MULTIMODAL WAYS OF ELICITING STUDENTS' VOICE

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ABSTRACT   *For some time researchers have been exploring how students might best be supported to express their ideas, opinions and feelings and to demonstrate what they know and can do. In this paper, we discuss some of the implications of sociocultural view of learning for how classroom research is conducted and describe some of the approaches we have used to generate information on student classroom experiences. Over the course of our work we have found that the use of multiple and multimodal data generation methods allows student with different interests and abilities to take an active part in research. We then detail some of the challenges and rewards involved in working with students in these ways as part of a research agenda focused on enhancing teaching and learning.*

KEYWORDS

Student voice, sociocultural, visual methods, ethics

INTRODUCTION

Researchers hold a range of views about the extent to which young people should, or can, be empowered as participants in the research process. These views are usefully summed up by Symonds (2008) as to do with whether the research is on, for, with or by students. At one end of this continuum the focus tends to be on methods to elicit student views. At the other end, researchers seek to engage with students as co-researchers. In part the current push to consider "student voice" (Noyes, 2005; Thomson, 2008) has been about enabling people who have traditionally worked "on", or on behalf of, young people to move towards working with them to improve their quality of life, and educational experience and attainment. The notion of student voice also reminds us that young people don't speak as one but as individuals (Thomson, 2008). This idea that research needs to consider children and young people's own thoughts about the world has influenced research in science education significantly. However, student voice needs to be distinguished from student views. This latter focus is exemplified by the early Learning in Science Project (LISP) work, which elicited student concepts in science topics such as energy, chemical change and the distinction between living and non-living (Freyberg & Osborne, 1985), and showcases how students in their own

words/actions make sense of the natural world. Research that deliberately includes student voice provides space for students to contribute to addressing issues raised.

While very young children and teenagers come to the research process with very different skills and experiences of interaction with adults, both, albeit for different reasons, need support and encouragement to express what they think, know and can do. Power differentials and ethical matters such as informed consent, access and protection from harm take on different meanings and implications when working with young people, particularly for researchers interested in teaching and learning in school contexts. In this paper, we discuss some of the implications a sociocultural view of learning has for how we undertake classroom research as a prelude to describing and analysing some of the approaches we have used to generate information on student perceptions and experiences. We consider some of the challenges and rewards involved in working with students, within a research agenda focused on enhancing teaching and learning.

WHY LISTEN TO STUDENT VOICE?

Over the last decade a general consensus has emerged around the need to and value of consulting with students and children in educational settings (Fielding, 2001). The need to take account of "student voice" has gained general acceptance over the past decade. One reason for this is the recognition that children are social actors rather than as being in the process of becoming so (Prout & James, 1997), and that they are authorities on their own lives (Clark & Moss, 2001; Mayall, 2000). The school improvement movement has consulted widely with students on this basis (Rudduck & Flutter, 2004). So too have researchers with an interest in democratic schooling (Apple & Beane, 2007), although there is also a growing tension around whether consideration of student voice is being used for accountability rather for democratic purposes (Fielding, 2001). This body of work recognises that students have a unique perspective on what happens in schools and classrooms, and that excluding their perspectives from consideration means any effort to make change is based on an incomplete picture of classroom life and how that life could be improved (Cook-Sather, 2001). It also acknowledges that teacher and student classroom roles are mutually and reciprocally constituted and that students are just as likely as other people to find change challenging (Corbett & Wilson, 1995). Overlaying this work, the United Nations Convention on the Rights of the Child (1989) provides a political imperative to consult with children. It states that children have the right to actively participate in all matters concerning them. Given that students are the intended beneficiaries of schooling, their involvement in educational matters would seem essential (Lundy, 2007). Indeed, Levin (2000) argues that education reform "cannot succeed and should not proceed without much more direct involvement of students in all its aspects" (p. 155). All the more so given information on student views has been shown to be influential in mobilising teacher change and parent opinion in favour of reform (Lodge, 2005; Bishop, Berryman, Cavanagh & Teddy, 2009). A further mandate for attending to student perceptions can be found in both constructivist and sociocultural views of learning. These construe learners of all ages as active and intentional meaning makers.

