Article

Changing Our Methods and Disrupting the Power Dynamics: National Tests in Third-Grade Classrooms

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Abstract

This article reports on a research project relating to the newly implemented mandatory Swedish national mathematics tests for third-grade students (nine and ten years old). The project's main research concerns the students' ideas about and reactions toward these tests and how the specific test situation affects their perception of their own mathematical proficiency. Drawing on theories that suggest identities are more fluid than static, we want to understand how students with special needs are "created." The specific aim of this article is to discuss how our research methods have been refined during the various phases of data collection and report on the resulting implications. It discusses issues surrounding child research and how methods involving video recording and video stimulated recall dialogue (VSRD) can contribute to research on children's experiences. Particular attention is given to methodological and ethical issues and how to disrupt power relations. In this article, we argue that the context of the test situation not only impacted upon the students but also affected how we changed, developed, and adapted our approaches as the project evolved.

Keywords: child research, classroom research, power relations, test situations, video recording, video stimulated recall dialogues

The problem of poor maths test results among Swedish schoolchildren has been on the political agenda for many years and has given rise to several major initiatives (National Centre for Mathematics, 2001; Government Offices of Sweden, 2004, p. 97). For example, the period devoted to studying mathematics in schools has been increased and teachers have been offered in-service education in mathematics. Another initiative adopted by the Swedish government to combat the problem of poor results in mathematics has been to broaden the reach of national testing in mathematics. Previously, the testing of mathematical proficiency only concerned children in grades 9 and 6. National tests, however, have now also been introduced for nine-year-old students in year 3. The national tests started in 2009/2010 and were coordinated by the liberal/conservative government (Government Offices of Sweden, 2006).

The main argument for having national tests in early school years was to stop the increasing number of students leaving school with incomplete marks in mathematics. The purpose of the tests is to identify students in need of developmental support and to maintain the quality of education in the schools (The National Agency for Education, 2005). This assumes that early diagnosis can identify students with special educational needs so that teachers can help to remove students' mathematical misconceptions and support sustainable mathematical thinking. But Magne (2007) argues that the effects of testing, particularly on low-achieving students, is an under-researched area. Yet there are some studies that indicate that mathematical testing can contribute to students developing difficulties and negative attitudes toward mathematics (Chung, O'Neil, Delacruz, & Bewley, 2005; Keogh, Bond, French, Richards, & Davis, 2004; Ma, 1999; Newstead, 1998; Sjöberg, 2006).

In our ongoing research project, we argue that the testing situation somehow affects how students and teachers interpret their own and others' ability to succeed in mathematics. Based on a theoretical understanding of identities being more fluid than static (Butler, 1999; Hall, 1996; Walkerdine, 1997), we want to explore how students are "created" or categorized as students with special needs. In this project we have, over a period of two years, followed the implementation of national tests in several third-grade classrooms using video assisted classroom observations followed by stimulated recall dialogues (Morgan, 2007) with 9- and 10-year-old students. We have also interviewed teachers, head teachers, and special educational teachers about their thoughts on the tests, the impact the tests make, and how the results from the tests are used. In this article, we give some concrete examples of method development in relation to the use of video cameras in research involving young children. The aim is to discuss how the specific mathematics test context revealed unexpected patterns of power relations, which forced us to refine our approach to data collection, and report on the resulting implications.

Design and Arguments for Our Methodological Approach

Our three-year project is based on the notion of following a number of school classes from their third-grade to their sixth-grade year at school in order to investigate if and how the national tests impact on the schools, the teachers, and the students. Parallel to this, we wanted to investigate whether schools, teachers, and students develop strategies to handle tests and test situations, and therefore we decided to take on a second and third set of new third year students during the second and third year of the project (see Table 1).

