

Criteria of Good Instruction

Empirical Findings and Didactic Advice

1. A Call for Action in Education Policy

The international students-assessment-study PISA 2000 (published in 2001) made clear, that German students in most domains of cognitive abilities are less than average. They don't get enough individual support; they learn facts by heart – they don't learn to use their competencies. They have too much inert knowledge. That's why the majority of education professionals in Germany agree: There is an urgent need for action to develop the German school system. If I were the Minister of Education of lower Saxony (thanks to God I'm not!), I would strive to assemble political majorities for the following initiatives:

1. Universal implementation of a **six-grade elementary school** – no grading system, but should include recommendations for what kind of school the child will continue on to (vocational training, academic education);
2. First foreign language (**English**) starting in first grade
3. Universal implementation of **all-day schooling** into the secondary I and II levels; facultative for elementary school
4. Introduction of **educational work time** for teachers (instead of measuring payment by counting the lessons held)
5. More money for **at-risk** students – **more individual support** for highs and lows
6. **More rights** and **support for principals**; reduction of mandatory hours for principals
7. Fully-compensated **continued education** for every teacher
8. Mandatory **teamwork for all teachers**

An implementation of these measures could create a *framework* for good instruction. But I unfortunately am aware of no minister of education in the 16 countries, which form the Federal Republic of Germany, capable of acquiring a political majority for these drastic steps. I therefore assume that the current school reform will continue to

plod along for the next five years. This is by no means grounds for resignation on my part: Even under less-than-optimal circumstances there are many variables for good instruction that no minister of education can sink his/her claws into. *And this paper discusses these variables.*

2. The Hidden Didactics of the PISA Study

The PISA-results scared us all. But up to now everyday teaching hasn't changed much. That's a pity. There's a lot to be learned from the PISA study if you disregard the long list of data and the individual details, and instead focus on the study's "ethics." May be it's surprising for you, but the PISA study contains not just an internationally accepted strategy for determining what children are learning, but an ethical code of teaching and an entire didactic of student-oriented teaching as well. I summarize these as follows:

- **Item 1: Ethical Code:** Every student has value. Every one of them has the right to experience success and to be challenged and assisted as a human being.
- **Item 2: Analysis of Learning Strategies:** Do a learning analysis for students and think about what an individual and collaborative promotion would look like when based upon the determined learning condition that students already have. Upon doing this, use them. See which ones are still missing, and help them adopt them.
- **Item 3: Competence Classification:** Be sensitive to the various levels of competence upon which the students operate. Pay particular attention to the lower levels of competence.
- **Item 4: Dealing with Heterogeneity:** Observe the heterogeneity of learning groups as an opportunity for better teaching both content-wise and methodically, and not as a threat. See to it that through greater inner differentiation that every student can advance from his/her individual level of competence.

What do German politicians do five years after PISA? For the past four years they dived headfirst into the measurement and comparison of student performance (creation of a kind of "Federal Bureau of Weights and Measures" at the Humboldt University in Berlin; introduction of comparative works in all German states; a universal Abitur (academic exam needed for graduation from a German Gymnasium); inspector models). In essence, this is legitimate, but not sufficient to promote and help schools that are in need. The old saying (see above) also goes for learning in school!

Proposition 1: A pig doesn't fatten up because it gets weighed a lot. Instead, it needs the right kind of food, in the right amount, at the right time.

My Corollary: We need a re-orientation in the PISA debate: Away with the measurement-euphoria, and bring on the concrete questions of what characterizes good instruction and how teachers can be helped to implement these characteristics into their own lessons.

3. "Take a look over your own shoulder" – A trademark of professionalism

All of us have long since internalized our own personal theories on what good instruction and good teaching is (i.e. since the first grade, perhaps even earlier). Three examples of this are found below:

- **Mariah**, an elementary school student from Oldenburg: "Science is really wonderful, since we now have such a wonderful new teacher, she is fantastic. And the topics are so thrilling, that I just must participate. I tell you folk: Science is the most wonderful topic of the whole universe."
Mariah's statement makes clear: The personality of the teacher has a huge impact on motivation and learning interests. Non the less, I didn't define a criterion like "strong teacher personality" in my list of 10 criteria. The reason is, I only choose criteria, which can be made strong by mutual efforts of teacher *and* students.
- **Markus**, a twelfth-grader (specializing in history) from Hamburg "Teaching is good when I achieve a maximum output from a minimum input." You may laugh about this statement – but it is a realistic point of view. Markus wants to make a teaching-learning-contract with his teacher. And that's a good idea! Teachers should always try to make students their allies.
- **Mr. Oblinger**, School inspector from Bavaria "Teaching is good when the goals set are achieved." For me, this is a statement typical for inspectors. It is legitimate to look for the outcomes, but it's not enough!

