

PUPILS' PERSPECTIVE ON VIDEO-BASED CLASSROOM RESEARCH

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ABSTRACT

This case study was part of a practical action research aimed at planning, carrying out and evaluating a video-based professional development program for mathematics and biology teachers. The teachers involved in the research were tasked with implementing elements of effective teaching and their lessons were video-recorded. The research lasted two pandemic school years, from early 2020 to mid-2021. During this period, the recorded lessons were analysed in online learning communities and on Moodle forums. There, the teachers could engage in video-based learning, allowing for a discussion on teaching practices while ensuring collaborative reflection and critical friendship with pedagogues and mathematics or biology teacher educators. However, their pupils were involved in the research only indirectly: they were the objects of recorded lessons with no active role in the process. In addition to analysing recorded lessons, we conducted two group interviews with pupils in order to understand their perspective on the video-based classroom research. Pupils stated that their taking part in video-based classroom research led to some positive changes in themselves, mainly improved attitude towards Mathematics and Biology as school subjects and their self-esteem. However, pupils did not understand why the lessons were video-recorded. They did not understand the positive and negative aspects of recording lessons, which is why their activity decreased during the lessons and they expressed their fear of the camera. Since pupils are at the centre of education, it is necessary to ensure their active involvement in the process of planning, implementing and evaluating changes in teaching, especially since these changes are aimed at improving their learning in general.

Keywords: *case study, pupils' voices, collective teacher efficacy, teacher professional development, video-based classroom research*

Introduction

Pupils have unique perspectives on learning, teaching, and schooling (Cook-Sather, 2006). Also, they have expertise in schooling conditions that (university) researchers lack (Rodríguez & Brown, 2009), which is why they know what is (not) working in their classrooms and schools (Conner et al., 2022). Therefore, anyone who wants to improve pupils'

educational experiences has to attend to their perspectives, take their feedback seriously and afford them opportunities to actively shape their education (Conner et al., 2022; Cook-Sather, 2006).

Mitra (2018) defines pupils' voice as the ways in which they participate in democratic processes in schools, i.e. in making educational decisions that affect them in their school lives (Smit, 2013). The background for this is Article 12 of the United Nations Convention on the Rights of the Child (UNCRC, 1989), which underlines children's rights to express their views and to be heard (Karlsen & Ohna, 2021; Smit, 2013). Among other things, pupils' voice practices can include conversations about classroom practice, wherein teachers seek feedback and ideas from pupils (Skerritt et al., 2021). However, it is equally important to form partnerships between pupils and teachers to design and implement classroom-based reforms (Conner et al., 2022). Recognising pupils as partners in learning and teaching contributes to the improvement of their awareness of the problems and challenges they face at the school level, especially by understanding pupils' attitudes towards the issues they raised (Matthews, 2018; Torres & Mouraz, 2021). For example, Bognar and Zovko (2008) conducted an action research with the purpose of enabling pupils' active participation in independent child-centred action research inquiry. In their research, pupils learned how to plan and carry out action research projects underlined by their own needs, interests and self-chosen values.

However, pupils do not necessarily have to conduct their own action research; they should at least be involved in designing educational changes at the classroom level whilst monitoring this process with their teacher(s). One research design enabling pupils' active participation in the process of change at the classroom level is lesson study (originally known as *jugyou kenkyuu*). Lesson study is a research-based form of teacher professional development and learning aimed at finding the most suitable way of realising a selected teaching unit (Lewis et al., 2012). Lesson study implies the cooperation of teachers and researchers in a circular process consisting of lesson planning, performance and lesson observation, followed by a critical reflection based on data collected. The aim of lesson study is to determine specific teaching strategies in the lesson which promote or hinder pupils' learning (Lewis et al., 2012). This form of professional development and learning helps teachers analyse pupils' thinking and detect their misconceptions (Lewis et al., 2009). The real question is: *who can tell the teacher which teaching strategies or instructional interventions help pupils learn the best – rather than pupils themselves?* In order to gain understanding of pupils' perspectives on specific instructional improvement strategies¹, we conducted this research, which will be described in detail below.

