Teachers' Beliefs about Teaching and Learning: Why is It Still a Challenge?

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ABSTRACT

Teachers' beliefs influence their classroom activities and students' involvement in learning more than knowledge or curriculum, beliefs can slow down the implementation of educational reforms, the introduction of new practices, or support it. Exploring beliefs is difficult, teachers may not be open in expressing existing beliefs, or they may be unsure of their own beliefs, replacing them with slogans that are socially acceptable narratives. The purpose of this study is to identify teachers' beliefs that characterize student teaching, additionally evaluating how these beliefs affect teacher agency. The answers to these questions were obtained by implementing a case analysis – studying the narrative identity of all mathematics teachers of one school, while the research process is like ethnographic research, data is obtained by interviewing respondents and observing them in practical work. The belief identified as a result of the research is that the teacher's main task is to prepare students for sufficiently high results in the mathematics exam, describing how the identity of a "good teacher" is formed, which brings with it agency – an active contribution to make it happen. The second identified belief – some students cannot study in the classroom together with the others, this demonstrates the absence of teacher agency, teachers' responsibility for children whose learning is a challenge, these children are handed over to other agents – parents and private tutors.

Keywords: agency, beliefs, identity, school, teachers

Introduction

Belief system is like a filter that influences teachers' decision-making more than pedagogical knowledge or curricula (Clark & Peterson, 1986). However, identifying beliefs and evaluating their impact on teaching and learning is a difficult task. Beliefs are in a kind of *grey area* – we don't have a common practice

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of talking about beliefs, teachers talk about the program, methods, challenges, claims, but not about the beliefs behind it all.

In the cognition process of beliefs it is not easy to decide whether what the teacher said is a socially desirable answer or a true description of the situation and one's own disposition. Despite these obstacles, we will show how to find out teachers' beliefs, thereby understanding the individual and collective discourse that affects teachers' perceptions, judgements and decisions by directing future actions.

To implement this, we will use the concepts of narrative identity and agency, which will allow us to understand existing beliefs through teachers' stories about themselves and others, analyzing how they affect the set of teachers' actions and active participation in teaching different students.

The research of beliefs is especially important in the context of the curriculum reform that is currently being implemented in our country. It is the belief system that can become a serious obstacle to implementing changes in education (Šmeļkova, 2013). On the other hand, by finding out and critically reflecting on their identity as a teacher, it is possible to promote both changes in beliefs and teacher agency.

Teacher's beliefs as a complex phenomena

Teacher's beliefs are visible in the teacher's actions and setting, they influence the decisions made and the implemented actions – instructional decisions, classroom climate (Hill et al., 2019, Chong et al., 2010), acceptance of diversity (Kiely et al., 2015), motivation to cooperate with other teachers (Kolleck, 2019; Drossel et al., 2018), while teachers' self-efficacy beliefs influence resilience (Yada et al., 2021) and can reduce the risk of burnout (Skaalvik and Skaalvik, 2007).

The research of teachers' beliefs has grown significantly in the last 20 years (Ashton, 2015), focusing research mainly in three directions – the biographical and historical origins of beliefs, development, evolution, and change in beliefs over time and in context, and connections between teachers' beliefs and classroom practice (Bullough, 2015: p.165).

The influence of experience and biography on the formation of beliefs is looked at by describing the experiences gained at school and in the family, which further influence the teacher's beliefs. For example, mathematics teachers' beliefs about themselves as teachers of mathematics are often related to their past experiences as students who have learned mathematics – relationships with mathematics teachers/parents' relationships with mathematics (John, 2022). Beliefs are formed by accumulating experience, and a teacher who has formed beliefs about himself as an effective professional does not change these beliefs so easily (Rezaeian & Abdollahzadeh, 2020; Wolters & Daugherty, 2007, Klassen &

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Chiu, 2010) Several authors point out that changing beliefs is complex, an intense and long-term process, and some studies even raise doubts about the feasibility of this direction because there is no certainty that this type of change will lead to better outcomes (Ashton, 2015; Fives & Gill, 2015), while others point out that it is possible to overcome or change the influence of the past (Bosica, 2022) by using a reflexive analysis of one's own beliefs (Grootenboer, 2008)

The broad research trend also determines the differences in the definitions of beliefs. Many authors emphasize the role of emotions in the formation and maintenance of beliefs.

