

INFLUENCING TEACHER ENGAGEMENT IN
INFORMAL INTERACTION LEADING TO
PROFESSIONAL LEARNING: A THEORETICAL
MODEL

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Abstract

The relationship between collegial interaction in the workplace and professional learning is well established in the literature, particularly in relation to formalised teacher professional learning and learning in an organisational context. While acknowledging that formalised learning projects and activities are valuable, practising teachers consider the professional learning emerging through informal interaction to be one of the most important sources of learning, contributing significantly to changes in teaching practice. Very little research has been conducted into this informal aspect of a teacher's professional learning and it is unclear how it can be supported in schools. This study explores the informal interaction that results in professional learning and seeks to understand what influences teachers to engage in this interaction.

A qualitative methodology, utilising narrative elicitation methods, enables the voices of the participating teachers to be heard. The approach to grounded theory suggested by Strauss and Corbin (1990) provides a level of flexibility and is used as the methodological foundation for this study. The data was gathered during three initial workshops, with participants invited to participate in an additional two workshops during the analysis phase, ensuring an authentic reflection of the experiences collected. Seven interrelated factors are identified during the analysis: relationships; emotions; communication; cognition; leadership; teams; and school structure. Complexity theories are drawn on to make sense of the data and inform the emerging theoretical model. The model illustrates the interconnections between these factors and the complexity of engaging in informal interaction that leads to professional learning. The model sets out the dynamic interplay of the factors continually influencing each other.

The findings offer new insights into the complex nature of informal interaction between colleagues in the workplace leading to professional learning. Each of the factors identified in the study has a significant influence on collegial interaction however, due to the continually changing nature of people and environments, it is difficult to determine the influence of a specific factor on any interaction. This study argues that the influences on informal interaction should not be considered as a group of independent factors; instead they should to be considered as interdependent factors in a constant state of change acknowledging that the engagement in, and outcomes from, any interaction cannot be predicted or controlled but can be influenced.

While the focus of this study is informal interaction in a school context, the findings can be considered more broadly. They are able to inform future research into effective models for formal professional learning for teachers and make a contribution to the body of knowledge focussing on workplace learning in an organisational context.

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Forward

My interest in teacher professional learning stems from my career in education which began as a classroom teacher before moving into an office based position as a professional learning officer with a focus on the integration of information and communication technologies (ICT) into classroom practice. During my time in the office I was privileged to be a member of a small team who would engage in deep conversations about teacher professional learning, often through challenging long held beliefs and values, which would lead to our own professional learning. It was an incredibly stimulating and supportive environment and one of the best experiences of my career for personal and professional growth.

We usually worked with small groups of teachers such as teaching teams in primary schools or groups of teachers from the same faculty or collaborating on a project in secondary schools, either in their school or an area within our building. During the sessions with the teachers they would talk about their professional learning experiences throughout their career, both positive and negative, and I noted that all of the teachers valued the informal interaction with their colleagues for professional learning. In light of the comments by the various teachers I reflected on my own experience as a teacher in different schools and in the office and wondered what it was that enabled or encouraged people to engage in the conversations they considered were a professional learning experience.

About this time my husband, who worked for a non-educational organisation, was becoming more involved with knowledge management and shared many of his books and articles with me. The synergy between the informal interaction leading to learning in a school setting that I was interested in, and the material related informal workplace learning in the organisational learning and knowledge management areas, became apparent and piqued my curiosity even more. This was the start of my research journey.

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Chapter 1 Introduction

There is considerable pressure on teachers to continually develop new skills and knowledge in the pursuit of ongoing improvements to learning experiences and outcomes for their students, and to respond to the expectations of society. The latter part of the twentieth century brought with it developments in educational theory and practice along with the rapid advancements in technology. The twenty-first century is continuing this trend, challenging not only the ‘what’ and ‘how’ of teaching and learning, but also the ‘where’. As Morrison (2002) argues “change is everywhere; the future is unpredictable. Turbulence rather than stability characterizes the environment in which schools operate” (p 1). This constant change requires ongoing professional learning opportunities for teachers.

