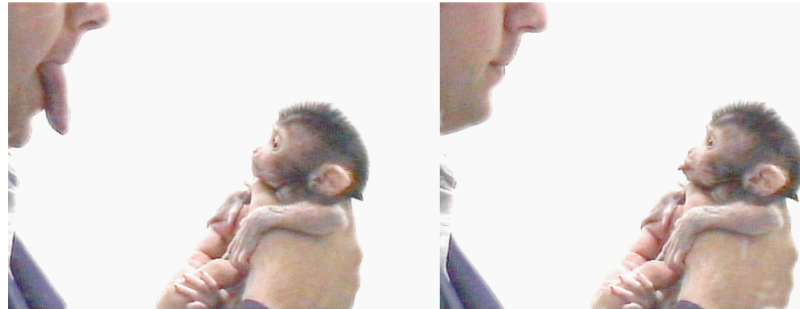
Overall, through the encoding of individual elements of meaning into meaning transporters, a complete message is created. These are then discerned by the listener. The linguistic sounds are “translated” into words, sentences and so on. Paraverbal and nonverbal signals are interpreted. The complete message becomes decoded: The listener’s thinking follows the speaker’s notions, concepts and thinking operations, he empathises with his feelings and concurs with his judgements. This is admittedly a somewhat schematic description of narrating and reporting. It is just this schema that demonstrates the possible sources of mistakes and problems. What happens, for example, with the speaker’s nonverbal statements contradict what his words are signalling? What happens when particular expressions are understood (decoded) completely differently from how the speaker intended them?

Narrating and reporting is a basic type of human communication which possessed great significance especially in cultures without a written language or with limited reading and writing skills. “Homer, Walter von der Vogelweide and the Irish poet Thomas O’Crohan never went to school. How did they learn to speak, think and act?” (Aebli 1997, p.33) Narrating and reporting were not lost due to the promulgation of a written culture but they are used instead in the media forms and continually acquire new variations.

A further pattern of action is that of modeling and imitation. We employ this elementary form for one when we want to teach others something that is an action in the strict sense of the word, for example showing a child how to use

Modeling and imitation as  
patterns of action

a knife and for explaining to an adult how to use an appliance. “I would like, just once, to see someone teach us the movements of a dance or how to handle a horse or a weapon by pure observation or how to play with or sing sounds without manipulating them ourselves,” the French philosopher Montaigne said (cited according to Aebli 1997, p.65). One key requirement for this pattern of action is the ability for observational or imitation learning (see Figure 2.5).



**Figure 2.5:** *Newborn macaque monkey imitates protruding tongue* ([http://de.wikipedia.org/w/index.php?title=Bild:Makak\\_neonatal\\_imitation.png&filetimestamp=20061221120643](http://de.wikipedia.org/w/index.php?title=Bild:Makak_neonatal_imitation.png&filetimestamp=20061221120643), 28.9.2008)

#### Neurological foundations of imitation learning

The basis of imitation learning is now quite well-researched as a result of animal experiments and imaging technology. Special nerve cells not only fire when performing movements, but also when observing the movements of other living beings. The physiologist Giacomo Rizzolatti from the University of Parma who discovered these phenomena in the mid-1990's shaped the notable term “mirror neurons”. The newborn macaque monkey in the picture imitates the tongue protrusion it had never seen before and could not ‘learn’. The neuronal mirroring of observed behaviour anchored in the brain is not only an important prerequisite for observational learning but also for social behaviour from empathy to interaction.

This neurologically anchored inner mirroring or concurring is the necessary requirement allowing modeling and imitation as an basic pattern of action to function. If we model something for other people in order to teach it to them, we often proceed intuitively or other times systematically using a series of steps:

#### Modeling steps of patterns of action

1. We begin by drawing attention to the process that is to be learned.
2. Then we clarify the problem that will be solved by this following this procedure (shoe tying or initiating some other programme with certain steps).
3. Then we demonstrate the course of action slowly, vividly and repeatedly.
4. Complex procedures are broken down into individual phases in order to make the course of action transparent and practice-able.
5. We name the individual elements and mistakes that are commonly made in carrying out the course of action.

6. Finally we guide participants to intensified practise so that the individual steps and finally the entire course of action is 'absorbed into one's bloodstream', and the relief via automation discussed above can take hold.

#### Activity 4:

##### Modeling and Imitation Lacing Technique:

1. The lace is run straight across the bottom [...] and the ends are fed in through both bottom eyelets.
2. The right [...] end is run straight up the inside and emerges through the next eyelet up the shoe, then continues straight across on the outside and is fed in through the opposite eyelet on the left side.
3. The left [...] end is crossed diagonally on the inside, skipping past one eyelet to emerge through the next empty eyelet up the right side. It then continues straight across on the outside and is fed in through the opposite eyelet on the left side.
4. Repeat step (3) with each end in turn, each time running diagonally on the inside and straight across on the outside, until one end (yellow) reaches the top right eyelet.
5. The other end [...] is then run straight up the inside to emerge through the top left eyelet.

(<http://www.fiegggen.com/shoelace/sawtoothlacing.htm>)

In the original, the description of shoe tying is depicted in a sawtooth pattern with coloured pictures which are referred to in various places. Think about why the description in the basic form of a report seems so complicated. For which types of learning tasks is modeling and imitation better and for which types is narrating/reporting is wiser?



In vocational training, education in the workplace often uses a modeling and imitation pattern of action called the 'four-step method'. This includes the phases of preparation – execution – follow-up – completion and corresponds to the heart of the sequential scheme outlined here, except that the preparation corresponds to the first two phases of the outlined model, the execution to the next three phases and the follow-up and completion correspond to what is called the instructions for intensified practice.

Modeling and imitation in the four-step method in vocational education

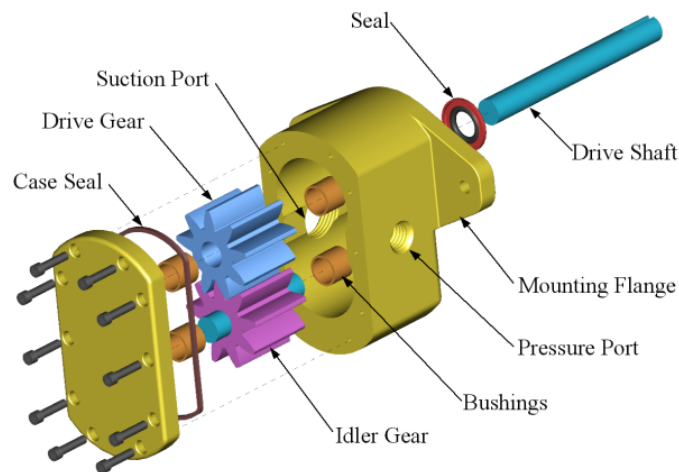
Showing things, images and the like, the basic form of examining and observing, is likewise a rudimentary way of teaching someone something. Even if the terms "looking at" or "appearance" suggest something else, they are not about optic perception. Rather other senses may be active in these processes.

Showing as a pattern of action

The development leading to schools as we know them today was accompanied by the demand not only to practise discourse and listening, but to use other paths of instruction. It was with this thought that school reformer Johann

Amos Comenius, who was one of the first to demand compulsory elementary education, claimed in the mid-seventeenth century in his great teaching work: “May hearing always be connected to the face, the tongue to the hand such that, that which should be known may not simply slip into the ears from the telling but through the painting of the eyes be imprinted on the imagination.” (Comenius 1902, p. 149). And he recommended the “golden rule for teaching: to review all things using as many senses as possible” (Comenius 1902, p. 193). As a result he demanded for instruction that “things,” or if they are not present then representatives thereof, “in particular pre-made illustrations intended for instruction,” be allowed to speak (Comenius 1902, p. 195).

Facts, thought patterns and connections/relationships are often easier to understand when they are presented in the form of a drawing or picture. In many cases a purely linguistic description is much too intricate, making it simpler to refer to an illustration in giving one’s explanation. In some cases, “a picture says a thousand words” holds true. Take one look at the exploded illustration of a pump (Figure 2.6) and think about how difficult it would be to explain the assembly of the single parts without the help of the illustration.



**Figure 2.6:** *Gear pump exploded,*

*Source:*[http://de.wikipedia.org/w/index.php?title=Datei:Gear\\_pump\\_exploded.png&filetimestamp=20070124094816](http://de.wikipedia.org/w/index.php?title=Datei:Gear_pump_exploded.png&filetimestamp=20070124094816)

As with modeling and imitation, one “didacticises” in showing as well, that is, when we show someone something, we do not assume that sensory contact alone is enough. Rather we steer his attention and structure his perception. Perception itself is not simply an illustrative process but an active process in which constant sensations from sensory stimuli are selected and organised. This selecting and ordering is based on innate physiological characteristics as well as experience and, seen functionally, provides protection against overstimulation. Only stimuli that are noticed reach the so-called sensory register and from there travel mentally attended and carefully scrutinized to the short-term memory and in some cases continue into the so-called working memory.

Perception is learned. “Perception learning is the most clear in reading: whereas



a beginning reader sees only letters, the experienced reader sees characteristic groups of letters and units of meaning. The same is true of someone who understands a language: whereas the inexperienced listener of a foreign language hears only a stream of speech sounds (loud speaker announcements at a train station!), a person who knows a language can distinguish between individual words and parts of words in a language. He successfully 'segments' the stream of language and assigns the parts their meaning" (Aebli 1997, p. 82).

In addition to the patterns of action examined closely here, there is an abundance of additional ones. Think for example of the multifaceted significance the question and answer pattern has for teaching and learning or of the pattern of action on which role playing and simulation games are based.

Now we come to the third dimension of teaching/instruction, the social form. Social form refers to the type of organised collaboration in learning. There are four different forms: whole group work, group work, partner work and individual work.

Mnemonic sentence

- Whole group instruction: In this social form a teacher stands in front of the whole group of learners. In schools, where this term was originally coined, the class lesson or classroom teaching was the typical expression of this social form. In adult education, this refers to lectures and similar arrangements
- Group work: When larger groups (school classes, seminar groups etc.) are divided up into smaller units, one speaks of group or small group work. In the school context one usually distinguishes between group work and group instruction: "group instruction is a social form of instruction which splits a whole class into a number of divisions for a limited period of time thereby creating small groups capable of working together on a topics chosen by the teacher or by each group itself. The results of their work can be made useful for the whole class in later phases of instruction. *Group work* is goal-oriented work, social interaction and language-based communication performed by pupils and teachers in this social form" (Meyer 1994b, p. 242).
- Partner work: The cooperation between two pupils is described as partner work. As with group work, it is assumed that the work takes place within the context of the overall group or school class.
- Individual work: This is also true of individual work whereby the individual learner works on his learning or practice task.

Four social forms

These four social forms cover the spectrum of possible forms of organised teaching and learning in the presence form. "Instruction is either classroom teaching or group instruction or partner work or individual work" (Meyer 1994a, p. 138).

