

## Process-Oriented Didactics

### • Ideas for the Advancement of Teaching and Learning •

### For the cowboy on the right path!

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This article presents a concept of teaching and learning which I developed called **process-oriented didactics**.<sup>1</sup> I hope that, with your cooperation – and by you, I mean not only teachers and teacher trainees, but also parents, scientists, educational experts, and pupils – I can contribute to the enhancement of school practice. There are already changes taking place in school; the winners of the *German School Award* have shown that a new way of teaching and learning can be successful. It is my ambition to spread these positive changes in the following decades.

I want to work together with you to improve school practice. A lot of work needs to be done, but I believe that changes can succeed even within existing structures. Process-oriented didactics can help teachers develop their own concept of teaching and learning by focussing on the process of learning from both the teacher's and the learner's perspective. I hope to advance my concept of process-oriented didactics in theory and practice through mutual exchange.<sup>2</sup>

In my opinion, when teachers finish their practical training, they find themselves not at the end, but rather at the beginning of a long learning process.<sup>3</sup> They are beginning a 30- to 45-year career. I know the risks of being overwhelmed by daily school stress and the thought of giving up. Such a situation could have disastrous consequences for both the teacher and the pupils. But if it is possible for the teacher to realise the magic that lies in working with children and in the constant analysis of one's own teaching and learning, 40 exciting and fulfilling years lie ahead.

During almost 20 years of teaching and several years of research, I have worked out seven elements which are, to my mind, fundamental for teaching and learning. Teachers that are motivated to apply these elements in their teaching will achieve success within a short period of time. They will experience moments of collective learning and mutual exchange which will be equally satisfying for both teachers and learners. Still, they will have to face difficulties. Process-

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<sup>1</sup> This text presents my personal thoughts and ideas and has therefore been written in the first person. In this article I completely forgo empirical evidence and scientific argumentation since the primary aim of this essay is to express my personal thoughts about teaching and learning. A detailed theoretical and empirical justification will be published in textbook form (presumably at the end of 2016).

<sup>2</sup> If you are interested in a mutual exchange please contact me via e-mail: benjamin.apelojg@uni-potsdam.de.

<sup>3</sup> In Germany, teacher trainees have to pass an internship of one to two years at the end of their studies.

oriented didactics is not a cure-all, but rather a door to the continuous development of teaching and learning together with colleagues, researchers and other interested parties.

Take the field test and fill the concept of process-oriented didactics with life. Afterwards exchange views on the development of your teaching concept with colleagues and with me.

I will shortly outline the seven elements of process-oriented didactics in the following, and then go into each element in detail.