¹ We view teacher professional development as a multi-tiered instructional improvement strategy: when teachers engage in effective professional development and implement in their instruction what they have learned, pupils' learning outcomes improve (Opfer, 2016).

Methodology

Research context

Improvement of an educational system can be achieved through various interventions, the most important of which are those aimed at enhancing teachers' and pupils' learning, e.g. continuous teacher professional development (Mourshed et al., 2010; Gore, 2021). High-quality teacher professional development contributes to positive changes in teaching practice and both teachers' and pupils' learning (Borko, 2004). International assessment programs, such as PISA, TIMSS or PIRLS, help indicate the overall quality of different educational systems on the basis of which each country can evaluate its needs for educational change (Markočić Dekanić et al., 2019). Concerning Croatian fifteen-year-old pupils, the PISA 2018 results indicate below-average scores in mathematics and science (Markočić Dekanić et al., 2019). Moreover, over a 12-year-long span, Croatian pupils' reading and mathematical competencies neither improved nor declined, whereas a considerably negative trend has been observed in their scientific competencies (Markočić Dekanić et al., 2019). In order to aid pupils in achieving higher levels of mathematical and science literacy, it is necessary to coach teachers to provide high-quality mathematics and biology instruction by applying effective teaching strategies (Schroeder et al., 2007; Bognar, 2017).

Due to the lack of Croatian research analysing the link between teacher professional development and student learning (outcomes), the SURFPRIMA research team, led by Professor Branko Bognar, PhD, designed a four stage research project² aimed at designing and testing a video-based professional development model for mathematics and biology teachers with the purpose of improving pupils' learning. This particular research was nested within the second phase – practical action research aimed at planning, carrying out and evaluating a video-based professional development program for mathematics and biology teachers. Even though this study was a part of a larger research, we decided to present it as a case study because our aim was to understand how and why something might have happened (Thomas, 2021).

Participants

Given the below-average results of *fifteen-year-old* Croatian pupils on the PISA exams, thirteen mathematics and biology teachers who teach eighth grade pupils were invited to participate in the action research. Apart from the teachers and their pupils, pedagogues

² The SURFPRIMA research project was initially divided into four phases, each lasting one calendar year. In the first phase, on the basis of systematic reviews of relevant research, we aimed to determine the characteristics of high-quality and effective professional development and to design a professional development program for biology and mathematics teachers suitable for the Croatian educational system. In the second phase, we implemented and improved said professional development model through action research involving biology and mathematics teachers and the research team. The third phase examined the effectiveness of the model of professional development with regard to pupils' learning outcomes in biology and mathematics. In the fourth phase, based on the results of the action and experimental research, we proposed an effective model of in-service professional development for biology and mathematics teachers (Filipov & Bognar, 2020).

and mathematics and biology teacher educators were also involved in the research as professional development facilitators. The teachers were tasked with implementing elements of effective teaching and their lessons were video-recorded. The research lasted two pandemic school years, from early 2020 to mid-2021. During this period, the recorded lessons were analysed in online learning communities and on Moodle forums. There, the teachers could engage in video-based learning, allowing for a discussion on teaching practices while ensuring collaborative reflection and critical friendship with each other as well as with pedagogues and mathematics or biology teacher educators. Subsequently, their pupils were also involved in the research for reasons described below.

