

Full Length Research Paper

Mind frames are more important than structures: Questions of educational reform and people as the answer

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A lot of structural reforms of education system have been and are being discussed at length in the general public and among experts. Many hope this discussion will lead to progress in the form of structural measures and frequently point to Pisa as evidence in support of this hope. However, educational research beyond Pisa shows that in many cases, this hope remains just that, a hope, and that there is no causal relationship between structural measures and the desired success. In the present article, an attempt was carried out to reveal this relationship and point out that the core of successful teaching and the central goal for teacher education are the mind frames of the teachers.

Key words: Teacher education, mindframes, expertise.

INTRODUCTION

“When we take people . . . merely as they are, we make them worse; when we treat them as if they were what they should be, we improve them as far as they can be improved.” (Johann Wolfgang von Goethe)

Six years of elementary school instead of four years, a two-tiered system instead of a three-tiered system, a comprehensive school with internal differentiation between students as a new path, keeping children together at the same school longer like in Finland, all-day schools and day care centers for all, these and similar structural reforms of education system have been and are being discussed at length in the general public and among experts (Zierer et al., 2016).

Many hope this discussion will lead to progress in the form of structural measures and frequently point to Pisa

as evidence in support of this hope. However, educational research beyond Pisa shows that in many cases, this hope remains just that, a hope, and that there is no causal relationship between structural measures and the desired success (Brodkorb, 2016; Meyerhöfer, 2016; Nida-Rümelin, 2016).

In other words, what remains in the end are reasons, but there is no evidence to support them. In the present article, an attempt will be made to reveal this relationship. To do so, the study will first take four structural reforms as an example to demonstrate that the corresponding measures alone achieve little, and that what really matters is the protagonists who bring these structures to life.

As the study will demonstrate in a second step, the difference between experience and expertise plays an

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important role in this process (Zierer, 2015). In this context, the study will become evident that what is more important than the amount of years one has spent in the teaching profession or the amount of work one puts into it is one's mind frames (Hattie, 2009, 2012). On this basis, factors for successful teaching and learning processes will be named. Finally, in the third and last step, conclusions with regard to structural reforms, teacher education, and educational policy will be drawn.

FOUR EXAMPLES OF STRUCTURAL REFORMS OF EDUCATION THAT ACHIEVE LITTLE ON THEIR OWN

As described earlier, the discussion on education, both in the general public and among educational scientists, is characterized strongly by calls for structural reforms. On closer inspection, however, these reforms cannot achieve that which is expected of them. In the following, the study would like to single out – with the help of a hermeneutical approach (Danner, 1998) – four examples to illustrate this:

1. All-day schools
2. Comprehensive schools
3. Day care centers, and
4. New media.

All-day schools

The aims of all-day schools include optimizing the success of the learning process and promoting it, irrespective of the socioeconomic status of the child's parents. This demand advances vehemently by various people at regular intervals.

However, just because a demand is advanced repeatedly does not make it truer. The empirical evidence, at any rate, does not support it, as the example of German schools shows: A careful reading of the "Studie zur Entwicklung von Ganztagschulen" (StEG) (Study on the development of all-day schools) by Klieme et al. (2010) shows that there is no evidence for the notion that all-day schools help children learn better; nor do they offer better support for children from educationally disadvantaged households, and thus enable them to catch up with children from educationally privileged households.

Whereas the data from the first two rounds of the study still showed minor positive effects of attendance at all-day schools on the development of grades in German and mathematics, mere attendance no longer has an effect in the long term. The benefit for students enrolled in all-day schools over those not enrolled in all-day schools found originally is therefore not enduring. Even in the case of youths from lower social strata or with a migration

background, there is no evidence for an effect of mere attendance at an all-day school on their academic achievement over four years; thus, there is no compensatory effect for educationally disadvantaged student groups in this regard (Klieme et al., 2010).

The authors themselves allude to a reason for this result: Children from educationally advantaged milieus are better equipped to take advantage of the offerings of an all-day school than are those from educationally disadvantaged milieus. The core message of the study is thus of a different nature: Longer school days alone—at least within the scope of the current, wide-ranging practice, are usually not a sufficient means of providing specific support. The study makes it clear that what is influential is rather the quality of the school and its offerings (Klieme et al., 2010).

Thus, the most important aspect is the quality of the instruction and therefore the competence of the protagonists, who spend more time with one another than at a half-day school. This competence obviously will not materialize out of thin air simply because a school switches from a half-day to an all-day format.

Comprehensive school

The aims of the comprehensive school are similar to those of the all-day school. For example, it also has the goal of eliminating educational disadvantages by means of structural reform. The study "Lebensläufe ins frühe Erwachsenenalter" (LifE) ("Life histories into early adulthood") by Helmut Fend (Fend, 2008) calls into question the suitability of such schools in the German speaking world for achieving this, as Figure 1 illustrates.

