GOING THROUGH, TAKING IN, CONSIDERING

A Three-Phase Process of Learning as a Method of "Teaching Main Lesson Blocks"[1]

by

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We would like to elaborate certain phases of teaching by, deliberately, taking an example from our everyday life. Occurrences which usually take place in school may, for the time being, be projected onto a private situation. So let us have a try on three phases and imagine the following:

Phase I A couple is going to a birthday party. Good luck! – A lot of guests, a lot of confusion.
Phase II On their way home, they exchange their impressions: a highpoint, a striking character.
Phase III The next morning they debate:
(a) in what way were the guests related to each other and to the host?
(b) which news about the world did one learn from them?
(c) how would oneself wish to celebrate a coming birthday; what do birthdays really demand, anyway?

Are these really three phases? Let us have a look again at what exactly happens here.

At the beginning, one just throws oneself into the crowd (Phase I). One makes acquaintances without thinking much about it and enjoys meeting with the people who turn up. Any form of investigation or classifying would be distracting.—Afterwards, all that is resounding in both of them (Phase II); both are still preoccupied with what they experienced[2] and, while talking it over, their emotions unite the details automatically. The ups and downs of the party now appear more as a related "whole," and less as a mere series of events. Something that was frightening changes into a deep impression, rejoicing into true interest, a muddle into a sequence of related scenes. Later on, one dissects that "whole" again into fragments and discusses their interrelations (Phase III). One examines

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1. This paper was written during the work on the project *Phenomenological Natural Science and Human Didactics*. In conferences and courses it has served as a text for introduction, reflection, and fixation. At the same time it can be regarded as an example for how to organize teaching lessons (Pädagogische Forschungsstelle beim Bund der Freien Waldorfschulen Stuttgart, Abt. Kassel, Brabanterstrasse 30, 34131 Kassel).
2. Perhaps humming softly the refrain of a song, such as "Going through, Singing about, …."

how this related to that, who has secretly wanted what or who has suffered, and so on (a). One is digging for insights, for knowledge (b). Finally, one ponders, asks what consequences will follow, and also, how oneself could achieve something (c).

In this story, not a word about school lessons appeared. It demonstrates how the three elements of the elaborated method work in real life.

An Example

1. Understanding on Your Own (enterprising, joining in, experiencing) = Phase I

We imagine teaching physics, perhaps in Grade 8, and we are experimenting. (a.) The pupils stream out of the school building. Soon they are gathered around a flexible tube of which the end is immediately lifted up the wall of the house until it reaches a window. There it is held 12 meters above the ground. The tube, about 3 cm diameter and made of transparent plastic, has a plug at each end and is completely filled with boiled and slightly colored water; there is no air in it. Air is surrounding everything. Every two meters it is marked with a line.