The thought direction in which observation usually proceeds is also worth mentioning: For the most part a large group (classes, seminar groups and so

forth) is assumed. The other social forms are seen as temporary variations. The large group is temporarily divided up into small work groups, the learners turn to their neighbours for a time or are absorbed in a single task. If we look closely at the diversity of human learning that does not occur as organised learning, then the ranking order is more the opposite. Learning in a small group, together with other people or all by oneself is normal and learning in a large group is the exception. Because we take organised learning in school as the starting point, the remarkable ranking and distribution of tasks.

Outer and inner aspects of social forms

It is useful to differentiate between the two aspects of social forms. The outer aspect is the arrangement of participating persons in the room, which is influenced to a great degree by the architectural confines of the room and way it is furnished. The inner aspect of social forms may not be directly observed. Rather it can only be inferred. The connection between the outer and inner side becomes apparent when, for example, one thinks about the connection of seating order to the line of vision and direction of communication of the participating persons. Lecture-style or theatre-style seating is completely different from a circular arrangement or the placement of suite arrangements. The arrangement in the room, the distance of communicating persons to one another, the so-called proximity, is also an important element of interpersonal communication.

Mnemonic sentence

The fourth and final dimension of teaching we would like to examine here is the progression form. The term progression form or activity phase, the instruction steps etc, we mean the temporal sequence/progression of teaching-learning activities.

Progression forms

Common progression forms include beginning and ending, working out, intensification or presentation of a new topic. For each individual teaching-learning unit there are specific progression forms, at least three major sections of beginning, middle and closing. Often we can pick out further progression forms when, for example, material is dealt with in more depth or controversial standpoints are developed or conveyed together.

If we look at the four dimensions of methodical action discussed here together, the following picture results: teaching occurs in the various extended forms, that is common basic forms of instruction usually each of which is aimed at typical goals. The course of instruction may be understood as chains of complimentary patterns of action. Four social forms of instruction may be distinguished: whole group work, small group work, partner work and individual work. The temporal dynamics of instruction are described by the terms progression form or step of instruction.

Dimensions are interconnected

These dimensions are of course interconnected, otherwise one would be wiser to speak of them as 'circumstances' and not 'dimensions'. There are tight or more or less unilinear connections, but also looser couplings. An example of this is the extended form called the instructional unit which is almost unthinkable without the social form of whole group instruction. The extended form of workshops on the other hand can be employed in combination with any of the four social forms without a problem.

### 3 Investigating Teaching

In this chapter we will pursue methods by which teaching in individual schools can be investigated. Teaching development strategies and techniques will be addressed in the chapter following. Admittedly the distinction is not completely convincing.

Overview

If instruments such as tests, questionnaires or observation are properly used, they change the teaching praxis. The investigation of teaching becomes teaching development. In empirical research, reactivity, that is the influence of the investigative methods on the object of the investigation, is an important problem but for the investigation of teaching within an individual school, it is desirable. When teachers observe one another's teaching, when students or parents are asked for their judgement of the school and teaching, it changes the school and teaching. Thus this chapter is also about teaching development. Specialised advanced strategies and techniques of teaching development will be addressed in the next chapter.

Investigation of teaching becomes teaching development

The teaching objectives must be clear for all methods, and they must be translated into researchable categories, i.e. they must be operationalised. What does this mean? Let us take a look at the taxonomy of learning and teaching objectives developed by Bloom et al. and discussed above. You find here verbs for the common actions seated on each of the various levels. At the simplest level (knowledge) bodies of knowledge for example can be defined, remembered, related or repeated. At the comprehension level they can be selected, translated or discussed and at the application level illustrated, dramatized or employed. At the analysis level appraisals can be rendered, positions defended or facts can be compared and analysed.

Teaching objectives must be clear

- Knowledge: arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce state.
- Comprehension: classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate.
- Application: apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write.
- Analysis: analyse, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.
- Synthesis: arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.

- Evaluation: appraise, argue, assess, attach, choose compare, defend estimate, judge, predict, rate, core, select, support, value, evaluate.



#### Activity 5:

Please draw up a list of observable or measurable student tasks at the various levels of Bloom's taxonomy for a subject and level of education of your choice. In doing so, use several of the verbs presented.

### 3.1 Tests

When we speak of “tests” in the following, we mean all variations of performance reviews. In this general sense testing takes place when a student answers (or does not answer) a teacher's question during instruction.

With regards to the quality of teaching, tests have two essential functions:

#### Functions

- Tests are a part of quality teaching. This means: If I want to appraise and raise the teaching quality, I must make an effort with regards to the quality of tests employed in teaching.
- Test results could be indicators of teaching quality. They not only show the individual student what learning performance he has achieved, but also show the teacher if the teaching objectives were achieved to the extent desired or if certain knowledge is not yet sufficiently available.



#### Activity 6:

Which types of tests are used in your school? What can you deduce from the test results for the design of your teaching? In your opinion, what are the typical mistakes that happen to teachers with regards to tests?

In the first study text of this module we saw that tests of various kinds in schools have played an important role for a long time already. We have seen that various functions are assigned to tests and the marking of tests (selection, socialisation, feedback, prognosis and so on) and that these differing functions are not always compatible with one another.



#### Activity 7:

In the first chapter of the first study text of this module we saw that for H. Meyer the clear description of objectives to be met is an important prerequisite for good teaching (“The student must know what to learn, why to learn and how to learn. This clarity of descriptions makes pressure unnecessary.” Meyer 2006, p. 7).

What significance do tests have with regard to these demands?

Based on the approach different test variations in schools can be distinguished.

- Written tests are widely used and can be distinguished depending on the structuring as either multiple choice or free text tests. Different test variations
- Aside from these, there are oral tests that can be administered either in a fully structured, question and answer format or free-form.
- The third variation is demonstrations or simulations. These play an important role for example in natural science instruction when a students conduct an experiment or in sport class when they demonstrate a gymnastic exercise.

Three basic steps are completed in conducting a test:

Three steps

1. Test preparation: The first thing here is to clarify the goals of the test. Here the question, among others, of the primary function, plays a role. Are the students meant above all to receive feedback about their state of learning or is the purpose that of selection because the test results will, for example, be relevant for a degree or for a school report. Or is it more about sending the whole class a signal about the performance expected? The test will be designed based on the goal clarification. The details will be addressed below. Basically, one must be certain that the tasks are appropriate for testing that which is to be tested. The validity of the test is significant. Plus one must ensure to the degree possible that the results are valid, not characterized by random conditions. This is the only way to guarantee reliability. Finally, during the test preparation the question of how to avoid allowing the teacher's personal judgements and preferences to influence the results must be addressed in order to ensure the greatest possible objectivity.
2. Test administration: Decisive questions regarding the administration have usually been clarified during the preparation. The testing conditions must be secured. That means for example trying to prohibit copying during written tests. For all tests resulting in a finished object to be evaluated, that is written examinations or artistic or handmade products as well, the teacher is responsible during the test first and foremost for securing the testing conditions. If necessary he may explain a task or do something to this effect, but the actual evaluation of student performance does not occur until later. By contrast, in the case of oral examinations, demonstrations or experiments student performance must be judged at the time it is given.
3. Test evaluation: The rating of tested performance and feedback is sometimes completed directly following the test and sometimes later. A consequence of the demand, "The student must know what to learn, why to learn and how to learn," (Meyer 2006, p.7) the following holds: the student must know what he can do better and if applicable why and how he should learn differently. This feedback on the student can supply important clues about where teaching and learning objectives are not clear

or where overall teaching deficiencies exist. The test evaluation can also consist of an evaluation of the test itself. Were questions asked clearly? Overall, was the test too easy or too difficult? Was it suitable for testing the competencies and knowledge they were supposed to have been conveyed in teaching? Those are typical questions for evaluating the test to some degree.

Now you may possibly argue that you do not perform these three steps every time you ask a student a question. You are right. This is a model. It can help to see more clearly where difficulties or problems can sometimes arise and how to rectify them. We will look at this more closely by way of a few examples.

In the first study text of this module we saw that multiple choice tests consist of a task stem, one or more correct solutions, and inapplicable distractors. We have seen that the construction of multiple choice tests is laborious and complex if the tests are to be demanding and should prevent students from finding the solution by intelligent guessing. Let us take a look at some rules one should pay attention to in constructing multiple choice tests. (<http://www.phil.uni-sb.de/FR/Medienzentrum/verweise/psych/aufgaben/mcguideline.html>).

#### Multiple choice tests

1. Construct each task in such a manner that it measures an important teaching objective!
2. Present in each stem only one single clearly worded problem! Ideally one should strive to state the stem so unambiguously that a knowing student can name the answer without having seen the alternatives.
3. Formulate the stem in simple and clear language!
4. Pack as many words as possible into the stem if that makes it possible to cut down on words in the answer alternatives!
5. The task in the stem should be stated in positive terms!
6. If a negative formulation cannot be avoided, then highlight the negation so that it cannot be overlooked.
7. Take care that the answer designated as correct really is the correct answer!

If the correct answers contain textbook wording or stereotypical language, the student is more likely to mark it than the distractors. A similar thing happens if correct answers have a longer explanation than the distractors. If categorical terms like “always, never, all, none, only” appear in the distractors, this will quickly be recognized as evidence that it is not the correct answer. Sometimes the relationships of the possible answers to one another betray them. “Two very similar alternatives with the same meaning must be wrong if there is only one correct answer. The distractors should mainly present true, independent alternatives and not be similar to one another.” (<http://www.phil.uni-sb.de/FR/Medienzentrum/verweise/psych/aufgaben/mcguideline.html>)

Multiple choice tests are relatively laborious to design because one must carefully choose and formulate the stem, the correct answer and the distractors, but they are comparatively easy to evaluate. In most cases one only needs an answer key. The influence of the person evaluating the tests is reduced. He does not need to interpret a text, but only to check if the marks are on the proper spots. By comparison, free text tasks are more difficult to evaluate. In the first study text of this module we saw that the international comparative studies also employed free text tasks. For these the evaluators were given examples and instructions for how they must assess and score student responses.

### **Students view: 10 Common Test Mistakes**

1. Leaving an answer blank. - Solution: Each time you skip a question, put a checkmark beside it.
2. Answering a question twice.- Solution: Review your work and make sure each true/false and multiple choice question only has one answer circled!
3. Transferring answers incorrectly from scratch paper. - Solution: Double check any work you transfer from a scratch sheet.
4. Circling the wrong multiple choice answer. - Solution: Make sure the letter/answer you indicate is the one you really mean to select.
5. Studying the wrong chapter. - Solution: Always ask the teacher what chapters and lectures will be covered on a test.
6. Ignoring the clock. - Solution: Always take the first few moments of an exam to assess the situation when it comes to essay questions and answers. Give yourself a time schedule and stick to it. Give yourself a set amount of time to outline and answer each essay question and stick to your plan!
7. Not following directions. If the teacher says “compare” and you “define,” you are going to lose points on your answer. There are certain directional words that you should understand and follow when you take a test. - Solution: Know the following directional words: Define: Provide a definition, Explain: Provide an answer that gives a complete overview or clear description of the problem and solution for a particular question, Analyze: Take apart a concept or a process, and explain it step by step etc.