Table 1

Method Design Showing Our Approach to the Different Classes

	First set of classes 2010–2012 10 classes			Second set of classes 2011 6 classes	Third set of classes 2012 5 classes
School year	three	four	six	three	three
Video filming/ Observing	x			x	x
Interviewing children		x	x	x	x
Interviewing teachers	x		x	x	x
Interviewing head teachers	x			x	x

The argument for our methodological approach draws on our interpretation of testing situations often being complex and highly contextual. This complexity therefore necessitates methods that are able to capture at least some of the intricate situations that we believe affect students' identities in relation to learning mathematics in school (cf. Mendick, 2006). In contrast with other international studies on school mathematics test situations that use questionnaires (e.g., Birenbaum, 2007) or diaries and interviews (e.g., Walen & Williams, 2002), we saw the need for spending a lot of time in the classroom environment to fully understand the context (cf. Harper, 1994). For instance, we wanted to capture the classroom atmosphere during the tests, that is, tensions, expectations, and relief among school children and teachers and so decided to sit in on the test ourselves—observing and taking notes. We also wanted to record more subtle events such as body language and facial expressions. Therefore, we also set up video cameras in the classrooms.

The Use of Video Cameras

The use of video in research has been discussed extensively in literature on childhood research and methodological literature. Walsh, Bakir, Lee, Y. Chung, and K. Chung (2007) highlighted the video camera's capacity to record details that can reveal subtle differences in patterns of social interaction because it captures all events, not just those that are easy to notice. Furthermore, all parties' perspectives can be captured with the help of a camera, which leads to greater social justice with regard to representation in the data corpus (Davey, 2010; Pink, 2001). This would appear to be important because as Gordon, Holland, Lahelma, and Tolonen (2005) have shown, the gaze of the researcher easily orients toward movement and sounds, which often means noticing boys more than girls, thus resulting in gender bias.

Another factor is that the camera gives the advantage of establishing a role that is separate from other adults in school (Shrum, Duque, & Brown, 2005; Sparrman, 2005). We considered this an important factor, because we did not want the children to think of us as their teachers. An additional strength of using video in our study was that we could work as a team when making video analyses and communicating findings (see also Derry et al., 2010; Goodwin, 1994; Heath, Hindmarsh, & Luff, 2010; Pink, 2006). We also draw on Harper (2004) who has argued that visual data can be triangulated with verbal data (and in our case, also written data from diaries) as an independent source of information.

Several studies have also described weaknesses with video camera research. For example, there is always the risk of being fooled into thinking that everything is shown and nothing escapes the researchers' attention (Walsh et al., 2007). Therefore, we decided to set up one camera in each classroom, viewing the whole room most of the time, which we complemented with our diaries. Standing close to the camera, it was easy to change the view and focus when something special seemed to occur. We also noted special events in our diaries (cf. Heath, Hindmarsh, & Luff, 2010).

Another interesting issue for our research and one that is debated in childhood studies relates to ethical considerations. Although Cromdal (2000) has argued that children today are more familiar with video recorders than tape recorders for example and that this, in fact, makes the use of video rather uncontroversial, others argue that sensitive situations can occur when filming in a classroom environment. Sparrman (2005), for instance, has highlighted the importance of using gatekeepers, such as parents and teachers, who can interrupt the filming. Children who were present during our research, yet did not want to be involved or whose parents had not given permission to be involved, were placed out of sight of the video camera. We also discussed with the teachers involved what we should do with regard to filming if children, for example, started to cry or became very upset. We decided to adopt a reactive approach and to stop filming if we heard, saw, or felt that someone was disturbed or frustrated.

The Use of VSRD

The second step in our method was to use some of our film clips in Video Stimulated Recall Dialogues (VSRD) with the children. The VSRD technique is applied to help children to relive their experiences and to aid their memory of events (Morgan, 2007). Morgan has argued that the VSRD technique is most effective with children if they have the opportunity to choose which video clip they want to talk about. Because involving the children in the selection of video clips would have been too time-consuming to manage, we decided to make a representation of the test by putting clips together. From within this representation children could then decide what they wanted to talk about. This approach generated data about what the children judged as important or possible to talk about. We arranged our clips into three specific sequences, with one "three-sequence" clip for each class. The film sequences represent the beginning of the test, the middle of the test, and a sequence from the end of the test situation (see Table 2).