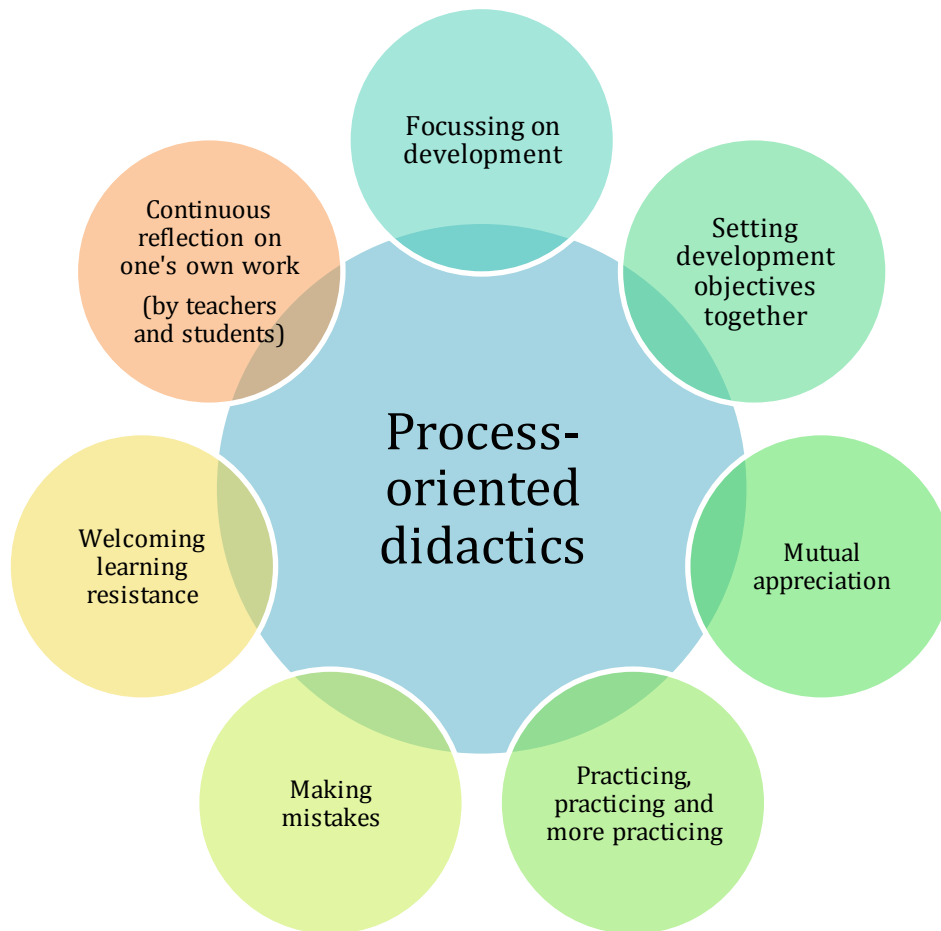


Image 1: Elements of process-oriented didactics

Mutual appreciation between teachers and learners and a good teacher-pupil relationship are the foundations of process-oriented didactics. Every teacher, and every learner, possesses special characteristics which make him or her an important part of the class community. Process-oriented didactics focus on the pupils' learning process. That means that the didactic focus lies on the individual development process with regard to learning objectives which have been defined together. Process-oriented didactics welcome learning resistance and try to transform it into development processes in cooperation with the learners. In the context of process-oriented didactics, learners know that making mistakes is part of the learning process.

The pupils are highly responsible for the achievement of their individual objectives (overcoming challenges). Process-oriented teachers consider themselves to be learning guides and therefore try to develop their own concept of teaching and learning continuously, cooperatively, and reflectively. Focussing on the learning process involves constantly questioning teachers' and learners' progress and recognising new development objectives. Process-oriented didactics provide plenty of space for both teachers and pupils to practice, in order to reach individual goals.

Before I describe the seven elements of process-oriented didactics in detail, I want to shortly illustrate my understanding of learning.

### **Three fundamental forms of learning**

I assume that there are three fundamental forms of learning which are related to each other in a particular way (see image below). The uppermost form of learning is **experience**. Experience can be divided into conscious and unconscious experience. For instance, you could consciously decide to attend a yoga course. During this course you could observe how your body and mind react to certain exercises. You may learn to relax doing certain exercises. You probably decided to attend the yoga course because you felt increasingly stressed in your daily life, without being consciously aware of it. Your body may have shown signs of fatigue and exhaustion, and you probably wanted to make it ignore those signs with the help of caffeine, beer, and a lot of work. But that does not work on a long-term basis. Unconsciously, you learned to ignore your body signals and, for that reason, you now need to relearn relaxing and listening to your body consciously. There are many more examples for conscious and unconscious learning based on experience. Think about your own learning experiences once in a while and discuss them with a friend or your partner.

The other two forms of learning are **imitation** and **trial and error**. Both forms create experiences. Imitation means mimicking someone else's actions. For instance, someone could show you how to hold a hammer correctly in order to drive a nail into the wall. Afterwards, you take the hammer and imitate the procedure. Depending on how skilful you are, you will need more or less attempts to drive the nail into the wall.

In contrast, I understand learning through trial and error to mean acting without a clear example in mind. For instance, a nail and a hammer are lying on the table. If you have never seen these objects before, you might now try different things with the nail and the hammer.

Sometimes it is difficult to differentiate between imitation and trial and error. You may have seen someone connecting things numerous times, such as placing one Lego® brick on top of another, exchanging a car tyre or putting a letter into an envelope. You may have pushed a hole

into modelling clay with your fingers, too. All those experiences will probably help you to use the nail and the hammer right intuitively. If you do not use it correctly and, for example, hit your thumb with the hammer, this painful learning experience will be even more memorable.

There are three principal things to know about experience. Firstly, every experience is more or less characterized by positive and/or negative emotion. I describe the emotional side of experience as the *emotional anchor*. Every experience is linked to an emotional anchor, which helps people decide if they should or should not do something. Some of these anchors are deep-seated and persist a whole lifetime, whereas others diminish after a while. For instance, some survivors of car accidents never sit in a car due to this intense, negative experience.

We can often watch the creation of emotional anchors in school. Think of the case in which a pupil is laughed at because his or her answer was incorrect. This experience could create a negative emotional anchor. Under certain circumstances, the pupil might stop speaking in class unless he or she is completely sure that the answer is correct (see also the paragraph 'Making mistakes'). But this child might also experience that his or her ideas enrich the lesson, even if some answers are wrong. This could create a positive emotional anchor.