Other authors emphasize the relationship between beliefs and practices. For example, – Beliefs are the driving force of human goals, emotions, decisions, and actions (Bandura, 1997). Beliefs are lenses which affect the view of the world and the disposition that directs action (Philipp, 2007, quoted by Goldin et al., 2016). The dialectical relationship between the beliefs and practice are significant because they allow us to identify what the teacher does, not what he/she says (Goldin et al., 2016). Teachers' beliefs allow us to understand what constitutes good teaching in a specific place, distinguishing two possible directions – whether it is focused on students and knowledge construction, or the teacher who implements the transfer of knowledge to students (Fives et al., 2015).

Looking at it this way, it can be said that beliefs affect the possibilities of implementing educational reforms because if teachers are convinced of the transfer of knowledge to students as the most effective teaching, the implementation of the constructivist approach requires significant changes in beliefs.

Another way of defining beliefs is related to the context in which they are formed and from which they are inseparable (Tschannen-Moran et al. 2015; Biesta et al., 2015; Fives et al., 2015). The impact of the context can be viewed more broadly – teachers' beliefs can be considered part of the culture that is formed – both at the school and at the level of the district, state and its policies, it contributes to the implementation of the established curricula (Fives & Buehl, 2012). Or more narrowly – the teacher's beliefs are situational – context dependent and subject specific – so it changes in different situations (Tschannen-Moran & Hoy, 2007; Dellinger et al., 2008), and there are no general teacher's beliefs, the teacher's beliefs are about specific topics or constructs; and they are important in certain circumstances/context (for example, beliefs about teaching, assessment, specific academic field, etc.) (Pajares, 1992).

By studying beliefs, it is possible to see contradictions that may exist between the individual beliefs and values of the teacher and the wider institutional discourse and culture (Biesta et al., 2015) therefore the teacher's beliefs can be described as a characteristic of the individual and collective discourse which further affects the teachers' perception, judgments, decision-making, motivating and guiding the teacher's actions (Biesta et al., 2015). In this way, the influence

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of the individual and the wider context on the established habitual actions or practices are combined, pointing out that beliefs allow us to identify the direction of the action by explaining its reasons.

Identity for the cognition of beliefs

Beliefs like attitudes, values are difficult to study, so it is necessary to find a way to do it in a research-correct manner, and this can be done with the study of identity without pretending in this way to an in-depth study of human behavior (Sfard & Prusak, 2005). Identity is like an analytical lens for educational research (Gee, 2000, it allows to understand the interaction of individual and collective influence (Holland et al., 1998; Aoyama, 2021) explaining how a person learns (Sfard & Prusak, 2005; Lave & Wenger, 1991). Identity is created and transformed by people in a constant process of interaction, contrary to personality and character, which is biologically determined (Sfard & Prusak, 2005), it "creates new activities, new words, find new ways of being (Holland et al., 1998, p. 5), also allowing to see "personal and collective responsibilities for individual lives." (Sfard & Prusak, 2005, p.15)

Next, let's look at different characteristics of identity, choosing the most suitable one for the cognition of teacher's beliefs.

Gee defines identity as "a kind of person, in a given context" (Gee, 2000, p. 99). He describes four perspectives on how to look at identity, pointing out that one of them was in the foreground in historical development. Nature identity was formed as a result of genes or early social experiences, determining human behavior; institutional identity is formed under the influence of the norms, traditions, and principles established in the institution; it can be imposed or it can be as a professional calling. Discourse identity is formed through discourse and dialogue, recognizing and owning this identity in the institution. Affinity identity describes belonging to a group with common interests expressed as participation in common practices.

Menon (2020) combines two constructs in one model, pointing out that the sources of beliefs forming self-efficacy – mastery experiences, vicarious experiences, verbal persuasion, physiological and affective states (after Bandura, 1997) contribute to the formation of the various dimensions of identity, as described by Gee. For example, mastery experience, which can be seen in discourse with classroom stunts, success with engaging students, hands on investigations, etc., creates discourse identity and affinity identity (p. 476). Such an approach can be called an attempt to explain the ways of identity emergence, but this approach does not answer the question – what beliefs exist in the community and why they have formed.