Consequently, it does not matter whether children attend a school in a three-tiered school system, a special school or a comprehensive school. In all of these cases, there is a high correlation between socioeconomic status and educational attainment, which brings Helmut Fend to the following conclusion; first, they speak for the notion that, the resources of the family has at its disposal for taking the best possible care of their children are what ultimately prevails in various educational systems.

Accordingly, families from the educated classes should not worry about not being able to attain their educational goals for their children at comprehensive schools. Parents always see the particular educational system as the instrument to provide for their children in the best possible way. Family researchers will undoubtedly be impressed at the large role intergenerational transmission plays here. The claim that the family has lost significance in the modern age is not plausible in light of these results (Fend, 2008).

Here again, the core message is important and helpful: Whether educational equity can be achieved or not depends first and foremost on the protagonists. In a word: A teacher who is prejudiced toward a certain group

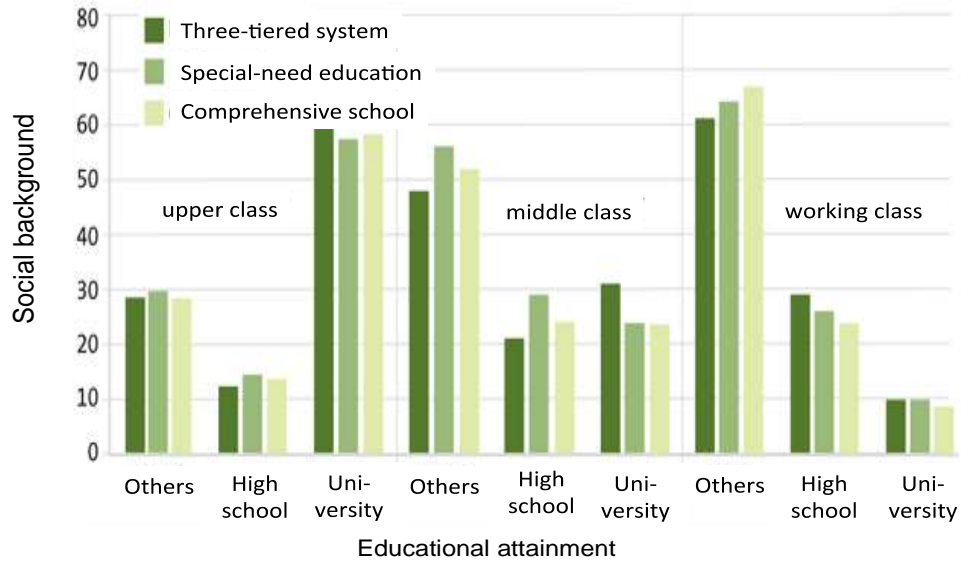


Figure 1. Influence of social background on educational attainment depending on school type.