8. Thinking too much. - Solution: If you are a thinker who tends to over-think, and you get a strong hunch when you first read an answer, go with it. Limit your thinking time if you know you tend to doubt your first instincts.
9. Technological breakdown. - Solution: Always bring extra supplies to an exam.
10. Not putting name on test. - Solution: Always write your name on a test before you get started!  
(<http://homeworktips.about.com/od/schooltests/a/testmistakes.htm>)

Poorly planned or carelessly formulated multiple choice tests are in danger of assessing rote learning instead of cognitive skills and comprehension performances. If teaching is meant to cultivate cognitive skills and comprehension performances, then such multiple choice tests are not valid. Generally the prospect of testing higher cognitive achievement by using multiple choice tests is limited. They leave no room for interpretation or argumentation. That makes them largely unsuitable for the humanities like literature or philosophy.

**Free text tests** For free text tests, the work of those who design, administer and evaluate the tests is distributed differently than for multiple choice tests. Formulating questions or tasks that will be answered or solved freely is often simpler than designing multiple choice tasks. In exchange evaluating them is far more effort. The answers must be carefully read and checked with respect to clarity, logic and factual correctness. In the assessment of student performance the scoring of free text tests is more vulnerable to subjective influences. Thus it could be that the evaluation of tests varies depending on who is evaluating them. This presents a problem with objectivity.

**Ten levels** Let us look at this via the example, “Writing a narrative text”. Here you find an evaluation aide from the Writing-Literacy Test for texts written by students in which ten levels are distinguished (Australian Council for Educational Research 2007, p. 32).

1. Show an awareness of the topic and the task, though without necessarily producing a recognisable story. Use basic conventions and simple (perhaps unpunctuated) sentences. Usually spell correctly frequently used words and one- and two-syllable words with common spelling patterns.
2. Show a basic understanding of the task by producing a recognisable (possibly very brief) story that is related to the prompt. The story includes some narrative elements such as characters, setting or a problem to be resolved. Use simple sentences and some linking words such as “and”, “but”, “then”, “because”. Use full stops / periods and capital letters. Spell common words and readily recognised words of one- and two-syllables consistently and accurately.



3. Develop a story with a simple plot. It may be episodic or descriptive, rather than a connected narrative. Control simple sentence structures, using common punctuation and demonstrating a sense of sentence shape. Generally use simple vocabulary without spelling errors. Show awareness of phonetic and visual patterns when attempting to spell less common words.
4. Develop a story that includes key elements such as a logical sequence of events, main character/s, and a setting. Show an emerging sense of audience. Include compound and complex sentences in which clauses are joined by linking words such as “but”, “when”, “after”, “because”, “or”, “so”. Vary sentence beginnings. Punctuate sentences using full stops / periods, capital letters, question marks, and perhaps commas. Spell correctly most words from a limited (student) vocabulary.
5. Show an understanding of narrative writing, with most ideas contributing to the story and an emerging ability to develop characters through description, speech or action. Write with a degree of fluency using a variety of sentence forms, and possibly paragraphs. Attempt to select vocabulary for effect. Spell correctly a wide range of vocabulary that is commonly used by school students.
6. Shape writing with a clear beginning and end and with ideas, details and events chosen to enhance the story. Create distinct characters through description, speech or action. Write fluently and smoothly overall, though may include some lapses in grammar or syntax. Use a variety of sentence forms and a range of linking devices. Organise writing using paragraphs. Use a vocabulary suited to the content and type of text. Spell correctly most words from a typical student vocabulary, including those with irregular patterns.
7. Link ideas and events within a sound structure that has a clear time sequence. Create individualized and credible characters, showing the motives behind their actions and their emotional responses. Attempt to engage the audience. Generally control grammatical structures and punctuation in complex sentences. Select appropriate vocabulary, with some sense of emerging voice. Spelling is mostly correct.
8. Link ideas and events within a well-constructed story that has a clear time sequence and a consistent narrative voice. Create convincing characters, showing the motives behind their actions and their emotional responses. Deliberately engage the audience, perhaps through humour or suspense. Control grammatical structures and punctuation in a variety of complex sentences. Select precise and effective vocabulary, though it may not necessarily be sophisticated or extensive. Spelling is competent.
9. Write a sustained and convincing story that engages the reader. May include some reflection. Create characters that give the reader a sense of insight into their lives. Structure the story effectively overall, and use correct grammar and punctuation. Select imaginative vocabulary and

phrasing to create mood and atmosphere. Demonstrate an individual voice or style that suggests growing maturity.

10. Write a sustained story distinguished by complexity of purpose, viewpoint or subject matter. Include thought-provoking reflection on attitudes, values or ideas. Construct a skilful and original plot supported by carefully selected detail. Create a convincing persona as author or as a participant in the action. Develop characters with emotional or psychological complexity. Write maturely and fluently. Form well-constructed sentences whose grammar, syntax and punctuation are error-free. Use effectively a sophisticated but unpretentious vocabulary. Display a strong individual voice and considerable flair. Spell a wide-ranging vocabulary with virtually no errors.



#### Activity 8:

If you have experience with texts written by students please complete the following task: The ten step scale is very complex. In your work could you dispense with some levels because the performance spectrum of your students does not span all the way from 1 to 10, but only over a part of the spectrum, i.e. you have no totally weak or no totally strong students? Or would you combine two or more levels into one in order to make the system more concise?

If you have no experience with texts written by students, complete the following task: Draw up a multi-level scale for a subject you teach according to the sample for the evaluation of student texts you saw here.

It can sometimes be difficult to guarantee the necessary objectivity not only for free response texts and the like but also for demonstrations or simulations. However there are sometimes clear scripts students follow, for example in order to conduct an experiment in natural science.

**Feedback** Feedback is often more brief for multiple choice test especially if the reference parameters (number of points and so forth) were clear before the test. Otherwise the feedback can be more complex. Let us look at one example. In Figure 3.1 below you see a parent letter informing parents of students who participated in the Writing Literacy Test just introduced.



#### Activity 9:

In everyday school life one gives not only students but also now and again parents feedback about learning performance. Describe the similarities and differences.

Dear Parent

**Re: Report on your child's performance in the International Schools' Assessment 2007-8**

In October 2007 your child participated in the International Schools' Assessment (ISA), a program developed by the Australian Council for Educational Research (ACER) and designed specifically for international schools.

Your child's results on this assessment are enclosed.

The ISA assesses students in the three learning areas of Mathematical Literacy, Reading and Writing, using pencil and paper tests designed for Grades 3, 4, 5, 6, 7, 8 and 9 or 10.

To the right of each page of the report there is a **column with a scale marked at intervals of 100**. This is the "ISA scale"<sup>1</sup> for each domain. Within each learning area, the scale has the same meaning for all grades. For example, an ISA scale score of 450 for a Grade 3 student indicates the **same** level of proficiency as an ISA scale score of 450 for a Grade 10 student: it would indicate a very high level of performance for a Grade 3 student in comparison with other Grade 3 students, and a below average performance for a Grade 10 student.

Your child's achievement in this assessment is shown with a **large circle** on the column. The skills, knowledge and understandings typical of a student at this level of achievement are described in words in the text alongside and below the large circle.

The **shaded band** across each section of the report indicates the proficiency of the middle 60% of all students at this grade level who participated in October 2007 ISA.

You can find more information about the ISA program on the Internet. Go to [www.acer.edu.au/isa](http://www.acer.edu.au/isa)

Please remember that it is important to consider the results of this assessment in the context of other information about your child's achievement provided by teachers and the school. For more details about interpreting the report, the ISA program, or to discuss your child's results, please contact the school.

Yours sincerely

**Figure 3.1:** *Feedback for parents regarding their child's test performance (Australian Council for Educational Research 2007, p. 27)*

## 3.2 Surveys

In the first study text of this module we saw that written surveys are employed primarily for two purposes:

1. One surveys opinions and attitudes. In this case, it is a major challenge to get the interviewees to express their true attitudes. Typical hindrances include striving to express only what is socially acceptable or pressure to conform. Written surveys
2. The interviewees provide information. The key question is whether they are truly capable of doing so, i.e. whether they have the necessary information. In addition one must clarify whether there is not an easier or more reliable way to obtain the information.

In the international studies we saw surveys being used primarily to obtain information. Students are asked how many books are in their home, how they spend their leisure time and so on. Teachers are questioned about their teaching techniques, about behavioural problems in the class and many other

things. Parents and principals are questioned for the most part in order to obtain information that would be difficult or impossible to obtain in broadly based studies because, for example, regulations governing confidentiality would prohibit obtaining and processing detailed social demographic data. In Table 3.1 you see an excerpt from the TIMSS Student Questionnaire dealing with teaching and learning methods in science instruction.

**How often do you do these things in your physics lessons?**

Fill in **one** circle for each line

|  | Every or<br>almost<br>every<br>lesson<br>↓ | About<br>half the<br>lessons<br>↓ | Some<br>lessons<br>↓ | Never<br>↓ |
|--|--|-----------------------------------|----------------------|------------|
| a) We make observations and describe what we see----                       | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| b) We watch the teacher demonstrate<br>an experiment or investigation----- | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| c) We design or plan an experiment or investigation---                     | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| d) We conduct an experiment or investigation-----                          | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| e) We work in small groups on<br>an experiment or investigation-----       | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| f) We read our physics textbooks and other<br>resource materials-----      | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| g) We memorize science facts and principles-----                           | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| h) We use scientific formulas and laws<br>to solve problems-----           | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| i) We give explanations about what we are studying---                      | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| j) We relate what we are learning in physics<br>to our daily lives-----    | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| k) We review our homework-----   | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| l) We listen to the teacher give a<br>lecture-style presentation-----      | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| m) We work problems on our own-----  | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| n) We begin our homework in class-----                                     | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| o) We have a quiz or test-----   | ①-----                                     | ②-----                            | ③-----               | ④-----     |
| p) We use computers-----   | ①-----                                     | ②-----                            | ③-----               | ④-----     |

**Table 3.1:** *Instruction and Learning Techniques, excerpt of the TIMSS Student Questionnaire (IEA 2007a, p. 23)*



**Activity 10:**

The excerpt of the questionnaire deals with science instruction. Develop a similar task for another subject or subject group (mathematics, foreign language, native language, sports etc.).

Studies rarely inquire about opinions or attitudes, and if they do then it is only with regard to students' leisure activities or their attitudes about certain school subjects. In schools this is fundamentally different. Here we usually have access to certain information about the individual students because, for

example, when they enter the school they fill out an admission form that is kept on record. Thus, aside from admissions procedures, questionnaires in individual schools are usually surveys of attitudes or opinions, primarily concerned with the evaluation of school or teaching.

However, this does not mean that as a teacher or principal one truly has the majority of important information at one's disposal.

### Activity 11:

In the first volume of this module you became familiar with a number of areas about which students were interviewed in the studies. For which areas do you or your colleagues have a lot of information about your students and for which areas would you first have to conduct interviews in order to obtain information? For example, what do you know about the students' homes, the support or material provisions there?