Secondly, it is worth knowing that the lion's share of our experiences is made unconsciously, almost incidentally. My son, for instance, is not aware of the fact that, in studying for a physics exam, he is not only learning physics but also training his ability to focus on a certain topic at a specific time in order to pass an exam on this material. If he gets a good mark, his inner reward system is activated. He is glad about his good performance. This experience is of major importance! It shows the learner that it pays off to study and learn, independent of whether it is in school, at home, or during free time. Success is a very important learning experience, equally important as failure.

The third important aspect of the fundamental forms of learning is revision. As described above, some experiences only have to happen once to be committed to memory. These are predominantly negative experiences. There is a simple explanation for this: our biological and psychological avoidance of pain and rejection protects us from negative experiences which could be dangerous for us. For that reason, negative experiences are especially deeply anchored. This is not necessarily the case with positive experiences. If we want to become very good at something, for example sports, handicrafts or research, we must constantly imitate, repeat, try, refine, and differentiate. Only once we have repeated specific learning experiences numerous times will we be able to handle a 3D-printer professionally, become a good football player or write outstanding books.



Image 2: The three fundamental forms of learning

The three fundamental forms of learning provide important indications about how learning proceeds. Firstly, teachers and learners, in addition to their conscious experiences, also have a lot of unconscious learning experiences. This happens because they see how people deal with each other and interact. Secondly, the importance of negative learning experiences should be taken seriously. Learning cannot only be slowed down but even prevented! Thirdly, one should keep in mind that learners need to experience success. It is an important motivation for learning. We need this driving force in order not to give up straight away if difficulties arise. But you should not forget that success does not come by itself. Usually, success requires years of hard work and training.

The three fundamental forms of learning show the complexity of the learning process. For that reason, it is advisable to reflect upon what you want to work with your pupils and how you intend to approach the material.

### **What shall we learn?**

A teaching concept requires dealing with the process of learning. On that note, my concept should be considered as provisional, and still under development, since my knowledge of teaching and learning is constantly growing. My concept, which focusses on the development of every single pupil and teacher, also distinguishes two forms of learning. I call them *superficial* and *deep learning*.

An example: in biology you learn how the human body is structured, in history the beginning and end of the Second World War, in math Pythagoras' theorem. If learning remains at the stage of simply applying a formula or learning rules by heart, then this can be termed superficial learning. The principle of superficial learning can be connected to deep learning. While learning facts by heart or by applying rules, I can acquire the ability to learn things that do not interest me much without being aware of it. This is a skill not everyone has mastered called *learning to learn*; this is one example of what I understand by deep learning. Deep learning can enhance our ability to deal with everyday situations.

Deep learning does not only happen in the context of positive experiences. For instance, I could have learned that by using force makes my classmates respect me or even feel threatened by me. It is possible that using force becomes a common way for me to deal with certain situations. At the same time, appreciating each other, treating one another respectfully, or listening to someone can be examples of deep learning. There are conscious and unconscious forms of deep learning, but we probably learn more in an unconscious way than we expect. Unconscious deep learning takes place through an infinite number of experiences every day; whilst driving by car, eating, cooking, reading, speaking, arguing with each other, etc. Through unconscious deep learning, our experiences are confirmed or extended.

Conscious deep learning is more difficult. It requires knowledge of what you want to work on or the ability you want to enhance. As a teacher, I want to learn how to encourage deep learning among pupils. To this end, I can attend different coaching trainings, reflect on various teaching methods, inform myself about different learning theories and didactic concepts, and assess whether I've made progress.

What could deep learning mean in your area of learning? Where and how do your learners have the possibility to learn deeply? If you are asking yourself these questions, you are on the right track to process-oriented didactics: analysing your own work. You are no longer asking, "why are the pupils not participating?" but rather, "**what can I do to enable my learners to learn deeply?**"

What does this question mean for the work of teachers in schools and elsewhere? Two very simple things: I insist that many things in school are learned superficially. This situation is due to the fact that students have to learn many facts and figures instead of dealing with the deep structures of learning topics. At the same time, a lot of deep learning is happening in school without the teacher's intention. This deep learning consists mostly of social learning – based on the communication and the daily contact among pupils. If I talk about the goal of supporting pupils' development, I mean deep and not superficial learning. Teachers who want to apply process-oriented didactics in their work can always ask themselves, "**what kind of learning do I encourage with my teaching? How can I support deep learning?**"

We know that a child learns to speak without any explanations of German grammar. Likewise, a child learns to walk without someone explaining how it works. Great inventions have been discovered through endless testing, reflection, and modification. In school, history typically starts with the ancient Greeks and ends with the foundation of the German Federal Republic. It is expected that you need to understand single-cell organisms before you can understand the human body. This approach can be described as a constant accretion of knowledge; the lowest level requires the skill of naming while the highest level involves skills like analysing and

evaluating. It is assumed that you need to climb up the stairs of knowledge step by step. I consider this idea to be highly problematic. Why?