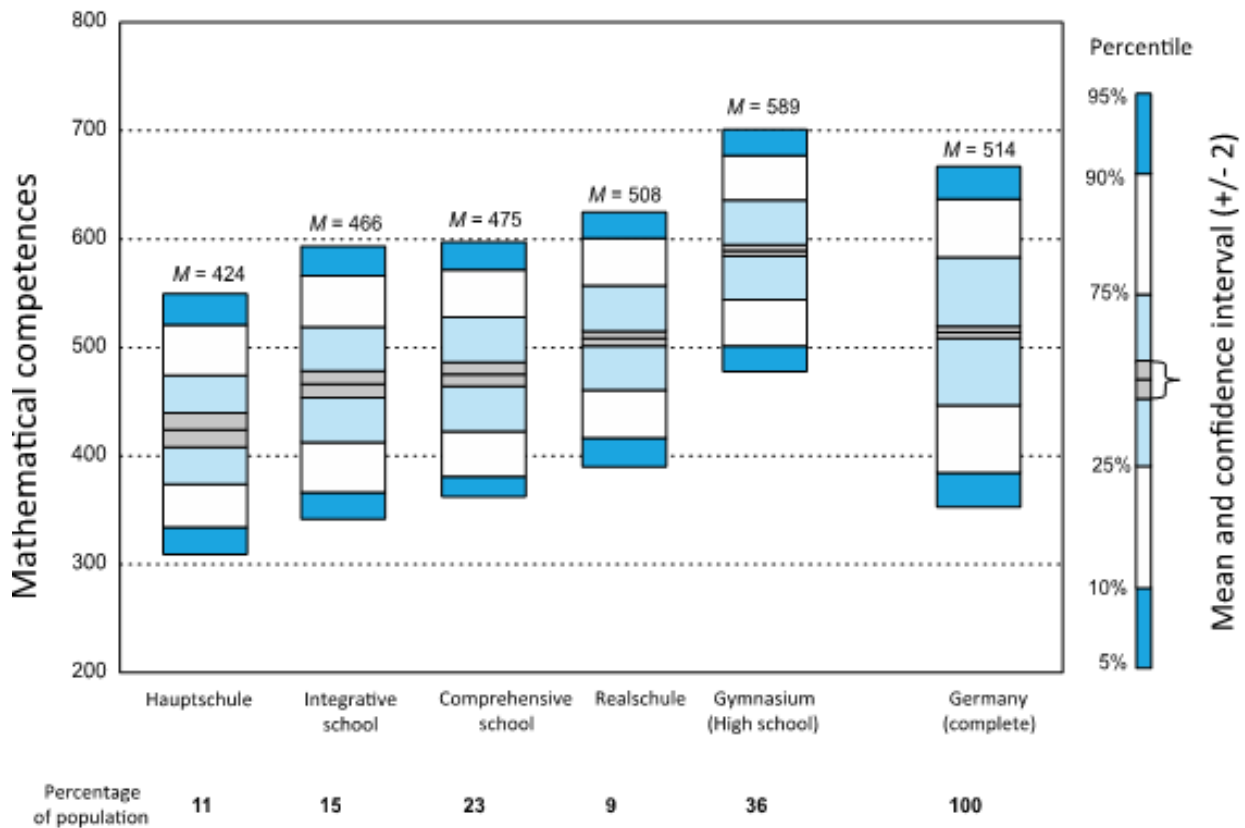


Figure 2. Percentile bars for mathematical competence in Germany by school type.

of students will not be influenced in his or her mind frames by the school system alone. Finally, a look at the promotion of specific subject matter knowledge yields the same result: The comprehensive school cannot stand up

to a multi-tiered school system, much less leave it behind. The results from PISA (2012) provide clear evidence for this here with regard to mathematical competence (Prenzel et al., 2013) (Figure 2).

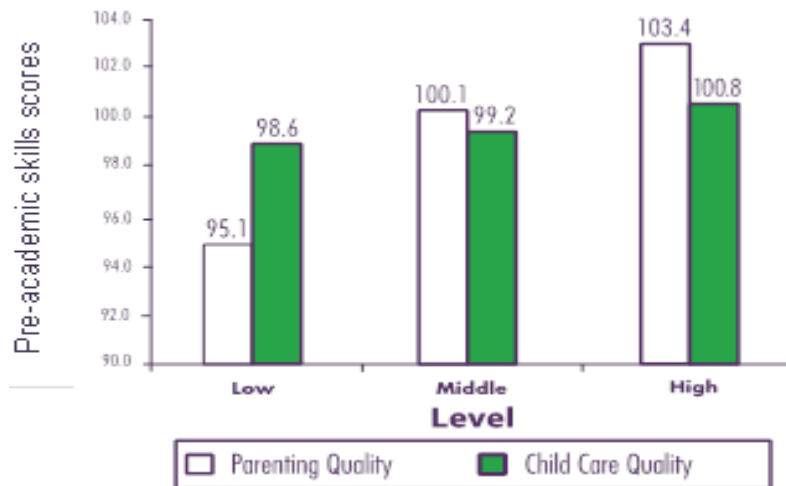


Figure 3. Parenting quality versus child care quality: Effect on pre-academic skill scores.

Day care center

Anyone who has followed educational policy debates in Germany over the past ten years must have the impression that the best education for children takes place at day care centers. That might be true in individual cases, but as a sweeping statement it does not hold water.

The decisive factor is namely not the amount of time a child spends at an educational institution but the quality of the relationship between the children and the people who are taking care of them. It should be obvious that in normal cases no teacher-child relationship can compete with the quality of the parent-child relationship. This is the main message of the “study of early child care and youth development” conducted by the National Institute of Child Health and Human Development (NICHD) (Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, DHHS, 2006): “Many family features are more strongly and more consistently linked to child development outcomes than child care features for children up to age 4 1/2 (and even into kindergarten).

The following characteristics predicted children’s cognitive/language and social development: Parents’ education, family income, and two-parent family compared to single-parent family; mothers’ psychological adjustment and sensitivity; and the social and cognitive quality of home environment” (Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, DHHS, 2006).

This conclusion may be illustrated by the influence of “parenting quality” and “child care quality” on “pre-academic skills” (Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH, DHHS, 2006) as shown in Figure 3.

Although it is true that parenting quality and child care

quality are effective, the significance of parenting quality should be seen as much more influential and far-reaching than that of child care quality. The motives for expanding day care centers in Germany may thus be found elsewhere. It is not primarily about the educational success of the children but about, for instance, the economic clout or egoism of the parents—one can look at it this way, but then one should also stand by this opinion. The consequence for day care centers is that, the expansion must go hand in hand with the qualification of the personnel. Good is not good enough here: it is necessary to attract the best and brightest for this task.

