# Chapter 4
# Shifting Accepted Routines of Practice

**Abstract** This chapter briefly reiterates some information included in earlier sections outlining how research approaches were designed and implemented to gather specific data which explored the structures and approaches that actively positioned teachers to become key decision makers about their own learning. This chapter specifically explores the approaches that enabled teachers to articulate their learning needs, determine the type of support their learning required and enabled them to determine how new thinking became evident in their professional practice.

## Introduction

This chapter is designed to illustrate the way in which a study was organised and conducted to develop deep understandings of the conditions that enable teachers to work as self-directed learners. The research tracked the development of these conditions throughout an extended professional learning (PL) project. Information was collected which captured the structures and approaches that effectively supported teachers to become key decision makers about their own learning, articulating their learning needs, determining the type of support their learning required and applying new thinking in their professional practice. The data collection methods were particular to the professional learning activities and genuinely reflect approaches to capturing, portraying and articulating participants' learning.

## Designing Research to Investigate Conditions for Learning

A study was designed to observe, analyse and strategise the conditions within a PL programme which positioned teachers as self-directed learners so that teacher learning was more likely to be personally meaningful and relevant to each teacher's contextual reality. In this study, professional learning was conceptualised as being 'what professionals do and as a consequence learn about their own knowledge of practice' (Loughran 2007, p. xiii). Self-directed learning was conceptualised as being about positioning teachers to be key decision makers in their own

professional learning, determining the learning that personally matters to them while actively shaping the conditions to most effectively support such learning.

The research positioned teachers and programme facilitators to notice and attend to the 'critical moments' of teacher learning. The professional learning programme was therefore designed to provide opportunities for teachers to inquire and learn more about their professional values and beliefs in relation to their professional practice.

Teachers who participated in the PL programme in this study became active participants in the research process, and as I was undertaking the role of programme facilitator, I also assumed the role of researcher. My role was to attempt to identify the conditions through which teachers as learners were able to work collaboratively within the programme to construct new understandings about practice. To effectively contribute to this research, both the teachers and myself as facilitator were required to:

- consider personal learning as sometimes being problematic and identify the challenges for which there may be no immediate solutions;
- accept ownership of the learning problems/challenges and engage in inquiry with others to explore the situation;
- persist and systematically explore problems from a number of different perspectives;
- document and record actions and thinking;
- reflect on practice and taken-for-granted assumptions and explore how these shaped behaviours; and,
- inquire into their changes in actions.

Such action inevitably involved a mix of conscious planning, acting, observing and reflection in an attempt to make meaning.

## The Connected Dimensions of Professional Learning

Four key dimensions of professional learning underpinned this research and became critical to data analysis. These four dimensions were:

- *Personal dimension*: the uniquely personal experiences, expectations and professional knowledge that each individual teacher and myself brought to the PL programme. This information provided a personal context for learning and defined participants as learners.
- *Interpersonal dimension*: the relationships and interactions which took place between myself as the facilitator and participating teachers and how these interactions defined the ways that we worked together to provide a social context for learning. This dimension emerged strongly in a range of data sets.

- *Contextual dimension:* the organisational setting that was the reality of each teacher's workplace and teaching situation. This dimension encompassed the school as an organisation and the place of the teacher within this organisational setting. Aspects included the structural, operational, social and psychological environment and the impact of these on the work of the teacher.
- *Technical dimension*: the practical circumstances of programme design and implementation including the cohort, the location, the duration and the learning experiences that defined the programme. These practical aspects made the PL programme contextually unique and as such situate the study within that context.

The process of data analysis involved determining how these dimensions influenced teachers' capacity to undertake self-directed learning and examined these dimensions from dual perspectives: the teacher as participant and the facilitator as the coordinator of the learning experience. Data collection and analysis was maintained across the duration of the PL programme as it was imperative that the research design was flexible enough to allow ongoing learning through the process to feed back into the practice of facilitating teacher learning.