Another approach in defining identity is related to the communities of practice in which a person learns. Thus, Lave and Wenger (1991) believe that identity

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is created in the learning process which includes the construction of identity, as a person becomes a different person. Being an active member of a community, people create identities that relate to that community, creating a personal "history of becoming" (Wenger, 2009) in this way, identity is a person's sense of who he is /she is, it is like a lens through which he/she creates his/her experience, positioning himself/herself in the social environment. In the process of learning identities emerge and these identities contribute to learning, acquiring new knowledge and skills, forms of participation, creating new identities that correspond to their community (Nasir, 2002), influencing how teachers think and act (Ayoma et al., 2016).

In the framework of this work the narrative definition of identity by Sfard and Prusak (2005) is most appropriate, covering individual and collective influences, the dynamic nature of identity, but also practices that characterize the existing identities and the beliefs behind them, can be used to identify them and characterize the beliefs.

Summarizing what was written above, it can be said that beliefs are a way of expressing identity, which can be seen in individual and collective narratives, in contradictions, they have been formed in communities in social interaction, influencing the teacher's actions. In addition, the narrative approach makes it possible to learn about everyone's individual beliefs, as well as to identify differences in beliefs and practices, which can also exist in the field of education (Goldin et al., 2016).

Essential role of the Agency

Agency is the third essential concept in this study, as it describes a person's active actions, not passive acceptance of the situation and participation. Luehmann (2007) writes that the implementation of educational reforms requires new teacher identities, but when trying something new, there is a risk of not being recognized and the usual order will be disrupted, so many teachers are not motivated, afraid and resist. Thus, a tension is created between past experiences and the existing discourse, and past experiences have a stronger impact on identity (ibid). Understanding and learning about the agency allows you to see and solve this dilemma.

Two different perspectives on the interaction of agency and identity are discussed below. In the first approach, identity formation is already interpreted as a form of agency, adopting an identity, creating an identity (Hsieh, 2010). It begins with the choice of repeating practices, reactions, conversations over time, further understanding oneself in these practices, taking into account the experienced social interaction and feedback as a response to the newly adopted identity (ibid.). Although the authors emphasize the presence of agency, it does not significantly

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affect the existing order, so in this case we choose another approach that clearly describes the influence of agency on changes, including beliefs and actions.

Agency, viewed at the individual level, is not just a hope or a prediction of future actions, it is an active commitment that is converted into action, subordinating priorities to it, regulating one's behavior, cognitive processes, and the influence of the environment (Bandura, 2001). This is the teacher's active contribution in his/her work, taking responsibility for the quality of one's own provided education, for example, by critically reacting to problem situations, creating conditions to reduce them in the future (Biesta & Tedder, 2006).

The influence of structures is essential in the existence of the agency. It can be weak in an environment where a person has limited power (Holland et al., 1998), so at the level of education policy one should think about how to empower teachers by promoting Teacher agency, rather than imposing oppressive power relations (Aoyama, 2021). It is equally important to look at education more broadly. Assuming that education is only the achievement of certain standards, moving away from content, goals, relationships, it is demanded that the teacher should become an evidence-based professional (Biesta, 2015). In an effort to reduce teachers' opportunities to make decisions and control their own work, teacher agency is replaced by a data-driven approach, but an externally determined vision of good education limits Teacher agency, while a healthy discussion about teaching and education in general promotes it (Biesta et al., 2015).

Summing up, it can be said that the concept of teacher agency allows the teacher's identity and beliefs to be combined with active action aimed at teaching different students.

The interaction of beliefs, identity and agency as a theoretical framework

We have previously described three concepts – beliefs, identity and agency, briefly sketching their mutual interaction. The concepts are chosen to identify the beliefs that exist in the field of education and how beliefs characterize and influence teaching. Beliefs in this work mean the discourses existing at the individual and collective level, which, having formed and strengthened, influence the decisions, motivation and actions of teachers.

