Unit 4
Guiding processes of learning and choosing forms of teaching

1. Introduction

Initiating and supporting processes of learning in students is one of the most fascinating tasks that our profession has to offer. If you do not have a sufficiently clear idea which processes of learning your students embark on to achieve the learning objectives you (and/or they) have decided on, you will not be in a position to adequately plan the modes and settings of teaching, learning activities, tasks and methods of work. In EDC/HRE these ways can be very varied and whoever devotes time and effort to questioning how individuals learn something best will, in time, develop into an expert on learning.

2. Task and key questions for guiding processes of learning and choosing forms of teaching

2.1 Task

Initiating and supporting processes of learning in children is one of the most fascinating tasks that our profession has to offer – but also one of the most demanding!

Your thoughts and ideas on processes of learning form, as it were, the backbone of your whole planning effort. If you do not have a sufficiently clear idea which processes of learning your individual students embark on to achieve the learning objectives you (and/or they) have decided on, you will not be in a position to adequately plan the modes and settings of teaching, learning activities, tasks and methods of work.

Dealing with the question how individual students learn something best is a time-consuming and often difficult task. But whoever devotes time and effort to this question, discusses it with his or her students, and finally evaluates and reflects on the accumulated experience will, in time, develop into an expert on learning. Learning processes are complex, and their success and perfection depend on many factors.
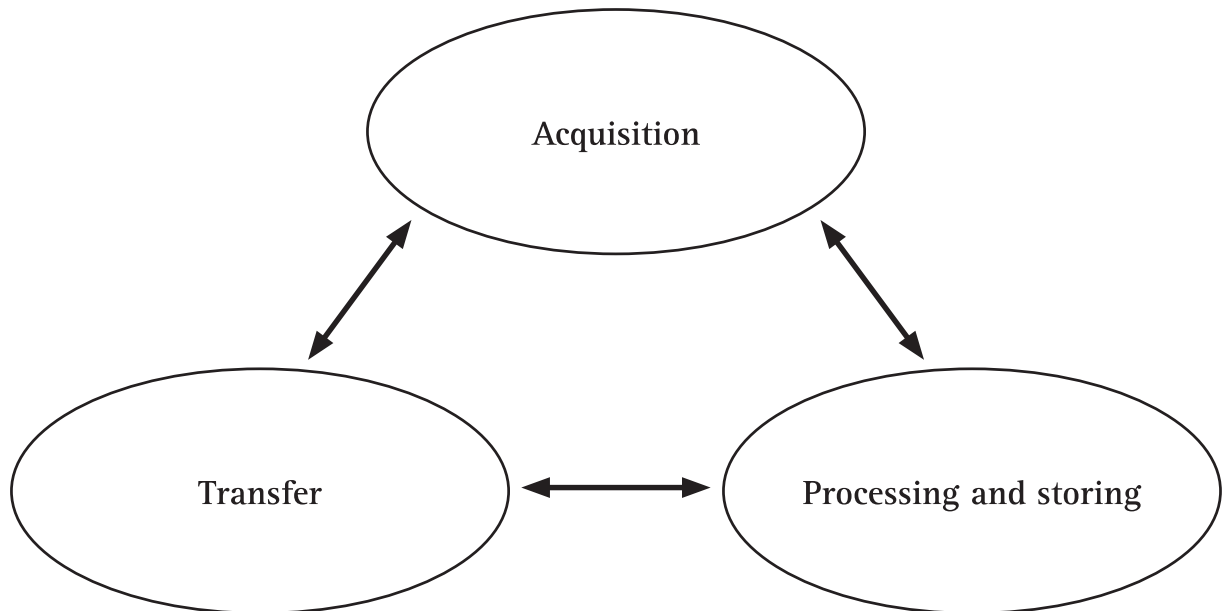
2.2 Key questions

– Which learning processes will allow the students to achieve the objectives?

– How can I enable the students to fully take in (acquire), understand (process) and remember (store) new information?

– Does the form of learning encourage the students to apply their newly acquired knowledge and skills to new tasks?

– Does the planned learning setting or sequence primarily focus on the absorption, processing and storing of information or on transfer tasks?

– In planning this learning sequence, have I considered the important aspects (ideal learning conditions)?

