

Tensions and opportunities when working in a collaborative video group

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In this paper we explore the tensions and opportunities that arose during a collaboration between mathematics teachers and researchers which took the form of both a research project and a professional learning opportunity for all involved. Throughout the process there are choices and decisions that need to be made and the relationship between the research and professional practice can bring complexities to these choices that can both open up new possibilities and raise tensions between the two roles within the collaboration. This exploration includes considering the goals, processes and participants and the different roles each plays as the project evolves.

Keywords: collaborative research; video methodology; classroom interaction; secondary

Collaboration between mathematics teachers, mathematics teacher educators and mathematics education researchers is now a common feature of studies into teacher learning and growth and is argued to be key in teachers' professional development (Kaasila & Lauriala, 2010). Yet what is meant by collaboration, the nature of the collaboration and who is involved in the collaboration varies considerably. In some studies the teachers are working collaboratively together but the role of the research in meetings is restricted to data collection (e.g. Scherer & Steinbring, 2006). In most studies the researcher takes the role of teacher educator and is the facilitator who manages the focus of discussion and the direction that it takes (e.g. Coles, 2013). In the study described below the intention was for the teachers themselves to take this facilitation role with the researchers participating in a similar role to the other teachers within the meeting. However, as Coles points out, the nature of facilitation can affect the roles different participants adopt during the studies, which includes the roles of expert and learner.

Researchers emphasise the importance of teachers learning within a supportive and collaborative group (Mason, 2002), but have also examined the nature and the role of facilitation (Coles, 2013; van Es, Stockero, Sherin, Van Zoest, & Dyer, 2015). However, most studies that have involved collaborations between teachers and researchers also often treat these two roles as clear cut. Yet the researcher as a facilitator is also acting as a teacher educator. Research where the researchers are studying the teacher educator (e.g. Yang, Hsu, Lin, Chen, & Cheng, 2015) rather than taking the dual role, reveals that the expertise and skills of a teacher educator can be significantly different from those of a researcher. The duality within this role of facilitator is rarely considered yet the differences can impact on decision making during the collaboration as we explore below.

In this paper we focus on the tensions and opportunities that arose during one collaborative project that was both a professional learning project and a research project. We specifically explore the tensions and opportunities associated with the roles of teacher, teacher educator and researcher, how these issues were made explicit by the teachers involved and the challenges that need considering in future research.

Project Design

The Talk in Mathematics project (TiM) was designed by the authors primarily as a professional development project that focused on teachers supporting students' mathematical talk in lessons. Additionally, built into the design was the opportunity for data collection that would enable us to examine teacher growth during the project but also more detail about the nature and feature of students' mathematical interactions within the classroom.

Professional learning opportunities

This design was based on research into teacher growth (Clarke & Hollingsworth, 2002) and Mason's Discipline of Noticing (2002). That is changes in teachers' practices, goals or beliefs and attitudes involves working with their awareness of their own practice and their students' mathematical work. We used the model of a video club (van Es & Sherin, 2008) and the Open University work on video-based CPD (Coles, 2013; Jaworski, 1990) but with a focus on using videos of the teachers' own practice.

The teachers involved videoed their own lessons, choosing both whom to video and what to video, and then what to share with the group. We met with each school regularly throughout the year as a group (approx. 6 times) and the teachers would take turns to share a 2-3 min clip from their recorded lesson. The motivation for choosing the clip and the aspect of student talk it focused on was the choice of the teacher. During the meetings the majority of the time was spent watching and re-watching the clip and discussions around this clip, beginning with *accounts* of what was observable in the clip and moving to *accounting for* what was observable combined with explorations of what could be done differently. Sometimes the authors would introduce a task to support these discussions, which needed to be flexible in its design and use as the focus for the discussions evolved during the meetings rather than being pre-planned (see Andrews, Ingram, & Pitt, 2016 for a discussion of one such task).

The Discipline of Noticing guided the way that the authors worked during these meetings. "Noticing is a collection of practices designed to sensitize oneself so as to notice opportunities in the future in which to act freshly rather than automatically out of habit" (Mason, 2012, p. 35). These practices include systematic reflection, recognising choices and possibilities for acting differently, preparing to act differently, and validating with others. When the teachers did not draw on these practices themselves during the meetings, the authors used questions and prompts to support these practices (the teachers were not familiar with the literature around noticing). Through these questions and prompts we also introduced or worked on ideas and findings from the research into classroom interaction but only where they became relevant to the discussions and usually using the discourse of the teachers in the meeting, rather than the discourse of mathematics education research.

Participants

The project involved the authors working with teachers from two mathematics departments in local schools. The authors are both researchers and teacher educators, and have both been mathematics teachers in schools similar to those involved in the project. Some of the teachers from the schools have also completed research as part of postgraduate degree, or as part of an action research initiative in the local area, and many in both schools have also been involved mathematics teacher education through

the mentoring of student teachers and mathematics teachers in the early stages of their careers.

Research project

Whilst the project was primarily a professional development project, data was collected to enable us to research teacher growth and the nature of classroom interactions. Although only 2-3 minute clips were shared in the meetings, the teachers shared the whole videos with us and these have been transcribed and analysed using conversation analysis (Ingram, 2018). The meetings were also audio recorded and analysed using a thematic analysis framework to look at teacher learning and growth, framework to look at classroom interaction.

Tensions

In this section we explore the tensions and opportunities that arose during this project. In particular, we focus on those related to the different roles of the participants and the interactions between the roles of mathematics teacher, mathematics teacher educator, and mathematics education researcher. In particular, we draw on the notion of a *tension of intention* (Johnson, Coles, & Clarke, 2017) between our intentions as mathematics teacher educators and our intentions as researchers in the design and implementation of the professional development project, alongside the teachers' experiences working within the project.