However, as already mentioned, cognition of beliefs is a complex process, therefore, the identification of narrative identity was additionally chosen for characterizing the discourse, the teacher can understand the beliefs that stand behind them through stories that describe themselves and others, assigning meanings, creating images. In our case, the identities expressed in the narrative are like the glue that binds the discourse to the person, allowing to reveal beliefs that can be contradictory, ambiguous and different at individual or collective levels.

On the other hand, the concept of agency allows one to see and explain how beliefs and identity influence the teacher's active actions, to take responsibility,

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making efforts and influencing processes so that students learn. Agency may also not be present, the teacher and teachers may have beliefs that influence not taking responsibility, beliefs may also reduce agency (Biesta et al., 2015), so it is important to reveal, understand and explain this interaction. Research questions also follow from this theoretical framework: what collective and individual beliefs characterize student teaching? How do conscious beliefs affect teacher agency?

Methodology

In order to find answers to the research questions, case analysis was chosen which can help clarify the significant influence of the context on both causes and consequences (Cohen et al., 2008). On the other hand, the research process itself is similar to ethnographic research because it describes and analyzes beliefs (Freebody, 2003).

The selected school as a case meets the following criteria: the school is located in a city and is attended by students of all age groups and different levels of academic achievement (winners of olympiads and individuals who are exempt from exams), has participated in the education reform project as a pilot school, the management team recognizes education reforms as a challenge, the school is eager to participate in the research and is open to sharing of data.

If the goal is to obtain as much information as possible about a problem or phenomenon, it is necessary to analyze extreme cases because they provide more information (Flyvbierg, 2006). In this case, a group of teachers teaching one subject was studied, and the extreme status was assigned to this group by the school management team, saying that mathematicians who work with students from grades 5–12, unlike other teachers, are not united in their beliefs and communicate relatively little with each other, requests from parents are received about some of the teachers to introduce changes. This study is part of a larger study focused on the study of teachers' beliefs and practices, which is ongoing. Therefore, this article will not describe all the data obtained and neither all the findings be reflected.

Three methods were used to collect information – partly-structured interviews, observation and unstructured interviews. Data related to this article (study) have been obtained during the period of March-May 2022.

Interviews were conducted with all 8 teachers, covering the following topics – a good teacher, practices where it can be seen, teacher's growth and what influenced it, interaction with colleagues, what it gives/takes away; challenges and satisfaction.

A total of 8 academic lessons and 5 extracurricular teacher-student communication situations were observed. Which lessons to observe was the teachers own choice, this was done to reduce the anxiety that can arise when a person not

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belonging to school observes a lesson. In the process of data organization and analysis mainly grounded theory (Glaser & Strauss, 1967) was used, taking into account the criticism of other sources and additions to the theory, because, as Thomas & James, (2006) emphasize, the success of this theory is the introduced reliability test, but the researcher who uses the whole theory of justification risks to lose the essential meaning of interpretation. In the process of data analysis, the main steps should be noted: acquaintance with the data, categorizing them by separating groups of topics, cutting the data by placing a topic or problem in the center (for example, contradictions that characterize certain beliefs), comparing and interpreting.

Prior to interviews the teachers were informed about the use of the acquired data in research and security of anonymity of respondents. Teachers were asked to give the interviews by phone at the time convenient for them. Information was presented after classes or in the days when the teachers were preparing for the work with their students. On the average an interview lasted 60 minutes. One of the teachers refused to record the conversation, the rest were recorded and transcripted.

Results

This study examines the perspectives of mathematics teachers on the main task of their profession. Through analysis of teachers' stories and reflections on their teaching practice, the research finds a tension between the belief that mathematics is a tool for stimulating thinking and the reality of classroom practices that may not always be thought-provoking for all students. The study also highlights non-participatory power relations and the recognition of innate abilities in students' thinking as factors that contribute to this dilemma. Additionally, the focus on state-mandated exams as a measure of success in the teaching of mathematics is discussed as a potential hindrance to the development of critical thinking skills in students. The study ultimately highlights the need for a re-examination of the purpose and methods of mathematics teaching in order to promote the development of critical thinking in students.