STUDENT VOICE AS MEDIATED ACTION: TOWARDS A MULTIMODAL ACCOUNT

Our research is oriented towards understanding and enhancing teaching and learning within science and technology classrooms (Cowie, Moreland, Otrel-Cass & Jones, 2008a). It is informed by sociocultural theory. From within a sociocultural framework (e.g. Wertsch, 1998), learning is understood as the result of complex interactions between people in particular social, physical and cultural contexts rather than solely as an internal cognitive process. Both teachers and students are viewed as active and intentional agents in teaching and learning processes. Learning is mediated through cultural tools (Wertsch, 1998), which may include conversations, social practices and artefacts. The appropriate unit of analysis therefore is goal-directed, tool-mediated action (Wertsch, 1991), which prompts a focus on interaction as facilitated by the provision of resources and opportunities within the social context of a particular classroom. This implies that issues of student learning need to be examined over time (Cole, 1996), as a particular classroom community jointly constructs ways of speaking, acting and being. While talk is the key mediator for classroom interaction (Delamont, 1992; Lemke, 1990; Mercer, 1995), in this paper we use a "multimodal" lens to understand the mediated nature of meaning making and communication (Jewitt & Kress, 2003; Kress & Van Leeuwen, 2006). A multimodal account acknowledges that while talk is often privileged the different modes are rarely, if ever, used alone (Jewitt & Kress, 2003).

The starting point for defining multimodality is that language, gesture, images, drawing and so on serve as representational and communicational modes (Kress, 2000). Multimodality assumes that all modes, like language, have been shaped through their cultural, historical, and social usage to realise social functions. That is, the affordances of a mode are socially determined by the value and use to which it has been put within a group. Moreover, "images, written text, music and so on each respectively impart certain kinds of meaning more easily and naturally than others" (Hull & Nelson, 2005, p. 4). Written text, for instance, does not have "the music of speech" (Schafer, 1986, cited in Kress & Van Leeuwen, 2001, p. 89) but offers more opportunities to consider and edit a communication than does a conversation. Written text presents information sequentially but we can apprehend visual representations all at once and at the same time. Visual information can communicate emotion and what cannot necessarily be put into words (Eisner, 2008). Used in combination, the different modes can "multiply meaning" (Lemke, 1998).

RESEARCHING WITH STUDENTS

In order to explore the potential of a multimodal account, we present the details of two studies that illustrate our own use of multiple and multimodal methods of data generation, analysis and representation. We have selected them because they reflect the two broad foci for research with students evident in the literature

- a focus on student ideas, opinions and feelings elicited through relatively short researcher–student contact; and

- a deeper engagement with student daily lives usually reflected in longer term, more sustained mutual engagement.

The first project involved our short-term engagement with a group of teenagers to find out their thoughts about the future, and the second our sustained engagement with classes of primary students to find out how they were experiencing the teaching and learning of science and technology.

Project 1: Student views of the future

The research context: The first project was an investigation of young people's views of the future, specifically their hopes and fears for the environment. It used an established research methodology of guided fantasy stories combined with drawings (Unterbruner, 1999) to encourage young people to articulate their thoughts. The study involved 446 students in Austria, 282 in Germany and 306 in New Zealand between the ages of 13 and 17 years. In the New Zealand project students used mobile phones to record their reflections about their drawings after being prompted by a recorded message. In this paper we are referring only to the New Zealand study.

Data generation and analysis: In the first part of the data generation, students were told the beginning of a fantasy story. In their imagination they had to pass through a gate that led them to a world 20 years in the future. They were asked to enter this world and have a look around and then draw a picture about their visions of the environment. Immediately after finishing their drawing, students used a mobile phone system specially designed to record, transcribe and transmit short oral messages to a specified email address so they could individually and instantly record their thoughts. Mobile phones were chosen as a way of connecting with teenage interests and technologies and also because they provided some privacy to the students in communicating their ideas. After explaining the procedure to the individual student, the researchers dialled a number for the student. The students then listened and replied to a recorded message that reminded them to explain their drawing and talk about how they felt and thought about the future in 20 years' time. Each student had their drawing with them while talking and recording their reflection on the mobile phone. The researchers stood to the side while the recording happened. The class was debriefed about the process to ensure that no student was left distressed should they have had an overly negative view of the future. Student mobile phone messages were transcribed immediately after recording and coded for content analysis.