– Is the main objective of the learning process for the students to build up structures of meaning, to acquire skills or to develop attitudes, and have I provided for adequate forms of teaching and learning to achieve these respective objectives?

    → by action (by being active, producing or forming something, etc.)?

    → by thinking (by mental experimenting, by "creating" new insights)?

→ by observation?

→ by being verbally taught (lecture, story-telling, etc.)?

→ by instruction, assistance and co-operation?

→ by discussion and debate?

→ by producing a written documentation (report, learner's diary, etc.)?

→ by a medium?

→ by specific events in real life and experience?
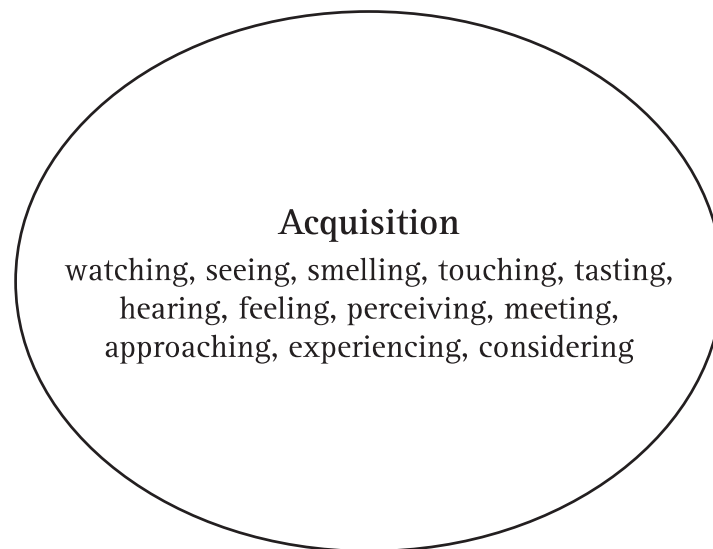
→ by experiment, trial and error?

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Work file 1: Three stages in a learning process

In every learning process we may distinguish between three closely linked phases which support one other.

Acquisition

Transfer

Processing and storing

Acquisition of information

Acquisition

watching, seeing, smelling, touching, tasting,
hearing, feeling, perceiving, meeting,
approaching, experiencing, considering

Questions on the students' acquisition of information

Previous knowledge

How can the students (re-)activate their previous knowledge?

Asking questions

Can the students deal with the topic in a way that they may think of questions?
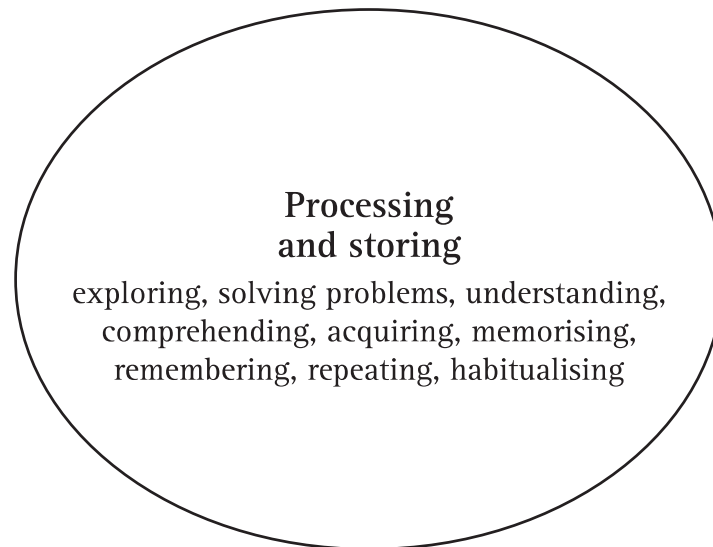
Senses

Can the students use their different senses to acquire new information?

Do the students learn by seeing, looking, perceiving, hearing, listening, feeling and emotion, touching, tasting, smelling, etc?

Illustrating (adding appeal and colour to a topic)

Are illustrations, models or replicas used?

Processing and storing of information

Processing
and storing
exploring, solving problems, understanding,
comprehending, acquiring, memorising,
remembering, repeating, habitualising

Questions on processing and storing of information

Structure

Are the contents organised in a way that the preceding steps of learning facilitate the following ones?