Knowledge, or even more importantly, expertise, develops through persistent application and expansion of contexts, tasks, and problems.

I notice gaps of knowledge, which I then try to fill, because I think about a certain problem and work on its solution. But I can also recognize that my current state of knowledge doesn't offer much help for solving my problem. I could also come to the conclusion that the approaches that I know will distance me from the solution even further. During my studies I learned what a 'null hypothesis' is and how to carry out the 'Chi square test.' I was able to name a definition and apply a formula. I did not learn why I, as a researcher, should need this test and how I could apply it in a certain research project. I quickly forgot the 'null hypothesis' and the 'Chi square test' because neither of them were linked to a specific problem for me. It therefore does not pay to gather a lot of knowledge which I will not need because I cannot use it.

What really helps me is my ability to pick up the sense of the null hypothesis, for instance. I just watched a very interesting video about the possibility to control artificial limbs through transference. This technology is called *brain computer interface*. The brainwaves are transferred to a computer using electromagnetic pulses, which are then reinterpreted as orders. For instance, a test person thinks: "move the left hand" and the robot moves its left hand. It is difficult to understand how this works. In order to do so, I have read two scientific articles, but with little success. Just imagine I would be able to understand these complicated processes within a few days with the help of a computer. Within just a few days, I could comprehend the two scientific articles which gave me such trouble. Wouldn't that be great? This is what I understand by deep learning: acquiring the ability to elaborate complex problems within a certain period of time. It is not important to give a detailed step-by-step explanation of the brain computer interface, but rather to develop the ability to autonomously understand complex issues.

If you aim to encourage deep learning, the question "what could deep learning be?" automatically arises. It is necessary to answer this question for maths, German, etc., as well as for interdisciplinary and non-subject-related competences. This can only succeed together with students and other teachers. Students and teachers have to go on a treasure hunt together, in order to discover what needs to be achieved.

You should be aware which learning is deep and which is superficial if you want to teach in a process-oriented way.

It is easy to identify deep learning with the help of certain questions: am I using my knowledge to work on further problems, questions, or tasks? Am I learning to understand underlying principles? Am I able to discover new horizons with what I have learned? Will I be using that knowledge to work on problems or tasks in the future? If you're answering those questions with "no," you can be sure that superficial learning is happening.

For instance, I want to support children in planning their future life and career by explaining to them which qualifications can be achieved at which types of schools. Is it possible to discover new horizons with that knowledge? No. Does such an overview help tackle further problems and tasks? No! Here is another example: I develop tasks in which pupils can combine their wishes and hopes with their strengths and potentials. Does this task open up new horizons? Probably! Are new fields of tasks and problems arising? Surely, because it is a long road until you reach a fulfilling professional life.

It is more difficult to identify deep learning than superficial learning but the questions mentioned above can help to exclude superficial and discover deep learning.

Problems, challenges, difficulties, and uncertainties are good indicators for possible deep learning. The formula  $R = \frac{U}{I}$  has little to do with the concept of deep learning if it stands alone and its meaning is not understood. Still, it can initiate deep learning. If teachers decide to face challenges together with their pupils, they are well on their way to deep learning. It makes sense to set individual objectives in order to make deep learning succeed.

### **Focussing on development**

Process-oriented didactics focus on development. What does that mean? From my point of view, development means constant transformation. This transformation can take place in various fields – in nature, in society, or in the individual him- or herself. One of my specific foci is individual development and the development of groups, for instance a class. Through development, new possibilities arise or the number of possibilities is reduced. For instance, I regularly try something new which I do not know well, such as working with an e-portfolio in my seminar or writing an article about a topic about which I knew little beforehand. Trying to do something you never did before broadens your horizon and furthers your ability to get yourself into something new. Also I could say: "no, I won't try it because I do not know how an iPad works." But if I regularly refuse to do something new, it will eventually become more and more difficult to do so.

Some developments take a very long time, for example, the development of the human body from childhood to adulthood. Other developments take less time, for instance the progress from



being a trainee to having completed an apprenticeship. Development is like learning, in that a lot happens unconsciously and some things happen consciously. In some fields, it is difficult for us to develop faster even though we would like to do so; one example might be learning to be more resistant to stress. I regard developments generally as something fairly long-term even if some developments might happen quite rapidly.

What does “supporting developments” mean in school context?