Dilemma: The Dual Purpose of Mathematics Teaching

Dilemma – what is the main task of a mathematics teacher? In the teachers' stories about themselves and teaching mathematics, two different directions describing the meaning of their work appear. Primary teachers describe their subject as a tool that is essential for a person, stimulating thinking, but at the same time, in other episodes of the stories, they reveal contradictions that make you doubt about the existence of such a belief:

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1) the learning methods implemented in the classroom cannot always be called thought-stimulating for all students, for example, some students may be quiet and little involved;
2) teachers describe and demonstrate non-participatory power relations, a truly immersive disposition;
3) teachers recognize that students' thinking is related to innate abilities;
4) teachers say that the results of their work can be seen in state-mandated exams, and there are no stories describing how students have improved their thinking.

Talking about exams, teachers no longer mention development of thinking. The broad perspective is lost, the stories reveal the gamut of teachers' emotions – pride, shame, fear, anger, acknowledging that the quality of their work is determined by what the students achieve. All teachers develop this topic by mentioning the exam in 14 different episodes in one interview. Therefore, it can rather be said that teachers believe that their task is to prepare students for exams.

Next, we will look at and analyze the teachers' narrative in more detail, which will further explain and justify the above-mentioned conclusions.

At the beginning of the interview, when talking about themselves as teachers of the particular subject, the interviewees emphasize that the task of the mathematics subject and teachers is to teach thinking and solve problems. For example, one teacher says:

> those math tasks, (…) they give something to the character, (…), (my task) is not to grow you in length, width, but to wrinkle your brain". Another says seeing regularities, another says that the task of mathematics is to teach a person to think by explaining it: "Know what the problem is, don't throw your hands in the air (…), divide it into smaller parts, which in turn (…) maybe you don't understand something, then you can ask.

The existence of the belief could be confirmed by the situations observed in the lessons – the techniques taught by the teachers, which promote students' active participation, independence and (possibly) thinking, for example, working in groups, testing their knowledge and skills; reminders about independent ways of looking for help, the option to work extra, explaining the solution to others, etc., but not all students follow the course of the lesson, only part of the students ask questions, there are children who sit quietly, write something down (later it turns out – some of them imitate writing down or transcribing what others have written). Therefore, the first contradiction that appears in the data is – teachers' beliefs on the role of mathematics cannot always be seen in practical work in the classroom.

The other contradiction – activities described by teachers, which "teach to think" cannot be interpreted unambiguously. For example, the most frequently

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mentioned thinking-stimulating strategy described in the interviews and observed in the lessons is teachers' deliberate mistakes. This is how the teacher retells the information about herself given to the students in the interview:

> *Don't trust me, I am going to deceive you (…) I will make mistakes, I will make mistakes very often. Sometimes they will be careless mistakes, but sometimes they will be on purpose, simply so that you (pause) think along all the time, so that it is not that we write down and shake our heads, but the main thing is that it is felt in the brain.*

This example clearly shows a power relationship that could be formulated as "I will force you to think". Similar situations, when the teacher uses power hoping for more active involvement of the students, have also been observed in several lessons (the teacher shouting, punishing with extra work, changing the student's seat to the far corner of the classroom), although it must be recognized that the use of power strategies is not characteristic of all teachers, or the teacher uses them against some students.

When learning mathematics, it is important that classes are formed as mathematics learning communities, when learning together, students acquire not only new knowledge and skills, but also forms of participation, further encouraging the emergence of new forms of participation while setting new and more complex goals (Nasir, 2002). On the other hand, power relations do not contribute to the formation of communities where there is equal participation, power relations can distance students from learning. In addition, in such conditions students are not given opportunities to exercise agency in various ways (Nasir & Hand, 2006). Therefore, it can be said that teachers, on the one hand, say that they teach thinking, but on the other hand, they take away this opportunity.