Points of reference

Can the students link new information to their previous knowledge?

Level of attainment

Are the tasks set for the individual student – male and female – demanding and challenging, but still within their reach?

Deepening of understanding

Are the assigned tasks and settings suitable for the students to reinforce and deepen what they have learnt?

Record

Do the students produce a record of their results (report, poster, notes, drawing, diagram, rough sketch, etc.)?
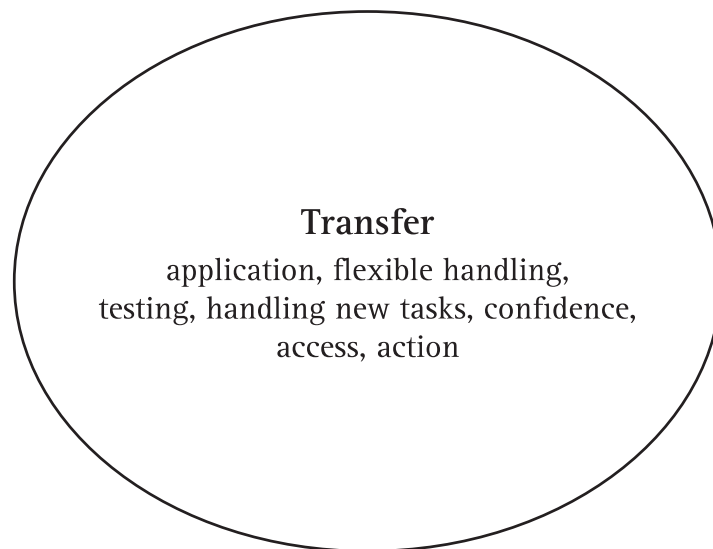
Practice

Do the students have the opportunity to practise their newly acquired abilities and skills in as wide a variety of contexts as possible?

Intensity

Have the students been given sufficient time and opportunity to thoroughly work their way through new information and experiences?

Do we spend sufficient time on a subject to allow the students to probe its depths?

Transfer of information

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        Transfer
    application, flexible handling,
  testing, handling new tasks, confidence,
        access, action
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Learning must always include transfer opportunities for the students – to avoid assessments like "learned, but already forgotten", or "known, but not understood or reflected", "accomplished yester-day, already lost today", or "learned, but not used".

Questions on the transfer of information

> **Usefulness**
>
> Do the students appreciate and experience the usefulness of what they have learned?
>
> **Experience of efficiency (motivation)**
>
> Have the students directly experienced the relation between their effort and their progress in learn-ing? Do the students realise that they themselves are responsible for their extension of knowledge, understanding and skills, that is, that they can achieve something by their learning efforts and activities?
>
> **Controlling**
>
> Are conclusions reviewed and reconsidered?
>
> **Further and more advanced studies**
>
> Does the learning sequence which the students have completed stimulate their interest to engage in further and/or more advanced studies?
>
> Do the students remain emotionally involved?
>
> **Application**
>
> Are the students, both boys and girls, offered a wide variety of opportunities to apply what they have learned? Do the students know in what ways their abilities may be applied and if there are limits to the application of their knowledge and skills?

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Work file 2: Why chalk and talk is not enough, or "taught ≠ learned" and "learned ≠ applied in real life"

Teachers who have been trained along traditional lines of teaching tend to overestimate the impact of spoken instruction on their students – "taught is learned". This view is particularly common at secondary level, where teachers often face curricula packed with large amounts of complex knowledge. Then it seems tempting to teach the way that seems fastest and most effective – the teacher lectures, the students listen, and a history teacher may think, "Now I have finished the 20th century."

But do students learn by listening to lectures? And have they all learned what the teacher had in mind – what he or she wanted them to learn?

"Taught ≠ learned"

From a constructivist perspective, the answer to these questions is no. "Taught ≠ learned." Learning is an individual process. The students literally construct their individual systems of knowledge. They link what they already know and have understood to new information, using concepts, creating ideas, judging in the light of their experience, etc. They seek for meaning and logic in what they learn, they define what is relevant and worth remembering, and what is not, and can therefore be forgotten.