There are a number of common alternatives for questioning students about teaching quality. Questioning can be oral or written, structured or unstructured. Students can be asked for information about certain facts or for their opinions or judgements. In the comparative studies presented in the first study text, student questionnaires are used most commonly to obtain information. This includes information about the teaching that students experience on an everyday basis.

When speaking of student questionnaires in individual schools, one is often not referring to surveys intended to gather information but instead to evaluation or feedback procedures. Some of the information that one must collect for comparative studies via questionnaires are already available in the individual schools. They usually have data about family background and to some degree about the economic situation of their students already. They probably also know which methods are used in teaching in their school. It can nonetheless be interesting to ask students about these matters.

In addition to written questionnaires, oral interviews can also be used in schools. Interviews have the advantage that the interviewer can ask for explanations of circumstances or judgements. On the other hand they are quite involved, as we saw already in the first study text of this module. Plus it is usually the teacher who interviews the students, making it questionable as to whether the answers are given as freely as is necessary.

One possible alternative for oral interviewing is a class group discussion. It can be extraordinarily inspiring, but here again the social desirability problem presents itself: Do students express what they really think and how they truly see the instruction?

We have already dealt with the basic pros and cons of student questionnaires in the first study text of this module. They are briefly summarised in Table 3.2 here.

| Pros  | Cons  |
|---|---|
| Students are the target population of teaching and thus nothing is more obvious than allowing them to have their say.   | Judging teaching may be asking too much of pupils. It is difficult for them to judge the didactic competency and professional aptitude of teaching staff.   |
| As opposed to evaluators who base their judgement of teaching behaviour in a single lesson or a video clip, students can base their judgement on one or more school years.  | The standard students use as a basis for making a judgement about a particular teacher and the timeframe they are cognitively accessing is often unclear and cannot be ascertained by looking at the answers they give. |
| Aggregating the data of individual students to class medians makes it possible, if not to eliminate, then at least to reduce distortions and mistakes.                      | In single cases it is not possible to rule out that the data is distorted (e.g.: preference for extreme answers, negative downgrading or friendly upgrading as a sort of courtesy statement).                           |
| The variance within the class regarding the judging of the characteristics of teaching may be interpreted as evidence of the degree of consent or dissent within the class. | Overall popularity of and appreciation for teaching staff interferes with providing differentiated statements regarding the individual facets of teaching quality.  |

**Table 3.2:** *Pros and Cons of Student Appraisal of Teaching (Helmke 2003, p. 167)*

Short surveys Student questionnaires often ask for judgements about the teaching in general. It is also possible to survey students directly after the class instruction is over. Here is an example of a short survey of students regarding a particular lesson (Helmke 2003, p. 173).

#### Feedback about a Lesson

What we covered in the lesson, I understood ... very well, well, reasonably well, not too well, poorly, very poorly

During today's lesson I paid attention ... very well, well, reasonably well, not too well, poorly, very poorly

During today's lesson I participated ... very well, well, reasonably well, not so well, poorly, not at all

Was it clear to you what the teacher was driving at? completely clear, quite clear, somewhat clear, not so clear, quite unclear, completely unclear

For me today's lesson was ... much too easy, a bit too easy, exactly right, a bit too difficult, much too difficult

I found what we covered today ... very interesting, quite interesting, somewhat interesting, quite uninteresting, not too interesting, completely uninteresting

For me today's lesson was ... exactly like every other lesson, different because ...

Occasionally student questionnaires are used to evaluate not teaching but all or a particular part of what the school offers. In Table 3.3 below you see an excerpt of such a student questionnaire.



## Student Feedback Questionnaire

**This questionnaire is for you, as a student, to give your views about Carisbrooke. Its completion is voluntary. Your response will be confidential. The school improvement group will form their action plan from your comments.**

| Year 9 <input type="checkbox"/> |   | Year 10 <input type="checkbox"/> |                          | Year 11 <input type="checkbox"/> |                          | Year 12/13 <input type="checkbox"/> |  | (Please tick) |  |
|---------------------------------|---|----------------------------------|--------------------------|----------------------------------|--------------------------|-------------------------------------|--|---------------|--|
|                                 |   | Strongly agree                   | Tend to agree            | Tend to disagree                 | Strongly disagree        | Don't know                          |  |               |  |
| 1.                              | The school helped me to settle well when I arrived                    | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 2.                              | I enjoy school  | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 3.                              | I feel safe in school   | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 4.                              | I am taught well and challenged to do my best in my subjects          | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 5.                              | I find it easy to settle to work and stay on task in the lesson       | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 6.                              | I know what is expected of me in the lesson                           | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 7.                              | Homework is set regularly   | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 8.                              | My work is assessed thoroughly, so that I can see how to improve it   | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 9.                              | I am helped and encouraged to study and research topics independently | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |
| 10.                             | Teachers are available to help me if I have difficulties with my work | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/>            |  |               |  |

**Table 3.3:** *Student Questionnaire (Excerpt from [http://www.carisbrookehighschool.co.uk/downloads/documentation/publications/forms/feedback\\_student\\_questionnaire.doc](http://www.carisbrookehighschool.co.uk/downloads/documentation/publications/forms/feedback_student_questionnaire.doc))*

Complex exit interviews are often criticized, instead of an output evaluation a throughput evaluation is called for: “Traditional SETs [Students Evaluation of Teaching, M. H.-M.] are post-mortem measures that do not feedback to help the students in the course. [...] as the method only takes five minutes to administer, it can also be introduced at the level of the individual instructor who wishes to keep his or her teaching on track.” (Bastick 2002, p. 3) In Figure 3.2 you see the brief evaluation mentioned here.

Output evaluation vs. throughput evaluation

**Course Assessment - Skills, Understanding and Attitudes**

Estimate, for you personally, how much this course emphasises, and should emphasise (i) Skills, (ii) Understanding and (iii) Attitudes? Do this for both how the course is **now**, and for how the course **should be** - write a number in each box.

|  |  |  |   |
|--|--|--|---|
|  | As it is <b>now</b> on this course   | As it <b>should be</b> on this course  |   |
| (i) Emphasis on <b>Skills</b><br><i>(getting it right)</i>   | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <i>Write a<br/>Number<br/>in each<br/>box</i> |
|  |  |  |   |
| (ii) Emphasis on <b>Understanding</b><br><i>(knowing why)</i>  | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <i>Write a<br/>Number<br/>in each<br/>box</i> |
|  |  |  |   |
| (iii) Emphasis on <b>Attitudes</b><br><i>(relevance to your life)</i>  | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 | <i>Write a<br/>Number<br/>in each<br/>box</i> |
|  |  |  |   |
| How much so far have<br><b>you enjoyed your experience</b><br>of the teaching on this course?  | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 |  | <i>Write a<br/>Number<br/>in each<br/>box</i> |
|  |  |  |   |
| Before you started this course, how much did you expect that you<br>would <b>enjoy your experience</b> of the teaching on this course? | <input style="width: 50px; height: 25px; border: 1px solid black;" type="text"/> Your estimate<br>out of 100 |  | <i>Write a<br/>Number<br/>in each<br/>box</i> |

**Figure 3.2:** *Five Minute Feedback Form (Bastick 2002, p. 6)*

Parent questionnaires are also used by schools. These are of course more general and do not focus on lessons or subjects. You find a typical example in Table 3.4.

Parent questionnaires The parent questionnaires, as seen in Table 3.4, are not about the details of instructional design since parents are not directly involved and thus cannot judge them well. Rather they deal primarily with general questions of satisfaction with the school and teaching.



## Grange Primary School

### Questionnaire for Parents – November 2007

We would like to know how **satisfied** or **dissatisfied** parent are with the performance of Grange Primary School. Please tick the box that best describes how you feel.

|  | Strongly agree | Agree | Disagree | Strongly disagree | Don't know |
|--|----------------|-------|----------|-------------------|------------|
| My child <b>settled in</b> well when they started school and the arrangements were good.                           |                |       |          |                   |            |
| I am able to <b>speak to a senior member of staff</b> if I need to.  |                |       |          |                   |            |
| The <b>homework system</b> is <b>clear</b> and my child receives a <b>manageable amount</b> of homework.           |                |       |          |                   |            |
| My child is given the <b>opportunity</b> to take part in a <b>wide range of interesting enjoyable activities</b> . |                |       |          |                   |            |
| My child <b>enjoys</b> school.   |                |       |          |                   |            |
| The <b>discipline</b> in school is <b>consistent</b> .   |                |       |          |                   |            |
| I get <b>information</b> about the <b>progress</b> of my child in school.  |                |       |          |                   |            |
| There are <b>opportunities</b> for parents to <b>be involved with the school</b> if they want to be.               |                |       |          |                   |            |
| There is a <b>range of healthy food</b> for school dinner so that my child is <b>well nourished</b> .              |                |       |          |                   |            |
| There are <b>high expectations</b> for my child to <b>work hard</b> and to <b>do their best</b> .                  |                |       |          |                   |            |
| I m happy about the <b>quality of education</b> my child receives.   |                |       |          |                   |            |
| There is a range of <b>after school activities</b> if my child wants to attend.                                    |                |       |          |                   |            |

**Other comments:**

Please use the space below for any additional comments that you would like to make:

**The good features of the school are:**

**Table 3.4:** *Parent Questionnaire* (<http://www.grange.newham.sch.uk/docs/ParentQuestionnaire2007.pdf>, p. 1)

A parent-feedback with a questionnaire only makes sense if it is embedded in an on-going communication process between school and home. It would be peculiar if parents received sparse feedback about their children and then suddenly were given a feedback questionnaire. These questionnaires should be part of a culture of school feedback which also includes, for example, regular information to parents about their child's developmental and performance progress. In Figure 3.3 you see an extract from a checklist for the observation of handicapped children in the school and at home which is intended to encourage the exchange between school and home.

**Home and School Checklist for Success**

**LDA Minnesota**

**Student Name**

**Best Qualities**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Strengths**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Favorite Activities**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Motivators**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Interpersonal Skills**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Photo of Student**

**Three Most Important Things to Know about my Child**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

**Parent(s)/Guardian:** \_\_\_\_\_

**Home #** \_\_\_\_\_

**Work #:** \_\_\_\_\_

**Cell #:** \_\_\_\_\_

**Homeroom Teacher:** \_\_\_\_\_

**Other Teachers:**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Figure 3.3:** Checklist (extract) for Parents and Schools ([http://www.ldaminnesota.org/all\\_documents/misc/HomeSchoolCheckList.pdf](http://www.ldaminnesota.org/all_documents/misc/HomeSchoolCheckList.pdf))

A goal of parent surveys can be to obtain information about students, their family background or for example the at home support with homework and so on. In the first study text of this module we saw that parent surveys were employed in the international studies primarily for this purpose.



### Activity 12:

In the PIRLS parent survey parents were asked, among other things, “How often do you or someone else in your home do the following things with your child?” (IEA 2005c, p. 7). The following possible answers were specified:

- Listen to my child read aloud
- Talk with my child about things we have done
- Talk with my child about what he/she is reading on his/her own
- Discuss my child’s classroom reading work with him/her
- Go to the library or a bookstore with my child
- Help my child with reading for school

Please discuss the following questions:

1. How important is it for teachers to have such information about their students and the support they receive at home?
2. What means do teachers have of obtaining this information?
3. What are the pros and cons of questionnaires?