Research problem, research questions and data collection and analysis

The teachers' pupils were involved in the video-based classroom research only indirectly: they were the objects of recorded lessons with no active role in the process. In order to understand the pupils' perspective on the video-based classroom research, we conducted two semi-structured group interviews with eleven pupils ($N(F) = 5$, $N(M) = 6$) in the final stage of the research. Since the action research lasted until the end of the school year, it was not possible to conduct interviews with pupils before the summer break. Therefore, the interviewees were selected by the teachers on the grounds of willingness to voluntarily participate in the interviews outside of their regular school duties. Since the pupils were mainly passive in the entire video-based classroom research process, our main research question was: *how did the pupils view the research they were involved in?* In addition, selected responses obtained in semi-structured individual interviews with three teachers were thematically connected to the pupils' responses in order to obtain a more in-depth understanding of the pupils' answers. Our reflexive approach to the data entailed: (1) familiarising ourselves with the dataset through a repeated reading of the interview transcripts, (2) distinguishing semantic ideas by systematic coding, (3) extraction of quotes from the written dataset and generating initial themes, (4) developing and reviewing themes, (5) refining, defining and naming themes, and (6) final analysis of selected passages of text (Braun & Clarke, 2006, 2022).

Ethical considerations

In the initial stages of the research, the participants were familiarized with its purpose, goals and course of action. Informed and voluntary consent was obtained from all subjects involved in the study. Participants had the right to refuse to participate in the study and to withdraw from it at any time. We obtained written consent from the Ministry of Science and Education of the Republic of Croatia, the Education and Teacher Training Agency, school principals as school representatives and pupils' parents or guardians. In classes where some parents were not ready to give their consent, special procedures were introduced to ensure the pupils' right not to participate in the research. During the recording of lessons, those pupils would sit outside the recording angle, and their work materials, written or oral answers, were not the subject of analysis within the research. In the Results section, we anonymised both pupils' and teachers' names.

Results

The reflexive thematic analysis of group interviews with pupils allowed us to identify repeating themes, reflecting positive and negative aspects of the pupils' perspective on the video-based classroom research they were involved in (see Figure 1).

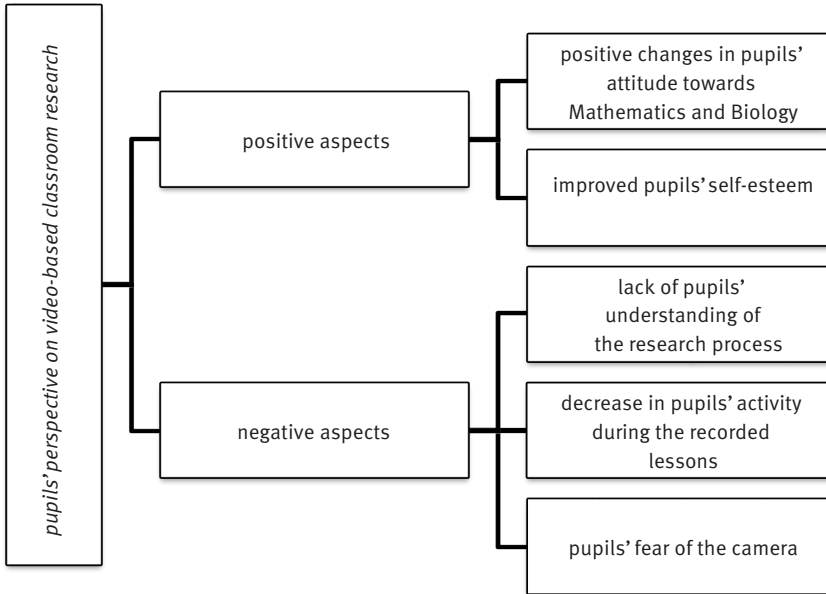


Figure 1 Positive and negative aspects of pupils' perspective on video-based classroom research

1) Positive aspects of pupils' perspective on video-based classroom research

Pupils stated that their taking part in this video-based classroom research led to *positive changes in their attitude towards Mathematics and Biology as school subjects*. They took Mathematics and Biology more seriously and “(...) started writing down more in class than before, writing homework more often and revising from [their] notebook before class.” (Pupil 1) The presence of the camera in the classroom “(...) encouraged me to be more active in class.” (Pupil 2) Pupils' attentiveness during the recorded lessons also increased: “I pay attention to what I'm going to say [before saying it aloud] to avoid saying something stupid.” (Pupil 3) As a result, they “(...) remembered a lot [from the recorded lessons].” (Pupil 3)