Research (Lieberman and Mace 2008; Flint, Zisook et al. 2011; Tytler, Symington et al. 2011; Hannay and Earl 2012) shows that early approaches to teacher professional learning that focussed on improving teaching practice in the classroom adopted a traditional, one-size-fits-all method of delivering information or skills deemed to be essential for changing practice. This approach is not successful in providing the desired behavioural changes. This has resulted in significant financial investments being expended on research and the development of programs in an effort to identify effective professional learning models in terms of cost, sustainable impact on teaching and learning, and demonstrable improvements in student outcomes (Skilbeck and Connell 2004; Watson 2005; OECD 2009).

Emerging from recent studies are models based on a constructionist perspective of teacher learning. This epistemological base in professional learning recognises the importance of collegial interaction through the use of small groups, teams or communities, often focussing

on specific skills or knowledge, engaging in dialogue and reflection on practice (Lovett and Gilmore 2003; Maloney and Konza 2011; Long 2012; McGee and Lawrence 2012). It also acknowledges the individuality of teachers in which the complexity of each teacher's experience, expertise, pedagogical beliefs and personal and professional histories impacts on their receptiveness to new curriculum and teaching strategies and thus willingness to engage in professional learning activities (Day 1999; Fiszer 2004; Opfer and Pedder 2011; Taylor, Yates et al. 2011).

While the core focus of current research into effective professional learning is on formalised activities and programs, there is a growing interest in informal professional learning. The Teaching And Learning International Survey (TALIS), conducted by the Organisation for Economic Co-operation and Development (OECD 2009), included informal activities teachers engaged in for learning as part of the 2008 survey. Their investigation on participation in, and perceived impact of, a range of formal and informal activities found that 'informal dialogue to improve teaching' had the highest participation rate with 93% of respondents engaging in this activity (p 57) and approximately 90% of teachers surveyed identified 'informal dialogue to improve teaching' and 'individual and collaborative research', as two of the most effective forms of professional learning providing a moderate to large impact on their teaching practice (p 74). This survey did not delve into motivational factors for engaging in informal dialogue however the findings do indicate the importance of informal dialogue for learning by teachers.

Although teacher professional learning through informal dialogue is a fairly new area of interest in the educational field, the importance of informal dialogue has been significant in the fields of organisational learning and knowledge management in recent decades (Yeo

2005; Thomas and Allen 2006; Rashman, Withers et al. 2009; Anand and Singh 2011; Schiuma 2012). In an organisational context leveraging the knowledge across the organisation and encouraging innovation are drivers for successful business. This has generated considerable interest in exploring knowledge sharing between colleagues; co-construction of knowledge within and between teams; and the provision of a workplace environment that supports and encourages interaction between colleagues (Retna 2006; Wu, Lin et al. 2009; Casimir, Lee et al. 2012; Cornelissen, Jong et al. 2012; Mueller 2012). Findings from studies within these fields suggest that generalising across organisations is difficult due to the uniqueness of each one (Rashman, Withers et al. 2009; Anand and Singh 2011), and that further exploration is still required to tease out the ‘motivations, purpose, barriers, opportunities, mechanisms and outcomes of organisational learning’ (Rashman, Withers et al. 2009 p 487).

While learning in a non-school organisational context can provide insights into informal learning through dialogue, it is unable to provide an understanding of this phenomenon from a school perspective. Teacher professional learning is at the heart of educational change and understanding why and how teachers engage in informal professional dialogue may inform future approaches to teacher professional learning.

Justification for this study

In his introduction to a book on educational change Hargreaves (2005) argues that educational change is a complex process, driven by societal and political forces in a world ‘of chaos and complexity’, and strongly influenced by the responses of teachers to reform agendas (p 3).