The information that emerged through analysis of various data raised unanticipated questions or concerns that impacted both the research and the PL programme. Inevitably, the nature of learning was fluid, changing as new understandings emerged or new ideas were tested. Rather than simply focusing on the final teacher learning outcomes, the research design allowed methods of data collection to be adjusted, attending to the experience of learning as a focus of the research, i.e. the ongoing professional thinking, the uncertainties and the challenges for practice that teachers experienced throughout the programme.

## *Attempting to Align Intention with Practice*

The purpose of this study was to explore the conditions that contributed to teachers articulating their learning needs through a PL programme. Therefore, it was important to determine how the operational features of the professional learning programme could be framed in ways which positioned teachers as self-directed learners. It was also important to determine the specific types of learning experiences that also positioned teachers as self-directed learners, i.e. enable them to determine what matters in their learning and assist them to construct personally relevant meaning and develop new knowledge.

When considering these important aspects of programme design, the four dimensions of professional learning, personal, interpersonal, contextual and technical, were important. I wanted to learn more about how teacher thinking personalised the meaning of professional learning, how facilitator thinking and action shaped the experiences and opportunities for personalised teacher professional learning and the challenges that emerged for both teachers and facilitators when attempting to reframe the conditions and personalise the learning outcomes of the PL programme.

## Method

This study is particularly interesting because it explores the processes of professional learning through the eyes of both the researcher/facilitator and the teacher participants, who together experienced and shaped the learning approach. These perspectives were possible because the data that was captured accessed the thinking and behaviour of both the teachers and myself as researcher/facilitator as we worked to identify, articulate and respond to learning needs. When analysing this information, it was essential to identify evidence of professional thinking embedded within the beliefs and reasoning of both teachers and myself as facilitator. It was also important to determine how both teachers and myself came to recognise and articulate the learning we valued and how each of us used that information to determine what would be useful action in a given context. This intention ensured the analysis of associated data achieved a deeper insight into the specific dimensions of professional learning.

## *Stage 1: Learning About What Matters to School-Based Leaders of Science*

The education sector that supported this research had given approval for the development of an external professional learning programme designed to support teachers who were undertaking science leadership at a school level. The intention of this programme was to support effective school-based change in science education. The programme entitled *Leading Science in Schools (LSiS)* was designed to become Phase 2 of the *Science Teaching and Learning* programme (STaL) which was another external professional learning programme developed in collaboration with staff from the Faculty of Education at Monash University. The context of science leadership was chosen because it aligned with the intentions of the sector's policy which was to support change in school-based science teaching and learning. At the time this study took place, the sector intended to develop a science strategy that would be used to lead work in science education in all schools. To develop such a plan required the sector to gather more information about the roles and responsibilities of science leaders within schools. Given that the focus of this study also built upon the intended learning outcomes of existing science professional learning programmes on offer within the sector, i.e. STaL, these existing programmes provided potential access to a suitable cohort of participants.

To ensure that the programme could provide a meaningful experience for participant teachers, information was needed to determine the types of issues and challenges teachers faced as leaders of science within their schools. This information would then be used to shape the design and implementation of the initial sessions of the *LSiS* programme. In response, a small pilot study was conducted which involved semi-structured interviews conducted at the outset of the project between the

facilitator (interviewer) and individual teachers ($n = 5$) (interviewees). To design a programme where teachers felt comfortable enough to make decisions about content and design, I needed to know the audience very well, in particular the teaching contexts which shaped their professional practice. Therefore, the aim of this small study was to understand what was happening in school-based positions of leadership in science and how teachers managed their roles. Of particular interest was how teachers understood and experienced their leadership roles and their perspectives on the types of skills, approaches and support they felt they needed to best place themselves to potentially influence change in school-based science teaching and learning.

The responses received were examined to develop an understanding of the range and prevalence of views among interviewees, and these ideas were used to inform the conceptualisation of the LSiS PL programme.

