The German discourse on Primary School education is characterized by a strong belief that didactic theory and practice must move away from teacher-centered lessons and move towards an “open education” as well as an “individualization” of learning. (These concepts are not easy to translate, however, in English, they might relate to the tradition of “open classroom education” and “child-centered learning” or the practice of “own work”. ) This is considered to be the best way of acknowledging the heterogeneity of learners: Each child should be able to learn on his or her own time and follow his or her own way of learning. The idea of “individualizing” teaching and learning is supported by the current discussion around “inclusive” schools and the integration of handicapped children, which is very prevalent in Germany these days. Within this discussion mixed-aged school classes became popular as well insofar they seem to be suitable to welcome the heterogeneity of learners, for example, by enabling children of different ages to learn from one another.

German Primary School classrooms these days often look like workshops, since they have children work by themselves on workbooks, as well as an assortment of other materials and learning devices. The students are not actually working on the same tasks, but are occupied by different activities. Self-directed learning is the definition of these classrooms since it is based on the self-management of the learners (see Carlgren et. al. 2006 for the Scandinavian discussion).

Although these concepts are rather popular in German pedagogical literature, empirical evidence is rare. Most notably missing are studies on a micro-level of teaching and learning (Klieme&Wawas 2011; Bohl et. al. 2012, but see e.g. Huf 2006, Wagener 2010, Reh&Berdelmann 2012). This is the starting point of our research project. Our research aims at the level of practices and practical demands: What does it mean for teachers as well as pupils when school lessons are organized around the ideas of self-guided and self-regulated activities? How is the “self-
reliance” of pupils established as practical accomplishment in the sense of ethnomet hodology (see Breidenstein/Tyagunova 2013)? What is the teacher’s job in this setting? The theoretical framework of the research is settled by the “studies of work” (Garfinkel 1986) and the “theory of social practices” (Schatzki et. al. 2001) which enable the analysis of situated practices in their own dynamics and effects without asking for intentions or motives of actors, but by looking at practices as an object of investigation and a matter in itself.

Let me give you a short outline of my presentation: I will first give you a very concise sketch of the methods and site of our research project. The focus of my speech will give insight into our empirical data: I will show you a part of the observation of a boy working with a learning device called the “pharmacy”, a complex learning tool used at Maria Montessori schools. And secondly, I will show the transcript of a teacher-student-interaction on learning to read. I will close with a few remarks on the structure of child-centered teaching and learning which I will put to discussion.

1. The research project

Overview of the research conducted:

settled at the Center for School research in Halle, started in 2011 (lasting to 2016)
funded by German Research Foundation (DFG)
conducted by Sandra Rademacher and Georg Breidenstein
Research assistants: Sabine Dorow and Christin Menzel
Methods: participant observation, audio-recording, interviews (ethnography), all together 20 weeks of fieldwork
Research sites: seven different classes in three different schools
All of them mixed-aged (1<sup>st</sup> and 2<sup>nd</sup> or 1<sup>st</sup> to 3<sup>rd</sup>) and all of them using “self-regulated” styles of teaching and learning but in very different ways:

- a Montessori-School with “Freiarbeit” in the core of teaching and learning
- an “alternative” or “free” School growing out of the anti-authoritarian movement of the 1970s where the teaching style is still up for negotiation
- a regular neighborhood school working with weekly schedules

the idea of this research layout:
to explore the practices of child-centered teaching and learning in its variability and look for overall structures of this kind of organizing classrooms

2. Working with the “pharmacy”

Let’s go into detail. I have chosen, as an example, the observation of a young student working with a Montessori learning object, called the “pharmacy”. As you know, the Montessori materials are paradigmatic in enabling students to work on their own, to solve tasks and control the results by themselves. The “pharmacy” is built to solve mathematical tasks and is primarily implemented when dividing large numbers. Let me show you the parts of the “pharmacy”:

![Montessori pharmacy](image)

The functioning of the “pharmacy” is far too complex to explain it to you right now (for an extended analysis of this example see: Breidenstein 2015). The operating consists of several activities like distributing pearls to the holes in the wooden boards, changing pearls of one color to another color and counting pearls. In effect, you are able to divide numbers with seven places through numbers with four places by the means of this instrument - which is very impressive when young children do it. Yet, the operations of the pharmacy are far too advanced to understand. The young students learn how to handle it but they don’t know what they are doing, I’m afraid. So in terms of didactics we must ask if pupils really comprehend the division of numbers or if they simply have the ability to solve impressive looking tasks.