For teachers, it primarily means that they have to put aside a lot of what they have learned about organizing their teaching. They may have learned that every lesson needs to have an introduction, a phase of acquiring the new content, and a phase of consolidating that knowledge. It is very likely that they were also taught to operationalize every task: the pupils describe, assess, analyse, etc. But now let’s imagine how learning as a development actually proceeds.

Developments consist of different phases. We assume that those phases do not follow a certain order or logic but that, depending on our condition, we are in one of those phases. They could be called: concentration phase, discovering phase, stagnation phase, cooperation phase, isolation phase, success phase, resignation phase, and change phase. Surely you can think of even more phases. Operationalizing those phases could sound like this: the pupil does not know what to do next. The pupil does not feel like wood working. The pupil wants to be left in peace. The pupil is working intently on a certain problem. The pupil has an idea which is still on his mind. The pupil is absorbed in a certain topic. The pupil is accepting the help of her class mates.

It is during those phases that we develop. As teachers, it is our duty to find out how we can support our pupils in their individual development throughout those different phases. Preferably, pupils should be given the opportunity to work on their current development goals. The longer I deal with learning, the more I am convinced that it is our duty to support learners’ development or, to be more precise, development potential. This requires a very detailed examination of the teacher’s own possibilities and chances to support development potential in class. What could such development goals look like?

### **Finding development objectives together**

It is important to understand that setting objectives is not a one-sided method introduced by the teacher. The development objectives need to be negotiated between the teacher and the pupils. If they want, teachers can specify a development context. This context can result from the curriculum: for instance, the ability to analyse a text, to use technological gadgets, or to prepare a group presentation. Within this defined context, the pupils are allowed to set an individual development goal.

For instance, a pupil wants to learn how to repair a bicycle (technological competence), other pupils want to learn how to lead a company (economic competence), another pupil wants to know how to solve a mathematical problem. Development goals confront us with one or, in the best-case scenario, with several challenging tasks. An objective only becomes a challenge, if I am not sure if I can reach it, if it is linked to a certain effort, or if it makes me proud to finally reach my goal.

Having found a solution to a problem and thus getting closer to the own objective feels wonderful. It feels even better having reached the goal: for instance, giving a well-made presentation after a lot of preparation work. Having mastered a challenge can make us experience a moment of pure joy.

How often did you experience a moment when you were a pupil in which you were at one with your task and you felt that you had achieved something great? I am not referring to a very good mark in a math exam. For instance, in school I prepared a play with the pupils of the fifth grade. When the parents happily applauded after the performance and the pupils proudly took a bow, I felt absolutely proud and satisfied. Numerous challenges had to be mastered before we were ready to perform and more than once I thought about dropping the whole project. It was the success that rewarded me for all the hard work. The wonderful feeling of having mastered a challenge was a deep learning experience for me and I now know that it does not matter if everything does not work right away.

Now you may object that the curriculum does not allow such freedom of organisation. I would like to reply that more and more curricula are oriented towards competences not contents. One example is the curriculum for WAT<sup>4</sup> in Brandenburg, which is competence-oriented. It involves objectives like “the pupils are able to communicate in a technical way (with the help of technical drawings)” or “the pupils are able to develop a professional self-concept.” This curriculum provides a framework for working on determined goals together with the pupils.

Here is another example:

According to the curriculum, one of the teacher’s tasks is to support the pupils to develop their own professional self-concept. At first, the teacher could discuss what is meant by ‘professional self-concept’ and why it could be helpful to deal with this topic. Afterwards, the pupils could be invited to set themselves individual goals within the field of professional self-concepts. Based on these objectives, the teacher organises the lessons in order to support the pupils. Thereby, the teacher is on the way to setting his or her own development objectives like: “I want to learn how

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<sup>4</sup> The German subject WAT (Wirtschaft, Arbeit, Technik) deals with contents from the fields of economy, work, and technology.

to work more project-oriented in class,” “I want to improve my work in order to support my pupils more individually,” or “I want to develop interdisciplinary concepts of learning together with my colleagues.”

During my work, I noticed that teachers rarely talk to their pupils in order to explain why they have to deal with a certain topic and what benefits this could have. Many learners have lost the ability to set their own goals beyond simply passing the course or the exam. If you ask pupils or students about their free time, they show a great enthusiasm for their hobbies. For instance, a pupil wants to understand his dog better and another one wants to win the German handball championship. In their free time, children set themselves various challenging goals for which there seems to be no space at school or university. For many years I have been working with setting goals and noticed that it is no guarantee for intrinsic motivation and self-reliant learning. But I still believe that development goals are an essential precondition for dealing with a certain topic seriously. **This type of schooling has forced us to internalise working on topics which we are not interested to such a degree that we have forgotten how to set objectives which lead to personal and professional progress ourselves.** In my opinion, acquiring the ability to set personal objectives and work on them is a form of deep learning. The more you allow your pupils and yourself to set their own objectives, the more you encourage deep learning.