The third contradiction which calls into question the belief of mathematics as a tool for developing thinking, is the characterization of the so-called good students. The thought process of these students is interpreted as a "genetically determined" reward that is used in the lesson, rather than a process and outcome influenced by the teacher. That one teacher describing his/her excellent student, says: "Others still beat:

> *Why do I need this and I won't need this" and something else, she never beat about it (…) And that's what I see that she was used to the fact that when there are problems, (her) brain immediately solves the problem, instead of looking for excuses (…) just like in math problems.*

A final contradiction that calls into question the belief that a math teacher develops thinking is the glorification of student test scores, pointing out that it is a measure of the teacher's quality. In these stories, there is no connection with

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mathematics as a tool for developing thinking. The emotions expressed by the teachers, the pauses in the stories. The significant preponderance of the stories allow us to conclude that the teacher believes that his/her task is to prepare the students for the exam. Let's look at some examples.

The teacher who started working at the school recently, talks about his/her students and concerns:

> I hope it will be better than the average in the country (laughs). This is already a high-ranking school, if, and in general, the results should be much better than the average in the country.

Next, naming 5 reasons that would justify an insufficiently high assessment of students, therefore "There should not be very high expectations, it's just that".

Another teacher tells about the betrayal she experienced – a colleague who works in a parallel class, had copied and forwarded the mock exam papers to the students. There are pauses in the teacher's narration at this moment, she doesn't say everything, and the interviewer asks: "It doesn't sound fair..." she answers – "Yes!" and pauses with the interviewer. Another teacher tells how important it is not to help students in the exam "because I'm interested in what I've taught them, well, how much I've taught them – well, how much I've done and how much I haven't done. Yes. It's for me, the report".

One teacher describes the emotions he experienced:

> There was one kid who was always calculating with the application at the beginning, in the end I posted a mark 4, (…) he barely got it. He did not study more and passed the exam with 18%. Horrible!! What a shame, I can't ….

Many stories are devoted to how teachers find a way to stimulate students to prepare for an exam, for example, by posting a failing grade in the semester, which, with active work, can be corrected in the coming weeks. Some students are advised to get medical statements which exempt them from taking the exam. There is an impression that students would be satisfied with low results in exams, as long as they are allowed to finish school, but teachers are not satisfied with this.

In the described situations the teacher's agency can be seen – an activity aimed at achieving a goal that is important to her/him – high results. It is also supported at the collective level, for example, by emphasizing the importance of exams to all respondents, describing their actions, interpreting the actions of others. However, in this case teachers' identities and agency maintain unchanged beliefs about their role as a teacher.

It can be said that the main task of the mathematics teacher mentioned in the interviews is to teach to think, but it does not characterize the teacher's beliefs which are visible in practical work, it is more like a slogan. It is possible to agree

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with Kaša (2009) that the culture of exam results as a priority prevails in the education system in Latvia.

Similar findings are expressed by Biesta and colleagues (2015), describing the work of teachers in Scotland. According to them, narrow goals determine limited activities in the classroom. It can be said that in our situation, teachers who prepare exam takers direct their agency towards achieving a limited goal, without even trying to see other possibilities to promote mathematics teaching, for example, creating a mathematics learning community in the classroom.

Some students are not able to study in the classroom together with others

Teachers' narratives describing students and the learning process can be divided into two large groups. The first group consists of teachers who recognize that teaching all students is a challenge, they cannot cope with it. The other group of teachers express the opinion that they are able to involve and support different students in the learning process, but the data does not support this. Therefore, it can be concluded that the individual and collective narrative in the school confirms the belief that some students cannot acquire the content intended for learning in the classroom well enough, together with the rest of the students. This belief limits the teacher's agency, the responsibility for students for whom learning is a challenge, by handing them over to other people – parents, private tutor. In the described interaction, the collective sense of academic emphasis and academic optimism is not formed, which would allow to accumulate positive experiences and develop inclusive practices for all students.

Stories about students that teachers have difficulties to teach appear in the narratives of all teachers. Only one teacher, who started work at the secondary school level relatively recently, emphasizes that the students of this school have passed the selection and compared to the students of other schools, all of them are able to study well enough because "the basics have been mastered". All the stories of the other teachers are individually different, but they are united by one theme – it is difficult to teach some children, and it is impossible to do it during the lesson.