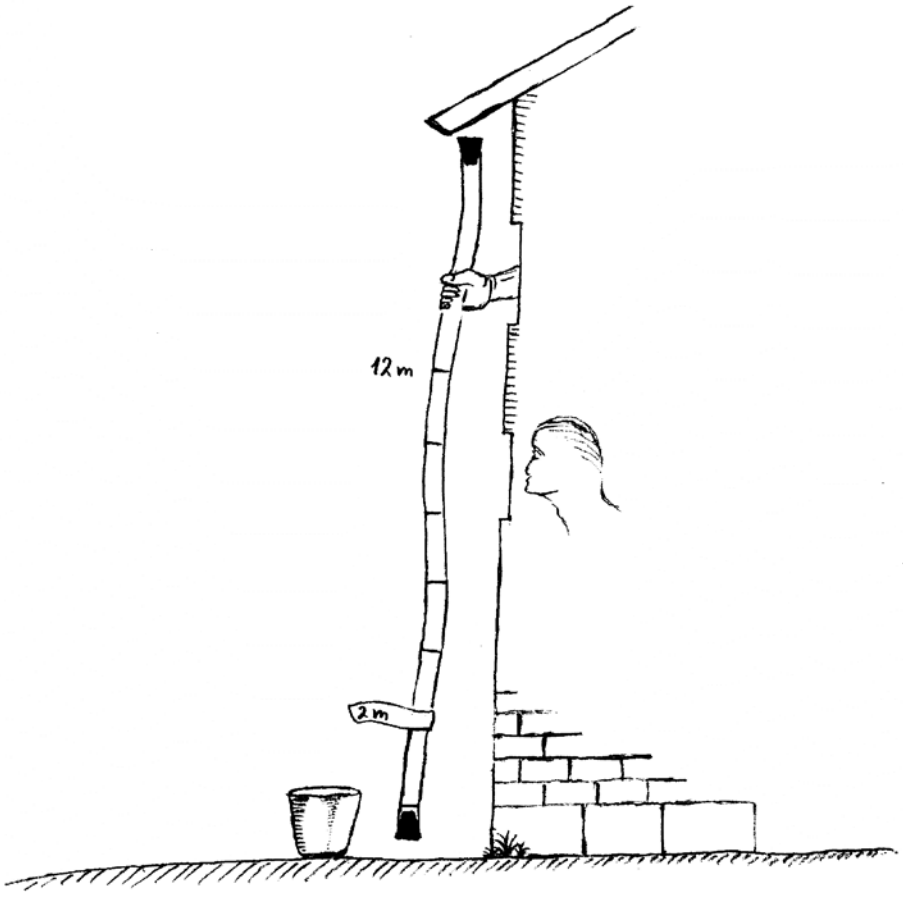

Figure 1: A flexible tube, with marks every two meters, is hanging down a wall. The second mark at the lower end bears a little flag with “2m” written on it. The bucket is filled to the brim with water.

(b.) The lower end is now dunked into the bucket provided which is filled to the brim with water, causing an overflow, and another student puts his hand into it and after counting "1,2,3!" the plug under water is pulled out. Immediately, several meters of the water in the tube runs into the bucket. But surprisingly, most of the water remains in the tube. The water level settles down around the 10-meter mark. Now, from the top down to approximately 8 meters high, the tube is "squeezed" in the middle:

Figure 2: Cross-section of the squeezed tube at approximately 9-meter height, after the water level has fallen to 10 meters.

After the bucket has been refilled, an assistant in the window draws the attention to the water level in the tube. The pupils count the meter marks down to the surface of the water in the filled-up bucket. The number remains the same, even when the upper end of the tube is moved downwards or when the bucket is lifted upwards.

(c.) When, just for a short moment, the lower end of the tube is taken out of the bucket, approximately 1 meter of water runs out. Its space is replaced by air. This air rises in the tube as a stretched bubble, and, afterwards, the water level is several meters lower than before.

(d.) If the upper plug is pulled out, the remaining water column shoots into the bucket, causing again an overflow. The tube is thrown to the ground. Now it is straight again, that means, no longer squeezed like in Fig. 2.

2. Common Recollection in Class = Phase II

Back in the classroom, the teacher characterizes the experience, accompanied by various observations or answers of the pupils, however, without explaining a thing! He does that by using more personally colored words, like following the motto: "Gosh! What are we going through here!" E.g., when recalling the tube lying on the ground, he evokes a feeling of how everything was at rest, the water being closed in. Looking back at the tube, hanging in the air, he then creates the impression that the situation was somehow full of tension, as if the water would come running out at any moment. Who would have been the first to get wet? Did the situation seem to be suspicious for somebody, perhaps, when we built a sort of barrier in the bucket—a barrier for the tube, water out of water?

After all, it came to stop somehow. Isn't it amazing what our teacher is able to achieve? Maybe the air, surrounding everything, was helping? Later on, what a relief! With just one grip this spooky phenomenon was gone.

A recollection like this, led by the teacher, should be carried out with sympathy and benevolence—towards the objects, the occurrences and also towards the participating humans; no harsh questions, no forced

explanations. Everything that gets mentioned is accepted, as you would do during a good meal in the hut after a tiring alpine tour. A cheerful common feeling runs through all and everything and should be kept light. Perhaps somebody writes some key words on the blackboard, so that the collective experience can be recalled later. The beginning of a sketch similar to Fig. 1 may also be drawn on the blackboard.