Table 2

Three Film Sequences from the Test Situation and Some Examples of What Each of These Show

Film sequence 1 (start)	Film sequence 2 (middle)	Film sequence 3 (end)
Part of teachers' introduction to the test;	Children working on the test;	Children handing in their tests;
Handing out of the test;	Children asking for help;	Children beginning to work with other things;
Children start working on the test.	Children thinking, resting, etc.	Children still struggling with the test.

We planned our questions so that they corresponded to the respective sequences, and after each film sequence was shown on the computer we used them as "starters" for talking about the test situation. Drawing on Morgan, Gibbs, Maxwell, and Britten (2002) and others (see below), the children were asked to come to the interview in pairs. The interviews were usually conducted in a

room close to the children's classroom. The teachers and children decided on the interview pairs and due to practical reasons we sometimes interviewed groups of three children.

Issues Concerning Research on Young Children

A starting point for our project was the notion that children in research situations seldom have the chance to speak for themselves. Young children are, for example, under the influence of others and are therefore potentially more vulnerable (Einarsdóttir, 2007). Nevertheless, children's interpretations are often sharper than adults' (Cook & Hess, 2007), and research highlights the importance of seeking assistance from children in their own environment (Morgan, 2007).

A number of childhood researchers have discussed methods, settings, and commonalities for research on children (e.g., Barker & Weller, 2003; Freeman & Mathison, 2009; Greene & Hogan, 2005). Hill (2006), for example, has argued that children do not have opinions on the methods used in situations in which they participate, but they want to feel comfortable and are therefore willing to decide how and when time is used and to discuss questions concerning rewards and privacy. Being treated fairly is an issue that children raise and it is important to let children have an influence over the time and location, for example, of the interview. It is also good to let the child know what to do if he or she does not want to participate—if it is okay to leave when they want to. Behaviour that might seem distracting, such as fiddling with toys or speaking about other things outside the research subject, are comforting for the child and should also be allowed (Morgan et al., 2002). In our interviews with schoolchildren we always started by highlighting that they were the experts when it came to doing the national tests in mathematics, that is, that they were the only ones who really knew what it felt like to experience the test situation. We also told the children that they could say whatever they wanted and that there were no wrong answers. They could even choose not to answer. We asked them to just shake their heads if this was the case. On one occasion, a child who had wanted to participate in an interview refused to answer any questions. Although this was frustrating for the researcher conducting the interview, it can be interpreted as an indication that this child felt empowered by having the opportunity to change her mind.

When researching children, it is also important to bear in mind the child's perception of the adult as an authority figure, which can make him or her less likely to dissent, to disagree, or to say something that could be deemed unacceptable in an interview situation, for example (Mayall, 2000). In other words, power relations must be considered and reflected on in child research (Eder & Fingerson, 2003; Mayall, 2000). When data is collected in a school, children can be influenced by attitudinal connections to answering questions and performing tests (Morgan et al., 2002; Scott, 2000), and because children are eager to contribute, an interview situation may encourage them to answer a question even if they do not understand it (Greene & Hogan, 2005; Punch, 2002). Formosinho and Araújo (2006) have suggested a way to avoid this dilemma and to take the focus away from the interviewer. They have argued that it is best to interview children in pairs or small groups (see also Freeman & Mathison, 2009). Nevertheless, Morgan et al. (2002) have highlighted how public disagreements and issues of personality, social status, and integrity can make children express tension and even decline to answer. Although a friend can be supportive, his or her presence may also be detrimental. In their research, Morgan et al. (2002) found that the level of concentration was more likely to wane if the children were interviewed in groups of friends. If a group consisted of more than two children, one friendly pair was found to dominate, and thus influence the other participants' ability to answer and participate. As a result, we decided that, where possible, we would interview pairs of children that were not necessarily "best friends."

Developing Our Method: From Phase One to Two

Suggestions in earlier research guided us in the first methodological set up of the project, and our interpretation is that the empirical data from this first phase is rich and high in quality. For instance, using a video camera increased the richness of the data by capturing the atmosphere in classrooms, more subtle events, and body language. Furthermore, observations and field notes triangulated with the video recordings and VSRDs strengthened the data quality. Nevertheless, we identified a need to develop and adjust our methodological approach so that it was better suited to the specific context of young children, school mathematics, and high-stakes testing. For example, we discovered how unfamiliar the testing situation was, not only to students but also to their teachers and head teachers. We were in fact researching a totally new situation for most members of the schools, which brought with it more stress and tension than expected.