In his conclusion he suggests that:

Educational change theory has taught us much over the past quarter century or more about how to manage and not to manage the change process. But as our knowledge deepens and our world inside and outside schools becomes more turbulent, it is time to revisit some of the fundamental issues in the field, extend our analysis of them further, and connect with sociological and political forms of inquiry that are attuned to the highly contested terrain that schooling comprises in the postmodern age. (p 13)

Hargreaves' call for additional research resonates with other studies. Researchers are exploring theoretical perspectives that enable different ways of considering educational issues contextually. In recent times researchers (Fazio and Gallagher 2009; Haggis 2009; Beswick, Watson et al. 2010; Nielsen, Triggs et al. 2010; Phelps, Graham et al. 2011) have been drawn to complexity theories as a lens through which they are able to investigate aspects of teachers' professional lives within the 'turbulent world' of schools, reflecting a shift from the linear, cause-and-effect view of learning to one that acknowledges the unpredictability and emergence of learning through the multitude of interactions that occur in the workplace. Acknowledging the complexity of teacher professional learning within a school environment, constructionism and complexity theories have provided the epistemological and theoretical basis for the research approach of this study.

As one of the 'fundamental issues' associated with educational reform, teacher professional learning has been the focus of considerable research. The research has investigated a range of issues, including effective approaches to professional learning and the emotional responses of teachers to these approaches utilising qualitative methods, such as semi-structured and open interviews, with calls to delve deeper into the phenomenon to gain an understanding of the professional and personal influences on teachers' engagement with formal and informal professional learning (Hoekstra, Beijaard et al. 2007; Pella 2011). Through the use of

qualitative methods, this study seeks to delve deeper into informal learning through dialogue, and seeks to enable the voices, and the stories, of participating teachers to be heard. In this way the findings emerge contextually.

Extending analysis and understanding of informal learning has drawn calls for research from both the educational and organisational fields. In an educational context, the value placed on informal dialogue with colleagues by teachers has stimulated a greater interest for research in the area that is reflected in the suggestions for future research, such as: seeking to understand why teachers engage in informal collaboration (Stevenson 2005); identifying the motivational factors influencing interaction in schools (Wilson and Demetriou 2007), and taking a holistic approach to understanding the individual and collaborative processes of teacher professional learning (Rytivaara and Kershner 2012).

Investigations in the fields of organisational learning and knowledge management suggest additional research is required, including: empirical research to explore the actions and cognitive activities related to informal workplace learning (Fenwick 2008); investigating organisational cultures and subcultures and their impact on knowledge processes (Casimir, Lee et al. 2012; Mueller 2012); and exploring networks to understand the relationships between members and identify the elements of the networks that influence informal learning (Cornelissen, Jong et al. 2012), particularly from the perspective of non-managerial employees (Wallo, Kock et al. 2012; Warhurst 2013).

It is clear that, while the literature on learning in a non-school organisational context is able to provide some insights into informal learning in the workplace, there is still an opportunity for research to investigate the complexity of teacher engagement in informal interaction with

colleagues through which professional learning emerges from the perspective of those involved. In the context of this dissertation ‘informal interaction’ is considered to be the interaction that voluntarily occurs between two or more individuals outside of formally organised activities.

Purpose of this research

While there is significant research into formal professional learning for teachers, there is very little empirical work addressing informal interaction as it contributes to ongoing learning as a professional. The purpose of this research is to explore what influences teachers to engage in the informal collegial interaction that leads to professional learning, using teachers’ narratives to accommodate the context for the findings.

Significance of this research

This study provides a new perspective on informal teacher interaction leading to professional learning in schools, drawing on the literature from the fields of teacher professional learning and learning in an organisational context (organisational learning, learning organisations and knowledge management) and highlighting the synergies between them. The findings from this research make a contribution not only to the body of knowledge focussing on teacher professional learning but also to learning in an organisational context.