This recollection is not at all a purely subjectively roaming; however objective judgments of facts, such as cause and effect for example, are avoided or simply ignored. What arise are collective images, clear enough for all to remember: this was first and that followed. Through the teacher calling the attention of the pupils to the closed-in water, the air and the way the water runs out, as well as to the air surrounding, the beginning of explanations could be anticipated. It is this anticipation that should be worked towards.

3. Questioning and Considering the Facts = Phase III

On the next morning, the pupils bring along their completed drawings, similar to Fig. 1, as well as their personal review of the experiment—which in no way must resemble an impersonal technical description. (How to create both, see below.) The ideas and imaginations concerning the course of the experiment that were called up the day before (see the above paragraph), have now "settled down." Particular turning points are recalled into common awareness (consciousness) with a few repetitive questions. And now follows the elaboration of the case as such. It begins with questions about interconnections as well as with explanations and widening reflections:

- Could the upper plug hold the water column from above—without any threads between the bottom of the plug and the surface of the water? If not:
- Could the water in the bucket from downwards up carry the water column above it; does the size of the bucket play a part here?
- Could the water in the bucket at least slow down the running out?
- What is it that squeezes the tube; and why isn't the lower end squeezed too?
- What is contained in the tube above the water level?
- How strong was the carrying force of the air pressure shown to us, expressed in meters of water column? How many meters would it be if we used other fluids (salt water, oil)? Would the water column have the same height everywhere on earth and at all times?
- Does the air temperature play a role? Yes, through the pressure of the steam, at 20° C it is 23 millibar which equals to 23 cm of water column. But those finer details don't have to be explained in Grade 8 yet, nor any of the other questions before.

It is of great importance that individual opinions come up in the class, as engaged and diverse as possible. The more original and even more fantastic they are, the more they stimulate. Thus, they will be impressed if it is revealed that neither the water in the bucket nor the plug above brings about a force that could hold up the water level, or even draw it

back when it swings downwards. Rather there is something invisible at work here, namely the "endless ocean of air." And moreover it is important that the standard aero-mechanical explanation with the help of the pressure of the outer air upon the water surface in the bucket, should not be ruling alone here,[3] but should be expanded through 'vaguely' qualitative elements, like "endless," "ocean of air" or "horror vacui."[4] These elements direct the attention less to the mechanical facts but rather lead the pupils to feel, to understand, even to immerse themselves in a subject. This is the only way to motivate a pupil towards a lasting striving for knowledge and learning. In addition to the logical subjects and the pure qualitative aspects, there might arise more widening questions, like changes of the air pressure, the influence of the weather, breathing in relation to the flying heights of airplanes, and so on.

Discussing the Method

A. Making Use of the Night

The advantages of a teaching in two-day loops, partly already evident in the above example, will be obvious especially if the subjects are taught in blocks, i.e., the teaching of technical subjects occurs in main lesson blocks, so that the ripening process of the night can be included. What can we do to activate this process? A part of it was already shown above (see Chapter 2), where, for a long time that work was done non-informative but nevertheless systematically theme-oriented, let us say with the aim: "Getting an impulse to move on instead of receiving information." Such an effort pays off immediately causing sympathy and, in the end, leading to a successful level of education (a well-known experience in practice). The well prepared process of ripening during the night is even generally known and nowadays scientifically observed, but, since cognitive-psychological, never simply deductible. With the above exemplified model of the three steps in two days, perhaps called "two-days-three-steps-model of learning in blocks," we have a practical method at hand that is proven and certainly an ingenious invention, no matter by whom. It should just be presented in a form that is ready for use.