Identifying Areas for Developing Our Methods

During the first phase of the project we put a lot of energy into visiting the different classes. The aim of this strategy was to become a "familiar face" to the children, rather than a strange intruder in their classroom. But the children did adapt to us very quickly, maybe as a result of the large number of staff members already present in the school, the open doors between classrooms, and a system that integrates compulsory schooling and extracurricular activities. More unexpected, however, was that many children were interested in, and maybe also disturbed by, the video camera. They wanted to be filmed and they also wanted to see how they performed in the film.

One finding during the first research phase was the difficulty in getting young students to talk about the testing situation beyond "politically correct" discourses, that is, to say more things than what they normally expected adults wanted to hear. This was the case when they participated in small groups (three people) or pairs, as recommended in the literature (Formosinho & Araújo, 2006; Freeman & Mathison, 2009; Morgan et al., 2002; Scott, 2000). Many of the children viewed the testing situation as unproblematic or "nothing special" and they often approached our questions as if there were correct answers. Our interpretation is that we did not succeed in reducing the uneven power relation between the interviewed children and ourselves. What was more unexpected though was our discovery that, in some cases, power dynamics between the children impacted on the interview situation. For example, the discussions easily slipped into comparisons between students' behaviour and skills. Also, we saw how one child (and sometimes two children) silenced another child. This was exemplified when Oskar, who was explaining his feelings during an interview, was interrupted by Erik:

> Oskar: When I heard that we had to do the tests I was very nervous 'cause I thought I would have to redo year 3 if I didn't finish it
>
> [Erik interrupts Oskar]
>
> Erik: I thought this will go well—I will do it!

After this, the interviewer tried to come back to Oskar about his views on the tests but Oskar did not want to share any more of his feelings. Another example of an interview situation where we believe that the children were silencing each other was when Sara and Elin were talking about the purpose of the tests. Throughout the whole interview it seemed like Sara was carefully adjusting her answers in response to what Elin said. Elin was also the one who usually gave her answers first, but this time Sara answered first:

> Sara: We just *practice* when we do the tests
>
> Elin: No, but that is just to check that we've learned
>
> [Sara nods]
>
> Sara: Yea, it's to see if we have learned anything

Some children were also quick to lead the conversation and although there were times when another child disagreed and spoke up, these were few and far between. We got the feeling that some students avoided telling their "own stories," and they talked freely about their experience of the testing situations not so much because of us but rather because of their friends. Or, to put it differently, some children seemed to take precedence over others.

These findings led us to pose the following questions:

- How can we reduce the video camera's negative impact?
- How can we get beyond "politically correct" discourses about the testing situation?
- How can we minimise unhelpful power dynamics between the interviewer and the children?
- How can we minimise unhelpful power dynamics between the children?

In the following section we discuss how we developed the methods further.

New Approaches

During the second phase of classroom observations and videotaping, we reduced our initial "getting-to-know-each-other" visits. Instead, we spent time introducing the children to the video camera in order to reduce its negative impact as a "new" disturbing element in the classroom. We wanted children to feel that being videotaped was not such a big deal. With the teachers' approval, we gave each child the chance to make a five-minute video of the classroom during an ordinary maths class. Immediately after their own film shoot we allowed them to watch their film sequence. Most of them found that their film was not that exciting, that is, it just showed a "normal" maths lesson. Some of the children did not even have enough energy to view the whole film; it was obviously too uninteresting. Although the approach to letting the children shoot their own films took a while, we found that it was beneficial in reducing much of the earlier focus on the camera and on us as film producers.

Because we found that the children were eager to see themselves on film during the VSRD, during the second phase we prepared some film clips that specifically showed every individual. These individual clips were then added to the other film sequences (start, middle, and end). The individual clips that we picked out and showed during phase two were generally a success and most of the time the children liked seeing themselves. The individual clips also helped us to see the situation from the perspective of each individual child. Still, we did find that picking out good incidents from the test situation was a balancing act. There were some "critical" incidents—when children started to cry, left the classroom in anger, or refused to do the test—that would have been interesting to discuss with the children. With individual interviews, we think we can study the critical incidents more closely; yet, for ethical reasons there is still a limit to what you can record and show.