And they also make some mistakes.

A teacher lecturing to an audience of 30 students should therefore be aware that in the students' minds, 30 versions of the lecture are being produced and integrated into the students' systems of meaning – cognitive structures, as Jerome Bruner, a noted professor of psychology, called them.

But learning is not only construction of meaning, but also deconstruction of errors. Young students, for example, may believe that night comes because the sun sets, because that is what they see. Of course teachers are right in attempting to correct this way of thinking. From the learner's point of view, it is a difficult, and sometimes unpleasant effort of deconstruction. The teacher's lecture therefore may be a piece of new information for one learner, while another becomes aware of an error or misunderstanding that needs to be corrected.

From a constructivist point of view, we must therefore expect faults of logic and thinking and misunderstanding of information to be the rule, not the exception – not only in our students' minds, but also our own.

A revision of our cognitive structures is therefore more complex than merely substituting "old knowledge" by "new knowledge" that a teacher can bring about by "telling the students". Rather, it is a process continuing for a longer period of time, in which contradicting sets of ideas and notions compete with one another – and the students undertake the effort of deconstruction, not the teacher.

"Learned ≠ applied in real life"

Teachers who attempt to correct students' mistakes will therefore find that "telling" them what is "right" is often not enough. They face the following problems:

–   Students do not seem to "listen": how do I deal with the problem that students often do not change their wrong ideas after they have been taught the correct facts, concepts, etc?

–   "Students learn like parrots": how can I deal with the problem that school knowledge coexists alongside a sphere of naive thinking – including errors in logic and thinking, opinions drawing on incorrect information, reference to everyday experience – that the students do not link together? They memorise their school knowledge for tests "like parrots", and then forget it.

Every teacher knows these problems. To overcome them, even constructivist learning is not enough. Students must do something with what they have learned – they must apply it. For a teacher this means, for example:

–   no teacher's lecture without a follow-up task;

–   listen to student inputs, for example presentations, to assess their learning process and achievement;

–   make students responsible for their development, for example in settings of task-based learning;

–   listen to student feedback: what I found particularly important was ... I learn best when...

The teacher's task is to provide adequate opportunities for the students to learn, and to assess and communicate with the students what works well and what doesn't. Constructivist learning, including deconstruction, and follow-up application tasks take time. Therefore the teacher – perhaps together with the students – must make a choice what topics are worth devoting time to. "Do less, but do it well."

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Work file 3: Selecting adequate forms of teaching and learning

In choosing a certain form of teaching you make decisions on how the sequences of teaching and the learning environment are to be created and organised. This raises the question which different forms of teaching, learning, and social interaction are to be included and combined with each other, which timing of learning steps and which selection of materials is appropriate. A list of questions supports the selecting process:

- What forms of teaching will support the intended processes of learning?

- What forms of social interaction do I choose?

- What structure and rhythm do I choose for the course?

- To what extent can the students participate in planning the lessons and the form of teaching?

- Given the existing framework of external conditions, which teaching approaches are feasible?

- Which methods and teaching style am I particularly good at?

- What else can I do to create a good learning atmosphere together with the students?

- Does the teaching approach do justice to both boys and girls?

- Do the lessons encourage co-operation in the class?

- Have free spaces (areas, corners) been left to which individual students or groups may withdraw?

- Is the classroom always the best place for learning? Must the classroom be altered or restructured? Are special-purpose rooms available? Might excursions or explorations be useful?

- How much liberty do I grant my students; how do I assess their abilities?

- Should all students learn according to one predetermined path? Is my teaching approach individualised and flexible enough to meet differing learning needs, speeds and abilities?

- Can the students be offered a choice of different procedures?

- Which piece of homework do I have in mind?

- Which forms of social interaction are appropriate, considering conditions, objectives, contents and learning processes (individual work, work in pairs, small or large groups)?

Guiding processes of learning and choosing forms of teaching
Work file 4: Five basic forms of teaching and learning

The five methodical approaches describe, as it were, five ideal types of settings for interaction between teachers and students.

Each of these approaches allows, or requires, teachers and students to react to and co-operate with one another in different ways.