Pupils also pointed out that their involvement in video-based classroom research resulted in the *improvement of their self-esteem*. Being an object of class recordings increased their self-awareness: “I noticed some of my mistakes, it encouraged me to try harder and be more relaxed.” (Pupil 2) They also pointed out that recording lessons “might have helped [them] overcome the fear of camera, of talking, of saying anything at all, and even if [they] were wrong, that it was not a big deal, that nothing was going to happen.” (Pupil 4)

2) Negative aspects of pupils' perspective on video-based classroom research

However, *pupils did not understand why the lessons were video-recorded*. Although the aim of the research was explained to both pupils and their parents in the initial stage of the research, pupils forgot why the lessons were video-recorded: “I think these recordings were really helpful for university students studying this subject, who want to keep doing that for a living. So, we helped them see what kind of classes children like the most and how all of us can get involved, what we find interesting; so, I think all of this was really useful.” (Pupil 4) In reality, the recordings of lessons were used as a vehicle for lesson analysis in teachers' online learning communities and on online forums.

Since *pupils did not understand the positive and negative aspects of video-based classroom research*, there were apparent changes in their interaction during the recorded lessons. At the beginning of the research, pupils were more active because they perceived the camera in the classroom as a new, exciting feature. However, as time went on, they gradually became more careful and quieter, as if they were afraid of other people watching those videos: “Pupils who usually have some good ideas were kind of hesitant (...). Normally, they would give a good idea and then someone else would just build on it, but when they had nothing to say, the others could not think of anything good to say either.” (Pupil 6)

Furthermore, some pupils expressed their *fear of the camera* more than others: “That feeling of being exposed in front of the camera, knowing that someone's watching you and that you have to be one hundred percent careful not to do or say something stupid. This even led to some pupils not being themselves.” (Pupil 5) In a separate interview, Teacher 1 (mathematics) stated that “there are pupils who find it very difficult to express themselves, who freeze in front of the camera because they have a fear of failure. (...) I think they are too tense in front of the camera and afraid they will say something wrong.” Therefore, it may be easier to gain an insight into pupils' thought processes when classes are not video-recorded.

Since pupils were not involved in the evaluation of changes introduced to teaching, we noted a *disparity between the teacher's and the pupils' perspective on the video-recorded lessons*. Some pupils saw the “reformed” lessons as more active: “We have been doing practical work in groups and pairs more often; it hasn't been only theoretical.” (Pupil 3) The pupils explained this response by saying that the classes were different before due to the pandemic, and they also had a substitute teacher. However, in a separate interview, Teacher 2 (biology) stated:

I promised myself I wouldn't be one of those boring teachers who just stand and talk while children look at them like they're an all-knowing deity. And I've always tried to have at least two, three short activities in class (...) In fact, I was surprised when they told me my classes were different than usual. At first, I was confused, then a bit angry, and then I realised they were right. Of all generations of pupils I have worked with, I think this was the one I engaged in the lessons the least. (...) I usually apply various cognitively demanding teaching methods gradually, as pupils mature, so they get accustomed to collaborative learning with time. Since the research was done during the pandemic, I missed a few steps and it turned out that my pupils didn't consider our Biology lessons

to be as active as I did, which was alarming for me and I did a lot of self-reflection in order to change that.

Discussion

Critical friendship and collaborative reflection between teachers and research team members led to an increase in lesson efficiency and pupils' learning outcomes as teachers introduced changes in their teaching in accordance with their colleagues' feedback. Although the teachers and research team members regularly collaborated on lesson design and feedback, pupils gave very little feedback about the recorded lessons or input for future planning. Pupils were not included as equal participants in the research, which is why they did not actively participate in the process of introducing changes in teaching. They did not understand why the lessons were video-recorded nor did they understand the positive and negative aspects of recording lessons, which is why their activity decreased during the lessons and they expressed their fear of the camera. Perhaps not enough class time was dedicated to conversations about the entire research process: who the researchers are, why they are recording the lessons, what the teacher's attitude towards recording and researching lessons is, why the teachers were involved in the research, what the teachers' participation in the research will bring the pupils, how the pupils can become more actively involved in the research process and similar issues. Furthermore, the pupils were not involved in designing lessons nor did they evaluate the lessons or actively reflect on their own learning.