Its core derives from the question: How can it be achieved that the student not only gains a profit for his mind and behavior, but that he, with every subject, takes a step forward in his entire existence and his individual development? A single subject in school has to be more than a sum of communicable notions and definitions. That means, closer to life, to reality, and, therefore, also dark. At first the subject has to be introduced to the class in open and sensitive terms, that warmly flow

3. It is well known that the actual air pressure drives the water against a vacuum up to a height of about 10 m above the surface of the water upon which the air presses, no matter whether the tube is sloping or lying in waves. These measures can be only approximate because the air pressure changes with the weather, often hours until days in advance; i.e. about +5 or –10%, and also because it generally decreases along with the height above sea level (in 5.500 m by 50 %).

4. It is the term for an experience; built on the discovery that the world is lacking the natural, continual vacuum spaces. The "horror vacui" was, during thousands of years, an important, fundamental force of earth and heaven and was attributed to the universe, as also was philosophically given its place. Today we see it more in terms of some continuous pictorial gesture.

around the pupil and will become seeds for him to sprout, so that he won't get emotionally petrified by being exposed to mere definitions and final statements. And still, these open terms should provide a basis for a deeper elaboration of the matter, since everything has to end in professional knowledge.—How could this, generally, be achieved?

B. The Various Activities of the Teachers

1. Concerning Phase I

First of all, our experiment was intended to provide more than mere information. It should not convey teachings subjects but, structured by the teacher, the dark reality of the world (this concept of reality may, for the time being, remain unexplained). In any case, the pupil should, at first, save his perceptions as inner pictures (". . . now he takes that, there, that is dangling . . . "), without understanding them technically. For that, he naturally combines all his recollections with his observations, in order to identify them somehow as objects. This is a really demanding, an exhausting process, since all the impressions will hit him shapeless and hard. Basically, the teacher and the pupils, since they are completely immersed in the matter, enjoy all that is developing here.

The teacher provides the students with objects and facts as well as with impulses for his soul by an elaborated experiment (in other school subjects rather with pictures, narratives, music, sightseeing-tours, and so forth). He creates a configuration. The students adapt to that. Therefore, this first step regarding the mental activity of the pupils could be called deliberate or determined (volitional), for they were fully dependent on all their physical sense organs. They adapted the situation in an interactive way—which, indeed, provides a basis for any decisive will to act.

2. Concerning Phase II

Looking merely at information, it is just a repetition of Phase I. In reality however, everything is different. Nothing at all gets repeated. Completely different mental powers are devoted to a problem when the person moves from one inner activity to the next: at the beginning, he used his will, now his feeling. In Phase I, the pupil struggled to sort out his own recollected imaginations. Now these imaginations are picked up in class and the group process helps him to harmonize and confirm them. The emotions of all group members are flowing together, so that a cheerful sense of community replaces the preceding silent feeling of helplessness and captivation. Through this, the unconnected facts of the initial confrontation are brought on a way towards being embedded in something greater. In Phase I, the inner pictures of the pupil are pushed back and forth by the outer occurrences. In Phase II, they will be mentally refreshed in such a way that they can serve as a seedbed for something new, mentally as well as intellectually, which ought to grow during Phase III; even if, superficially, the experimental noises are, at first, only followed by nice word noises. In any case the students will begin to look out for the context of it all. Connecting links seem to emerge. The pupil even gets the impression that he achieved something. At this stage of Phase II, the teaching may pause.

3. Concerning Phase III

In Phase II, the consolidation of the swirling impressions of Phase I formed a solid basis for anchoring the questioning now as well as for

a new construct of ideas. This was caused, on the one hand, by writing down a review of the experiments, quite possibly in the style of Phase II, and by the natural settling-down and the ripening process during the night.

On the next morning, the gelled imaginations will call for evaluation, expansion, and categorizing through a joint exchange of ideas in class! Only thereafter, the time will come to start the necessary general survey, and for the teacher to deliver broader contemplations, e.g., Why is this topic so important? What else belongs to it? The history of discoveries in this field, special tools and measuring devices, technical applications and/or accidents may come into play, and ecological problems are to be regarded.[5] At the end, during the final lecture of the teacher, the group process is carried by a sense of community and sympathy. Before that, however, during the process of questioning and searching, uncompromising and distance have been prevailing, i.e., antipathy contracted into mere facts.