### **Mutual appreciation**

There is a wonderful book about a woman going on a walkabout with a group of Aborigines. In this group, every person has a specific task. There is a story teller, a talented hunter, someone who can imitate bird calls and many others. Thus, every member of the group is special. No Aborigine would dare to compare these abilities by saying that this or that person is more important than another one. Most notably, no one would ever talk or think patronisingly about someone else.

If teachers want to work together with their pupils, a good relationship with the pupils is required. Therefore, each pupil needs to be appreciated individually. Teachers and pupils need to find out together how each person can contribute to the class community. It is often difficult for children and teenagers to appreciate their own work or the work of others. This circumstance may be due to the fact that differences matter more than common experiences in our society. Especially pupils who disturb the lessons regularly should be treated as members of the class, and as important as the other pupils. In integration classes, children learn to focus on similarities and mutual appreciation rather than on differences. This represents a form of deep learning. For children in such classes, it does not matter who is taller, who has Down’s syndrome or who is sitting in a wheel chair. They learn to appreciate everyone in his or her own way and the meaning of social togetherness.

Lessons should offer as many options for exchanging ideas and getting to know each other as possible in order to make mutual appreciation part of the teaching culture. Of course, rules for communicating and working together have to be set up first. If none of the pupils is afraid of making mistakes and being laughed at, but there is an atmosphere of mutual appreciation, the lesson can offer the right conditions for process-oriented learning.

### **Making mistakes**

Everyone knows sentences like “that’s wrong” or “you haven’t done a good job.” Some people might even know the sentence “you’ve totally disappointed me.” In school, mistakes are regarded as something bad. If a learner makes a mistake, he gets admonished or less points. A student attending one of my seminars once told me that she would rather say nothing than something wrong. I believe that there are many people who prefer to stay quiet instead of taking the risk of saying something wrong. If you are too afraid of making a mistake, it is likely that your personal development will stall. It is impossible to develop without making mistakes. Children who are punished because of their mistakes are prevented from learning in a process-oriented way. Only few people will continue to take on new challenges if they are punished or laughed at for every mistake. But even if you know that you won’t be laughed at for making mistakes, for most it is still difficult to take a chance.

Avoiding mistakes can affect the way you live. You might not dare to play an instrument because someone said you were unmusical. Or you might give up on painting because your art teacher said you had no artistic talent. Perhaps you do not even dare to choose your desired profession because others told you it was impossible to get a job in that field.

The way people deal with mistakes causes deep learning. While learning deeply, you develop your own way of trying out something new or meeting a challenge. Recently I watched a wonderful teacher during her work. Every time the pupils made a mistake they figuratively wiped it away with their hands and started over again. I watched the children’s bodies stiffen when they made a mistake, their eyes fixed on the teacher. The wiping motion released the pupils from their tension and brought them back to the classroom action. They relaxed. Their bodies and faces unstiffened and they tried to solve the task again. Many people think making mistakes means being imperfect or having faults that you need to be ashamed of. Such a feeling blocks your thoughts and stiffens your body. Therefore, it is important to be aware of the numerous negative consequences that dealing restrictively with mistakes could have. If your head is blocked and you are unable to proceed, you may even stop trying. But this stops all further development in its tracks.

There is a great exercise where participants stand in a circle and clap in a certain order. If a participant claps at the wrong time, he or she gets the chance to walk around the circle calling out loudly "I am so sexy!" What this exercise is trying to teach is that mistakes are sexy. Doing something wrong or not knowing the right answer is not a problem. The point is to internalise "mistakes are helping me to develop. I am thankful for my mistakes." Nobody is indifferent towards mistakes. Still, some people have the courage to take chances and put themselves in situations where they might make mistakes, for instance establishing a company, becoming a researcher, or repairing an old car. Making mistakes may sometimes be painful, but usually the mistake itself does not cause huge problems and can be laughed about afterwards. Mistakes are absolutely necessary for personal development. If teachers believe their task is only to equip the pupils with knowledge, they are missing the opportunity to allow both their own and the pupil's development. But teachers who wish to develop themselves and also contribute to their pupils' development will experience the magic that comes with common learning. In this respect, it is important to continuously reflect upon your work because these processes need time.