This poses a risk of teacher-centred education, as evidenced by an excerpt from an interview with Teacher 3 (mathematics): "I think the majority of teachers are afraid of letting pupils lead. We are used to being the ones doing the teaching and explaining, and I think we are afraid to abandon that role, as if we believe the pupils would not know how to do things themselves or they would not learn properly." However, the inevitable question is: *what would happen if we listened to the pupils' voices more?* The answer to this question may be found in collective teacher efficacy. This term is defined as teachers' belief that they can positively influence all pupils' learning outcomes by working together, mostly by improving their teaching (Donohoo, 2017). At the school level, teachers should communicate and cooperate when planning for change. The cooperation of all educational staff within a school collective, especially in relation to innovations in teaching, is strongly correlated with pupils' learning outcomes (Lynch et al., 2019). In a school culture characterised by collective teacher efficacy, the educational staff participates in building a shared vision of school development (Qadach et al., 2020). However, it is also important that pupils make an active and meaningful contribution to a shared vision of school development as well as to improvements in teaching individual subjects. Pupils are the main subjects of all educational endeavours and their voices should be heard. In that sense, collective teacher efficacy should be viewed as a precondition of pupils' participation in decision-making processes in schools. Although there is no one way to engage pupils as research partners (in teaching), Nguyen et al. (2022) suggest the following

guidelines in this process: (1) not knowing what the partnership might look like is okay and there is no single recipe on how to partner; (2) take the time to invest in partnerships; (3) provide ongoing opportunities to reflect on partnerships; (4) consider how to balance the power dynamics; and (5) consider how to incorporate diversity in the background of young partners in research.

In this particular case, the video-based classroom research could have begun with a democratic dialogue with pupils, where they could have been informed on what kind of research they would participate in and what the end goal would be. In addition, together with the pupils, the teachers could have determined the elements of teaching that needed to be improved and collaboratively monitored the progress. The pupils could have been included in lesson planning and in video-based lesson analyses. The teachers could have planned data collection procedures with and from their pupils (reflective discussions, focus groups, individual and group interviews, questionnaires, pupils' progress logs). Apart from discussing the lessons with pupils, in order to introduce effective changes, it is essential that teachers systematically reflect on their teaching, either within a learning community or within their own research diary. In doing so, it is important that they observe lessons through pupils' eyes and try to understand their perspective. Schoenfeld (2018) suggests some questions that can guide the teacher in this process: *Who generates the ideas that get discussed?, How deeply do pupils get to explain their ideas?, Do classroom discussions include pupils' thinking?, Does instruction respond to pupils' thinking?* These and similar reflective questions can contribute to a deeper understanding of one's teaching and encourage the introduction of educational changes (Krammer et al., 2006).

Conclusion

Pupils know best what kind of teaching they need. Since they are at the centre of education, it is necessary to ensure their active involvement in the process of planning, implementing and evaluating changes in teaching, especially since these changes are aimed at improving their learning in general. At the moment, video-recordings of lessons have an important role in teacher professional development worldwide. However, to the best of our knowledge, not much attention has been paid to the pupils' perspective on video-based classroom research, and the literature on how to promote equitable and meaningful involvement of young people as research partners is scarce in general (Nguyen et al., 2022). Although this research involved a small number of participants and does not allow for the generalisation of results, it opens up space for scientific discourse on pupils' voices as an important factor contributing to the overall quality of teaching.

Author's Note

The work described in this paper was fully supported by a grant from the Croatian Science Foundation (Project Number: IP-2018-01-8363).

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