The Role of Structured Observation in Studying Teachers` Beliefs about Classroom Teaching and Learning

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Abstract: This paper can be categorized as a qualitative research concerned with analysing teachers' beliefs. The starting point is that beliefs are generally cognitive, they are present deeply hidden in teachers' personalities, and they have an effect on their activities. The aim of this research is to explore the beliefs about classroom teaching and learning of teachers serving for a various number of years in primary schools (N=18). As an example of methodological triangulation, the study was based on structured observation and reflective diaries. The results were obtained using 34 sub-categories of 9 main categories, and 88 parameters therein. On the basis of the results we can state that besides traditional classroom space structure and classical methods, the teachers strove to use new generation methodological solutions too, which are characterised by a variety of teacher's and learner's activities. It was also possible to detect a filter function of beliefs on activities.

Keywords: beliefs, qualitative research, reflective diaries, structured observation

1. Introduction

When studying the professionalization process of teachers' work, we must pay special attention to beliefs. At forums focussing on teacher training and further training we often encounter questions about levels of professional performance, the content of competence-based teacher training, and the relationship between beliefs and activities. It is important to explore and analyse beliefs in teacher training and further training, as well as in pedagogical activities, because it can increase the efficiency of teaching and pedagogical work. The objective of this paper is to explore the beliefs of teachers having served for a variety of years about the complex process of classroom teaching and learning.

2. Theoretical Background: in brief about beliefs

Thinking and acting are two intertwined processes in teachers' activities that are hard to separate in everyday practice. Teachers' beliefs are manifested as the antecedents, collaterals, and results of these processes. Beliefs are assumptions about the world thought to be true by their holders, not always based on reality, and these assumptions influence teachers' decisions, and determine orientation in the everyday process of teaching (Falus 2001, 2006; Korthagen, 2004; Richardson, 1996). Beliefs are generally cognitive, they are present deeply hidden in teachers' personalities, and they have an effect on their activities, having an effect on the content nodes of pedagogical work (Golnhofer & Nahalka, 2001). This means that teachers have a more or less coherent set of beliefs that is used in their everyday work. The words faith, idea, concept, or notion can also be used as a synonym for 'belief'.

The sources of teachers' beliefs are diverse. These sources include personal life experience, memories from earlier life as learners at schools, experiences from formal education, as well as one's own teaching experience and practice (Falus, 2001). It is very difficult to change these beliefs as they are very sound, but the change of a fundamental belief will induce change in other beliefs as well. Beliefs function as filters in the activities of beginner and experienced teachers. They influence how teachers acquire and integrate information into their well-tried or supposedly well-tried repertoire of schemes.

The analysis of beliefs is closely connected with the analysis of reflective thinking. These days, several methods are used in qualitative pedagogical research to explore beliefs (and reflective thinking), e.g. stimulated recall, cognitive maps, or reflective diaries (Messmer, 2014; Sántha, 2013). An even newer approach is using unstructured network cards in exploring teachers' beliefs (Sántha, 2017).

3. Methodology of Research

3.1. Instrument and Procedures

The research of teachers' beliefs was carried out in a classroom environment. As an example of methodological triangulation (Flick, 2014; Sántha, 2015), the study was based on structured observation and informal reflective diaries. Both methods are capable of analysing beliefs and can contribute to the complementariness of results.

To carry out the structured observation, a list of aspects was developed (see Appendix). The structured observation was carried out on the basis of a pre-defined set of categories, where categories try to reflect classroom activities as exactly as possible. Structured observation is deductive by nature as the recording and analysis of classroom activities is based on a pre-set list of aspects. The aspects given serve as a main system of categories. The categories are further divisible into sub-categories, which help the detailed exploration of teachers' beliefs.

When processing the observations, it is worth paying attention to criteria of reliability and validity. To achieve reliability, it is worth observing the teacher simultaneously, involving two researchers, so that the similarities of their observations can be detected. During actual implementation, this was not possible, the observation was carried out by one single researcher. When considering validity, there are several positions. When creating the list of aspects for structured observation, researchers must ensure construct validity so that categories describe and discriminate the aspects that are suitable for researching classroom teaching and learning. This criterion was met, the list of aspects for observation is suitable for carrying out classroom observation. There was no possibility of assessing empirical validity, as there was no well-tried list of aspects that had been used beforehand in a similar study.

When using unstructured reflective diaries, there are no pre-set criteria. Teachers can write their thoughts about classroom teaching and learning on A4 paper using their own system of notions without any limitations of length. This method is capable of exploring beliefs in an inductive way. The reflective diary was used as a "sub-method" and its role was to complement the results obtained during the observations.