In addition to students and parents, teachers may be surveyed. In the first study text of this module we saw that teacher questionnaires are used in the international studies in order to inquire about the details of teaching and teaching methods. For studies that are collecting data from a large number of schools in many countries, questionnaires are a sensible means of obtaining information. But can they be used in individual schools as well? There a great deal should already be known or can be clarified by methods simpler than that of having teachers fill out questionnaires.

Teacher questionnaires

Questionnaires are nonetheless advantageous because they can be filled out anonymously. As we saw in the first study text, this reduces problems that may arise from pressure to conform or social desirability. Plus a carefully designed questionnaire can ensure that in fact all relevant information is collected. Let us look at an example. In Table 3.5 you see an excerpt from the TALIS teacher questionnaire. It asks about teacher activity in instruction.

Good questions may have a stimulating effect on those of whom they are asked. When we ask parents how they support their children in school activities or ask students what they like to do in instruction it can stimulate them to think more precisely than if they had not been asked. The same is true of teacher questionnaires. This may be observed in the example question from TALIS. When I as a teacher answer it, I take stock of how I proceed in teaching. Why do I use one particular method rather than another? These and other similar questions are obvious.

Good questions may have a stimulating effect on those of whom they are asked

**How often do each of the following activities happen in this <target class> throughout the school year?**

*Please note that not all questions in this section are fully adapted to all sorts of teachers. Therefore, please just answer as best you can.*

*Please mark one choice in each row.*

|   | Never or<br>hardly ever               | In about<br>one-quarter<br>of<br><lessons> | In about<br>one-half of<br><lessons>  | In about<br>three-<br>quarters of<br><lessons> | In almost<br>every<br><lesson>        |
|---|---------------------------------------|--|---------------------------------------|--|---------------------------------------|
| a) I present new topics to the class (lecture-style presentation). .....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| b) I explicitly state learning goals. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| c) I review with the students the   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| d) Students work in small groups to come up with a joint solution to a problem or task. ....                          | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| e) I give different work to the students that have difficulties learning and/or to those who can advance faster. .... | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| f) I ask my students to suggest or to help plan classroom activities or topics. ....                                  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| g) I ask my students to remember every step in a procedure. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| h) At the beginning of the lesson I present a short summary of the previous lesson. ....                              | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| i) I check my students' exercise books. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| j) Students work on projects that require at least one week to complete. ....   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| k) I work with individual students. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| l) Students evaluate and reflect upon their own work. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| m) I check, by asking questions, whether or not the subject matter has been understood. ....                          | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| n) Students work in groups based upon their abilities. ....   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| o) Students make a product that will be used by someone else. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |
| p) I administer a test or quiz to assess student learning. ....   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub>      | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub>          | <input type="checkbox"/> <sub>5</sub> |

**Table 3.5:** *Teacher Activity in Instruction, Excerpt from TALIS (IEA 2009a, p.22)*

Self-clarification This self-clarification is central to one variation of teacher questionnaires that we would like to examine briefly, the checklist for the self-assessment and evaluation of teaching. Here is an example of a questionnaire or checklist for self-evaluation of teaching (from Becker 1998).

- How did I stimulate the teaching-learning process?
- Was interest in the instructional content maintained throughout the lesson?
- Were students steered to central questions or problems?
- Is there a recognisable focus to the lesson?
- How many questions did I pose?
- What questions did I pose?

- How many questions did the students pose?
- What questions did the students pose?
- Were the questions and problems objectively logically related to one another?
- Which contributions triggered which questions?
- Did the students listen?
- Were the agreed upon discussion rules adhered to?
- How did I respond to the student contributions?
- Did I repeat student contributions verbatim?
- Did I use stereotypical forms of reinforcement?
- Was interaction between students encouraged?
- What percentage of the speaking was done by me?
- What percentage of the speaking was done by the students?
- Were there particular students who did an especially high percentage of the speaking?
- To what extent did girls participate as compared to boys?
- Which contributions were offered by certain problem students?
- Did I concentrate on certain students?
- What happened to result in specific conflict situations?
- How did the conflicts progress?
- How were conflicts dealt with preliminarily?
- Were the assignments understandable?
- How were the assignments introduced into the process?
- What learning assistance did I provide?
- How were the results of the work presented?
- How were facts, insights or findings recorded?

In addition to the clarification and self-clarification of important aspects of teaching structure and teaching methods a questionnaire could also pose questions pertaining to hindrances or problems that exist from a teacher's point of view. In Figure 3.4 you see an extract from the TIMSS teacher questionnaire which deals with hindrances in mathematics and science teaching.

**In your view, to what extent do the following limit how you teach the TIMSS class?**

*Fill in **one** circle for each row*

|  | Not applicable        | Not at all            | A little              | Some                  | A lot                 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Students</b>  |                       |                       |                       |                       |                       |
| a) Students with different academic abilities-----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) Students who come from a wide range of backgrounds (e.g., economic, language) -   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) Students with special needs (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment) ----- | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d) Uninterested students   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e) Disruptive students --  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <b>Resources</b>   |                       |                       |                       |                       |                       |
| f) Shortage of computer hardware-----  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g) Shortage of computer software -----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h) Shortage of support for using computers--   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i) Shortage of textbooks for student use -----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j) Shortage of other instructional equipment for students' use -----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| k) Shortage of equipment for your use in demonstrations and other exercises --   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| l) Inadequate physical facilities-----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| m) High student/teacher ratio-----   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**Figure 3.4:** *Hindrances to Good Mathematics and Science Teaching (IEA 2007a, p. 8).*

**Advantage: anonymity** The anonymity of written surveys always gives them an advantage over forms like interviews or group discussions when it comes to obtaining open disclosure not characterised by pressure to conform or the pull of social desirability. Thus teacher questionnaires are an especially good idea when one wishes to obtain an appraisal of the school and school activities and the relationship between the two. Take for example the following questions out of the TALIS teacher questionnaire. There the following statements are given (IEA 2009a, p.16) for which teachers should indicate the extent of their agreement or disagreement:

- All in all, I am satisfied with my job
- I feel that I am making a significant educational difference in the lives of my students
- If I try really hard, I can make progress with even the most difficult and unmotivated students.
- I am successful with the students in my class.
- I usually know how to get through to students.
- Teachers in this local community are well respected.
- In this school, teachers and students usually get on well with each other.
- Most teachers in this school believe that students well-being is important.
- Most teachers in this school are interested in what students have to say.
- If a student from this school needs extra assistance, the school provides it.

Basically one must always keep in mind: The use of feedback questionnaires is expedient if it is allowed to lead to change. It makes little sense and has a demotivating effect when an evaluation is requested but is not followed through on. The same is true not only of student questionnaires but of parent and teacher questionnaires as well. In the first chapter we saw that one is under more pressure to take action in teaching development than in teaching research. Feedback procedures reveal this very clearly. A positive feedback culture can only develop if feedback processes have consequences. Otherwise they appear to be an end in themselves. One fills out a questionnaire because one must, but it has no real effect.

Allowed to lead to change?

The TALIS study asks, among other things, what consequences a positive feedback has. The following alternatives are presented (IEA 2009a, p. 11):

1. A change in salary
2. A financial bonus or another kind of monetary reward
3. Opportunities for professional development activities
4. A change in the likelihood of career advancement
5. Public recognition from the principal and/or your colleagues
6. Changes in your work responsibilities that make the job more attractive
7. Role in school development initiatives (e.g. curriculum development group, development of school objectives)

### 3.3 Observation

**Classroom observation** In the first study text of this module we saw that in many countries classroom observations have played a role in the training of teachers as well as the evaluation and quality control for a long time. In this section we will take a look at preconditions, process and the different variations of classroom observation with regard to possible actions on the part of the school leadership.

Generally speaking the following steps of classroom observation may be distinguished:

- Steps**
1. **Preparation:** Prior to the observation one or more appointments are arranged. In addition, the teacher whose instruction will be observed informs as to the progress in subject matter and the class' characteristic behaviour as well as other aspects relevant for the observation, such as conflicts, unusual behaviour, or family issues. A lesson plan for the class period to be observed is presented. This includes preparation in the form of homework etc. and media aids that will be used in the lesson. In Figure 3.5 you see a preparation form for classroom observation.
  2. **Beginning of the observation:** at the beginning of the observation it is wise to introduce the observer to the class and to explain the purpose of the observation. It is not only a matter of good manners to inform the students, but also prevents the teaching process from being disrupted by irritation about an unusual visit. In order to keep disruption to a minimum and to obtain as good an overview as possible of what is happening, the observer usually chooses a position on the side of the room.
  3. **Execution of the observation:** For the observation itself one can make use of aids, something we will examine more closely below. In the first study text of this module we became familiar with various types of observation. Most were open, non-participatory observations. The role in which one does not participate in what is going on is not always easy to maintain. This is especially true if one is known by the students as principal or teacher and is thus spoken to directly by students or if major conflicts or problems arise or during the lesson. Generally it is advisable to stick with the non-participatory role.
  4. **Evaluation of the observation:** After the observed sequence (class period or the like), bidding farewell to the class etc., the lesson is evaluated based on notes, checklists etc. For the evaluation discussion one usually uses a sandwich form, that is one begins with the positive aspects, moves then to the problematic questions or negative things one noticed and then emphasises the positive parts and approaches at the end of the conversation.



### Pre-Observation Conference Sheet for Classroom Teachers

**Instructions:** This form is to be completed by the teacher conducting the lesson and will be used for discussion during the pre-observation conference.

Name of Teacher \_\_\_\_\_ School \_\_\_\_\_

Grade Level(s) \_\_\_\_\_ Subject(s) \_\_\_\_\_

Name of Observer \_\_\_\_\_ Date \_\_\_\_\_

1. Which part of your curriculum does this lesson relate to?
  - ☐ Math
  - ☐ Language Arts/English
  - ☐ Science
  - ☐ Social Studies
  - ☐ Special Areas
  - ☐ Other
2. Briefly describe the students in this class, including those with special needs.
3. What are your learning outcomes for this lesson? What do you want the students to understand?
4. How will you engage the students in learning? What will you do? What will the students do? Will the students work in groups, or individually, or as a large group? Provide any worksheets or other materials the students will be using.
5. How will you differentiate instruction for different individuals or groups of students in the class?
6. How and when will you know whether the students have learned what you intend?
7. Is there anything that you would like me to specifically observe during the lesson?