The second phase occurred a few weeks after the first. The researchers visited the students again to follow up on their drawings and to conduct a survey. Each student was shown their original drawings and asked if they still agreed that it presented a reasonable representation of their interpretation of the future. Next, they were asked to complete a questionnaire focused on themes such as their greatest hopes and fears for the future (Unterbruner, 1991) and their estimation of the impact of technology and new media on future development. The questions in the survey were based on earlier research and what the researchers thought might be an issue for students. Students were asked to rate their views on a five-point Likert

scale. Questions were asked on a scale from very afraid to not afraid at all about global issues like pollution, global warming, overpopulation and poverty. Other questions raised issues of a personal dimension such as looking bad, getting poor marks at school, parents separating or parents dying.

The findings from the investigation were based on making sense of the meaning of the drawings, explanations and questionnaires as well as understanding the setting in which these items were produced (Pink, 2003). Analysis of the drawings and students' explanations was organised into four key themes each with further subcategories: the natural environment, the built environment, technology, and society. On the whole the students' drawings referred to global issues and the consequences of environmental degradation such as pollution and global warming. Social matters such as overpopulation, shortage of resources, social tensions and war were also depicted. Only in a few cases did the drawings include personal scenarios. Examples were students drawing themselves having a family, at work and at home. The lack of more personal references in the drawings is perhaps because the students were told to look into the future but not asked specifically about where they saw themselves in the future.

The findings from the questionnaire supported the findings from the drawings and mobile phone explanations, in that issues of a more immediate and mostly personal impact like marks at school or drug addiction were not rated as very concerning compared with global problems, although the most prevalent response—the loss of parents—had not featured explicitly in the drawings. Again, this is most likely because of the prompt for the drawing compared with its specific inclusion in the questionnaire.

Discussion: Overall the study found that the teenage participants were comfortable thinking about the future and sharing their thoughts with the researchers through the medium of drawing, mobile phone messages and questionnaire responses. Most students completed drawings and provided quite detailed spoken explanations about their hopes and fears. The drawings provided very personal insights into students' ideas. These were supported by the student mobile phone explanations. While the questionnaires asked students to respond to particular issues, student spoken explanations of their drawings of the future had a personal and emotional dimension that was not evident in the drawings alone. From our experience, this depth of disclosure is unlikely through unsupported conversation with young people in this age group unless they know us well (Cowie, 2000), which was not the case in this instance. In the following example a student explained her drawing, speaking into the mobile phone

> Too many people, way too many. Pollution means it is unhealthy to live outside so countries are in bubbles, which are controlled by the military and you cannot leave them. Generators control the temperature, oxygen and how much sunlight is let through. It costs a lot to live in bubbles or you have to be clever so millions of people are let outside in the dark polluted world. … Worries that many people will die or be killed and the earth will be destroyed. (Girl, 15)

This explanation touched on aspects that could not have been deduced from her drawing but the drawing provided a way for the student to think specifically about a scenario and then mediated her talk about this scenario. In this study, the use of mobile phones appeared to have a strong appeal in supporting/prompting students to talk about their ideas.

Project 2: Interactions around science and technology ideas

The research context: The Classroom InSiTE (Classroom Interactions in Science and Technology Education) aimed to develop a robust understanding of and to enhance teacher–student assessment for learning classroom interactions. Six schools and 12 primary teachers and their students (Years 1 to 8) took part in the three-year study. The teachers taught one science and one technology unit of up to three weeks duration per year.