3.2. Sample of Research

The sample consisted of a set of primary school teachers (N=18) serving for a various number of years and specialising in several subjects. The qualitative nature of the research made possible the use of convenience sampling based on availability. This kind of sampling can lead to problems in research methodology (e.g. the focus is on easily available people, all candidates can be a part of the sample). To eliminate these problems, a precise documentation of the research was done both in the stage of planning and implementation. Qualitative study can be used to find patterns that can later be justified by large sample quantitative studies, so mixed methods (Creswell, 2012) can be used when analysing classroom events.

3.3. Ethical Parameters

During the research, ethical parameters were strictly observed, and anonymity was assured. As it was qualitative research, it was best to create an atmosphere of creative ethics where participants could pronounce their ideas and express themselves frankly, without any limitations. To ensure that teachers

(and also students) can take this for granted, they were familiarised with the objectives and procedures of the research.

3.4. Data Analysis

The basis of the analysis was made up of the main categories of the list of aspects assembled previously for the purposes of structured observation (see Appendix). The analysis of unstructured reflective diaries was done based on the text corpora. The coding system of the diaries was formed during the processing of the texts using an inductive logic, based on the codes and sub-codes extracted from the texts. The deductive system of structured observation and the inductive traits of unstructured reflective diaries offered a complex logical system for the study. The data of the observations and the reflective diaries can be studied parallel, as we can find how the diaries correlated with the actual events during the lessons.

4. Results

The nine main categories of the list of aspects for structured observation (spatial structure, teacher's behaviour, atmosphere, methods of teaching and aspects of choosing among them, forms of work, differentiation, motivation, checks and assessment), 34 subcategories, and 88 parameters helped the detailed exploration of the issue (see Appendix). General conclusions cannot be drawn because of the small sample, so the results are only valid for the population studied.

Reflective diaries could not be used in the study as a sub-method. The teachers only made reflective diaries in a few cases, despite the fact that they had been asked to do so well before the observations. The diaries that we received did not fulfil the requirements of a proper diary; in many cases they did not contain content nodes, or any attempts at analysing someone's own activity in detail; most of them were written in a few lines or merely as a list of ideas. This extreme case of missing information in the diaries can be traced back to the fact that this method is not commonly known and requires a lot of time to complete. Most teachers had not met this technique during their careers. Because of the problems mentioned above, the evaluation of the diaries did not happen (therefore methodological triangulation was not used during the study).

5. Discussion

Spatial structure showed what we can call classical pedagogical reality: the classroom is structured for frontal teaching, desks are arranged in rows, teacher's desk can be found in front, sometimes in the middle or in a corner. A table in the corner serves an alternative function compared to the one in the middle, as it can also be used to store materials, instruments, and students' work as well. Structures different from the classical arrangement – a U-shaped arrangement – was only found in two cases, other structures (e.g. circle) did not appear. Private spaces would be important (reading corner, playing corner, relaxing corner), but they appeared only in two cases. This was a serious limitation on spaces of communication and interaction. In most observed classes some decorations or plants were present, this was a welcome contrast to the monotonousness of classical spatial structures.

The four categories describing the *teacher's classroom behaviour* are voice, rate of speech, self-discipline, and emotional contact. Most teachers were characterised by a normal voice, but in four cases, especially in the last minutes of the lessons, sometimes a high, disturbing voice also appeared. This could refer to the fact that students were tired and did not concentrate on their learning, so teachers used loud voice to attract attention and to discipline the students. Overly low voice only appeared once in the middle of a lesson in the case of a teacher who held his/her 45-minute lesson at a normal voice. Rate of speech was articulated and easy to understand, there was one instance when it was too slow, halting, and one when it was fast, spluttering. There was spluttering in the case of the teacher who held his/her lessons in a shrill voice. The same holds for self-discipline as normal atmosphere was sometimes replaced by tenseness and irritation in the case of some teachers. This holds for the teacher who was singled out when speaking about rate of speech. Most classes were

characterised by trust and cheerfulness, but there were cases when the teacher showed no emotional reactions. So in this phase of data analysis we were beginning to find elements that could be involved in further study.

The *atmosphere of the lesson* varied widely, most lessons were dominated by student and activity-centred tasks. If we speak about student-centred tasks, we can say that students can express their own opinions; in the case of activity-centred tasks, the teacher is also involved in the activities. Subject-centeredness (focus on the subject only) only characterised three of the lessons, teacher-centeredness was observed in five instances (teacher is active, student listens, observes, cannot form opinions).