One teacher expresses her thoughts that some of her students are not able to learn mathematics at all:

> *how can I say it... so that it doesn't sound wrong, I mean that the teacher cannot teach everything.*

Later in the interview, talking about the students for whom learning is a challenge, the teacher emotionally continues:

> *In the classroom I do everything. when they don't do it, I poke, poke, poke, poke, poke, they sometimes know that I am especially strict to them, and I will ask him while he will be able to answer the same kind of questions.*

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Later in the interview, anger is replaced by apathy:

I do have those. I say one, two who I don't care about at all, the main thing is that he doesn't make any noise, that he doesn't disturb the lessons, and then do what you want, I don't care anymore, I'm already tired.

Another teacher says:

"In the class they may not be able to think in their slow pace, but the problem is, because there are also smart children in my class, I can't slow down those clever ones all the time, well, then I mostly choose the middle level and those bastards have a … hard time, um, they have to catch up and those who are smart kids, um, well, you understand, yes?

This narrative characterizes "bell-curve thinking", which marginalizes those students who are at the ends of the curve and characterizes the teacher's approach to learning the curriculum instead of teaching all children (Florian, 2015).

In the described situations the teachers openly admit difficulties to work with all children in the classroom, but the other teachers are confident that they support all their students in the learning process, but the data indicate discrepancies.

The teacher who works with students up to the 6th grade, emphasizes diversity in the stories as a part of the school's everyday life, accepting it: "I have a painter here, a reader over there (…) Those children are very different. That boy (points to the empty bench) is having a hard time. Benevolent, ready to do anything, he has confidence that everything is fine", but as a result, there are rarely solutions without mistakes. "There are silencers from whom it is difficult to get anything at all." The teacher admits that she does not really understand some children: "children are different. They are teenagers in space. In the 4th grade they press buttons, but they can't understand the clock!". Greater contradictions appear in the teacher's story about providing support to students, comparing it with what was observed. In the interview the teacher explains that she supports students by working individually and facilitating tests. However, while observing the lessons, the teacher did not pay attention to these children, saying that they should come to study after the lessons. What's more, the teacher used frontal knowledge transfer, telling her stories and having the students to complete tasks. For example, when solving tasks about time, the clock was not available as a support.

In the senior classes one of the teachers said in the interview that she accepted all kinds of students. In her previous work she had been able to integrate children with mental disabilities in the class. As the teacher explains, a very detailed preparation for the lessons helped her, to which the teacher devoted a whole day

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every week. However, the observed situation in the classroom is different – one of the students cannot keep up with the processes taking place in the class. He is late, makes mistakes, so he doesn't keep up with the pace of the class again, starts behaving inappropriately – walks around the class, tries to start a conversation with the boys in the next row who answer him. The teacher scolds, calls the student to order and turns her head. After the lesson the interviewer asks the teacher why she doesn't adapt the task to the boy's learning needs, receiving back a blunt, angry answer "Where can I find time for this? And the materials are not available either". The data collector gets the impression that he has crossed the boundaries, with this question indicating a lack of professionalism that has offended the teacher. This student is not included in the teacher's story about the day dedicated to preparing for work with students.

The contradictions identified in both described narratives, supplemented by observations, can be interpreted as giving socially desirable answers, creating a slogan – "I support the learning of different children in the classroom", as the teacher herself believes that this is the case, rather than existing beliefs. What is said is not followed by decisions and active actions, so it should rather be concluded that teachers at the collective and individual level do not see the opportunity to work in the classroom with all students, although not everyone sees and admits it. A similar conclusion is described by Biesta and colleagues (2015) – some teachers in Scotland admit that including less able pupils in the classroom is not useful, as teachers interpret the pupils' abilities as fixed.

This data can be interpreted as the absence of sense of academic emphasis (Woolfolk Hoy, 2012) in the mathematics community because teachers are not focused on the learning of all students and the formation of appropriate behaviour in the classroom. Teachers' beliefs about the sense of academic emphasis can be seen in the behaviour demonstrated by the teacher, the thoughts expressed, and the actions taken, which increase the active participation of students in lessons, which further affects their learning (Woolfolk Hoy, 2012; Hoy et al., 2008; Smith & Hoy, 2007). This type of discourse and practice cannot be observed in school yet.