New media at schools

The autonomy of the school with regard to economic interests has recently been making headlines again. Media companies in particular are pushing their way into the educational system and promising breakthroughs in learning success: Computers, internet, tablets, whiteboards, etc. All of this, they proclaim, is revolutionizing learning.

However, a look at the educational research on this topic brings one back down to earth again (Hattie, 2009). Media achieve an effect size of only 0.22, and even the computer cannot manage more than an effect size of 0.37. In addition, it is interesting to note that over the past thirty to forty years there has been no positive trend in favor of media or computer use (Hattie, 2009) (Figure 4).

In other words, we have been waiting for this revolution for 30 years now. The reason why it has not (yet) arrived is obvious. Teachers often use new media only as a replacement for traditional media: the whiteboard as a blackboard, the internet as an encyclopedia, the tablet as a worksheet, and so on. It is not enough to just set up new media in the classroom. What is more important is

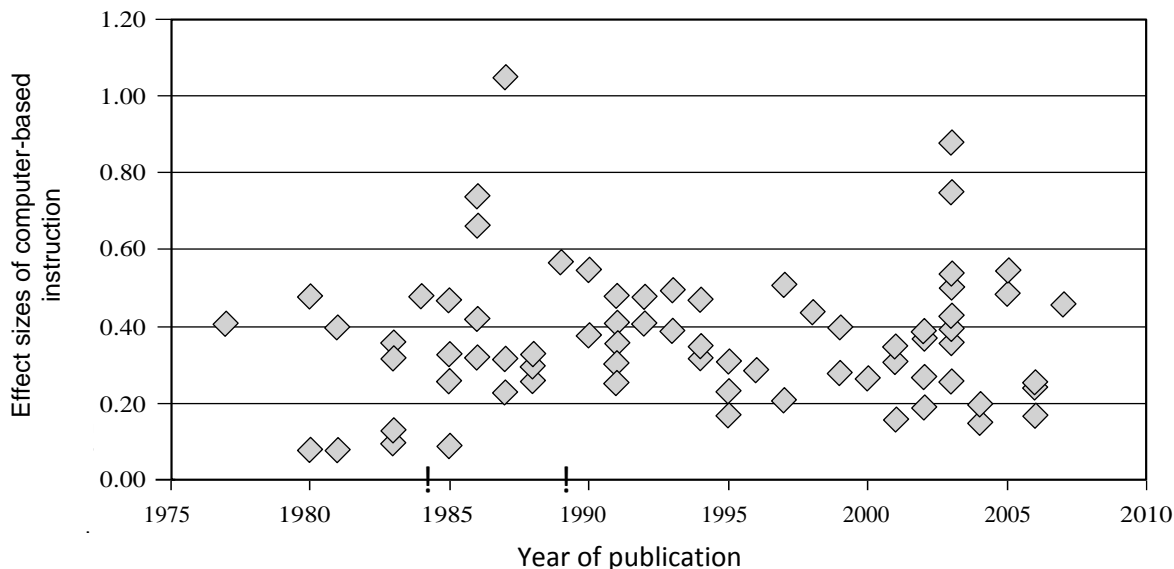


Figure 4. Relation between effect sizes of computer-based instruction and the year of the publication.

the teachers' skills in using them.

To sum up, structural measures alone achieve little. The key factor is the people that bring these structures to life. In the context of education this is above all "the" teachers. Not all of them, however, but only certain ones. Which teachers are these?

THE DIFFERENCE BETWEEN EXPERIENCE AND EXPERTISE

It seems that one of the greatest mistakes of expert research is the notion that there is a causal connection between expertise and experience; one often finds the number "10" as an almost canonical yardstick for gauging the attainment of expert status (Gruber, 2013).

A simple example makes this clear, there are teachers who have been teaching for thirty or forty years who have still not advanced beyond the level of a hobby pedagogue, and there are trainee teachers who show from their first lesson on that they already have what it takes to become a successful teacher. This makes the periodic evaluation practices for teachers, and the dominant argumentation underlying them that one has to have been around long enough to achieve the highest evaluation seem like a farce.

The difference between experience and expertise implied by this example is important. Many years of experience at school alone do not make an expert even though experience is surely important for expertise; but the latter does not inevitably follow the former. The amount of years one has spent in the profession is not the key factor. Rather, the key factor is what Gardner et al. (2005) state to sum up the findings of their research

project "good work".