The approaches are arranged on a scale beginning with a classic form of teacher-centred work (teaching by presentation), and then move on to increasingly student-centred forms.

We do not propose that teacher-centred forms be completely substituted by student-centred forms. Rather, we would argue that a mixture of these forms is adequate, and that, in the long run, a shift towards more student-centred forms of teaching and learning should take place.

A superficial viewer might come away with the impression that student-centred work means increasing idleness on the teacher's side. This, however, is not the case. The teacher's role changes, as will be explained in detail, but his or her role shifts from direct action in the classroom to careful preparation, assistance and supervision, rather increasing in the process than diminishing.

Students who are to learn how to learn should ideally be supported by all their teachers in all their subjects. A project of this magnitude must fall short if it were confined to an island of, say, project work in an ocean of methodical monotony endlessly repeating "teaching by presentation", condemning students to rote learning.

Basic forms of teaching and learning shown here are:

–   teaching by presentation;

–   guided exploratory learning (class discussion);

–   open learning;

–   individual teaching;

–   learning in projects.

Form of teaching and learning	Activities	Typical features
Teaching by presentation	Narration, lecture, reading to the class, report, exposition, showing, displaying, teaching by example, demonstrating	– I (the teacher) can teach the subject-matter directly, according to the given situation in class, and the students' reactions are immediately evident. – All students are to achieve the same objective – in the same period of time, in the same room and setting, by the same method, and by the same means. – Pre-set subject-matter is passed on to the students.
Guided exploratory learning (class discussion)	Dialogue, questions, impetus, stimuli, guidance, support	– Interplay of expositions and stimuli by the teacher and contributions by the students.

Open learning	Teacher: advice, mediation, support Students: selection, planning, asking questions, discovering, research, drafting, designing, analysing, thinking, checking, controlling	– Students may participate in decisions. – Interests, needs and initiatives on behalf of the students have high priority. – Learning environment encourages students' activities (flexible allocation of room and space, a wide variety of learning materials, a corner for experimenting, painting, etc.). – Open arrangement of settings for learning. – Students are offered a variety of topics and materials for their personal choice. – External settings for learning are included. – Free choice of learning activities. – Individual work, or with a partner or in groups. – Open learning involves and encourages self-determination, personal responsibility, research, spontaneity, context-orientation.
Individual teaching	Teacher: diagnosis, guidance, instruction, support, advice, information, controlling, supervision, motivation Students: selection, modification and development of working programme, reading, achievement, review and evaluation	– The setting for teaching and learning is specified to meet the student's needs (as defined by the student's previous knowledge, abilities (skills and talents), interest, social and family background, etc.). – Optimal adjustment of all the elements in the learning process to the individual student's needs and abilities, that is, of requirements, objectives, procedures, methods, time, media, and aids (multi-dimensional specification). – Didactic materials, support by media (computers, learning software, video clips, worksheets, models, pictures for learners, textbooks, etc.). – Individual learning encourages efficiency, economy of time and effort, a systematic approach, independence of mind and personal responsibility.

| Learning in projects | Teacher: mediation, observation, advice, stimulation, support, organisation, co-ordination

Students: setting objectives, co-operation, planning, discussion, mutual agreement, collection of data and information, asking questions, application, studies, experiments, tests, modification, design, creativity, production, controlling, evaluation | – The students' shared interests, concerns and objectives are decisive for the choice of topic, approach, and tasks.
– A (complex) genuine problem, taken from real life as perceived by the students, both male and female, serves as a starting point.
– Priority is given to the production of results, and an interdisciplinary (cross-curricular) approach.
– Students are encouraged to draw on their personal experience, learning is linked to practice in real life.
– Long-term enterprise which runs through a typical order of stages and phases (initiative – assessment of interests and needs – decision on objectives – definition of limits, that is, exclusion of objectives which cannot be achieved – draft of project; planning – final schedule; execution; review and outlook on forthcoming activities after the project, controlling and perfection, evaluation).
– Division and assignment of tasks: individual work, with partners, in small and large groups; co-operation.
– Students visit sites outside school, and consult their parents and/or experts.
– Project work encourages independence of mind and learning by discovery, personal and practical experience, and social interaction with others.
– Teaching and learning encourage students to take action. |