It would be easy to make this list much more longer. But what does it tell us about good instruction? Such ideas on good and bad instruction are always personal observations, i.e. greatly formed based upon professional experiences of the respective teachers. And, these ideas are very hard-set; they aren't changed like people's dirty socks. But it's also possible to take a look over your own shoulder every once in a while and ask yourself "What am I doing?" and "Am I achieving what I want with these methods and techniques?"

For today's presentation, I conclude: *I am not trying to turn your personal theory inside-out.* That's not even an option. I would be happy if you use my theory solely to fine-tune your own personal theory *a little bit.* This is possible if you look over your own shoulder while teaching. This will create a reflexive distance to your own actions – and that is exactly what this is all about:

4. Let's make a few things clear

My main idea is to link the definition of “good instruction” with empirical research about the results of teaching.

Definition: Criteria of good instruction are empirically based characteristics of instruction, which have a high impact on the development of students competencies.

However: What *good* instruction is supposed to be cannot be derived from the results of empirical investigative research. Instead, it is **normatively set** (i.e. based upon an educational theory, which has a long tradition in Germany). Work definition Number 1 is based on German well-known “Bildungstheoretische Didaktik (Wolfgang Klafki) and puts this into my own words.

Definition: Good instruction

- (1) is part of a democratic teaching culture
- (2) is based upon well-defined educational goals
- (3) makes strong efforts to produce a teaching-learning contract between the teacher and the students
- (4) strives to produce “Bildung” - a lifelong orientation about norms and values
- (5) and promotes sustainable competency development among all students.

The debate coming from the PISA fallout has led to particular attention to point number five in this list. This must be corrected, most of all because the performance measurements overestimate cognitive learning goals and neglect the objectives based upon social/methodical competence.

5. Good instruction is the heart of a good school!

Everything else that goes into a school indeed makes a contribution, but nevertheless can't compensate for poor quality of teaching:

- The “feel good”-aspects of school development (school exchanges, support of gifted students etc.) are indeed good for the psycho-hygiene of teachers and good for the active and intelligent students. But schools with a high amount of external activities are not automatically good schools.
- Even German schools that do have very good PISA results often practice conventional teaching (for example the well-known Helene-Lange School in Wiesbaden). However, these are expanded through demanding and quantitatively extensive forms of project and extra activities.

I'm not at all against these “highlights” of teachers work. But teachers should pay more heed to everyday teaching and the corresponding “meat and potatoes” didactic.

Proposition 2: The battle for a better German PISA ranking is won or lost in normal, overall frontally organized topical instruction, not in projects, on field

trips, or in special projects such as “Jugend forscht” (= a German student research competition).

I’m not specialized in comparative education, but I’m sure that the PISA-winner-nations like Japan, Finland or Sweden have a higher culture of direct instruction than Germany.

6. My main message: 10 characteristics of good instruction

Empirical educational research has made considerable progress in the last fifteen years. We can therefore say today more precisely than previously which characteristics of everyday teaching contribute to permanently high levels of cognitive, methodical, and social learning successes. I have studied these research findings, assessed them didactically, and expanded them by two poorly substantiated, albeit (in my opinion) important points¹. I have outlined them into the ten criteria of good instruction. I will describe them now with some few sentences.²

Ten Criteria of Good Instruction

1. **Clear teaching structure (process clarity; clearly-defined roles; agreement on rules, rituals, and what is permissible).** This means first, a high quality of cooperative classroom-management – that’s what you can see from outside, if you come into the classroom. Second, a precise planning of the teaching-learning-process – that’s what you can “see”, if you interpret the didactical planning of the teacher and the behaviour of the students. It’s the internal side, called “methodischer Gang des Unterrichts” by the German educational scientist Lothar Klingberg. This first criterion has the greatest impact on cognitive learning progress (conf. Wang/Haer-tel/Walberg)
2. **High Amount of Time-On-Task (intelligent time management; punctuality; reduction of organizational work in the classroom).** And there is a clear message: Time-on-task is one of the two or three most important variables of high learning outcomes. That’s why good instruction starts in time and ends, if the teacher says. In the United States there has been much empirical research about this topic in the last decades (John Carroll, Robert Slavin). You can even say, that school effectiveness research started with this variable “time necessary – time granted”.
3. **Climate Conducive to Learning (mutual respect; rules that are adhered to; balancing of responsibility; equality and care for one another).**

¹ number 5 and 10

² A longer description of 8 to 10 pages each – only in German language - can be found in my publication “Was ist guter Unterricht?” (“What’s good instruction”), Berlin 2004: Cornelsen Scriptor.