## Stage 2: The Programme

The *LSiS* programme focused on school-based science leadership and provided a specific context for exploring teacher knowledge and expertise. A selected entry to the programme was made available to both primary and secondary teachers who had previously participated in a professional learning programme entitled *Science Teaching and Learning* (*STaL*). The *STaL* programme, a 5-day in-service programme with a focus on pedagogy and student learning in science, operated as a collaborative professional learning programme between the sector and science education staff from the Faculty of Education at Monash University. Teachers who had previously participated in *STaL* were considered as suitable candidates for this new programme as teacher reflection was fundamental to *STaL* and these teachers had also undertaken the process of capturing their thinking and new learning through case writing as a part of this programme (Loughran and Berry 2007, 2008). These experiences were considered valuable in terms of laying the foundations for the role that teachers would be expected to play as self-directed leaners in a new programme.

## Timeline

The *LSiS* programme was conducted over a 14-month period from October to the following November (i.e. spanning two school years). As the school year in Australia runs from February through to December each calendar year, this programme schedule spanned the close of one school year in December and the opening of a new school year in February the following year. This schedule was a deliberate planning strategy to embed participants' action plans in the school planning agenda for the following year. The timeline also required participants to attend to the

inherent leadership challenges of beginning a new school year, facing changes in staffing and the possible redistribution of roles and responsibilities.

The programme was initially intended to consist of 4 days of professional learning sessions away from the school setting; however, as the programme progressed, teacher feedback indicated a need for further support and so the programme was extended to 5 days. Teachers were released from school teaching duties to attend these sessions which were scheduled as follows:

- 2 consecutive days end of Year 1 (November)
- 1 day early the following school year- Year 2 (April)
- 1 day mid-year -Year 2 (July)
- 1 final day late in Year 2 (October)

## *Venue and Format*

The programme was conducted at a central hotel in Melbourne CBD utilising conference facilities and catering services. The final day was located at a sector facility. The programme sessions encouraged participants to take part in a range of learning experiences designed to empower them to see themselves as science leaders within their own school, having the capacity to initiate change and enhance the quality of the teaching and learning of science. While the timeline was predetermined to assist school planning, the format or content of each session was not pre-planned but instead was informed by data received from teachers throughout the programme, e.g. information obtained from school-based meetings. An action research project was a predetermined requirement of the programme, and so time was used within the programme sessions to support each participant to work towards developing a targeted plan to address a particular issue that presented personal challenges for their leadership role in their school.

The action plan needed to:

- be relevant and manageable within the present teaching context;
- be responsive to the principal's/leadership representative's expectations; and,
- contribute to the overall school vision.

The expertise of the sector's science education team was provided to support teachers in this process, and outside expertise was also sourced as needed and when appropriate throughout the programme, to enhance the programme design and ensure quality teacher support.

A particular focus of the programme was the use of digital technology as a reflection tool and as a means of providing valuable evidence and data which could be used to inform practice and planning. It was a requirement that all participants developed a level of competency in using this medium on a regular basis to capture their thinking and experiences. Each participant was presented with a flip camera, and time was allocated within the programme to develop knowledge and skills in

the operation and use of the camera, including basic applications for the purpose of presentations. It was also a predetermined requirement that at the completion of the programme, each teacher would share with the group a digital story of their learning journey as documented through their flip camera video capture.

The following aspects of the programme were completed within the school setting:

- November Year 1: A collaborative planning meeting between participant, principal/leadership representative and facilitator to outline the personal action plan and seek input and clarification in terms of expectations and school vision.
- School visits involving the programme facilitator and participant. These meetings were conducted several times throughout the programme. The researcher/facilitator visited each participant teacher at a mutually agreeable time. These meetings provided an opportunity for participants to discuss the effectiveness of approaches and strategies while sharing concerns and challenges.
- E-learning communication strategies that were designed support the ongoing nature of the programme.

## *Participants*

For this research project, all of the participant teachers and the researcher/facilitator were participants of this study. The cohort consisted of 11 teachers, four primary and seven secondary, and one programme facilitator. An overview of participant background can be found in Appendix 1: Teacher participant biographical data.