4. To all three phases

Only within the third Phase, the first part of the double period on the second day, a general realization (cognition) arises. It arises out of the change of experiences, practical knowledge and actions, which took place in the individual. So, the conventional "aim of the lesson" is first to come on the second day, but then, larger and deeper than would have been possible on the day before—provided everything went well. The aim of knowing the subject is completed with an educational aim, for, in such a way, its light shines into the world outside as into the personal power and abilities.[6]

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Other scientists, too, are striving for such a way in three phases. Klaus Schmidt, one of the most famous and successful archaeologists of the present time, talks about strategies like this when he tries to comprehend "the oldest monuments of mankind,"[7] in this case the context of a complex structure of an entire excavated temple city.[8] This early metropolis was founded with all its buildings, murals and other objects of art at the end of the glacier epoch. It is not yet known why, after several thousands of years, the whole town became completely filled up again, buried up to the wall copings in the hidden seclusion of Anatolia up to our time—a phenomenon that seems to be from another world.

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5. How to include such aspects within the period on physics of class 8, and also more about the pressure of the air and so on, one will find in: M. v. Mackensen: *A Phenomena-Based Physics, Vol. 3 for Grade 8*, AWSNA Publications.
The problems that airplanes have by the pressure of the air are described in Hofberger/Mackensen : *Flug, Landung, Absturz*; Publ.:Verlag Bildungswerk Kassel, 2009 (in preparation).

6. The author describes how the different judging forces of the soul are active and at work in all three stages, also how then the logic of the subject opens up to "over-logical" extensions, in "Urteilstätigkeiten . . . ," Kassel, 2009.

7. The title of the accompanying book; edited; Badisches Landesmuseum Karlsruhe 2007, published; K. Theiss Verlag, Stuttgart.

8. Klaus Schmidt; *Sie bauten einen Tempel*; dtv München, 2008, p 1909.

And yet, here lies the origin of our culture, upon which followed the ancient empires and, finally, Europe. "To look at, to describe, to understand," that is now the general working plan of the research team at Göbekli Tepe. Three separate steps! Otherwise, the unexpected would be overwhelming. We, immediately, see that these steps basically correspond to our three phases, provided the aim is not only to categorize the structures of the excavated objects but also to sort out the mental state of the humans involved.

And indeed, where anyhow would we end up, if teaching would not be life itself?

Seeing the above as a whole, we elaborate the following

Phase I	An attentive observation, active in all our senses— suffering from the world physically	The impact of single objects and impressions from outside The WILL is challenged.
Phase II	Feeling the characteristics of one's own experiences– a taking and giving	Interaction of opinions and stirring of the mental state FEELINGS, and EMOTIONS surge up.
Phase III	A fierce dividing into pieces, reconnecting them expanding them— Moving the thoughts around	An approach to the spiritual powers of the world The THINKING becomes creative.

Phase II works for the short term memory, the efforts in thinking of Phase III for the long-term one. And if the latter also open up to the mind to make out the intrinsic character of man and world, the striving for knowledge becomes education. Then, a stepping through the three phases will encourage the student to want to remain committed to his world. This would be an initial exercise for his subsequent freedom, which would then be not to let oneself be washed over arbitrarily by pleasure, but to find fulfillment in one's own awareness and conscious actions so that his freedom, later in life, exceeds the influence of school.

These three steps should grasp the entire adolescent person: body, soul and mind. And in his soul: his thinking, his feeling and his will (Steiner).[9] And always all the three simultaneously, just different combined. That should needs to be elaborated more deeply. Not only concepts and logic should be troubled. We did point out in the above paragraph (Section A of this Chapter): a progression from a mere transfer of information to a step forward in life, i.e. from abstract learning towards a real development, transformation instead of information.

9. Rudolf Steiner, 1919 and 1921, GA 293 and 302, especially lecture III.