**Figure 3.5:** *Pre-Observation Conference Sheet* ([https://avongrove.pbworks.com/f/Peer+Coaching\\_packet\\_classroom.pdf](https://avongrove.pbworks.com/f/Peer+Coaching_packet_classroom.pdf))

When superiors such as the principal or administrative staff sit in on instruction, the observation is always supervision as well (cf. Figure 3.6). Thus it is no wonder that a teachers' union in Great Britain for example warns: "Excessive classroom observation is a serious problem in many schools. Steps must be taken to prevent this." (NUT o.J., p. 1)

Observation is also supervision



**Figure 3.6:** *The School Inspector*



### Activity 13:

In Figure 3.7 you see a benchmarking sheet from a British school administration. Please address the following question:

1. How can single teachers, how can school principals and how can the school administration get access to information about the individual dimensions (learner's progress, teacher's subject knowledge etc.)?
2. When are we more likely dealing with feedback as supervision and when is it more likely feedback as a means of support and encouragement?

**BENCHMARKING PERFORMANCE TABLES**  
How good is the quality of teaching and learning?

| Thread in Benchmarking table | Learners' progress  | Teachers' subject knowledge  | Appropriate challenge   | Quality of assessment including use in planning and pupil monitoring   | Differentiation for pupils with additional needs   | Teaching methods and use of resources  | Use of teaching assistants and other adults   |
|------------------------------|---|--|---|--|--|--|---|
| Outstanding (1)              | Learners thrive as a result of the teaching and make exceptionally good progress.   | Teachers' high levels of expertise and evident interest in what they are teaching. | Work is suitably challenging for every learner.   | Teachers careful planning is based on thorough assessment that ensures work is very well pitched.  | Those with additional learning needs are enthused and extended.  | The methods and use of resources, such as ICT and the degree of independent learning, enthuse and extend learners.   | Well directed teaching assistants, paired or joint teaching, reinforces and strongly supports learning. |
| Good (2)                     | Virtually all learners make good progress and show good attitudes to their work.  | The teachers' good subject knowledge lends confidence to their teaching styles.    | The level of challenge stretches without inhibiting.  | Based upon thorough and accurate assessment that informs learners how to improve, work is closely tailored to their different capabilities, so that all can succeed.                                   | Those with additional learning needs have work well-tailored to their needs based upon a good diagnosis. | A good range of carefully chosen resources such as ICT, and the well-judged setting of extension and project work to encourage independent learning, does much to encourage the skills and confidence needed for independent learning. | Good arrangements support parents/carers in helping learners to succeed.                                |
| Satisfactory (3)             | Most learners make the progress that should be expected of them and they enjoy their work and are motivated to do well.   | Teachers have a secure knowledge of the curriculum and course requirements.        | The level of challenge is sufficient for groups of learners most of the time.   | Assessment is adequate for teachers to monitor learners' progress and plan lessons, and learners know what to do to improve.   | Work is appropriate for those with additional learning needs.  | The teaching methods, including opportunities for independent learning and the use of a range of resources such as ICT, encourage and engage them.   | Arrangements are in place to enable support staff and parents/carers to support learners effectively.   |
| Inadequate (4)               | Learners generally, or particular groups of them, do not make adequate progress because the teaching is unsatisfactory. Learners do not enjoy their work. Behaviour is often inappropriate. | Teachers' knowledge of the curriculum and the course requirements are inadequate.  | The level of challenge is often wrongly pitched. Not enough independent learning takes place or learners are excessively passive. | Assessment is not frequent or accurate enough to monitor learners' progress, so teachers do not have a clear enough understanding of learners' needs. Learners do not know well enough how to improve. |  | The methods used do not sufficiently engage and encourage the learners.  | Teaching assistants and parents/carers are inadequately helped to support learners.                     |

**Figure 3.7:** *Observation Sheet, Benchmarking Performance (Council of South Gloucestershire o.J., p. 3).*



## 4 Strategies and Techniques of Teaching Development

In this chapter we will examine various alternatives for teaching development. Exchange and co-operation play an essential role. For TALIS, for example, the following indicators were chosen for the exchange and the coordination of questions of teaching (OECD 2009, p. 270):

- Discussions and decisions on the selection of instructional media (e.g. textbooks, exercise books).
- Exchange of teaching materials with colleagues.
- Attending team conferences for the age group the questioned teacher works with.
- Ensuring common standards in evaluations for assessing student progress.
- Engagement in discussion about the learning development of specific students.

For professional co-operation the following indicators were chosen (OECD 2009, p. 270):

- Teaching jointly as a team in the same class.
- Participating in professional learning activities (e.g. team supervision).
- Observing other teachers' classes and providing feedback.
- Engagement in joint activities across different classes and age groups (e.g. projects). – Discussion and co-ordination of homework practice across subjects

### 4.1 Peer Observation and Peer Coaching

In the last chapter we dealt with teaching observation in general. We saw that observation by the headmaster or administrative staff usually exhibits a supervisory function as well. This section is about peer observation (cf. Figure 4.1). A number of arguments support peer observation (ff. Leuder 2001).

Arguments supporting peer observation

- The joint review of the conducted and observed instruction is more effective than discussion about planned or actual lessons only reported about by colleagues.

- Many of the details are difficult to remember or report, for example the various facets of nonverbal communication in instruction.
- The exchange between the observing teacher and the teaching teacher can be enlightening for both sides because the habits and routines of each can be compared with and confronted by those of the other.
- Comparison and confrontation can lead to ideas and suggestions for one's own instructional practise.
- Peer observation can improve the ability of those participating in it to recognise not only personal preferences and idiosyncrasies in teaching but also the complexity of teaching and the preconditions and effects of one's own teaching.
- The preparation (lesson planning, report on developmental stage and characteristics of the particular class etc.), conducting and evaluation of the observation can contribute not only to the observation itself but to teaching and school development on the whole.

If a principal wishes to encourage collegial sitting-ins, then he or she must first clarify their central function. Will the emphasis be on collegial exchange or on supervision and monitoring? What happens to the results of the observation, will they be documented? Will they be passed on to the school leadership or school administration? (For the guidelines and implications of peer observation in the United States school system compare, for example, the Handbook AFT/NEA 1998)

If peer observation has no supervisory function but is meant to encourage exchange and further development, then the following aspects are usually important:

- Teaching is a complex phenomenon. Since so many things happen simultaneously, the danger of the observation being superficial, erratic and arbitrary is great. Thus it is important to concentrate during the observation, that is, to ignore certain things. The goal of peer observation is to contribute to particular improvements, not to get a superficial picture of all the things that happen during teaching.
- As an observer one quickly tends to concentrate on the things that are familiar to oneself or which reflect how one conducts one's own instruction.
- For the reasons already stated, it is wise to come to an agreement about the essential goals of the observation beforehand.
- The arrangements should also include agreeing that the observation be used only for the purposes stipulated beforehand.
- An observation chart or checklists often help one to concentrate on what are considered to be the essential facts and to reach the desired goals.

**Peer Observation Recording Sheet – Mead High School – 2008/09**

Name: \_\_\_\_\_ Date & Period Observed: \_\_\_\_\_

Staff Member & Class Observed: \_\_\_\_\_

|   |  |
|---|--|
| <b>Pre-Observation</b><br>What will be the curricular and/or instructional focus of this observation?<br>(See below for ideas)  | <b>Observation Notes and Questions</b> |
| <b>Observation Focus:</b><br><div style="border: 1px solid black; height: 60px; width: 100%;"></div>  |  |
| <b>Engagement</b><br>* Activating Prior Knowledge<br>* Cooperative grouping &/or Student Collaboration<br>* Overt/Covert Responses<br>* Questioning Strategies<br>* Entry and Exit Strategies |  |
| <b>Assessment(s)</b><br>* Formative<br>* Summative  |  |
| <b>Clear Targets/Standards</b><br>* Students can articulate the standard or target of focus.  |  |
| <b>Post-Observation Discussion &amp; Reflection (30 minutes)</b><br>What was specifically learned as a result of this observation process? (Take away)  |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |

**Figure 4.1:** Peer Observation Sheet of a High School ([http://www.mead354.org/uploaded/Mead\\_High\\_School/eMews/stock/PeerObsSheet.pdf](http://www.mead354.org/uploaded/Mead_High_School/eMews/stock/PeerObsSheet.pdf))

Peer observation practised somewhat intensively crosses over into peer coaching. In peer coaching each member of the group coaches another and is likewise coached by another. This reciprocity distinguishes peer coaching from coaching in the general sense and from mentoring, in which someone with professional experience observes, advises and accompanies someone who is just beginning his or her professional career. In Figure 4.2 you see the different types of peer coaching activities placed according to whether they are more informal or more formal.

Peer observation crosses over into peer coaching

Let us examine the different types more precisely:

- Co-planning lessons: “There is no doubt that co-planning is an appropriate tool for the mutual sharing of information and co-ordination as well as for the development of teaching including assessing the effectiveness of such development processes. It results are not limited to the multifaceted

Types



**Figure 4.2:**

*Peer Coaching Activities* (<http://www.ascd.org/publications/books/61191149/chapters/A-Definition-of-Peer-Coaching.aspx>)

opportunities of dividing up into small groups, but due to the diversity of ideas, more competence and variety in teaching and a more differentiated observation of group activity also ensue.” (Helmke 2003, p. 227)

- Coach as a mirror in classroom: The arguments for peer observation were discussed above.
- Co-teaching Lessons: Co-teaching consists not only of co-planning, which the above arguments address, but also of participatory observation. In addition, team teaching offers alternative methods not available when teaching alone. Evaluating the co-taught lessons together can, through the shared reality, contribute to a rethinking of judgements about the class or individual students.
- Coach in different roles as collaborator, expert adviser or mentor: The individual roles are not continuous and unchanging, but vary depending on the situation, setting and demands.
- Problem solving and study groups: Peer coaching can also be organised for the purpose of resolving a particular problem or dealing with single questions in more depth.
- Curriculum Development: We have seen that general curriculum guidelines are translated into a school curriculum on the school level. Occasionally workgroups or the like are instituted for the further development of school curricula.



- Materials development: The co-operative development of materials can also promote further development. A precursor to or a part of materials development is the sharing of material, establishment of material trading markets etc., that is forms by which the individual teacher's materials are made available to all.
- Planing Interdisciplinary Units: Interdisciplinary units and similar undertakings offer a good opportunity for further development.
- Teaching analysis based on reports or video recordings.

A crucial precondition allowing peer coaching to develop and succeed is that the participants know that one's desire for support and development is not a sign that he or she has failed as a teacher or is not professional enough. Moreover further professional development, which also includes and especially which includes peer coaching, should become a normal part of a professional career. Incidentally the following is true: When one deviates from the routine and tries something new, it is totally normal for the immediate results to be not better but worse than those achieved previously.

TALIS showed that teacher co-operation took primarily the following forms: "Teacher co-operation more often takes the form of exchanging and co-ordinating ideas and information than direct professional collaboration such as team teaching." (OECD 2009, p. 122) Some thinking was done about how co-operation can be promoted and improved.

How cooperation can be improved

"Research has shown teacher co-operation to be an important engine of change and quality development in schools. However, the more reflective and intense professional collaboration, which most enhances modernisation and professionalism, is the less common form of co-operation. This creates a clear case for extending such activities, although they can be very time-consuming. It might therefore be helpful to provide teachers with some scheduled time or salary supplement to encourage them to engage in them. It may also be worth focusing such incentives on men and young professionals who participate least in co-operative teaching.