Complexity theories are used as the framework for this research study, advancing investigation of interaction and professional learning in the workplace, particularly for teachers in a school context. It draws attention to the unpredictable nature of collegial interaction and the impact of the interaction on the emergence of professional learning. This study also adds empirical support to the growing body of literature exploring educational issues through the lens of complexity theory.

This research also contributes new knowledge to the field of teacher professional learning through the generation of a theoretical model illustrating the interdependence of the influencing factors emerging from the study. The model highlights the relationships between the factors and the importance of considering them as interconnected, influencing and being influenced by each other, in a constant state of change and thus arguing for teacher interaction leading to professional learning to be considered holistically, focussing on both the factors and the connections between them.

Outline of thesis

The structure of this thesis follows a traditional format, moving through a review of relevant literature, a discussion of the theoretical and methodological approach taken by the study, the analysis of the data, discussion of the findings, and a conclusion.

Following this introductory chapter, chapter two presents a review of the literature that informed this research. It explores current perspectives on teacher professional learning and learning in the workplace from an organisational perspective, which is discussed in the organisational learning and knowledge management literature. The chapter considers the differences and synergies between the two perspectives and identifies a need for investigation into teacher engagement in informal interaction leading to professional learning.

Chapter three articulates the epistemological and theoretical underpinnings for the research and the qualitative methodology used for the study. Constructionism and complexity theories provide the epistemological position and theoretical perspective respectively, and these inform the selection of the qualitative methodology grounded theory.

Chapter four discusses the use of narrative elicitation as the research method and describes the iterative process of data gathering and analysis leading to the emergence of the findings. The chapter also provides an overview of the identified influencing factors and the theoretical model emerging from the process using text from the transcripts to illustrate the descriptions.

Chapters five, six and seven explore the emergent model using complexity theories as a lens through which to understand the interrelatedness of the influencing factors. Chapter five begins with positioning the model within a school context and then considers it through the perspective of 'self-organisation of groups'. Chapters six and seven continue the discussion through the perspectives of 'collegial interaction' and 'emergence of professional learning' respectively.

Chapter eight makes the connection between the findings of this research and issues raised in the literature review. It discusses interaction between colleagues through three themes: the knowledge that emerges from the interaction; the factors that influence the interaction; and the opportunities provided within the workplace for interaction. The discussion is drawn together through the perspective of the emergent model. Implications arising from the research are also presented.

Chapter nine is the concluding chapter for the thesis. It considers the research process and outcomes, its contribution to the fields of educational and organisational workplace learning and suggestions for future research.

Conclusion

This thesis offers new insights into the complexity of teacher interaction and professional learning, and highlights the dynamic interdependence of a range of influencing factors through the development of a theoretical model.

The following chapter positions this research within the existing literature to highlight the need for, and significance of, this study's contribution to the field teacher professional learning.

Chapter 2: Literature Review

This chapter presents a review of the literature from the two major areas that have informed this research: teacher professional learning and learning in an organisational context. The teacher professional learning literature provides a significant body of work identifying key issues related to teacher engagement in professional learning; however there is little research focussing specifically on informal interaction between teachers leading to the emergence of professional learning. The organisational literature reviewed is drawn primarily from the fields of learning organisations, organisational learning and knowledge management due to their relevance to informal interaction leading to learning in a work context. Although schools can be considered organisations, for the purposes of this research, the literature relating to organisations focuses on non-school contexts, that is, learning within a business and/or government environment is treated as a different category of professional learning.

While research across the two areas of the literature has been undertaken independently, this review explores the issues raised in both, highlighting the synergies between them. The review investigates how the changing demands on schools and organisations are a driving force for research about supporting on-going professional learning. It then considers the nature of professional knowledge and examines professional learning in the workplace, noting the shift in perspective from the transfer of information to co-construction of knowledge with colleagues. The review next explores the influence of emotions on learning and interaction, and how working in teams and networks facilitates knowledge construction. The final section investigates the potential of professional learning communities and learning organisations to provide a working environment that supports and encourages professional learning through interaction.

The review of the literature was undertaken in Australia utilising a broad range of databases to identify relevant material written in English. It is acknowledged that the outcomes of the search have been influenced by the databases available to me and that there may be a perceived bias towards research conducted in the USA, Canada, Australia, New Zealand and Europe. However the review presents a broad overview of current thinking and research which has informed this research project.

Drivers for on-going professional learning

Both teacher professional learning and learning in organisations literature sets have identified continual change as a significant driver for on-going professional learning in the workplace. In an educational context the demand for educational change has increased in response to increasing societal and political pressures for continual improvements in student outcomes (Skilbeck and Connell 2004; Huffman and Hipp 2010; Priestley 2011) enabling all students to be able to live and work in an increasingly complex global society (Fullan 2007). In an organisational context, learning and knowledge have become significant issues for both the private and public sectors due to the rapid changes in work practices, the emergence of the global 'knowledge economy' and the desire for competitive advantage (Sun 2003; Rashman, Withers et al. 2009; Glisby and Holden 2011).

In their study of the Australian teaching workforce, Skilbeck and Connell (2004) argue that:

Teachers are having to come to terms with ever rising expectations and constantly changing societal requirements. Both the teaching profession itself and the employers of teachers are faced with unprecedented challenges. Along with other knowledge intensive professions, teaching has to redefine core values, set new directions and reshape its priorities. While effective student learning remains the dominant, constant criterion of successful teaching, the nature of what is to be learnt, the best ways of learning and the needs of students and families are constantly evolving. (p 7)

The challenges faced by schools and teachers endeavouring to respond to the continual demand for change are significant and becoming more complex, involving 'multi-level actors' all with differing ideas and agendas (Loogma, Tafel-Viia et al. 2012 p 1).

A major impetus for education change has been the use of attainment data from standardised testing (Priestley 2011). In an Australian context standardised testing includes the National Assessment Program - Literacy and Numeracy (NAPLAN), and participation in international standardised tests, such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS). The results of these programs place pressure on governments, national and state and territory, to seek out the most effective way to improve student outcomes through on-going teacher professional learning programs and projects.

Priestley (2011) points out that, from a political perspective, predictable and quick results from any initiative are usually sought, but, given the complexity of education, it is not possible to accurately predict the outcomes of a policy or project in advance. He further argues that the implementation of mandated policies is 'mediated' by the practitioners

reflecting their experience, values and beliefs, attitude to the policy or project, as well as the setting into which it is to be introduced and the interaction that takes place as it is 'translated' from 'policy to practice' (p 2).

The inability to predict the outcomes of policy or program implementation, and yet respond to the demand for continual improvements in teachers' knowledge and skills, is strongly influencing the focus for educational research into effective approaches for teacher professional learning.

Research in the organisational field is also responding to a continual demand for on-going improvements to address the changing nature of the work in both the private and public sectors. In the private sector, maintaining a competitive advantage is an imperative to on-going success, thus placing pressure on the entire organisation to engage in activities that will provide them with the ability to improve their business performance (Johnston and Hawke 2002; Sun 2003; Schiuma 2012). The public sector experiences similar pressures to improve performance, with many of these pressures coming from users of the services and a wide range of stakeholders, including various tiers of government (Rashman, Withers et al. 2009). The increasing sophistication of technology and economic globalisation is influencing the changing nature of organisations and, therefore, the skills and knowledge required.

Technology has provided consumers with the opportunity to source products, services and information from a broader range of organisations than before. This global competitiveness impacts on the need to manage costs, often through restructuring both the organisation and work practices, and to continually improve services and products (Davenport and Prusak 1998; Johnston and Hawke 2002). As Bhatt (2002) points out, organisations are becoming

increasingly dynamic environments requiring people with ‘diverse talents’, whose expertise can be used to ‘gain access to new markets and new technologies’ (p 31).