This interpretation is also confirmed by the theme developed by five teachers – there are children who are unable to learn without additional support implemented outside of class, parents should provide it themselves or by hiring private tutors. In the interviews teachers openly say that children study with private tutors who are their colleagues, and this is recognized and appreciated. On the other hand, not looking for a private tutor is a sign of insufficient investment:

> *Others have parents who don't care at all. That parent has shown no interest, nothing, absolutely nothing. And there are children who are not good at it and, for example, if I write a letter or I communicate on the phone or something like that with parents... and then you can feel that little work has been done there,*

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or there, for example, a private tutor has already been found in time, that
parent is quick (…) has responded to everything quickly with that child. Not
that he has been doing nothing for 4 years.

At school there is also an opportunity to receive individual counselling within the framework of a state-funded project, but some students do not value it. "Students don't have time. (…) They come irregularly, if the parents pay, then they appreciate it." Another teacher: "But those who come to (the project) are the ones who want it. Those who don't want to, they don't come there at all, they miss the lessons there", the project does not reach those students who need it.

Discussion

The teachers' beliefs revealed in the study, by which we understand the individual and collective discourse that affects teachers' decisions, actions, motivation or agency, which can be seen in identity narratives when teachers describe themselves and others, gave the opportunity to understand that the beliefs existing in the field of education can be hidden, not always consciously for the teacher himself/herself.

Some teachers primarily express a socially desirable vision ("the task of a mathematics teacher is to develop thinking", "I am able to teach and support different children"), which we call slogans; they were seen in practice only in individual cases. Instead, it can be said that teachers are convinced that their main task is to ensure high academic achievement in exams but reaching and teaching students who are not sufficiently engaged in learning is the responsibility of parents and private tutors – this does not interfere with the identity of a "good mathematician". Therefore, we can agree with the conclusions of Biesta and colleagues (2015) that teachers' narrow interpretation of the purpose of teaching mathematics determines a limited choice of activities. On the other hand, other people are responsible for students who cannot achieve this goal. In addition, individual and collective views demonstrate the unequal access to education, the essential role of parental capital in learning. This creates a risk that students, having experienced the tension associated with the orientation towards the highest possible performance, may not engage in lifelong learning (Harlen & Crick, 2003).

Teachers' beliefs expressed through identity and practices allow us to see teacher agency. Teachers make an active contribution to achieve the highest possible results in a mathematics exam, while agency cannot be identified when teachers describe teaching children with learning challenges. Therefore, it can be said that beliefs directly affect the existence of teacher agency.

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Our study is an ethnographic case study, the examples discussed represent only one community of mathematics teachers in one school, and although the findings are compared with those found by other authors, they are not generalizable. However, we agree with Flyvbierg (2006) that the power of the case is not sufficiently appreciated because teachers' stories, compared with what was observed in the lessons, allow us to identify the *grey zone*, which is essential to help realize the real situation, discuss it and further implement changes in schools.

Conscious beliefs narrowly interpret the goals of education, the professionalism of teachers, limiting the availability of equal education for all. Therefore, we can agree with Biesta and colleagues (2015), who ask questions to which we also need to get answers – who should take responsibility for students' learning and how to protect students from the shortcomings of the education system? The answers to these questions should be sought in future study.

Conclusions

Researching teachers' beliefs is a challenging task, beliefs are not immediately visible, not always what the teachers tell describes the beliefs, they can be hidden and can only be seen by observing practices and comparing them with what is told.

For finding out the beliefs we can use the concepts of narrative identity and agency, it gives an opportunity not only to understand what kind of beliefs exist at the individual and collective level, but also to explain how they affect the teacher's actions or passivity.

These concepts in mutual interaction made it possible to see the contradictions existing in the field of education – a wide interpretation of the meaning of the subject, which in practice manifests itself as preparing students for the exam, or verbally expressing the acceptance and support of different students, which is not related to practical actions. It is these findings that allow us to conclude that learning and analyzing teachers' beliefs can help to reveal and explain developments in the school.

Beliefs limit the opportunities to implement curriculum reform that has set broad educational goals and is focused on expanding the learning opportunities of every student, so it is necessary to think about how to talk to teachers about beliefs, taking them out of the *grey zone* so that we could further look for opportunities to challenge them and change.

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