TALIS shows that teachers who exchange ideas and information and co-ordinate their practices with other teachers also report more positive teacher-student relations at their school. Thus, it may be reasonable to encourage teachers' co-operation in conjunction with improving teacher-student relations, as these are two sides of a positive school culture. Positive teacher-student relations are not only a significant predictor of student achievement, they are also closely related to teachers' job satisfaction – at least at the individual teacher level. This result emphasises the role of teachers' positive evaluations of the school environment for effective education and teacher well-being. Efforts to improve school climate are particularly important in larger public schools attended by students with low average ability, since all these factors are associated with a poorer school climate." (OECD 2009, p. 122)

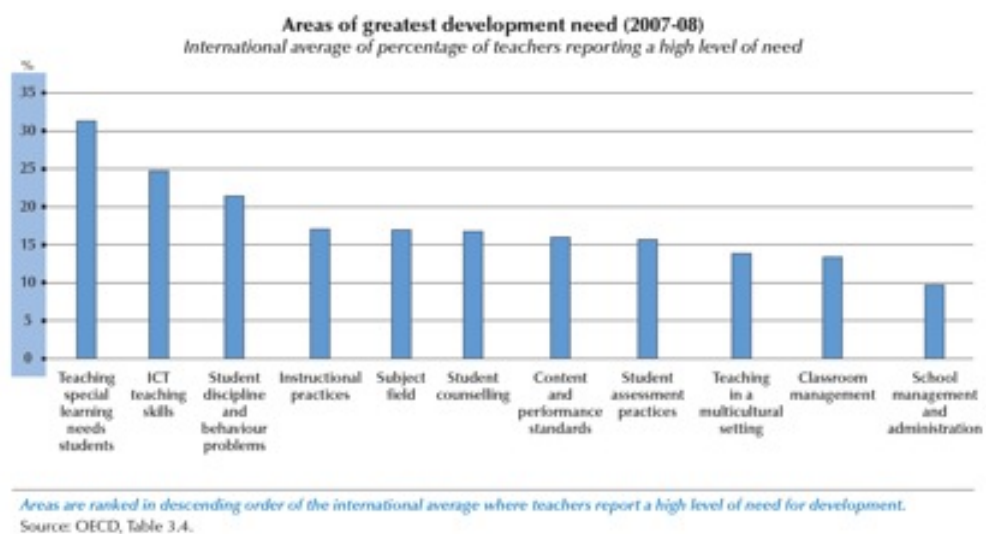
## 4.2 Teacher Training

Goals There are a number of arguments in favour of teachers taking part in training and development measures after they have completed their initial teacher education. According to the authors from TALIS, teaching development can contribute to the following goals:

- to update individuals' knowledge of a subject in light of recent advances in the area;
- to update individuals' skills, attitudes and approaches in light of the development of new teaching techniques and objectives, new circumstances and new educational research;
- to enable individuals to apply changes made to curricula or other aspects of teaching practice;
- to enable schools to develop and apply new strategies concerning the curriculum and other aspects of teaching practice;
- to exchange information and expertise among teachers and others, e.g. academics, industrialists; and
- to help weaker teachers become more effective.

To examine these issues, TALIS adopts a broad definition of professional development among teachers: "Professional development is defined as activities that develop an individual's skills, knowledge, expertise and other characteristics as a teacher." (OECD 2009, p. 49)

Which areas display the greatest need for development? TALIS exhibited the distribution shown in Figure 4.3.



**Figure 4.3:** *Areas of greatest development need, TALIS results (OECD 2009, p 60)*

It would be interesting to see which topics would be important for the development course offerings from your point of view or that of the teachers in your school. All in all, a number of main types of trainings may be distinguished.

Main types of training

- **Teaching competencies:** This is the largest group. It deals with classroom management, teaching special learning needs students, but also instructional practices and the like. “The most effective programs include aspects of behavioural training (in presentations, with supervision and feedback) as well as cognitive components (subjective theories, ‘reflective teaching’).” (Helmke 2003, p. 232)
- **Social competencies:** The area of social skills includes training in communication techniques and intervention techniques but also in group dynamics.
- **Management of stress situations:** “This includes, for example, relaxation techniques such as autogenic training or progressive muscle relaxation.” (Helmke 2003, p. 231)

In the following we will examine the development of teaching competencies more closely. In the area of behavioural training the method of so-called microteachings is widely used, a method originally developed in teacher education but that has meanwhile come to be used in advanced training as well. Small groups of teachers alternatively assume the roles of teacher and student. In short practise sequences of on average 15 minutes in length, they complete narrow limited tasks, carefully analyse them afterwards (e.g. lecture behaviour, ability to explanation, language, student reactions) and perhaps run through key aspects of them again. This often deals with what were described above as action situations or patterns of action (cf. Figure 4.4).

Development of teaching competencies



**Figure 4.4:** *The Microteaching Process* (<http://www.facdev.niu.edu/spectrum/images/articles/microteaching.jpg>)

There is a feedback session based on the sequences recorded via video or with the help of an observation sheet. You will find some comments on this in the box-section. Details of teacher action should be analysed and optimized using this method. Thus the guidelines are aimed at / call for a precise description and

suggestions as possible which should make exactly that possible. As opposed to evaluative observations, it is not about making valuations or judgements but about giving precise suggestions regarding details of behaviour. This does not mean that one would do without judging since it is of course about the improvement of teaching.

### **Giving and Receiving Feedback at Microteaching**

The way in which feedback is given and received during microteaching contributes to the learning process. Feedback that is vague, judgmental, ill-timed, or unusable is not as valuable as feedback that is specific, descriptive, timely, and practical. Similarly, although being criticized is often not pleasant, being open to well-intentioned, well-crafted feedback can only further professional development.

Here is a series of suggestions for how to give and receive feedback in a microteaching workshop.

#### *Giving Feedback*

When giving feedback, try to:

Be specific rather than general. The more concrete the feedback is, the more useful it will be to the person receiving it. Thus, rather than saying, "Mike sometimes you weren't clear in your explanations . . .," tell Mike exactly where he was vague and describe why you had trouble understanding him.

Similarly, it is nice but not very helpful to say, "Joan, I thought you did an excellent job." Rather, list the specific things that Joan did well. For example, she might have motivated the problem effectively, used transitions advantageously, or communicated interest and enthusiasm. Tell her how these techniques contributed to the success of her performance.

Be descriptive, not evaluative. Focus on the effect the performance had on you, rather than on how good or bad you perceive it to be. For example, saying, "It's wrong to call on students when they don't have their hands up," is a generalization that may or may not be true in all cases. However, saying "I felt uncomfortable because you called on me when I didn't have my hand up," can help the person realize that students may have the same reaction.

Remember, too, that some of your responses will come from your own perceptions (for example, not everyone feels uncomfortable when called on). Thus it is good practice to begin most feedback with, “In my opinion . . . “ or, “In my experience . . .”

Describe something the person can act upon. Commenting on the vocal quality of someone whose voice is naturally high pitched is only likely to discourage him/her. However, if the person’s voice had a squeaky quality to it because he/she was nervous, you might say, “Barbara, you might want to breath more deeply to relax yourself, and that will help lower the pitch of your voice as well.”

Choose one or two things the person can concentrate on. People can usually act on only a few pieces of feedback at any one time. If they are overwhelmed with too many suggestions, they are likely to become frustrated. When giving feedback, call attention to those areas that need the most improvement. Avoid inferences about motives, intentions or feelings. To say, “You don’t seem very enthusiastic about this lesson” is to imply something about the person her/himself. A better comment might be, “Varying your rate and volume of speaking would give you a more animated style.”

### *Receiving Feedback*

When you receive feedback, try to:

Be open to what you are hearing. Being told that you need to improve yourself is not always easy, but, as we have pointed out, it is an important part of the learning process. Although you might feel hurt in response to criticism, try not to let those feelings deter you from using the feedback to your best advantage.

If possible, take notes. If you can, take notes as you are hearing the other people’s comments. Then you will have a record to refer to, and you might discover that the comments you thought were the harshest were actually the most insightful and useful.

Ask for specific examples, if you need to. If the critique you are receiving is vague or unfocused, ask the person to give you several specific examples of the point he/she is trying to make.

Judge the feedback by the person who is giving it. You don’t have to agree with every comment. Think about the person’s credibility when assessing the validity of her/his statements. Ask other people if they agree with the person’s critique.

In sum: Be practical, tactful, and upbeat when giving and receiving feedback—both in the microteaching workshop and in your classes as well. (<http://web.mit.edu/tll/programs-services/microteaching/feedback.html>)

Microteaching focuses on learning or relearning certain ways of acting because, for example, one wants to design one's teaching action more efficiently. Let us examine what happens in such trainings more closely.

Here it is wise to remember that basically "explicit, conscious action planning and decision-making between possible actions is only one extreme of a wide spectrum. On the other end of the spectrum one finds more or less automated actions which cannot be subjected to conscious control and which actually satisfy the criteria of arbitrary actions. Between the two extremes lie actions that are directed by an agenda of goals which is more or less conscious and resides at a relatively high level. The realisation of this goal is made up of chains of action for which the point in time but not the sequence is subject to the willful control." (Roth 2003, S. 475) Many of our actions, whether we are teaching or doing other things, are virtually automated. We can provide information about these actions, that is they can be brought into our consciousness, but usually we execute them without concerning ourselves with them, that is, with their individual steps as in the model introduced.

**Dilemmas of control** This is necessary because our working memory has only limited capacity, and for fully conscious and comprehensive planning of action we would have to initiate so many operational processes that we would quickly reach our limits. We would have to make a multitude of decisions called 'dilemmas of control' (ff. Roth 2003 p. 482). We must decide,

- if we will stick to a proven procedure or start something new (invariance-variance dilemma),
- if we will act according to the familiar patterns or first explore the environment (orientation-realisation dilemma),
- are we willing to accept short-term deterioration in favour of long-term goals (anticipation-need dilemma),
- how long will we spend planning and deliberating and when will we decide to take action (deliberation-initiation dilemma) and finally,
- upon conclusion of action how much do we concentrate on the targeted goal and how much do we concentrate on other things (selection-monitoring dilemma).

The German behavioural researcher Irenäus Eibl-Eibesfeldt compared human action thus with embarking on a pathway: "Human action is [...] usually directed by concrete goals. A regulated sequence of steps of action leading to defined goals can always be delineated. A particular goal can be reached by different paths. Therefore we can also describe the behaviour as a form of road system with different points of decision." (Eibl-Eibesfeldt 1995 p 128) Finally, action develops in co-operation or conflict with external stimuli and situations, emotional urges and hindrances as well as cognitive-rational deliberations.