The central element of our observation was mapping the *methodological culture of teachers*, focussing on teaching methods and aspects of teachers' choices, as well as forms of work and elements of differentiation. Most lessons were dominated by classical methods (explanation, lecture, narrative, presentation, homework), followed by interactive activities (debate, games, students' presentations) and new generation methods (cooperative techniques, project work, computer-assisted teaching). The results show that teachers used only a few methods and their combinations in the lessons. If we have a look at combining methods, we can see that classical and interactive methods were mixed most frequently, this was followed by combinations of classical, interactive, and new generation methods. A combination of interactive and new generation methods only appeared once for a short time in the first 15 minutes of a lesson. Methodological culture is related to spatial structure, the technical infrastructure of an institution, the didactic education of the teacher, and also to students' age. It was a pleasure to see that most choices of methods were based on optimised decisions based on professional and psychological considerations, but we also found five instances of stereotypical choice, where teachers always used the same methods. Unfortunately, in one case, choice of method was based on trial and error, lacking any kind of planning or conscious choice.

The use of work forms corresponded to the statements about methods. The dominance of frontal work is clear (in 11 instances throughout the lesson or in the dominant part of the lesson), this was followed by individual work done alone, when all students were doing the same task. This poses the risk of falling back or frustration, as students without adequate motivation or students with different abilities will have different paces of work. In the case of individual layered work (in six cases), students worked in groups divided according to their abilities. Albeit in a minimal amount, both versions of pairwork appeared during lessons. It was also possible to see the work of students at the "same level" and students at "different levels". There were two instances of network activity as well, which – as opposed to classical work forms – is done using networking activities, thus leading to a different teaching and learning process, where teacher and student roles are fundamentally modified.

When analysing *differentiation*, we did not find a single instance of students working individually on tasks chosen by themselves, even though it is clear that activities chosen according to one's interest provides a sense of success. Is such cases it is the teacher's task to decide how to help the teaching process as the activities chosen according to the students' interest must be in accordance with the study material. In terms of allocating tasks to students we can state that all students worked with the same given task so elements of differentiation did not appear. In seven cases, students worked with different tasks in the name of differentiation. Teachers tried to eliminate anxiety, paid attention to the pedagogical situation, the amount of help to be given, the details of instructions, continuous feedback, and the effects of inductive learning on students, which means low levels of anxiety and a lot of success.

The analysis of data about *motivation* shows that students were predominantly moved by interest in the study material. Besides internal motivation, elements of external motivation could also be found. Extrinsic rewards (grades, tangible rewards) also appeared in some lessons. All this was done in an environment where teachers approached the material systematically, where they paid attention to setting a state of mind necessary for teaching and learning, they facilitated work and encouraged students to be active participants. Besides all that, teachers also paid attention to elements of verbal and non-verbal communication, and the characteristics of offensive behaviour, because internal

control, a positive self-image, and self-confidence are essential requirements of efficient work (observed in the lessons of eight teachers). Unfortunately we could also observe the Pygmalion Effect and its consequences, in one instance, negative self-image and stress appeared among students.

Control and assessment are emphasised and debated elements in everyday pedagogy. The observations have shown that teachers think it is important that students check each other's activities or copybooks, as this can help the development of formative peer relationships. Self-check also appeared as an important element. Classical views about teacher's control also appeared: it is the teacher's task to control and evaluate, as he/she is the leader of the class. In such cases the teacher can see if the student has achieved the objective set, and can check the efficiency of his/her work. Reflection had an important role as 11 teachers stated that self-reflection and/or peer reflection is a key factor of success. When speaking about quick evaluation techniques (indicator lights, mood indicators, value cards), 11 teachers said these are more important than test papers and quizzes, while oral and written tests were backgrounded, being relevant only in the case of two teachers. All this can come from the topic observed and the characteristic features of the primary school age group. As far as assessment is concerned, written assessment dominated, backgrounding, in some cases, grading, and also the combination of grading and written assessment and the evaluation of project work. The teachers observed the effects on assessment on personality development, its feedback function, and tried to evaluate students on the basis of different aspects. Coexistent evaluation, where the weaker area is evaluated with reference to the stronger area, was predominantly used in the last 15 minutes of the lessons.

6. Conclusion

On the basis of the results we can clearly state that beliefs have a filter function on teachers' activities. A methodological culture based on individual beliefs surfaced in teachers' activities, and the same holds true in the other way round: beliefs blocked the appearance of some elements in the teachers' activities (e.g. one of the teachers did not use groupwork because s/he thought this damages his/her authority – this is a false belief).