Data generation and analysis: Data were generated via classroom observation of teaching and learning units and teacher and researcher team meetings. Classroom data generation methods included digital video of teacher interactions with students; digital audio of teacher talk; digital photographs of interactions and of teacher and student-produced artefacts; researcher field notes; the collection of teacher planning documents, and the collection of student work samples and products. In the main, two researchers were present in the classroom. Typically, one researcher focused on the teacher and her interactions with students, video-recording these. The other researcher followed individual students and or small groups of students, taking field notes and digital photographs of their actions and interactions. Both researchers talked with students about what they were doing during lessons, typically using the students' own work and activities as a prompt or focus for talk. Teachers and students were also interviewed before and after an observed unit and after lessons, whenever this was possible. End-of-lesson interviews with the students were in settings where they would feel comfortable. Students were encouraged to bring their work and discussions focused on the preceding lesson. A combination of individual and group student interviews were undertaken, depending on the situation, student preference and/or teacher recommendation.

Post-lesson teacher–researcher discussions and team meeting days provided a forum for joint data analysis. Data were collated, categorised and analysed for telling examples and themes. Categories were drawn from the literature on assessment for learning when viewed from a sociocultural lens (Gipps, 1999). Categories included the social context of interaction, apparent teacher assessment purpose for interaction, means for eliciting student ideas, the nature of feedback and so on.

Discussion: The use of video, photographs, audio-taping and field notes enabled us to document some of the complex interactions between teachers, students and the setting. In particular, videoing allowed us to capture the dynamics of interaction along with its multimodal nature. Indeed our access to this multimodal data was pivotal to our being able to explicate the multimodal nature of interaction, a key finding of the InSiTe study (Cowie et al., 2008a). Nevertheless, it was important to talk with children if we were to understand their purposes for

observed actions–what they were thinking and what they were trying to achieve. The students quickly accepted a researcher as part of their group and willingly provided information about what they were doing/thinking in the moment. One of the benefits of this process was that students controlled the focus because conversation revolved around what they were doing or producing. The students could discuss any ideas they had about their work and explain it how they wished. Ideas could be shared/demonstrated in context, thereby reducing the challenge researchers and young people often face in communicating with each other. One of the strengths of on-the-spot conversations was that these focused on work in progress, rather than being a recollection of past events as happened when they were interviewed at the end of a lesson. When these on-the-spot conversations involved a group, the students often talked to each other as they negotiated the meaning of researcher questions and built on each other's answers, thereby increasing the depth of information gained. By talking with students in the classroom, researcher questioning became immediate and genuine, which also reduced the likelihood that students would view follow-up questions as suggesting the researcher had a "right" answer in mind, something they may have come to expect in a school context. Nevertheless, this practice required careful consideration of how researcher actions might disrupt a class and exert undue influence on student actions.

Our sustained engagement in a classroom contributed to our understanding of what it meant to know and learn in that classroom and for a particular child (Cowie, 2000; Cowie et al., 2008a). This understanding was important when we came to make sense of the use of different resources, modes and means of communication within and across different lessons and teachers, all of which is important to sociocultural understandings of learning and knowledge construction. We were also very aware that it was important to keep an open mind about the meaning for students of a particular event and the need to rely on them "to teach the interviewer the questions most important to ask" (Graue & Walsh, 1995, p. 146). We have found that, over time, as students come to understand our research interests, our conversations with them can include a meta-analysis of how and why particular teaching and learning actions might be productive, or not.

Challenges and rewards in research with students/children

Research with children/students sharply exposes many of the issues and challenges inherent in qualitative research. In this section we address some of these issues as they relate to data generation, interpretation and representation, and ethical matters.