Good work is less a matter of what one does than of how one does it. Consequently, they name engagement (commitment), exzellenz (excellence), and ethik (ethics) as the distinguishing features of good work and speak pointedly of the three Es. Similar studies have been conducted on teachers, and the findings are summed up in terms that are equally pointed.

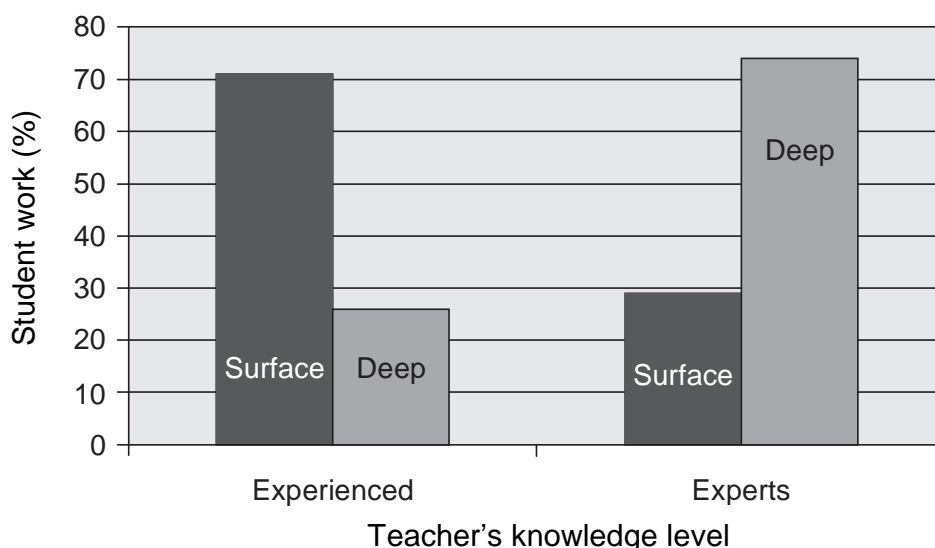
According to Hattie (2012), for instance, expert teachers are characterized by the Seven Cs: Care, Control, Clarity, Challenge, Captivate, Confer, and Consolidate. Expert teachers achieve higher scores than all other teachers in these areas and are ranked by students much more often at the 75th percentile, whereas other teachers end up predominantly at the 25th percentile (Bill and Melinda Gates Foundation, 2010; Hattie, 2012) (Table 1).

This can be illustrated by way of two examples: First, it may be shown that expert teachers assign their students many more challenging tasks involving transfer and problem solving (deep level); whereas non-experts usually assign tasks that remain on the level of reproduction and reorganization of knowledge (surface level). Hattie (2012) summarizes his studies on this topic as presented in Figure 5.

Second, expert teachers have been shown to give their students more feedback on the levels of task, process, and self-regulation, particularly on the last level, which is the most important from the perspective of the learners (Hattie, 2012). It is the passionate and inspired teachers, as Hattie (2012) calls them repeatedly, who are the key factor for educational processes. He defines ten mind frames that such teachers possess, thus shifting this concept to the center of the discussion on student

Table 1. The seven Cs: Differences in students' views of high-value and low-value teachers on seven factors of classroom climate.

Dimension	Example item	At the 25th percentile (%)	At the 75th percentile
Care	My teacher in this class makes me feel that s/he really cares about me	40	73
	My teacher really tries to understand how students feel about things	35	68
Control	Students in this class treat the teacher with respect	33	79
	Our class stays busy and doesn't waste time	36	69
Clarity	My teacher has several good ways of explaining each topic that we cover in this class	53	82
	My teacher explains difficult things clearly	50	79
Challenge	In this class, we learn a lot almost every day	52	81
	In this class, we learn to correct our mistakes	56	83
Captivate	My teacher makes lessons interesting	33	70
	I like the ways in which we learn in this class	47	81
Confer	Students speak up and share their ideas about class work	40	68
	My teacher respects my ideas and suggestions	46	75
Consolidate	My teacher checks to make sure that we understand when s/he is teaching us	58	86
	The comments that I get on my work in this class help me to understand how to improve	46	74

**Figure 5.** Percentage of student work classified as surface or deep learning.

success. They are described in the following (Hattie, 2012; Hattie and Zierer, 2017):

1st mind frame: I talk about learning, not about teaching

One of the main messages of *visible learning* is that taking into account prior knowledge, and experiences is

important for successful teaching. This may be seen clearly in the effect size of $d=1.28$ that Hattie (2009) finds for the factor "Piagetian programs (stages of cognitive development)". As a result, the teacher needs to take a close look at the learning conditions and ask the following questions:

1. What achievement level are my students at? Are they beginning learners, advanced learners, or experts?

Table 2. SOLO model.