### **Reflection on the own work**

It is of great importance that teachers and learners reflect upon their own work in order to deliberately work on their personal development. My ability to reflect upon my moods, wishes, objectives, strengths and fears as a teacher allows me to perceive my own teaching and learning from a very personal perspective. For instance, during your reflection you may notice that you get angry when the pupils do not appreciate your preparation work. You need to recognise that this is a personal anger. Consequently, you should ask yourself "how do I deal with my anger?" or "what could help me not to get angry?" It is equally important to understand and assess your pupils' moods and emotions so as to integrate them into your teaching and into the analysis of your teaching culture. Developments are based on the ability to assess one's own work in a correct way and to understand which factors have an influence on one's work. Developments are also based on the ability to draw conclusions from an analysis and to act differently afterwards. If a teacher thinks that his pupils do not participate in his lesson because they are "lazy," "unmotivated," and "stupid," there is hardly a chance that this perception will cause a change in his teaching style. But if he deliberately reflects upon his anger about the lack of acknowledgement, there will be room for change. For instance, he could try to improve the culture of feedback in his class and learn to not take the lack of interest as an offence against his person. In my opinion, teachers and learners can only develop further if they give themselves the chance to do so. Therefore the described levels of reflection which are depicted below can be helpful.

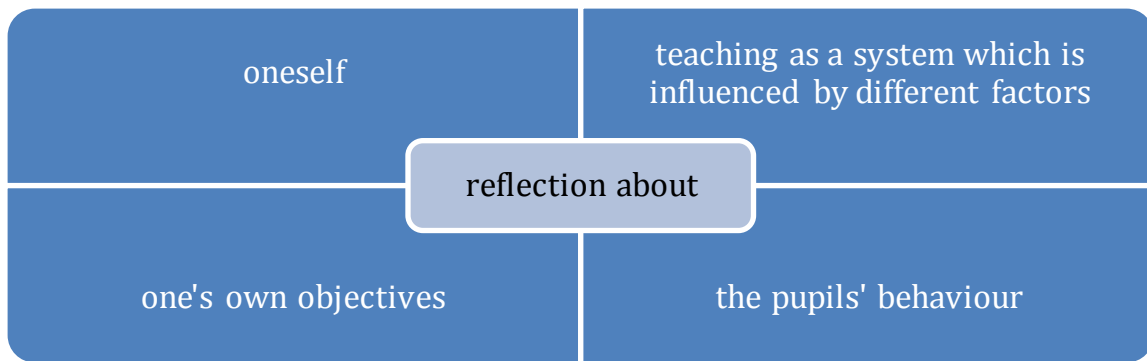


Image 3: The different levels of reflection

I consider self-reflection to be particularly important because it demands recognising responsibility for one's behaviour and acting autonomously. I am responsible for my own development. I decide where I have difficulties and need support and where I see the strengths that help me reach my goals. Just trying to reflect upon one's own work is itself a huge step in one's development. One of my students once said "we need to step out of our comfort zone and take responsibility." The next paragraph shows how hard this step can be.

### **Welcoming learning resistance**

Resistance is part of life. Metaphorically speaking, resistance is a constriction that you have to press yourself (or a project) through. The narrower the passage, the bigger is the resistance. Resistance can have many different faces. For instance, during World War II, many courageous people fought against the Nazi regime and died as members of the resistance.

Resistance holds you back. If you want to get an impression of what resistance means, there is a helpful exercise. Stand back to back with your partner, colleague, or friend and push your backs against each other, pushing gently at first and then increasing the pressure until you are pushing with a lot of strength. Depending on your partner's reaction, you will push him backwards, feel almost no resistance, or get into a pleasant state of balance. You can experience resistance against observations of your lesson, tidying up your room, or correcting a class assignment, for instance.

Referring back to the exercise where you are standing back to back, I would like to underline that resistance can be so powerful that it almost stops you from moving forward. In such moments, you are left with little freedom to act. You will either be overwhelmed or you manage to overcome what opposes you. But if I want to lean against something, and I feel no resistance, I will fall over. Children and teenagers who never learned rules and/or were allowed to do as they pleased will fall over, figuratively speaking. They have a lack of experience dealing with resistance. Such children tend to be rather loud and hard to manage in class. Through their

behaviour they want to express “I am waiting for someone to stand in my way, show me my limits, and give me security.” Limits and resistance can offer support and help mastering life.

The situation is similar in learning. If you feel no resistance or no effort is needed, you easily get bored. It is equally problematic if the resistance is too high. In this case, you get pushed against the wall. In this case, we avoid resistance so as not to get overwhelmed. My son, for instance, ignores tasks that he is not able to solve. He simply does not work on them. In this context, it is important to understand that every human experiences resistance in a different way. What feels like light resistance to one person may feel like constriction or too much pressure to another.