Data generation on student views and experiences

Both of the projects described in this paper used multiple and multimodal methods to generate data on student thinking. While this could be considered to provide for triangulation our contention is that the different modes, individually and in combination, provided different insights. For example, Project 1: The Futures Study provided time to students to reflect on the issue being explored and, in our view, facilitated investigating "layers of experience that cannot easily be put into words"

(Gauntlett, 2007, p. 3), as well as enabling students to communicate more holistically emotion and other aspects they may have struggled to put into words. In the InSiTE study, material prompts or artefacts such as the students' bookwork were available to mediate talk during informal on-the-spot interviews (Wall & Higgins, 2006). We have found as Scheurich (1995) suggests, that "the language out of which the questions are constructed is not bounded or stable; it is persistently slippery, unstable, and ambiguous from person to person, from situation to situation, from time to time" (p. 245). Children, particularly very young children, often have a somewhat limited vocabulary and we have faced challenges in formulating questions just as children have faced challenges in expressing their ideas. These challenges are reduced when researchers and students have access to multiple and multimodal means for communication. On-the-spot conversations that focus on what students are doing at the time provide authentic opportunities for student–researcher talk in a context where ideas can be elaborated through drawing, dramatisation and gestural reference to pertinent artefacts. During end-of-lesson interviews, prompts in the form of a series of researcher photographs and/or an artefact from the classroom assisted students to re-enter an experience. These prompts provided a point of collective focus between the interviewer and the child so the interview became a three-way interaction between the researcher, the student and the prompt, which also served to depower the situation and provide a less stressful interview situation. After all, it is easy to see that a child could find it daunting to be interrogated by an adult, particularly if they think the adult has a particular answer in view, as is often the case with teachers in a classroom setting. Giving the student control and allowing him or her to guide the interview through objects or photos supports the creation of an environment of trust and equality. which can increase commitment to the research outcomes.

Issues of transcription, interpretation and analysis

The provision of multiple and multimodal opportunities to students for them to represent what they know, feel, think and can do brings with it new and different transcription, interpretation and analysis challenges. Combining visual, spoken and written data presents the researcher with practical, ethical and methodological challenges in terms of making links between data from different sources, the relationships between data collected in different media. Research and writing on the issues around the analysis of multimodal data (video, drawings, photographs) is just emerging. This work highlights that, just like talk, images and actions are subject to multiple interpretations. Although it is tempting to view photographs, for example, as representations of social reality, inevitably they are a social construction of reality that is influenced by the attributes of both the researcher, the subject and the tool (camera) used (Pink, 2003; Harper, 2002). In the futures study (example 1) it was important to consider student commentary on their drawing to appreciate the full import and emotional implications of what was depicted *for the student themselves* (Einarsdottir, 2007).

In our work we have made it a practice to member check (Guba & Lincoln, 1989) our interpretations with the teachers and the children we work with as well as

between researchers (Cowie, 2000). Often this is accomplished by our asking directly if we have understood their comments as they intended or by our asking about the same idea in two different ways. More formally we have asked children to sort statements, prepared by us as indicative of key themes in the data, into two piles: important and not important and then to justify their categorisation. In the context of research on what children thought helped them learn, these themes included statements about cooperating with others, thinking for one's self, making links with everyday events, and performing experiments. In another strategy, groups of children were asked to comment on interview quotes that had been selected as expressing the important points from across a series of interviews with a number of groups. The quotes were presented one per page. Of their own volition the children identified who had said what and then one of them selected a quote for group discussion. This process continued until all the quotes had been discussed. The children indicated they considered the selected quotes represented the main issues that had emerged from their discussions with the researcher. They provided feedback on what ideas were the most important to them.

Matters of representation and dissemination

The generation of a multimodal data set has implications for the representation and dissemination/publication of research findings. While a number of academic journals now routinely publish drawings and photographs, the publication of images brings with it a host of ethical issues, not the least being how to maintain confidentiality and anonymity. Digital images, in particular, once published can readily move beyond researcher control (Wiles, Prosser, Bagnoli, Clark, Davies, Holland & Renold, 2008). They can easily be copied and reproduced in contexts other than those for which they were generated (Prosser, 1998). While an individual may be happy for a specific image of them to be made public at one point in their lives, they may be less so in the future as their circumstances change (Barrett, 2004). This means that the mode of and different potential audiences for dissemination need to be carefully considered and negotiated with study participants. In our own research our practice is to avoid publishing images in which participants can be identified even if they are prepared to give consent. In instances where individuals *might* be identifiable, we seek explicit permission for a specific image to be published in a specific place and still prefer to blur identifying features.