Level		Description
Surface understanding	Unistructural	Knowledge of one relevant aspect
	Multistructural	Knowledge of several unconnected aspects
Deep understanding	Relational	Knowledge of several connected aspects
	Extended abstract	Knowledge transferred to a new area

2. How is their belief in their self-efficacy? Is it high, and do they regard difficult tasks as a challenge? Or is it low and do they regard difficult tasks as a threat?

3. What kind of self-motivation do they have: Intrinsic or extrinsic?

We would like to warn against learning style tests at this point, which Hattie (2012) sees as often lacking in quality. As a rule, they do not measure that which they claim to measure. The results they produce are thus unclear and benefit the publishers more than the learners.

2nd mind frame: I set the challenge

One of the most surprising findings of research on the planning activities of teachers is doubtlessly that teachers hardly spend any time at all thinking about goals (Zierer and Wernke, 2013).

This finding is usually interpreted differently depending on the teacher in question. In the case of experienced teachers, lack of consideration for goals is regarded as less problematic, because they have already held the same lesson several times before; and thus has enough of a routine.

However, regardless of whether the teacher has held the lesson before or not, he or she certainly has not yet held it with the same learners. In the case of novice teachers, on the other hand, a failure to consider goals is condemned in the strongest of terms, because without a consciousness of one's teaching goals it is not possible to reflect on the success of one's own teaching, which, however, is an essential element of professional behavior.

Hence, whichever way one looks at this finding, "teacher clarity" ($d=0.75$) with regard to the "goals" ($d=0.56$) is among the most important factors for successful instruction and for professional behavior (Hattie, 2009). However, it is not enough to be able to describe the goal of the lesson and to know what is in the syllabus, because these goals are too abstract and too far away from one's own actual instruction.

In addition, teachers need to adjust the goals to fit the learning conditions. As a means of achieving this, Hattie (2009) introduces the so-called structure of observed learning outcomes (SOLO) taxonomy by John Biggs and Kevin Collis, which differentiates essentially between a surface understanding and a deep understanding. Each

of these two forms of understanding is divided into two levels (Biggs and Collis, 1982) as presented in Table 2.

A closer look shows that these levels can be connected with the aforementioned "stages of cognitive development" ($d=1.28$) as well as with the levels of difficulty - "reproduction," "reorganization," "transfer," and "problem solving" - introduced by Deutscher Bildungsrat (1970) (German Educational Council). As long as a student has not developed a surface understanding (reproduction and reorganization) of a topic, there will be little use in confronting him or her with problems at the level of a deep understanding (transfer and problem solving).

Conversely, it is not very stimulating for a student who already has a deep understanding (transfer and problem solving) of a topic to work on problems at the level of a surface understanding (reproduction and reorganization).

3rd mind frame: I see learning as hard work

Regardless of the level at which learners are located, progress on academic achievement requires effort and hard work on the part of everyone involved. With regard to the learner, this may be seen in the significance of "spaced and massed practice" ($d=0.71$) (Hattie, 2009). It is absolutely essential for academic achievement, and is characterized by challenge, regularity, and diversity. Yet it is also crucial to remember that making mistakes is a part of learning. There is no sense in trying to avoid them. What is more important is to use them for constructive purposes. This too involves effort and hard work on the part of all involved.

4th mind frame: I develop positive relationships

A culture of mistakes of the kind mentioned earlier can only develop on the basis of intact "teacher-student relationships" ($d=0.72$) (Hattie, 2009). An atmosphere of trust and confidence, security, care, and goodwill is absolutely essential for education in general and academic achievement in school in particular. This calls for "student-centered" and "passionate" teachers who are focused primarily on the students rather than on their own knowledge and abilities. In this way, the learners become the point of departure for teaching. The success of the learners becomes the success of the teachers. The

dominant mind frame is that instruction entails cooperation, because the two sides need each other. Moreover, learning failures are not attributed (exclusively) to the learner but are rather seen as a common failure; which at the same time opens up the necessity and the opportunity to try again and again.

5th mind frame: Use of dialogue instead of monologue

According to the current state of research, “cooperative learning” ($d=0.41$) is particularly effective, especially when it leads to clarity with regard to goals, content, methods, and media on the part of the learner and the teacher, in combination with “direct instruction” ($d=0.59$) (Hattie, 2009). Cooperative learning is founded on the basic principle “think, pair, and share”. In the first phase (think), the students worked alone on a topic. In the second phase (pair), they discussed and compared the results from the first phase in small groups. In the third phase (share), finally, the students presented the results of the group discussions from the second phase to the entire class (Green and Green, 2005).