The next change of method was to invite the children to individual interviews instead of encouraging them to come with one or two friends. Even though children were free to come in

pairs, they preferred to talk to us alone. We continued to show three film sequences (see Table 2) to which we had added individual clips. This resulted in two important changes: first, we avoided the problem of the interplay between the children, and second, the personalized clips provoked more spontaneous reactions, talking, and comments from the children. This might have been as a result of the children sensing that it was safe to speak from the heart. Our interpretation is that the combination of the child being alone with an adult talking about experiences of testing situations, without anyone else disagreeing, teasing, or correcting them, and the interactive viewing of the videotape with simultaneous discussion helped to disrupt (at least some) power related obstacles.

During the first phase, drawing on Hill (2006) among others, we were busy ensuring that the children felt comfortable in the interview situation, something we might have over-stressed. When we later listened to the interview data, we noticed that we might have forced the interviews because we were afraid of silence. Therefore, during the second phase, we found it helpful to start asking the children questions when we were viewing the video clips together, that is, we approached the interview situation more freely. By doing this, the films not only helped the children to remember feelings and events during the test situation but also acted as a lubricant between the interviewer and the informant. It also became easier for us to repeat the same questions several times, that is, questions that children did not answer, or to develop questions further to get more in-depth answers. The computer along with the film clips became a bridge as well as a conductive artefact between us—the researchers—and the children.

Concluding Remarks

Drawing on the literature about the methodological aspects of child research (e.g., Hill, 2006; Mayall, 2000), the use of video in classroom observation (e.g., Sparrman, 2005; Walsh et al., 2007), and VSRD in small group interviews (e.g., Morgan, 2007; Morgan et al., 2002), we designed a methodological approach for phase one of our project. Although the literature was valuable and we followed most of the proposed recommendations during this first phase, we needed to make changes in response to the specific classroom context and interview situations. The changes we made, which also are our key findings, include the following:

1. A reduction in getting-to-know-each-other visits in favour of allowing the children to record themselves on video and showing them the video footage, thus playing down the video camera. This strategy avoided unnecessary focus on the camera during our film shooting later on.

2. Offering individual interviews to children rather than interviews in pairs or groups. This helped us to reduce power relations between children in the interview situations because children felt safer about speaking from the heart.

3. Adding film clips on each child to the three other film sequences helped us to consider the situation from the perspective of the individual child. This engaged the children more and made it easier for us to pose questions. We also believe that when the children watched themselves on film, it was easier for them to recognize and remember the atmosphere and their feelings from the test situations.

We conclude that this article is helpful for other researchers to use as lessons learned from our research. It provides an interesting perspective on how visual methods can be used in school settings. It highlights collaboration between researchers and the importance of reflecting on ethical issues throughout the whole research process. From the outset, we were very aware of the potentially problematic situations that could arise from us, as adults, carrying out research on

children, especially given the context of a test situation where the children may already have felt stressed and vulnerable. Ethical issues that come out of the project specifically include the following:

- Introducing a project to children—do they have the possibility to say no to involvement?
- Using a video camera in the classroom—where do you draw the line and stop filming?
- Using VSRD with children—what film clips can you use?
- Interviews with children—how do you reduce power dynamics between researcher and child, and between children, if it is an interview with more than one child?

These issues need to be discussed beforehand in studies using a similar method design as the one we have discussed in this article.

We believe that researching mathematics test situations in classroom settings clearly benefits from methods where video cameras are used. Our research shows that potential benefits from using a camera are twofold. First, a video camera can capture critical incidents such as expressions through body language or gazes during the testing situation when children are otherwise expected to be quiet, moments and incidents not so easy for a researcher to notice. A second potential benefit lies in the possibility of using film clips in VSRDs with children; clips support dialogue by bringing back memories, feelings, and convictions that can give important information to researchers.

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