This didactical sceptis is enforced when observing a pupil working with the pharmacy in situ. My field notes are all together characterized by the admiration of the young boy’s routine and experience in the handling of an apparatus which I hardly understood. Vincent, as I call the boy, did not hesitate or contemplate at any point,
but solved the equation 7,762,929 divided by 3 by using pearls, little bowls, test tubes and holes in wooden boards. To my surprise, having found the result, he did not even check if it was correct! He forgot to turn around the task card where the result was noted.

What does this indicate? The detail that Vincent forgets to check his result is clearly due to his lack of interest in the answer. Vincent uses the pharmacy like a calculator: You wouldn´t check the results of a calculator either, because you simply trust it. Vincent likes to use the “pharmacy”, to “play” with it, as he explained to me, but reflecting on his practice didactically, we can’t be sure about his efforts in mathematical thinking.

In contrast to the didactic perspective the teacher was enthusiastic about Vincent and his handling of the pharmacy. After she noticed me watch Vincent, She praised him as a role model for his self-guided work with the learning material. What is it that fascinated the teacher so much about Vincent´s work? It seems to be the experienced and independent manner of his handling the pharmacy. He didn’t need any help or assistance and this is the paradigmatic constellation for a classroom where students are occupied by various activities and the teachers are only able to assist one or two of the children. This organization of teaching and learning therefore depends on pupils like Vincent.

3. Learning to “read” in dyadic teacher-student-interaction

Let us now have a closer look at a situation where a teacher helps a single student. This kind of interaction occurs regularly within the complex processes in an open classroom. The teacher may turn to one child if she rejects all of the other concerns during this time, but she has to be fair and spread her assistance equally among the students in the classroom.

I will show you a transcript of an audio-recording of the dialogue between the teacher, who is called Anja, and a student, named Sören. I did not translate it so you have the chance to do some German reading together with Sören:

Anja: Wir lesen jetzt mal. Lies mal.
Sören: „Rock“. 
Anja: Nein, das steht hier nicht.
Sören: Ich kann eigentlich noch nicht lesen.
Anja: Du kannst noch nicht lesen?
Sören: Ich kann, ich kann nur „Polizei“ oder so was lesen, weil das Papa mir schon ganz oft gesagt hat, weil ich das schon ganz genau kenne.
Anja: Und wenn man ein Polizeiauto sieht, weiß man, da steht „Polizei“ drauf, ne?
Gut. Weißt du auch nicht, was da steht? [interruption by another student] Ich helf- nee frag-
Sören: Seehund. [seal]
Anja: Aha, weil das auf dem Bild ist, denkste das steht da?
Sören: Mhm! [agreeing]
Anja: Hmh. [denying] Was ist denn das hier für nen Buchstabe?
Sören: B.
Anja: Und was ist das?
Sören: A
Anja: Okay, und wenn wir das jetzt zusammenziehen?
Sören: B-A
Anja: B-A. Ba. (.) „Ba.“ (.) Was ist das hier?
Sören: R
Anja: Mhm. Jetzt zieh mal die beiden zusammen.
Sören: B-a-r
Anja: Jaha! „Bar.“
Sören: Bar-
Anja: Und jetzt lesen wir-
Sören: T
Anja: Ja! Jetzt ziehst es alles zusammen!
Sören: Bar- Bart.
Anja: Sag’s noch mal!
Sören: Bart. [beard]
Anja: Bart, was ist denn `n Bart?
Sören: Haare ämh hier oben [showing between nose and lips]
Anja: Und jetzt erzählst du mir, du kannst nicht lesen? Du hast doch grad n Wort gelesen! Herzlichen Glückwunsch! [congratulations!]
Sören: Aber nicht so richtige Sachen.
Anja: Ach, das war doch n richtiges Wort.
Anja shortly deals with other children at the table. Then she spells out together with Sören single words from his reading book. Sören reads with her help another word: „Löwe“.
Anja shouts enthusiastically: Oh Sören! Du kannst lesen!
She hugs him and replies: Du kannst lesen! Du hast mir eben erzählt, du kannst es nicht. Super!