Consideration of how visual data will be interpreted (and subsequently used) involves knowledge about the political, social and cultural contexts in which data will be viewed (Pink, 2007). It is important therefore that visual data is accompanied by text to make explicit the intended cultural contexts in which data will be viewed. Our practice is to include this information in the text of any article. In an attempt to retain a dynamic and temporal element to the presentation of research findings we have also explored the use of sequences of images with annotation. Sequences of line drawings, a comic-strip format and video-papers offer other options (Plowman & Stephen, 2008), albeit options we have yet to explore,

for retaining and representing some of the dynamic visual nature of visual and video data.

Given a main goal of our research with students is to enhance teaching and learning, it is important to us that our work is accessible to teachers. This is also important to the students in our studies, many of whom have been impatient that their teachers have not made changes consistent with what they have recommended to us. We have therefore ensured that in addition to publishing in academic journals, we have published our findings in journals that teachers can access (Cowie, Moreland, Otrel-Cass & Jones, 2008b).

Ethical matters

In education research, "informed consent" has come to be associated with good ethical practice, but this notion can be problematic when working with students in a school context, particularly young children. In our experience only a few students have formally declined an invitation to participate in our research. For this reason we are careful to view consent as provisional (Flewitt, 2005). This stance means that although we seek formal consent from students and their parents at the inception of a study, we always seek consent from the individual students when we sit by them during classroom observations and when we want to talk with them about their work after lesson. However, we recognise that the opportunity to decline is not often taken up, mostly because in such a setting it would be difficult for them to decline consent. We also monitor who seems interested in interacting with us, and who appears to be avoiding us and then we interact accordingly. Researchers need to consider carefully how they enter the field and how they leave it, all the more where, as in our case, data generation processes rely on building trust and rapport. We consider this increases the likelihood that students will be willing to discuss what they really think and feel with us and also that we will be able to appreciate and understand events and actions from their perspective. In our view our building relations of trust comes with an obligation to consider carefully the impact of our presence and our research work on students' lives. We try to use student-friendly methods that build on students' competences and interests, and we also try to make sure that students have support from each other if they wish; that we debrief students if the research topic is a sensitive one (such as in the futures study); and that we formally farewell and thank them as we conclude the observations (as was important in the InSiTE study). We have found we need to be vigilant in recording and remembering which students gave us what information so that we don't break confidentiality through data generation activities, whether these involve interviews or the generation of visual data.

CONCLUDING COMMENTS

Student involvement in research is not unproblematic (Lodge, 2005). For some time researchers have been exploring how students might best be supported to express their ideas, opinions and feelings and to demonstrate what they know and can do. Likewise, how to present and represent data generated from students needs careful consideration, given professionals, including teachers, school leaders and policy

makers, are not always willing to listen to and act on data from students, particularly when they are being critical (Hadfield & Haw, 2001). Then, overarching all these challenges are ethical matters to do with research relations, informed consent, and protection from harm. Nevertheless, research with students has many benefits and rewards. We bring to our research a belief that students have much to offer in opening up and moving forward our thinking about educational problems and possibilities. Our experience is that students, given the chance, are thoughtful, fair minded and critical commentators on their learning and school experiences. As researchers interested in enhancing teaching and learning, further motivation to investigate student views comes from our appreciation that students' views can be influential in prompting change in teachers. Over the course of our work we have come to value multiple and multimodal data generation methods such as those recommended by Clark and Moss (2001). These allow students with different interests and abilities to take an active part in research. In particular, we have found that it is worthwhile to combine more adult-directed research methods with methods that allow students to take a more active role in data generation and interpretation. While we have each used approaches such as the "interviews-about-instances and-events" which were developed within the Learning in Science Projects in the early 1980s, sociocultural theory and a multimodal lens offer generative theoretical and conceptual tools for thinking about how researchers might work with students, how they might make sense of classroom interaction, and how findings might be disseminated in ways likely to engage others.

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