I was very astonished to read in empirical research findings (for example Wang/Haertel, Walberg), that this is a less important variable. I don't believe it. The scientists should start and make new, more sophisticated research! For me and for nearly all teachers I spoke with, this remains a very important criterion. Intelligent and strong students like Markus, quoted above; can learn in bad climate. Little children, handicapped children, students at risk need a good climate, I'm sure.

4. **Content Clarity (well-defined tasks; plausibility of thematic processes; clarity and continuity of retaining that which was taught)**. This criterion is close to number 1. But it's so important. That's why I made it a criterion of its own.

In Germany, we have new research findings about the quality of task-definitions in the classroom. It is low. We lack fantasy and knowledge about well-defined tasks. Many teachers stick to the low levels of achievement. They stick to knowledge-acquisition instead of student-activating tasks. The same problem we have considering the final stage of a teaching-learning-process. The teacher and his students should clearly define the results of mutual work. Clarity of content can be increased by spiral curricula, by intelligent exercises and regular transfer.

5. **Meaningful Communication (through participatory planning; thorough discussions on the meaning of tasks; frequent mutual feedback)**. Good teachers are always busy to negotiate meaning. They do it by talking about the meaning of subject matters, they do it by body-language, they do it by clear structuring of tasks and units. John Dewey once defined: "Teaching is negotiation of meaning". I agree. In my point of view this is the most important criterion at all. But it's difficult to define and hard to achieve. The research findings are poor. Jere Brophy from USA was the only author I found who claims, that "meaningful conversation" in the classroom produces better learning outcomes.

6. **Variety of Instructional Methods (Multitude of teaching and learning patterns; and a balancing of individualized and collective learning, of self-regulated and guided learning)**. Research findings say: The "ultimate method", that is good for every student and suitable for every topic, does not exist. But there are clear empirical findings that a *variety* of instructional methods produces higher learning outcomes. That's not at all astonishing. Students are heterogeneous.

So it makes sense to use different methods.

But you must always take care for an axiom of German didactical theory: Goals, content and methods cannot be defined independently from one another. There are complex implications on every stage of planning, executing and evaluating of instruction. That's why "variety of instructional methods" has no value of its own.

7. **Individual Support (through being patient with them a taking time for them; through internal differentiation; through individual learning analyses and individual learning plans; particular attention to at-risk students).** The PISA-findings show that in German classrooms, there is a substantial lack of individual support. Many teachers just stick to a fictitious "average-student". But this doesn't work. German teachers need more support themselves. That's why I repeat what I said in the beginnings: "Be sensitive to the various levels of competence upon which the students operate. Pay particular attention to the lower levels of competence."

8. **Intelligent Exercises (by making students aware of learning strategies; precise assignments for exercises; and concerted support).** Many German teachers think, exercises are to be done by homework. This is wrong. And this produces particular difficulties for students with poor or difficult living conditions. That's why we must try to invest more time and more fantasies in intelligent exercises. One part of this new "exercise-culture" is meta-cognition: We have clear research findings that those students who are aware of their learning strategies learn better. Another task is to produce a more friendly climate for intensive exercises. If the teacher says: "Sorry, no comes the dull part of work – you must exercise", he makes a big mistake. Exercising can be very joyful. I propose to make an exercise-festival once a year in every school. The students then can show their personal favorites of learning strategies and win prizes, for example one week without homework.

9. **Clear Description of Goals to Be Achieved (constructing learning situations fitted to the curricula and the capabilities of the students; punctual feedback on learning progress).**

Of course criterion no. 9 is closely linked to no. 4. The student must know what to learn, why to learn and how to learn. This clarity of descriptions makes pressure unnecessary. Richard Ryan, USA, said in a lecture held in Oldenburg in 2005: "Pressure breeds control – control breeds backfire" – I translate it: If a teacher makes much pressure for good learning outcomes, he is forced to install a high amount of students control. And if he controls very much, students try to circumvent his intentions. That's just the contrary to what I called a teaching-learning-contract.