So, what is going on here? How can a teacher be so excited when a pupil spells out a few words? She celebrates the result as a great success while Sören himself is still not convinced that he is able to read now. (And he is right: spelling out single words is not “reading”.) We come to the suspicion that this interaction has to be a success. When a teacher invests her valuable time into a single student, this has to result in this particular student learning!

This is a pattern we observed regularly in the implementation of individualized teaching: When the teacher turns towards one student this interaction has to end up by the teacher being able to see that this student has learned. This is often not that easy. You may realize the difficulties if you compare this situation to whole-class-teaching: When a teacher interacts with 20 or 25 students at the same time, there is a very good chance that some of them will comprehend and be able to demonstrate their understanding of the lesson by giving correct answers. This comprehension demonstrated by some students giving right answers stands for the learning effort of the whole group. However, when the teaching is directed to one single student it is dependent on the learning effort of this particular student.

We have another example where Anja tries to facilitate Sören the spelling of “neun” [nine] – an interaction which ends up in a disaster (see Rademacher 2016). After several tricks and hints which Anja offers for “finding out” the right spelling of “neun” Sören is completely disturbed and even more puzzled than he was in the beginning. I’m sorry that I can’t show you this dialogue today, however, it would take too much time – but it is a really eye-opening example for what can happen if a student does not understand what the teacher wants to explain to him. Or if the teacher doesn’t understand what the real problem with the student is. So these risks and these uncertainties of the dyadic teacher-student interaction may be in the background.
when Anja celebrates her overwhelming success of “having learned how to read” with Sören.

4. Remarks on the structure of individualized teaching and learning

Let’s summarize the hints from the empirical observations. I will do this in four short points which are not fixed results of our research, but are still first attempts to reach conclusions. I would like to put these points up for discussion at the end.

a.) The first point is a methodological one: The complexity and diversity of the ongoing activities within “open classrooms” require an observation which gets close to these activities. It is not enough to follow the classroom discourse as in other classroom research but you have to sit beside students one at a time and observe them work. Especially if you want to consider the didactical dimension of these activities it is important to have very detailed observations.

b.) Objects and learning devices play a crucial role in self-guided learning. These tools facilitate the “self-guided” learning of young children insofar they offer tasks and make it possible to check the solutions. Yet, these tasks often have a linear fixed outcome: there is only one way to one right solution. The challenge for pupils dealing with these materials often lies more in the diligence and accuracy of the work than in reflecting and finding new ways to solutions. Many of the activities the students work with have the character of a routine piece of work. The topic itself may take a backseat within this constellation. The interest of students may lie more in finishing these tasks than in reflecting on the problems – as for example the observation of Vincent showed us.

c.) The interaction between teachers and students is characterized by the fact that it is one-on-one interaction within a group of learners who have diverse needs. So the teacher-student-interaction is usually short and standardized, since it consists of giving snippets of advice or controlling some easy-to-check task. - Sometimes, as we saw in the example with Anja and Sören, it can be more extensive, but then the teacher is under pressure to make it result in a success. An observable learning effort for this particular student has to be achieved which may lead to trivialized notions of “learning”.
d.) It must be assumed that individualized and self-guided learning is standardized and trivialized given the context of teaching and learning and the topic of lessons. This is probably not indispensable, but we have little evidence for creative and open-ended tasks in our empirical data. For “individualization” there seems to be a strong tendency to settle standards and routines when it comes to organizing the autonomy and self-reliance of learning.

I’m closing with these skeptical remarks and I’m looking forward to any questions you may have.

References:


