

STRUCTURED OR STRUCTURING: SETTING UP A PROFESSIONAL DEVELOPMENT PROJECT

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Professional development is often seen as something that is provided pre-packaged to teachers who adopt or reject it depending upon their previous beliefs and knowledge. However, this does not take into account the influence of context and circumstances on the professional development providers. In this paper, we explore the constraints and opportunities on ourselves as the providers in setting up a mathematics professional development project in one school whose students came from a low socioeconomic area. Kemmis and Grootenboer's (2008) ideas on practice architectures were used to identify how the circumstances and context shaped what we were able to offer but also how we influenced the situation itself. Thus, we were better able to understand the complexity in which we worked.

PROVIDING PROFESSIONAL DEVELOPMENT

Mathematics and its alter ego numeracy have consistently functioned as gate-keeping subjects that regulate opportunities for students' future careers (Nasir & Cobb, 2007). The introduction in 2008 in Australia of the *National Assessment Programme – Literacy and Numeracy* emphasised again this perceived importance as well as identifying schools whose students are under-achieving in mathematics/numeracy. Consequently, there has been much discussion about the support that should be provided to the schools and students where underachievement has been identified (for example NSWPPA, 2008). Professional development has been considered as one way to “fix” teachers to improve student outcomes but this has not always resulted in success. For example, although the large scale numeracy professional development carried out in New Zealand did lead to increases in achievement for all students, the amount of increase differed according to ethnicity, socio-economic status and gender (Young-Loveridge, 2000; Young-Loveridge, 2003). Thus, the gap between the outcomes for different groups of students increased.

Recently, the complexity of factors that contribute to students' mathematics learning within a socio-political environment has been recognised (Kitchen, 2007; Nasir & Cobb, 2007). Although it is possible to separate the contributing factors that operate in mathematics classrooms, how they interact to produce particular outcomes differs according to the context. Case studies, such as those outlined by Kitchen (2007) and Nasir and Cobb (2007), show how mathematics learning is accessed by diverse learners in mathematics classrooms as a consequence of actions undertaken by teachers. However, there is not the same number of case studies about the impact of professional development on teachers of diverse students (Morton, 2005) and consequently teachers and schools can be blamed for the poor uptake of a professional development package. For example, in evaluating the relationship

between the implementation of a numeracy professional development project, *Count Me In Too* (CMIT), and results in a standardised numeracy test (BST) in Year 3 in New South Wales schools, Mitchelmore and White (2002) stated that:

There is a potential for schools with a poor history of BST performance to improve their results substantially. However, CMIT is no automatic guarantee of such improvement. The school must also provide the appropriate environment to support its effective implementation. (p. 22)

In 2009, we began a professional development project in a school with a diverse population of students who are underachieving in mathematics according to national testing. In this paper, we report on the constraints and opportunities that we faced in setting up the project. Joubert and Sutherland (2008) suggested that not only is the link between professional development and student outcomes unclear in the research but that:

There is very little in the literature that discusses the people who design, plan and deliver CPD [continuing professional development], but we think it is crucially important that we know about, and understand more about, this group of people because of their influential position on the teaching of mathematics (p. 29)

The requirements for effective professional development such as “build on what teachers already know, taking into account the voice of the teacher” (Joubert & Sutherland, 2008, p. 28) suggest that it needs to be adapted for teachers. The adaptation requires not just an understanding of the teachers’ background and needs but also the context in which they work. It was important for us to know how what the circumstances in which the teachers worked affected what we could offer them. We used Kemmis and Grootenboer’s (2008) ideas about practice architectures to better understand the process of setting up a project that we wanted to be effective.

PRACTICE ARCHITECTURES

Kemmis and Grootenboer (2008), using a scheme from Aristotle and adopted by Habermas, discussed how educators may come to perceive different actions as being available to them within certain situations. They saw educators as having dispositions of:

- *epistēmē* guided by the *telos* (aim) of attaining knowledge or truth
- *technē* guided by the *telos* of producing something
- *phronēsis* guided by the *telos* of wise and prudent action
- *critical* guided by the *telos* of overcoming irrationality, injustice, suffering and felt dissatisfactions by *emancipatory* action (p. 40)

Kemmis and Grootenboer (2008) described three extra-individual structures and processes - culturally-discursive, material-economic and social-political - that “shape dispositions and actions, both in the educator’s general response to a particular situation or setting, and in relation to their particular responses at particular

dispositions coming into play and then identifying how individual and extra-individual factors contributed to the enactment of the dispositions.

DISPOSITIONS

In the following section we describe an incident in which each of the first three dispositions – *epistēmē*, *technē* and *phronēsis* - are clearly visible in our actions. Other dispositions also are evident, but that they are not at the fore front of our understanding of the situation. The fourth disposition that of being critical, we see as being interwoven throughout each of the incidents and to some degree it is because we wanted to “overcome irrationality, injustice, suffering and felt dissatisfactions by *emancipatory* action” (p. 39) that the other dispositions became foregrounded. The incidents show how context influenced which disposition was brought into play and how this then affected what occurred.

Epistēmē

In the beginning stage of the project, there was a lot of knowledge gathering. A lucky chance meant that we met the principal just at the time when he had received substantial funding for the school. The following is his email following that chance meeting:

Sent: Friday, 28 November 2008 1:03 PM

To: Meaney, Tamsin

Subject:

Tamsin

Thank you for calling. Over the next 4 years we are going to focus on improving literacy and numeracy outcomes for students specifically from low SES backgrounds. We would be looking at appropriate teaching strategies and numeracy activities that could assist.

We are also investigating the application of the Quality Teaching Framework to the teaching of all areas of numeracy. We currently do CMIT and CMIT Indigenous employing the SENA for assessment purposes.

We are looking for assistance in the design and implementation of a successful program and would appreciate talking to you about these areas.

Kind Regards

The email provided details of the professional development programs that were already operating in the school, CMIT and CMIT Indigenous, and the other program Quality Teaching Framework that they were investigating. Our critical reflection at this point was to consider how we, as university-based mathematics educators, could provide something that was different but in alignment with the programs offered to the school by the NSW Department of Education and Training (DET). In our first meeting with the school principal about a possible collaboration, we kept this need

for difference in mind whilst finding out more about the school and its needs. Our ‘saying’, ‘doings’ and ‘relatings’ were focussed on understanding how we could integrate what we brought to the context into what was already happening. The fact that the school was involved already in a range of professional development activities did constrain what we could offer. However, the need for difference meant that we could contemplate the information provided to us, knowing that creative alternatives that met the principal’s criteria were likely to be well-received.

At the initial meeting, the principal clearly stated that he wanted a project that increased student engagement, community participation and teacher professional development. His belief was that once these were in place then there would be improvement in numeracy and literacy results in standardised tests. This approach to increasing students’ numeracy outcomes resonated with work that we had done previously (see Meaney, Fairhall, & Trinick, 2008; Lange, 2008). He also described how children often came to school without breakfast and that the teachers, although dedicated, were often exhausted and therefore could not be overloaded with more work. He saw 2009 as being a year where short, taster activities could be offered so that teachers would be better able to consider options for the following three years.

In these early stages, it was important that we enacted a disposition of *epistēmē* because, in order to put an appropriate proposal together for the school, we needed information. Although the DET provided a range of professional development programs to the school, they were ‘pre-packaged’ with set materials and tailoring them to the needs of the school or individual teachers was not a simple process. From respectful listening, we wanted to combine information about the school with our knowledge of successful professional development programs in other low socio-economic schools to produce an appropriate proposal through the disposition of *technē*.

Technē

After the initial meeting at the beginning of December, we produced a proposal that was sent to the principal in the middle of January, with the new school year starting later that month. In putting together the proposal, we relied on our own understandings, skills and values but were constrained by extra-individual conditions such as the discourse of professional development, the costings for different options and the logistics of having positions at the university which did not include providing professional development to a school. Nonetheless, our overriding concern was to ensure that we provided a project that had the greatest chance of supporting the school to improve students’ mathematical understandings and thus overcome inequity and injustice.

Proposals for schools are written in a certain genre that includes some information and excludes other information. For example, given that schools must keep to tight budgets, proposals need to include some indication of costs. A rationale for the proposed activities is also required but this needs to be kept concise. Our previous

work with principals suggests that as busy people they only want the main points and will ask for further details when needed.

The proposal that we sent was ten pages long and outlined the different activities to be undertaken each school term. The professional development was the fourth activity and it was suggested that it should take place in Term 4 (October to December 2009). There were a number of reasons for choosing to do it so late in the year. Two earlier activities used our student teachers to engage in one-on-one sessions with primary school children, as part of their mathematics education assignments. The availability of student teachers meant that these activities had to be done in the first two terms. Another reason for leaving the professional development till later in the year was so that we could apply for funding to do research on what we were providing, so that the project could be seen as a legitimate part of our university work. Researching the constraints and opportunities that support or hinder teachers taking up professional development meant that we had to apply both to our university and to the DET's ethics committees. Applications to the DET ethics committee had a reputation for taking several months. We could not presume that permission to proceed would be granted until quite late in the year. Producing a proposal meant that we had to juggle these material-economic factors with our understanding of what was required by the school. Therefore, what we offered was structured by these considerations.

The genre of writing a proposal also required us to not only be attentive to the school needs but also to demonstrate that we were professional mathematics educators who had something to offer. We needed to show that we knew what we were talking about and were not suggesting an ivory-tower, non-realistic set of activities. The proposal needed to place us in relationship to the school where we had knowledge that they were interested in. However, at the same time, we did not want to present ourselves as all-knowing experts but show that we were respectful and valued the teachers as professionals. The way we presented the proposal was therefore constrained by the social relationships that we wanted to engage in, just as much as it was by the genre of the proposal and the material-economic commitments that we had to juggle.

Phronēsis

Our proposal was accepted by the school, although with some misgivings by some of the Assistant Principals as one activity involved giving the children disposable cameras to take photos of themselves doing mathematics at home. As the year progressed, our aim was to act rightly in regard to our relationship to the school staff and students. We saw this as contributing to being able to implement a professional project later in the year that had the greatest likelihood of being successful. Acting rightly involved getting to know others with whom we would work on the project. We did this by carrying out the other activities and also by setting up the research component of the project.

The following extract from our field notes kept showed how we were seen by the one of the Assistant Principals (AP1) in August:

AP1 talked about how having the student teachers work with their children had been something that they had been sceptical about but which seemed to have turned out really well. I said that from our point of view the student teachers had gained a lot and AP1 also seemed to agree that the children had gained from being involved even though they were taken away from their normal programs. I think by showing how some of these off-beat ideas could work that she was more inclined to trust us with other suggestions. (11/08/09)

It may have been that our position as university mathematics educators gave us enough kudos for the school executive staff to allow the activities to go ahead. After the primary school children's learning increased, as well as the student teachers' learning, then the teachers were willing to admit that their misgivings were not justified. Consequently, the kudos of being from the university was enhanced by showing how we could support children to engage in mathematics. If the activities with the student teachers had been a dismal failure then our prestige as university lecturers who wanted to support the work done by a school may have been seriously undermined. Our 'doings' in the earlier activities had an impact on the relationships that we could develop with the teachers. Without having developed relationships with the teachers in which we were seen as having something to offer, it was unlikely that we would have any volunteers for the professional development project. As it was, the need for teachers to commit to being filmed each week so that they could analyse their own teaching was extremely daunting. We have four volunteers, with others watching carefully to see how it goes.

During the year, we applied for and received funding from our university to engage in research around the professional development. The funding enabled us to release Marianne Thurling, an Aboriginal teacher from another school to work as a co-researcher for 6 weeks. She would bring with her experience of working on other research projects and many years of experience of working in local schools with high Aboriginal populations. We felt that it would not be possible to improve outcomes for Indigenous children without the insights that Marianne could bring as an Indigenous researcher. We needed Marianne's expertise in order to ensure that we continued to act rightly. The university had also provided a semester off teaching and this meant that Tamsin could concentrate on the professional development project. The funding and other support provided by the university enabled us commit to running the professional development project. However, we were aware that we could find ourselves split in uncomfortable ways if the professional development project and the research project did not run smoothly together. The need to do the research could restrict what we were able to do in the professional development project unless we continued to remain critically aware of what it was we wanted to achieve.

STRUCTURE OR STRUCTURING

Education of any kind, including the provision of professional development, is a highly complex set of interwoven practices. There has been ongoing concern about how marginalised groups of students have only restricted access to “learn significant ideas in mathematics and to develop an appreciation of mathematics” (Hodge, 2006, p. 378). However, this concern has not manifested itself to investigating how professional development for teachers of these students can be improved to ensure better outcomes for their students. Perhaps part of the difficulty is trying to understand what affects professional development and how this can be changed. Using Kemmis and Grootenboer’s (2008) ideas about practice architectures, we investigated how we structured a professional development project whilst simultaneously being structured by extra-individual features.

We explored the initial stages of setting up a professional development project because it seemed that if these stages were not done appropriately then it was unlikely that the actual implementation of the project would achieve what the school wanted. We drew on a critical disposition to try to overcome the “irrationality, injustice and suffering” (Kemmis & Grootenboer, 2008, p. 39) that children who underachieve in standardized tests are subjected to. By having this as our main focus, the constraints and opportunities provided by the extra-individual conditions were better understood. We could see opportunities for us to be creative in what we offered but also recognized the risk that our credibility would have if these activities failed.

As each disposition came into play during the different stages of setting up the professional development project, it was possible to see how our own understandings, skills and values were shaped by the extra-individual conditions such as the genre of a proposal, or the need to complete a research project based on the professional development. Although our understanding of the situation called forth different dispositions to guide our actions, the changing interactions with others and the circumstances in which we were operating meant that it was not necessarily possible to predict exactly what should or even would occur. For example, as our relationship with the teachers changed we were more mindful of acting in a way that the teachers as well as ourselves would consider as being right. We gained more from the level of discussions that we could have with the teachers, but were also more vulnerable if we acted stupidly because we were now seen as being expected to know more about how it was to act rightly in the teachers’ eyes. It could be some time before the relationship was strong enough to withstand the consequences of acts of stupidity. As our understanding, skills and values grew and changed so did the extra-individual conditions change.

In the coming months, we will implement the professional development project in collaboration with the four teachers who have volunteered to work with us. The implementation will call forth the dispositions to act in similar ways as happened during the setting up of the project. It will be interesting to see how the teachers work within the constraints on the extra-individual conditions whilst we also work within a

different but related set of constraints from a different set of extra-individual conditions. Knowing better how we have been affected by, but also affect, the extra-individual conditions, in which we operate, will provide us with a greater respect for understanding the teachers' negotiation of their own practices.

Practice architectures enable us to understand the structural framework in which we operate. We as professional development providers are not free agents who organically come up with appropriate programs to meet the needs of this school, or in fact any other school. We are constrained in what we can offer and how we do this. Kemmis and Grootenboer's (2008) ideas were useful in coming to grips with the complexity of how we operated without allowing that complexity to be so simplified that the meanings around what was occurring were reduced to superficial commentaries. However, the description of extra-individual conditions as a structure does not adequately represent the dynamic nature of this structure. It does not remain unchanged as we within it change, rather the structure is also changing because we are operating within it. The structure is also what is being structured.

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