As a consequence of this assumption, teachers and learners should enter into a dialogue about their resistance. By doing so teachers could find out when learners feel too little, too much, or just enough resistance. People with big visions are ready to face lots of resistance, because they draw enough strength from wishing for change and being convinced to do the right thing. Thus they are able to accept defeat and handle problems with new energy. People who do not know what to do or why they should do something will probably have more difficulties handling resistance. Why should I try to overcome resistance if it makes no sense to me? In school, children are regularly confronted with resistance, but usually they see no reason to overcome it. Or they are bored because they do not consider the current learning objective to be resistance. Resistance and learning are closely linked to your personality and your motivation for doing certain things. It is easy to imagine that the higher your willingness to face resistance (problems or conflicts), the higher your motivation.

The following remark is very important to me: A lack of participation in class is not the same as learning resistance. Primarily it is a lack of participation.

Teachers should regularly ask themselves “why would learners feel like participating in my current lesson?” or “what do I offer the pupils to get interested in the topic and be motivated to learn?” From my point of view, learning resistance only emerges when you intensely reflect upon your personal experiences and objectives.

A lack of participation only shows the teacher that the pupils do not agree with what they currently have to do. On the one hand, this could mean that the learners are experiencing learning resistance; on the other hand the pupils may just see no sense in what they are supposed to do. Teachers cannot know if a pupil is tired, not interested in the topic, or is having huge problems understanding and thus has stopped listening.

Learning cannot proceed if pupils do not participate because the current topic seems meaningless to them or they are overwhelmed by it. By the way, boredom is one of the most frequent feelings that comes up in school. This feeling symbolically stands for a lack of learning.

Fear is also a feeling that regularly arises in school. Similar to boredom, it can be considered a **killer of learning**.

If teachers are ready to deal with their own and learners' resistance, they create the opportunity to support the individual development of the learners. Your learning resistance hinders your personal development the most. As soon as the resistance gets too big, you stop working on your development. Therefore, it is important to seek challenges which are accompanied by resistance which you will be able to overcome. Thus you will not give up, but succeed. As far as I can see, dealing with learning resistance is one of the major challenges you will face if you want to work according to process-oriented didactics.

I myself work on welcoming my resistance, and try to transform them into productive learning. I am convinced that I can offer the learners better opportunities for mastering their personal challenges if I learn to understand this resistance. It is one of teachers' most painful experiences that, even if you know various methods, have self-confidence, empathy, and the nerve to try things out, learning is always linked to problems and resistance. However, if teachers are ready to recognise the relationship between learning and resistance and begin to include it in their work, they will develop their own concept of teaching and learning further and further while enjoying working with the pupils. They will experience that between different situations of resistance there will be valuable situations of intense exchange, learning, and success.

### **Practicing, practicing, and more practicing**

I explained the importance of setting objectives together with the learners in order to set their learning process in motion. I also underlined that making mistakes in order to learn from them and overcoming learning resistance are part of the learning process. Developments usually take time. If you watch small children, you will notice how impatient they are when they are just short of a huge development step. Talking of my son's development I said "my son will soon take a leap" and most of the time I was right. Suddenly, my son was able to walk, started talking, or was able to eat by himself. It is normal that you get annoyed when you wish you were able to do a certain thing but it does not work yet. To make it work you need a lot of practise. I have never heard of an actor, football player, scientist, trainer, or musician who did not work hard day after day to improve his abilities. It is not about becoming famous, but about having a personal goal to be very good in a certain field and continuously practising to reach that goal. In order to be able to work hard on a certain thing, it needs to be linked to personal objectives. It is likely that you stop practicing if you have no personal interest in understanding Euclidean geometry or increasing your ability to organise learning processes, for instance. Having a clear goal in sight will surely make it easier for you to overcome challenges and try out something new until you are pleased with what you have reached or until you have found a new objective.



## **Hitting the road**

I hope that I have raised your interest in organising your teaching in a process-oriented way. The easiest way to incorporate process-oriented didactics is by taking a look at the curriculum in order to spot the abilities and competences you should help the learners develop. Present these standards to your pupils and discuss them together. Afterwards, offer your learners the opportunity to participate in organising their learning with the help of individually-set goals. You should only start organising your lessons after you determined objectives together with the pupils. By this I mean the development of ideas about how to work on those objectives together. You should try to convince a colleague who is motivated to adopt the concept too. Together you can decide what you want to achieve with your pupils and agree on how and when you are going to exchange the experiences you have gained. I am happy to offer you my support if you want to try out this concept. Feel free to contact me via e-mail. A group meets regularly to exchange ideas about process-oriented didactics as well as teaching and learning experiences gained while using this method. In this way, we are right in the middle of the wonderful experience of mutual teaching and learning.