When actions are more or less automated, that is can be called up as action programs, then deliberations need not occur. This relieves the working memory and saves energy. “The complicated calling up and merging of information from different centres is metabolically costly for the brain, proceeds slowly and is highly error-prone. Thus it is true: the less effort, the better. The same can be said of directing movements. At the beginning of an movement training program many muscles are activated in an uneconomical manner, there is tremendous frictional loss and the movements seem awkward. With increased practise, the muscular sequence becomes smoother, muscles are used better and more efficiently, the movements become more effective. (Roth 2003, p. 186)

This ‘calling up’ of virtually automated action is possible, because as a rule actions consist of many component actions. Actions have not only a more or less identifiable beginning and likewise clear ending, but can be broken down into a chain of component actions. In this way the action in which you are obviously currently engaged, the reading and processing of this study text, can be sub-divided into a number of single actions. You probably chose an appropriate place to read and work, perhaps got out paper and a pen, prepared a cup of coffee or tea and so on. “Each of these acts,” according to the behavioural researcher Eibl-Eibesfeldt, “is made up of a number of complicated functional units of movement. A hierarchical structure is unmistakable. The units on the higher level are comprised by several on the lower level and with each descending level, the possible actions narrow increasingly/increased narrowing of possible actions. Component records and component goals are functionally defined and some action steps are inflexibly coupled to one another while others are characterised by great flexibility.” (1995, S. 163)

While one is acting and thereby completing the single action components, one has opportunities to choose and decide between various component acts, all of which lead to the action goal. There are, to pick up on the image of ‘pathways’ of actions cited above, repeatedly junctions at which one can go in one direction or the other, at which one chooses this or that action step and thereby reaches the same goal by way of different paths. Perhaps the sun is shining today and you decide, against your usual habit, to work through this study text at a street café rather than at your desk.

Now of course one does not pause to think which path one will take before every action component. For one, we fall back on largely automated routine actions that we unwind, so to speak, for longer stretches of road. For another thing, in most cases we have only a very limited selection of action alternatives and not the all of the possible alternatives in view in our minds. If one sees the various possible paths theoretically available for reaching a action goal as ‘strategy’, one can surmise that the size of the respective strategy repertoire available is of decisive significance. People who possess an extraordinary large sized strategy repertoire we describe as ‘virtuosos’ in a particular field or area. The following is true: “the richer my available repertoire, the greater the number of possible ways of reaching the goal that will open up to me and the more competent I will be as a result.” (Eibl-Eibesfeldt 1995, p. 163)

Behavioural trainings like microteaching aim for this reason at practising new action routines, because one will need them as a beginner in one's teaching career or because as an experienced teacher one wants to reduce problems or optimise one's own teaching.

Microteaching course offerings that are oriented to patterns of action in teaching and action sequences of teaching can be distinguished from courses offerings in the area of teaching competencies. The latter focuses more on the opportunities for the application of and the preconditions for the methods of extended forms. Examples of this are course offerings in the area of computer supported learning or that which is presented in the box-section below. It deals with experiments requiring little effort that may be conducted in chemistry instruction.

### ***Introduction of small scale chemistry experiments - Teacher training***

Example

*To introduce to teachers, inspectors and education officials the advantage of performing chemistry experiments on a small scale. This is to be done through introductory workshops in developing countries and countries in transition where hands-on experience will be provided under expert guidance.*

*Most chemistry educators agree that practical chemistry experiences are a vital part of education in chemistry. This is so, regardless of whether or not the students become professional chemists. Unfortunately concerns about costs, safety and the environment have conspired to prevent this in the majority of countries. Also unfortunately, in many countries there is no awareness of the possible solution to these problems in the small scale approach. Our objective is to introduce this awareness in a meaningful way, which means providing first-hand experiences in a workshop context.*  
(<http://old.iupac.org/projects/2001/2001-046-1-050.html>)

In the area of teaching competencies, behavioural and action oriented approaches can be distinguished from course offerings which strongly target subjective theories and teachers' principles. The questionnaire about teaching practises seen in the Table 4.1 deals with the elements of such subjective theories of teaching.



**We would like to ask about your personal beliefs on teaching and learning. Please indicate how much you disagree or agree with each of the following statements.**

*Please mark one choice in each row.*

|  | Strongly<br>Disagree                  | Disagree                              | Agree                                 | Strongly<br>Agree                     |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| a) Effective/good teachers demonstrate the correct way to solve a problem. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| b) When referring to a "poor performance", I mean a performance that lies below the previous achievement level of the student. ....                                | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| c) It is better when the teacher – not the student – decides what activities are to be done. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| d) My role as a teacher is to facilitate students' own inquiry. ....   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| e) Teachers know a lot more than students; they shouldn't let students develop answers that may be incorrect when they can just explain the answers directly. .... | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| f) Students learn best by finding solutions to problems on their own. ....   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| g) Instruction should be built around problems with clear, correct answers, and around ideas that most students can grasp quickly. ....                            | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| h) How much students learn depends on how much background knowledge they have – that is why teaching facts is so necessary. ....                                   | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| i) Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved. ....                       | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| j) When referring to a "good performance", I mean a performance that lies above the previous achievement level of the student. ....                                | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| k) A quiet classroom is generally needed for effective learning. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |
| l) Thinking and reasoning processes are more important than specific curriculum content. ....  | <input type="checkbox"/> <sub>1</sub> | <input type="checkbox"/> <sub>2</sub> | <input type="checkbox"/> <sub>3</sub> | <input type="checkbox"/> <sub>4</sub> |

**Table 4.1:** *Teaching Practices (IEA 2009a, p. 14)*

#### Activity 14:

In the figure you see an excerpt from the TALIS teacher questionnaire. Please fill it out and briefly justify your decisions. Name patterns of action for teacher action and student action that are typical of the statements in the excerpt of the questionnaire.



Of course it is not always possible to clearly distinguish between convictions or subjective theories on the one hand and behaviour or action on the other. One may surmise that teachers who agree with certain statements on the questionnaire also prefer certain teaching practices.

Subjective theories

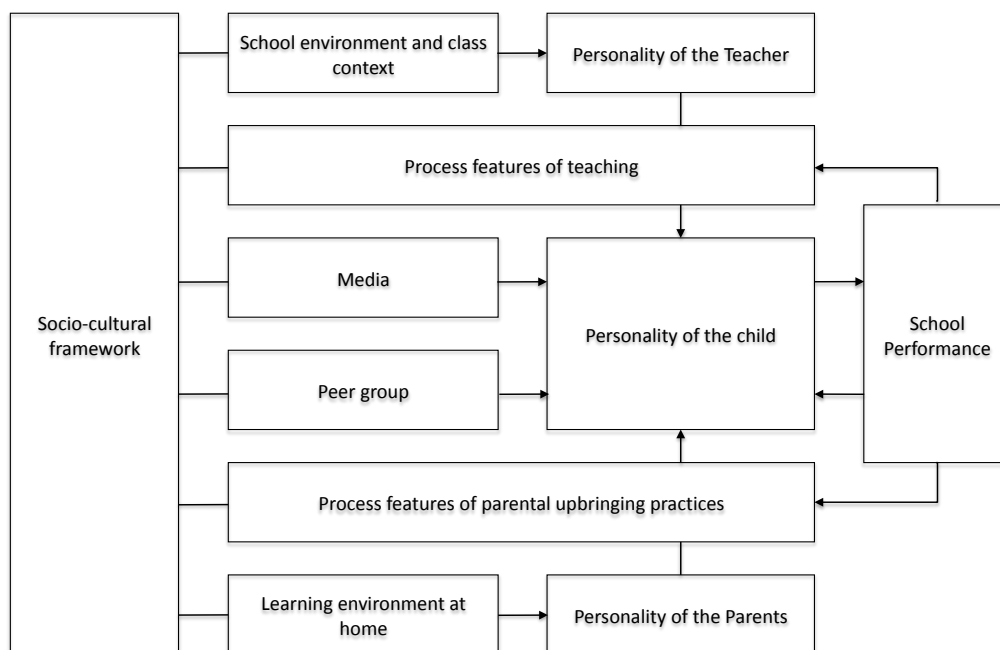


## 5 Conclusion: Teaching and School Development

In this chapter we will summarise the outcomes once more with regard to their significance for teaching and school development.

School development includes all the systematic measures undertaken to change an individual school as an organisation based on specified goals. School development is about planned change, which can be distinguished from changes that are happen unplanned, for example, as a result of changes in the environment. School development, in the sense of planned change, can nonetheless attempt to respond to unplanned changes.

We have seen that teaching is a complex phenomenon which can be examined from various perspectives. In the first study text of this module we discussed these perspectives using the model displayed here in Figure 5.1 yet again.



**Figure 5.1:** *Macro-model of the conditions of school performance (Helmke 2003, p. 34)*

If we examine this model from the perspective of teachers and principals, the various dimensions with regard to the opportunities for action may be grouped as follows:

- Important to know: Schools have almost no influence over some dimensions. These include the socio-cultural conditions, the media or influence of peers to the extent that they are not schoolfellows. Nonetheless it is important

to have knowledge of the concrete characteristics of these dimensions, for example to be familiar with the social, economic and cultural environment of the school.

- Important to know, influencing something: it is important to know about the at home learning environment or the process features of how parents are bringing up their children. However there is little chance of influencing these dimensions.
- To influence a lot: The school can influence the process features of teaching but also the class context, within limits.

The necessary information can be gathered using the methods and instruments presented. The approaches used in the international studies could be helpful and inspiring. But it shall be emphasised here once again, that teaching development occurs under different overall conditions and with different implications than those in these studies. There are much fewer resources available for research and the pressure to act is greater.

The demands made of empirical studies cannot be fully applied to research and teaching development measures in individual schools. But stipulations like validity, reliability or objectivity certainly play a role here as well, as can be shown by the example of tests and as seen in the evaluation of teaching. A clear understanding of learning processes, strategies and typologies is necessary for teaching development and school development. Only with such an understanding can one differentiate appropriately. If one tries to influence the process features within the scope of school development, it is important to distinguish between benchmarks: Will one concentrate on the framework which is predetermined by certain methods of extended forms and utilise forms in individual schools that were not customary in the past? Is the focus more on further development of smaller patterns of action or action sequences, like those used in so-called microteaching?

Checking the results of learning through tests and other measures is important for teaching development and school development for two reasons. The first is that the quality of tests is an important component of teaching quality, and the second is that the results of learning or tests are indicators for the quality of teaching. From the point of view of school development it is therefore important to dedicate oneself to the questions of test and test results.

Surveys as a part of an  
institutional culture

Surveys, especially those concerned with evaluation and feedback, are only appropriate when they are part of an institutional culture of feedback. Another aspect of this culture is recognizing that feedback has practical consequences and that these are clear to those involved. This is true of feedback as well whether it comes from students, parents or teachers at the school.

Observation and sitting-ins are important instruments of teaching and school development. Here clear criteria for the observations as well as clear rules for the implications of the observations are necessary. Peer observation, especially, takes on an important significance in school development and teaching development.

It can contribute to intensive co-operation beyond the observed lesson time and encourages the development of innovative teaching approaches. Often it is not possible to clearly distinguish between peer observation and peer coaching, in which teachers reciprocally advise and train one another.

Aside from these forms, different variations of teacher trainings possess enormous potential for school and teaching development.

In light of the dimensions named above that can be influenced by the school, it can sometimes be said about teaching and school development as well: The gate of change is locked on the inside.



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