When considering the extension of this study in the future, we might consider a practical approach: development plans can be created for individual teachers or teaching communities that embrace the entirety of the teaching activity. In this way, reflection can appear at individual and collegial levels, too.

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Appendix

List of observation aspects in studying teachers' beliefs about classroom teaching and learning

Main categories (aspects)	Sub-categories (detailed aspects)	Parameters	Code	In which part of the lesson? (First 15 mins, second 15 mins, third 15 mins, throughout)
1. Spatial structure		rows of desks, desks behind each other		
		desks in U-shape		
		desks in a circle		
		teacher's desk in front		
		teacher's desk in the middle, in a corner, etc.		
		private space: reading corner, playing corner, relaxing corner, etc.		
		decorations and plants in classroom		
		other remarks:		
2. Teacher's behaviour	Voice	normal		
		low		

		loud, disturbing		
	Rate of speech	articulated, easy to understand		
		slow, halting		
		fast, spluttering		
	Self-discipline	calm		
		tense, irritated		
		oversensitive		
	Emotional contact	trust, cheerfulness		
		distrust		
		no emotions shown		
3. Atmosphere of lessons	Teacher-centred	teacher is active, student listens, observes, cannot form opinions		
	Student-centred	student is active, individual opinions		
	Subject-centred	subject is in the centre of students' attention		
	Activity-centred	active student participation, teacher is not involved in activities		
		active student participation, teacher is involved in activities		
4. Methods of teaching	Classical methods	e.g. explanation, lecture, narrative, presentations, homework		
	Interactive methods	e.g. debate, games, students' presentations		
	New generation methods	e.g. cooperative techniques, project work, computer-assisted teaching		
	Combined	classical + interactive + new generation		
		classical + interactive		

		interactive + new generation		
5. Choosing methods of teaching	Stereotypical	dominance of the same methods		
	Trial and error	conditions are not reviewed, there is no real selection		
	Optimised	decisions are made on professional, pedagogical, psychological grounds		
6. Forms of work	Frontal	learning activity parallel at the same time		
	Individual	individual work: everybody is working on the same task		
		layered work: students work in groups according to ability		
	Pairwork	students at the "same level"		
		students at different levels		
	Groupwork	doing tasks in groups of 3-6 people (tasks either given or chosen)		
	Network activity	new generation technique, new learning environment		
7. Differentiation	Task + student	everybody is working on the same task given by the teacher		
		students are working on different tasks given by the teacher		
		students are working individually on tasks chosen by themselves		
	Student (+teacher)	teacher helps planning student activity		
		teacher develops self-checking		
		teacher eliminates anxiety		
	Teacher observes	pedagogical situation		
		amount of help		

		details of instruction		
		positive feedback		
		the effect on deductive learning on students (high anxiety – high teaching success)		
		the effect on inductive learning on students (low anxiety – high teaching success)		
8. Motivation	Student	student is motivated by interest in the subject and internal thoughts		
		student is motivated by external reward (grade or tangible rewards)		
		student is motivated by internal self-actualisation tendencies and external parameters		
	Teacher	subject is treated indirectly, in an informal way		
		subject is treated systematically		
	Teacher + student; teacher observes	the Pygmalion Effect		
		the characteristics of offensive behaviour: internal control, a positive self-image, self-confidence		
		the characteristics of defensive behaviour: negative self-image, undervaluation, stress		
		setting a state of mind necessary for teaching and learning: facilitation, tune-in, activity		
		using verbal and non-verbal communication		
9. Control and assessment	Who	teacher, as s/he is "the leader"		
		students can check each other, this can help the development of formative peer relationships		

		self-check: everybody can learn from his/her own mistakes		
	Why – the teacher	sees if the student has achieved the objective set (with a helping intent)		
		can check the efficiency of his/her own work (goals accomplished or not?)		
		can check if the requirements of the pedagogical program and curriculum have been met		
		reflects on his/her own activity		
	When	anytime during the lesson		
		only in certain parts of the lesson		
	What tools	oral and written tests		
		worksheets and tests		
		quick evaluation techniques (indicator lights, mood indicators, value cards)		
	How	grading		
		written assessment		
		grading + written assessment		
		project evaluation (for project work)		
	What	students performance, work, conduct, clothing, cleanliness of classroom, silence or operating noise, etc.		
	Teacher observes the functions of assessment	feedback function		
		qualificatory and selective function		
		effects on personality development: e.g. self-image and self-assessment		
	Teacher	grades students' oral tests		

		makes students grade oral tests		
		makes students evaluate oral tests		
		evaluates all students according to the same criteria		
		evaluates all students according to different criteria		
		uses coexistent evaluation		

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