10. **Well-Prepared Learning Environment (well-organized, functional facilities; useable learning tools).** The first author who emphasized this criterion of “vorbereitete Umgebung” was Maria Montessori from Italy. However, German research findings for this last criterion are poor, but I’m sure it is important for learning effects. There is a visible external side of this criterion: good light in the classroom, fresh air; good acoustic conditions, good learning materials, computer equipment etc. The students know what is allowed and what is forbidden. The teacher comes to the lesson well-prepared; the media are ready etc. There is an internal side, I call “good order in the classroom”: The students respect the interests of the other students. They bring back materials they don’t need etc.
11. **Wild Card** (Use this room for any other topically didactic criteria for effective teaching – for example in foreign language education it makes sense to choose the criterion “authenticity of learning situations and materials”)

I am not an empiricist. All sources in the following that comment on my ten characteristics were taken from educational researchers both in Germany and abroad. The actual core of my work – somewhat rough in how it’s written, and quite ramified – was a concise summary of research results and how to weigh them on the basis of my educational theory. But the confessed empiricists such as Andreas Helmke or Jürgen Baumert confirmed the topical appropriateness of my translation efforts. Therefore my suggestion:

Proposition 3: Teachers are well advised to take these ten characteristics as criteria for quality assurance and improvement of teaching.

7. My Construction Criteria in Formulating the Ten Characteristics

I would like to let you know according to which rules I defined these ten characteristics. In doing so, it may make it easier for you to examine the characteristics and, when applicable, develop them further:

- (1) All ten characteristics have an external side that can be assessed through **direct observation** and an **internal side** that must be interpreted.
- (2) All ten characteristics have been selected and defined in such a way that **both teachers and students** can contribute to their playing a role in the lesson. None of the characteristics is exclusively meant just for teachers or just for the students. Even “individual support” may be given by other students.

- (3) Although numbered from one to ten, the characteristics are **not ranked according to importance**. Instead, they are meant as more of a puzzle made up of individual pieces that when put together create one entity.
- (4) The characteristics are **neutral when observed from a topically didactic point of view**. They can however be concretized in a topically didactic fashion, or expanded through further topically didactic criteria (this explains the wild card).
- (5) The ten characteristics are consciously maintained as **abstract**, which prevents them from being confused with “recipes” for teaching. They therefore require imagination and perseverance on the part of the user to be translated into concrete forms of teaching.
- (6) The ten characteristics are valid **for all levels and forms of schooling** and, additionally, for kindergarten, universities, and even for an orchestra rehearsal. This is a result of its abstractness as well as its empirical safeguarding.

The catalogue mentions only rudimentary **responsibilities for education** in criteria numbers three and five. This lapse is a result of the research situation. We are meanwhile now very aware of the factors that activate cognitive learning. But we have only limited reliable information on the effectiveness of individual education measures. Therefore, my catalogue of characteristics must be further developed.

Perhaps a few variables regarding good instruction are missing that you personally consider important for lessons, e.g. **willingness to learn** on the part of students or **personality structure** of the teacher. These variables are not part of my catalogue, as it deals more with **requirements** for teachers and students that are necessary for successful teaching. If “personality structure” would be made into a decisive characteristic, continued education for teachers would hardly make sense anymore, as the development of a personality is for the most part completed between the age of 20 and 25. (A suggestion like “be funny” is therefore in my opinion not very helpful!). If “student ability” or “motivation” were made into characteristics of good teaching, instruction at special schools would by definition be bad, whereas teaching at a Gymnasium would be good. The opposite is more likely:

Proposition 4: The worse the performance of the student, the more he/she requires quality teaching.

The ten criteria are therefore formulated “with didactic intentions”: They are characteristics with which all who have the right attitude can work.

8. The Didactic Hexagon

Figure xy: The Didactic Hexagon

Allow me to give a short *lesson* on overall didactics (a German and Scandinavian speciality!). Apparently there is a big jumble of varying concepts regarding general didactics. But this impression deceives upon closer investigation. Thirty years ago, the majority of German didactics – from Wolfgang Klafki to Paul Heimann to Lothar Klingberg – agreed that there are six dimensions or “structural characteristics” of teaching (see Jank/Meyer 2002, p. 62):

- formulating goals
- structuring content
- structuring time
- structuring actions
- defining social structure
- defining and preparing rooms to learn.