6th mind frame: Let everyone know about the language of learning

It would be reductive to hold the teacher alone responsible for the success of his or her students. This is visible in the mean effect sizes of the six domains “learners,” “family,” “school,” “curriculum,” “teaching,” and “teacher” from *visible learning* as well as in the great influence of “socioeconomic status” ($d=0.57$) or “motivation” ($d=0.48$) (Hattie, 2009). Learning is not the job of a single person. It involves close exchange between all involved. As an expert in education and instruction, the teacher of the course takes on a key role.

7th mind frame: I am an agent of change

It would be a wrong use of Hattie (2009) results to decide old methodological disputes that are steeped in tradition, particularly when he is not even familiar with them (Peschel, 2013).

His concern is different; he is interested first of all in determining to what extent teachers can evaluate their own teaching activity, and empirical data in the broadest sense are helpful in this endeavor. The second key point for him is that if the lesson turns out to be ineffective, it is not exclusively the fault of the learners. Teachers too need to question their role and change their methods accordingly. He thus stresses that teachers need to have a broad and flexible repertoire of methods at their disposal.

This can be illustrated by means of an example:

Motivation is essential for the learning process; in *Visible learning* this factor achieves an effect size of $d=0.48$ (Hattie, 2009). Hence, it is important to pay special attention to motivation during instruction. The so-called ARCS Model by John Keller lists a large number of different strategies for this. The letters stand for the four following dimensions of motivation: A for attention, R for relevance, C for confidence, and S for satisfaction. These dimensions are associated with various empirically investigated motivational strategies (Keller, 2010) are presented in Figure 6.

Each strategy in Figure 6 can be linked to concrete activities. The strategy “inquiry arousal” in the dimension “attention,” for instance, results in the following possibilities for motivation:

1. Use an example that does not seem to illustrate a given concept.
2. Imagine two equally plausible hypotheses, only one of which is true. Imagine a fact that seems to contradict the previous experience of the learners.
3. Advance a contradictory opinion on a phenomenon as a teacher.

An overview of this kind has the advantage of enabling teachers to adapt different learners and different conditions, and react with corresponding flexibility. The success of these methods depends especially on how well they fit the various “stages of cognitive development” ($d=1.28$). This leads to instruction that differentiates between individual learners that aim at the achievement level they should just be able to reach; while keeping the learning goals in mind, and that is therefore challenging. John Hattie always speaks in this context of the “1+” strategy (Hattie, 2012).

8th mind frame: I am an evaluator

As implied earlier, the question of the impact of teaching and, connected to this, that of providing evidence for this impact is at the core of visible learning and successful learning. This involves two factors that are among the most influential ones of all in *Visible learning*: first, “feedback” ($d=0.73$), and second, “providing formative evaluation” ($d=0.90$) (Hattie, 2009).

The key element for both of these factors is their so-called “backward design.” What this means is that instruction needs to be evaluated with its endpoint in mind, after the lesson is before the lesson. The goal to be reached needs to be its starting point. What might this look like, for example, in the case of feedback? The most important thing here is the completeness of the feedback. Successful feedback needs to answer the questions “Where are you going?”, “How are you making progress?” and “Where are you going next?” The emphasis should thus be placed on the problem, the process, and

Attention	Relevance	Confidence	Satisfaction
<p>Perceptual Arousal</p> <p>Provide novelty and surprise</p>	<p>Goal Orientation</p> <p>Present objectives and useful purpose of instruction and specific methods for successful achievement</p>	<p>Learning Requirements</p> <p>Inform students about learning and performance requirements and assessment criteria</p>	<p>Intrinsic Reinforcement</p> <p>Encourage and support intrinsic enjoyment of the learning experience</p>
<p>Inquiry Arousal</p> <p>Stimulate curiosity by posing questions or problems to solve</p>	<p>Motive Matching</p> <p>Match objectives to student needs and motives</p>	<p>Successful Opportunities</p> <p>Provide challenging and meaningful opportunities for successful learning</p>	<p>Extrinsic Rewards</p> <p>Provide positive reinforcement and motivational feedback</p>
<p>Variability</p> <p>Incorporate a range of methods and media to meet students' varying needs</p>	<p>Familiarity</p> <p>Present content in ways that are understandable and that related to the learners' experiences and values</p>	<p>Personal Responsibility</p> <p>Link learning success to students' personal effort and ability</p>	<p>Equity</p> <p>Maintain consistent standards and consequences for success</p>

Figure 6. Dimension associated with various empirically investigated motivational strategies.

Table 3. Levels of feedback in classrooms.

	Hattie and Masters (2011)	Van Den Bergh and Beijaard (2010)	Gan (2011)
Level	18 HS classes	32 teachers in middle school	235 peers
Task	59%	51%	70%
Process	25%	42%	25%
Regulation	2%	2%	1%
Self	14%	5%	4%

the self-regulation.