Roles and Expertise

Although the project was designed as a professional development project where the teachers involved developed their own practice, there were numerous occasions where the participants treated it as a research project. For example, the shared intention around the choosing of clips was for the teachers to choose something that they noticed during the lesson that they wanted to revisit in the group. However, the motivation for the choice of the clip did not always come from the teachers' practice: "knowing that you wanted a bit of a film where kids..." (Laura) and "that was the reason I chose this bit, because I knew the kids had got heated, and I kind of felt that that was something that you kind of wanted" (Emma). Here there is a *tension of intentions* between the intention we had as teacher educators and how this intention was perceived by the teachers involved.

Another challenge with the teachers choosing the clips was the need for us to be reactive and responsive within the discussions. We were not always aware of what the focus of the clip would be before the meeting which posed challenges in connecting what the teachers were working with and being able to use questions and prompts that could bring ideas and findings from research that were relevant. This was also a challenge to our roles as teacher educators in terms of the design and inclusion of tasks or frameworks to structure discussions whilst remaining responsive to how the teachers themselves were structuring the discussions. One of our intentions as researchers was that, within the collaboration, each and every participant offers expertise. It was not that we as researchers were the expert helping the teachers to improve their practice, but that the teachers themselves were the expert in relation to their own classroom which would inform how they would work to change their practice. However, one of our roles as researchers was to make the connections to existing research where

relevant, whether implicitly or explicitly. This places us in a position of expertise which could be challenged by the topic choice of the teachers.

There were also differences in the outcomes the individual teachers sought from the project. One teacher, Emma, often asked for feedback on her teaching on several occasions “I guess I think I do it quite well, but ... if you can tell me otherwise, please do”, “As long as I get some feedback at some point, there's no point otherwise”. These comments were always made when Emma introduced the clip she was sharing. There is a decision to be made here as to whether to challenge the perceived role of the researchers/teacher educators as giving feedback, “It’s important that we get the messenger’s viewpoint before we put the researcher’s viewpoint on” (Nick), or whether to implicitly redirect the discussion to giving *accounts of*.

At the end of most meetings we would briefly discuss what the teachers wanted to work on in their practice before the next meeting. This was drawing on the principle from the Discipline of Noticing around challenging habits and working on where your attention is (Mason, 2002). This individual chosen area of focus could have arisen as a result of the discussions in the meeting, but the teachers also drew on new areas and areas from previous meetings. However, occasionally teachers used this time of the meetings to reflect upon what they had found interesting in the discussions and for one teacher in particular in the meetings where they had shared a video clip they often returned to the reason why they chose the clip, rather than focusing on what they might do differently.

The balance between the goals of the professional development aspect of the project and the goals of the research caused a particular tension in how to introduce research that was relevant, whilst retaining the principle that teacher change is driven by what teachers themselves notice and pay attention to in their own practice. One decision arises around whether to introduce the discourse of researchers as part of the labelling process in Mason’s systematic reflection (2002). The first area of focus for the teachers was the use of silence in teaching which arose from one of the teachers sharing a newspaper article about having periods of silence in lessons to allow students the time to reflect and think. The authors introduced the notion of wait time (Ingram & Elliott, 2016) as a way of talking about this. However, whilst several of the teachers focused on extending and varying wait time type 2 (the time between a student answering and a teacher speaking again) when they worked on their practice and when choosing clips, they used the term ‘pausing’ consistently to describe this practice.

Finally, the teachers also appealed to the authors in their role as researchers on numerous occasions. One key incident was where one of the groups of teachers had received whole-school professional development on how to teach vocabulary, and the need to pay specific attention to words that were unique to the discipline. There were discussions around whether the professional development they had received was grounded in research, but also concern that some of the issues students faced in learning the language associated with mathematics were not considered. For example, the learning of verbs such as solve and simplify were often more problematic in their experience than nouns such as diagonal and equation.

Self-video is a growing area of teacher development building on the now relative ease with which teachers can video their lessons. Yet this is not always easier than having a researcher come in with a video camera and a pre-arranged date and time. It reduces the burden on teacher educators (van Es et al., 2015) but can increase the burden on the teachers. In the study described here, there were issues around recording lessons in time for a meeting, the time it took to locate a clip that they wanted to share, and the challenges of transferring the video clips from the teachers to the researchers.

From a professional development perspective, self-video extends the opportunities for teacher learning beyond the meetings to include awarenesses during the capture of the video, and awarenesses as the clip is chosen.

Conclusion

Collaborative research involving teachers will inevitably involve tensions and opportunities. The intentions of the researchers and the intentions of the teachers will differ, but this difference can lead to a better understanding of the relationship between research and classroom practice. It remains the role and the responsibility of the researcher to ensure that these tensions are managed and negotiated. Teachers need ways of working on developing their practice that work for them in their context, and it is within this that the needs of the researcher should be met.

For professional development to be sustainable and effective, it needs to be accessible. Whilst there is considerable evidence that designs that rely on the presence of an *expert* can be effective in changing practice (Jacobs, Lamb, & Philipp, 2010; Sherin & Dyer, 2017) (see also the work on lesson study), not all teachers are able to access these experts. The way Mason offers for teachers researching their own practice opens up opportunities for teachers to develop their practice without the need for an expert, but still requires a supportive and collaborative group of teachers to validate with others (at least) (Mason, 2002). Self-video research also looks promising as a way to develop teachers' practice in a sustainable way (van Es et al., 2015) but further research is needed into what characteristics of a supportive professional learning community are needed in order for this style of professional development to be effective.

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