All six structural dimensions experience an interplay with one another. The ten characteristics of good teaching can thus be related without any problems to each of the six “corners,” even if the criteria – as is the case with the structural characteristics – act retroactively towards the other corners and characteristics.

9. What is the effect of teaching in school?

There is a naive attitude prevalent among the general population, and firmly rooted in the “souls” of politicians that 90 percent of that resulting from teaching is a result of the lesson itself. This would indeed be nice, but this impression is, thank God, wrong. Empirical investigations waver in their conclusions on “school effectiveness.” While it was previously assumed that a skeptical ten percent of influence was attributable to the lesson and its handling on the part of the teacher, today, values between 15 to a maximum of 45 percent (under very good circumstances) are assumed:

Proposition 5: About **25 percent** of lesson-based learning success on the part of students is brought about through the quality of the lesson (and with this, through the professionalism of the teacher) – the other 75 percent comes from ability, the home environment, peer groups, the media, and other factors.

This 25 percent represents a mean value. There are countless deviations, e.g. in relation to the topics (greater influence in math, lower influence in German), and in the teaching competence and personality structure of the individual teacher (here, the influence can vary between 10 to 90 percent).

Proposition 6: 25 percent is a lot – and worth fighting for!

10. There are many ways to skin a cat

Long before German reunification, the East German educationalist Lothar Klingberg wrote “Teaching is a process of creation.” He was making clear that the prescribed societal and curricula norms coming from the Socialist Party and the State (German Democratic Republic) would not be able to directly establish themselves into teaching, nor should they be able to (see Jank/Meyer 2002, p. 142). The formulation of the ten characteristics of good teaching is one way, i.e. describing how these ten characteristics; how they can be strongly implemented is something else. We know from educational theory, empirical educational research, and research on professionalization that there’s no one perfect path to a high level of teaching quality. Every highly qualified teaching in and of itself in best-practice classes has an individual profile for whose creation the teacher plays a decisive role:

- This is shown e.g. in the research findings on the best-practice classes from the SCHOLASTIK Study (Weinert/Helmke 1997, p. 250).

There is no “automatic effectiveness“ for the individual characteristics in the catalogue. One teacher achieves good results e.g. with strongly pronounced characteristics 1, 2, and 4; another teacher only moderately develops these characteristics, but on the other hand achieves excellent results due to other strongly developed characteristics. This is the conclusion also arrived at by the famous SCHOLASTIK study by Weinert, Helmke, et al. Only six characteristics of good teaching are shown here, and are sliced somewhat differently, but remain comparable nonetheless. In the “best practice classes”, there was a pronounced distribution of the individual characteristics as well. (However, we do not know whether the teachers examined by Helmke would have perhaps achieved better results from their students if the “slip-up” characteristics had come more strongly into play).

From this, I conclude: Particularly those teachers having a very high performance level develop a rather individualized profile regarding their teaching. It would therefore be wrong to want to bunch them all into one group.

Proposition 7: There are many (but not infinite!) ways to skin a cat!

What does this mean for teachers? Where exactly a quality improvement of your own teaching should begin can theoretically not be determined. You are therefore free to start where you think you would have the most success. But you should approach it according to the following motto: "Strengthen the strengths, weaken the weaknesses!"

11. Strength of Effect

In meta-analyses (= re-interpretation of existing individual studies) and long-term studies, it has been attempted to determine the strength of effect and/or intensity with which the characteristics can have influence upon (cognitive) learning success. The most well-known of these tables comes from the Americans Wang, Haertel and Walberg (1993). The list runs from *strongest to weakest* in decreasing order.

Strength of Effect upon Learning Success According to Wang/Haertel /Weinberg

1. Cognitive abilities of student
2. How the class is conducted by the teacher
3. Home environment and parent support of the student
4. Meta-cognitive competencies of the student
5. Learning-related teacher-student interaction
6. State and local politics (this is in relation to the USA!)
7. Lesson quantity
8. School culture
9. Parent involvement regarding school issues

10. Lesson organization
11. Student ancestry
12. Embedding of the student into a group of peers
13. Lesson quality
14. Motivational and affective factors
15. Class environment
16. Demographic situations
17. School-administrative decisions
18. How the students spends his/her free time

12. What is more successful: Direct instruction or open education?

It has become customary both in international empirical educational research and, in the meantime, in Germany as well, to boil down the wide array of teaching concepts into two models:

- Direct instruction (teacher-centered learning) is characterized as a teacher-centered, mostly frontally-organized teaching.
- Open education (progressive education). All variations of a goal-, content-, and methodically-differentiated teaching are characterized by an emphasis on self-control of learning by the students. There is a large amount of project, group, and free time work.