## *Data Collection and Analysis*

Data collection focused on the thoughts and actions of the participating teachers as well as myself as the facilitator and researcher. As both the facilitator and researcher for this project, being a participant myself demanded special attention. It required me (as facilitator) to collect data that captured my pedagogic choices in terms of:

- the selection of content and learning experiences;
- my behaviours as a facilitator, including responses to participants and the ways I interpreted and made sense of facilitator–teacher interactions;
- how information was shared and developed across the facilitator–teacher relationship;
- how I attempted to draw out teacher thinking; and,
- how I determined if teachers were making sense of and connecting new learning to their present context and past experiences.

For the purpose of this study, these acts needed to be interrogated repeatedly, rigorously and effectively, and this called for methods of data collection which were

methodical and systematic and allowed for interrogation of these aspects of practice over time. Seven data sets were used in this research to understand facilitator and teacher thinking. These included:

1. Facilitator journal
2. Audio-taped discussions
3. Semi-structured interviews between facilitator and participants
4. Participants action research plans
5. Reflection sets
6. Free talks
7. Digital stories

My facilitator journal entries provided opportunities for me to capture, consider and elaborate on the aspects of my personal professional thinking which initially seemed routine, intuitive or problematic. This data provided a way of revisiting and exploring this thinking to enable me to better understand why certain issues, incidents, interactions, feelings and assumptions became triggers that stimulated my knowledge of practice within this context of professional learning.

Semi-structured interviews between facilitator and teachers, the duration of each varied from 8 to 14 min. were conducted after the second session in the programme. These interviews aimed to find out more about how the teachers were processing their learning experiences in this programme, in particular the type of experiences they valued, and why and also the experiences that they felt had not been valuable for their learning. These interviews were also designed to learn more about the issues and challenges they faced when undertaking school-based positions of leadership in science.

Each teacher was asked to complete an action research plan. Each completed action plan was shared electronically across the group. It was intended that the plan would be a continual work in progress for each participant. Some teachers modified, adapted and further developed their plan as the need arose; others did not revisit or even complete the task. These plans provided a focus for many of the facilitator–teacher school-based meetings, and in many cases, these plans captured information, which conveyed how participants recognised and used learning to influence associated school-based change. This data also demonstrated how learning experiences contributed to the development of their own perceptions of leadership and their understandings of meaningful and worthwhile action. These data were also used as an indicator of teacher learning needs and to inform programme content and design.

Throughout the programme, participants completed activities designed to prompt reflection, and some of these offered data sets for the project.

The idea of Free talks was built around the thinking of Lee Shulman (1986) who proposed that teachers' knowledge might be held in the form of stories or cases. As a researcher, I wanted to provide the teachers with the opportunity to talk about what mattered to them rather than prompting or directing their thinking about particular aspects of the programme and their own learning. I wanted them to document their stories so that I could retrieve the information to see the meaning teachers were constructing of their experiences. Free talks took the form of a digital diary

entry using the flip camera provided. These Free talks were diverse with some teachers sharing their thinking almost as cases (Shulman 1992) others as dot point entries and others as a digital essay.

All participants used their flip camera over the course of the professional learning programme to maintain a series of digital diary entries capturing thoughts about their experiences and learning. They then edited excerpts from these diaries to produce a digital story conveying their personal professional learning journey across the programme. This was shared with the group at the conclusion of the programme. This footage provided a valuable insight into each participant's individual experience, thinking and action and as such became a valuable data source about how they recognised changes in their own personal learning.

## The Tensions of Ownership

One of the tensions that emerged within this research was between the intention of the programme to build teacher capacity to make decisions about their own learning and the need as a researcher to access teacher thinking to monitor effectiveness of practice. Therefore, the dilemma of seeking to take ownership of what were at times very personal reflections and insights into personal thinking and understanding was problematic. This had to be approached in a way that was mindful of this potential conflict; abrupt or demanding action on the part of the researcher facilitator could have worked against the overall intention of both the programme and the research.

To approach this situation with the respect and acknowledgement to professional ownership that was deserved, I decided not to collect copies of these reflection artefacts at the end of or during the programme sessions. Instead I approached the teachers via email after a reasonable amount of time had passed (i.e. 2 weeks) since completing the reflection activity. I asked for their permission to receive copies of their reflection sheets; the results were therefore collected on a voluntary basis. This approach was based on a consideration of time, i.e. a time delay may have lessened emotional commitment to the response. While this approach may not have been necessary as participants may have been willing to share the information at the time, it acknowledged and reinforced the programme and the research intention that it was the teachers who were in control of the learning and they were the active decision makers in their professional learning.

## Stage 3: Collating Findings

To collate findings in a way that would shed light on the conditions that would enable teachers to work as self-directed learners, this research employed a range of qualitative methods of data analysis. At no time in this research were the phenomena of teacher self-directed professional learning conceived of as static but as

continually changing in response to prevailing conditions. Given this thinking, there was a need to build change, through process, into the method. The analysis of the various data sets sought not only to reveal relevant and effective learning conditions but to also determine how both the teachers and facilitator actively responded to those conditions and to the consequences of their actions. The research analysis had to 'catch this interplay' (Corbin and Strauss 1990, p. 5).

As in grounded theory, the analysis began as soon as the first data was collected; this was critically important as this information potentially provided cues for understanding and building meaning about teacher self-directed learning. The procedures of data collection and analysis were carried our systematically and sequentially across the life of the project. This expanded the research project and ensured that all relevant aspects of the phenomena of teacher self-directed learning were captured as soon as they were perceived (Corbin and Strauss 1990); this information was then incorporated in programme action, directing the next observations and interactions.

## *Data Analysis*

The research questions provided a lens for observation; the actual incidents and events as observed or reported throughout the programme provided merely 'raw data'. These data were then taken and analysed to reveal any concepts that may be potential indicators of the phenomena teacher self-directed learning. Initially these concepts were considered to be provisional and were only accepted as relevant to the evolving theory, if repeatedly present in a range of data. For this study, the process of concept development is demonstrated by the representative idea emerging from the following data samples:

> The meeting places have just been wonderful. As a teacher we don't get many chances to go to the Hyatt [5 star hotel] and go up to the 13th floor and have meetings, that makes you feel special and it also builds your confidence so that when you come back to your little hum drum classroom with your twenty eight little children, you have a special feel inside yourself that says I'm ok. (Carol Int. 1 p. 1)
>
> Knowing that someone believes that I can do something makes me want to do it and do it as best as I can. But feeling that perhaps you're not valued you're not trusted you start to reconsider a lot of the decisions that you make, things that you would have just done automatically. Knowing that you were working within that environment where you were valued you were trusted, that changes. (Claudia, Int. 1 p. 4)
>
> I felt from the beginning we were treated as professionals and I think sometimes because you work with so many teachers you tend to get all lumped into one category and the instant coffee is good enough for everyone. (Georgia, Free talk)

These comments resembled similar thinking about the importance of conditions that explicitly recognised and valued teachers as professionals. This concept became one of the basic units of analysis in this study, and searching for repeated evidence of this concept across data grounded this concept and provided some theory–observation congruence.

A constant comparative method was applied repeatedly across data to inform each emerging stage of data analysis, as this analysis continued concepts became

**Table 4.1** Code definitions developed for this study

| Categories | Subcategories | Code definitions | Catalysts |
|---|---|---|---|
| *Three overarching categories* | *Five aspects of teacher self-directed learning* | *Behaviour and thinking which characterised the aspect of teacher learning in each subcategory* | *Programme operational features which promote and support learning* |
| Self-efficacy | Building a sense of professional identity | Often included such evidence as specific actions and behaviours, articulated awareness and noticing, articulated expectations, etc. | Selected entry |
| | | | Quality venue |
| | | | Ongoing teacher-centred programme facilitator |
| Aligning reasoning and action | Reflecting on professional reasoning to clarify personal professional principles of practice | Connections evident between four dimensions of professional learning, i.e. personal, interpersonal, contextual, technical | Extended timeline for learning |
| | | | Formative programme design |
| Valuing emerging expertise | Identifying tensions between principles of practice and action | | Embedded, ongoing, diagnostic programme evaluation |
| | Realigning action with professional thinking | | Meaningful and relevant learning experiences |
| | Sharing new professional knowledge | | |

more numerous and more abstract. Concepts that pertained to the same phenomenon were grouped to form a category. To follow on from the example above, in addition to the stated concept 'explicit recognition and value of teachers as professionals', other concepts were generated from the data including: 'involvement in constructive professional interactions' and 'purposeful clarification of personal thinking and principles of practice'. These concepts came to represent activities directed towards a similar process: teachers' understanding themselves as professionals with specific expertise. These concepts were then grouped together under the category: 'Building a sense of personal professional identity'. It then became important to develop an explanation of this category. Through reiterative data analysis, the properties and features of this category became further dimensionalised because of 'the conditions which gave rise to it; the action/interaction by which it was expressed, and the consequences that it produces' (Corbin and Strauss 1990, pp. 7–8).

In this study, five categories emerged conveying information about the nature of teacher self-directed learning. These categories were representative of three key aspects of teacher self-directed learning: self-efficacy, aligning reasoning and action and emerging expertise. Iterative rounds of closed coding were performed for each of these categories until descriptive code definitions were appropriately determined. The type of information contained in these descriptive definitions is briefly outlined in Table 4.1; for complete code definitions, see Appendix 2.

The collated data mapped directly on to the research questions; it was clear which programme operational structures had supported teacher self-directed learning; these were readily identifiable as 'catalysts' in each code definition. However, further reiterative analysis was required to deconstruct the elements of each catalyst to learn more about the nature of each operational structure and the nature of the learning experiences. For example, the code definition for the category 'Building a sense of professional identity' contained a number of catalysts; these included:

- quality venue;
- selected entry;
- learning experiences that were explicitly mindful of teacher knowledge and experience;
- professional interactions that continually attended to and were respectful of teacher concerns and experience; and,
- the ongoing personalised support of a purposeful, teacher-centred programme facilitator.

By refocusing observations of the data to pay attention to the defining characteristics of each catalyst, it became clear that these were far more than a collection of routine operational procedures. The catalysts were complex constructs of actions and reactions, which shaped learning. For example, reiterative analysis of data related to 'selected entry' revealed requirements related to teacher experience as 'active' learners, a high level of teacher personal commitment, a higher than 'normal' level of expected school involvement, etc. The heading 'selected entry' was an attempt to capture these collective processes. The impact of these processes on teacher learning was revealed through further analysis. Relationships were conceptualised between a teacher's capacity to build a sense of professional identity and school-based expectations of teachers as learners, school-based expectations of teachers as leaders and the type and availability of learning support made available to teachers at a school level. Analysis revealed that 'selected entry', when understood and implemented in ways specific to this programme, became an operational feature that significantly impacted teacher capacity for self-directed learning.

The collated data revealed that a number of 'catalysts' were repeatedly situated across the final three categories. It was clear that each of these operational features did not stand alone but were interdependent in creating conditions for teacher self-directed learning in this in-service professional learning programme. These catalysts formed the 'cornerstones' of a developing theory about the conditions that empower self-efficacy in teachers and which nurture teacher capacity for decision making and self-development.

## Summary

The aim of this study was to develop deep understandings of the conditions that enable teachers to work as self-directed learners. A range of data sets were systematically collected and sequentially analysed across the life of the project, and this ongoing process of data analysis revealed information that continually fed back into and shaped the practice of facilitating teacher self-directed learning. The data analysis revealed three categories that defined the nature of teacher self-directed learning. Descriptive code definitions were developed for each category that outlined the nature and characteristics of the learning, the interconnectedness of learning dimensions and the programme operational structures which promoted such learning.

The data emerging from this study was collated to attend to each of the key research questions framing the study. The findings answer each question by providing information about the impact on teacher thinking, essential facilitator thinking and action and emerging challenge.