Several studies have succeeded in demonstrating that it is a rare occurrence to achieve such completeness and that feedback only rarely focuses on self-regulation, although it is the most important perspective for the learners. This is made evident by the potential of the factor "feedback" (Hattie, 2012) (Table 3).

9th mind frame: Student achievements are feedback for you, about you

Hattie (2012) points out repeatedly that feedback in instruction should not be understood as a one-way street but that it goes in both directions- from the teacher to the learner- which is what is usually discussed, but also from the learner to the teacher.

The latter form of feedback is indispensable to visible

learning: Did the learners achieve the goals? Did they understand the content? Were they able to work with the methods? And were the media easy to manage and appropriate? Only when a teacher has this information is he or she in the position to plan the next lesson. A good look at the students' exercise books is sometimes all it takes. If a teacher does not have this information, he or she risks teaching over the heads of the learners and leaving it up to chance whether the plans fit the learners.

Obviously, the teacher's own assessment on the course and success of the lesson is not sufficient: Students have learned to function in class and to play the game. They take part even if they are not taking things in. The reason is simple: It enables them to avoid penalties. In this way, a lesson may run extremely well from the perspective of the teacher, while from that of the student it is boring.

As a basic principle, it should be noted that it takes time

to develop a culture of feedback, like any other kind of culture!, and that it cannot be introduced from one day to the next. It is thus wise to be cautious when introducing methods that require for the culture of feedback to have already reached a certain level. For example, if a school wishes to introduce peer observation visits, the teachers must have developed the right mind frame for it and there must be an atmosphere of mutual trust among them. If this is not the case, important steps toward reform can fail before they even get underway (Zierer et al., 2014).

As a consequence, it is possible to make several concrete recommendations; first, speaking together should precede discussing one another. Second, positive feedback makes it easier to digest negative feedback. And third, feedback happens at different levels (instruction, teaching staff, school management, school board). The path from the inside (instruction) to the outside (the school board) seems to be more effective with regard to developing a culture of feedback.

It is obvious that a culture of feedback depends on a corresponding mind frame. Mistakes should not be seen as a flaw but as an opportunity. Instruction should be understood as a dialogue rather than as a monologue. To reiterate the most important aspects on this topic: The teacher-student relationship is supported by mutual trust and confidence. This feedback method can help teachers to compile important information as a means of determining their own impact. A further important step toward achieving this goal is “self-assessment of one’s own achievement level”—a factor with the highest effect size according to *Visible Learning*, namely 1.44.

10th mind frame: I collaborate

According to the current state of research, “collective teacher efficacy” ($d=1.58$) is one of the most effective factors. In its center is a goal consensus, which leads teachers to diagnose, intervene and evaluate their teaching with the help of collaboration. The conditions of effective goal setting require first the capacity of the team to meet the goals, second a clear and specific definition of the goals and third the commitment by the team (Hattie, 2009).

Hence, we need teachers who do not see instruction as a monologue but as a dialogue, who are always looking for something in their students that nobody knows anything about and nobody believes in anymore, who can speak passionately and competently about their knowledge as well as about their lives, who exchange information with their colleagues, collaborate with them, and treat their students as equals, conscious of the fact that they need each other. Besides the call for evidence-based reform, that is the main message of *Visible Learning* (Hattie, 2009), a message that has yet to be identified on account of the often reductionist focus on individual factors.

CONCLUSION

To summarize these reflections, we can state that structural reforms of education alone achieve little. They need to be brought to life. This depends above all on the teachers’ mind frames. What implications does this have for educational policy?

First of all, it makes no sense to continue flooding the German education system with structural measures that leave the basis out of account. Reforms that do not consider the people they affect leave it up to chance whether they will take root or not. In questions of education, this way of going about things is ethically irresponsible.

Second, teacher education needs to focus more closely on this aspect right from the outset. This is particularly evident in the university phase, which focuses on the acquisition of knowledge in teaching subjects. That is important, but subject matter competence remains useless if it is isolated from pedagogical competence, which enables teachers to establish a relationship with their students, and didactic competence that enables them to explain, illustrate, and demonstrate content.

Third, it is high time to stop talking incessantly about structures in educational policy discussions and to start talking about expertise. There is reluctance in referring to Finland in this context, because it is often cited as proof that keeping children at the same schools for a long time is more successful. That is not the point. Rather, the point is, only around ten percent of the people who want to become teachers in Finland actually become teachers, and a certain amount of expertise is thus present right from the start.

Besides, anyone who has ever visited a Finnish school knows that this expertise manifests itself primarily in mind frames, like those discussed earlier. If some of the quite plausible and surely important structural reforms proposed in recent years, also succeed in having a positive impact on teachers’ mind frames, it will only be a matter of time before the arguments that speak for their introduction are joined by evidence-based proof.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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