The debate on whether direct instruction or open education achieves better results has gone on now for three decades. I summarized the complicated individual results together with Wolfgang Einsiedler (2003) in two sentences:

- Direct instruction appears slightly better suited for *technical learning*. Those seeking a high level of technical teaching success should make particular note of criteria 1, 2, 4 and 9.
- With methodical learning, in social learning, and with an eye on the development of self-confidence and self-effectiveness concepts of students, open education displays a slight advantage. Those seeking a high level of learning success should particularly note criteria 10, 3, 5, 7.³

From this, I conclude:

Proposition 9: Teachers are well-advised to see to it that their students learn according to both teaching concepts.

This observation does not mean that I (at my advanced age) denounce the ideals of a student-oriented teaching that strengthens their self-confidence and self-effectiveness. Quite the contrary. We know from many individual studies what kind of fantas-

³ A further controversy concerns the question of who profits more from open education: the stronger students or the weaker ones? The research results regarding this issue are, as Sabine Gruehn (2000, p. 51) writes, inconsistent. The positive PISA results from individual schools as well as the LABORSCHULE in Bielefeld and HELENE-LANGE-SCHULE in Wiesbaden, having a highly differentiated and open teaching concept, nevertheless indicate that at-risk students are well-served by open education.

tic learning results can come from such teaching. This statement simply attests that, in light of the statistically average learning success in German schools, no clear advantage can be attributed to either direct instruction or open education in the way they are presented above.

Just as frontal teaching is not by its nature bad, and just as group lessons are not by nature good, a more conservative, teacher-centered lesson does not automatically lead to better results, just as open education does not automatically lead to better results. It always depends on what is accomplished with them in practice.

13. Quality Network

What interrelations are there among the ten characteristics? Are there synergy effects, or do the individual characteristics increase independent of one another? The majority of researchers assume that there are indeed interplays. However, they make clear important differentiations:

- One faction of researchers assumes a **non-substitutability** of the various characteristics. In other words: If one characteristic is very weakly implemented, the entire learning process will fall apart.
- The other faction assumes a **mutual compensation**, and therefore believes that the characteristics that are less implemented in one area can be made up for by stronger attributes in another.

The truth will most likely be found somewhere in the middle. On the one hand, the characteristics have to have extended beyond a certain *threshold* in order to make the hoped-for synergies a reality. On the other hand, professional teachers and their students develop strategies with which they can compensate (within determined boundaries) for weaknesses in one criteria by means of strengths in another:

- Those who clearly structure their teaching and intelligently select their pace of learning can achieve positive results even without a variety of methods (Helmke/Weinert 1997, p. 250).
- Those who are poorly prepared but are otherwise good teachers can help their students achieve learning success. In such a situation, the teacher needs to be more "school oriented" than normal, and must entertain the ideas and problem solutions of the students (Seel 1997).
- Even a lack of professional competence can be compensated for within certain boundaries. The MARKUS Study indicated that, although some math teachers at Hauptschulen and Realschulen in Bavaria are not trained to teach the topic, they had the same rate of success with their students as those who were (Helmke 2003, p. 59).

I equate the quality development of teaching with the setting-up of a circus tent: The ten criteria are the "tent poles" that hold the teaching together. They guarantee that the teaching tent is not blown away by the first wind that comes along. And, they protect the teaching arena, helping the director deal with the lions and tigers, clowns, monkeys, and artisans that cavort about.

Proposition 9: The ten characteristics of good teaching create a quality network with a multitude of synergy effects that can be individually identified.

Good teachers can therefore compensate for a deficit in one characteristic realm through the strengths of another.

14. Does good teaching mean more work?

A precise empirical investigation on the question is missing, but I'm pretty sure that the answer is "yes".

Proposition 10: Teaching well means more work, but it brings greater satisfaction.

Conversely, this means: Those who teach poorly, as a rule, have less to do.

15. Conclusion

We come to an end. I presume, this text and lecture is a typically German approach to good instruction. We always liked to formulate the philosophies behind it. In the past, we even focused on educational philosophy alone and forgot to clarify the empirical basis of our wishes. In this point of view German didactics have moved the last ten years. We try to become an empirically based science. My lecture is a little part of this movement.

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