To respond rapidly to the changing demands driven by the ‘fast-paced, competitive and unpredictable world’ (Sun 2003 p 153), organisations have become keenly interested in learning and knowledge from both an individual and organisational perspective. Fenwick (2008) observes that ‘the nature and organization of work has changed so rapidly in the past decade with the effects of globalization’ learning has become an important issue ‘outside educational debates’ (p 18). Thomas and Allen (2006) echo this observation and go on to argue that, not only is the capacity to learn critical for an organisation, enabling it to respond to the forces and opportunities of the market, it is essential to appreciate the complexity of learning and its impact on the organisations’ ability to be creative, adaptive and innovative. While a proportion of the learning required for organisations to succeed can be provided through formalised training and education, a significant proportion of the learning takes place informally through interaction between employees in the immediate work environment and established networks throughout the organisation and beyond (Li, Brake et al. 2009). The learning occurring informally in the workplace is embedded in everyday practices and experiences, and is continually contributing to the knowledge created within the organisation and supporting its ability to cope with changing demands (Fenwick 2008; Ferguson, Burford et al. 2013).

Focussing on informal interaction for learning is of significant importance in the organisational field. It is through this interaction that knowledge and skills can be shared, supporting continuing improvements and innovation across the organisation. The demands for change in education focusses research attention on improving teacher knowledge and

practice through formalised professional learning approaches that can be implemented within a school environment.

Professional knowledge

In the educational literature, teacher professional knowledge is often considered in the context of approaches to the provision of professional learning to effect change in teaching practice. The movement to a constructionist approach to learning has led to general consensus around what constitutes teacher professional knowledge. This is illustrated by the description by Wideen Mayer-Smith et al (1996), who argue that teacher professional knowledge is:

...that combination of formal and personal practical knowledge on which teachers base their practice. Such knowledge is also grounded in teachers' beliefs about what constitutes good teaching. (p 192)

This description is supported by other researchers, such as Opfer and Pedder (2011), Hannay and Earl (2012) and Clandinin and Connelly (1995), who note that 'when we see practice, we see personal practical knowledge at work' (p 7). Teacher professional knowledge is not static. It is constantly being constructed and reconstructed throughout a teacher's career through continual engagement with people (such as students and colleagues), environments (such as home and school) and events (which may include external or internal reforms), and is influenced, and in turn influences, the personal mental models of the individual at a particular time. As Opfer and Pedder (2011) argue, teacher learning is recursive. It is 'affected by prior knowledge' and beliefs, emerges through the interaction of teachers with other people, places and events, and 'influences future learning', and therefore learning is 'the ongoing transformations, simultaneously, of both the knower and knowledge' (p 388).

A broader approach to understanding knowledge within the workplace has been taken in the organisational literature. The field of knowledge management provides a significant amount of work exploring knowledge in an organisational context, particularly in relation to the creation and sharing of knowledge within the organisation. Across this literature there is a range of descriptions and understandings of knowledge (Anand and Singh 2011). A sample of descriptions from the literature is presented in the following table (Table 1) to illustrate the variance.

Table 1 Descriptions of knowledge

Author	Description
Nonaka (1994)	‘At a fundamental level, knowledge is created by individuals. An organization cannot create knowledge without individuals. The organization supports creative individuals or provides a context for such individuals to create knowledge. Organizational knowledge creation, therefore, should be understood in terms of a process that "organizationally" amplifies the knowledge created by individuals, and crystallizes it as a part of the knowledge network of organization.’ (p 17)
Davenport and Prusak (1998)	‘Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.’ (p 5)
Choo and Johnston (2004)	‘An organization possesses three types of knowledge: tacit knowledge embedded in the experience and expertise of individuals; explicit knowledge codified as artifacts, rules and routines; and cultural knowledge expressed as assumptions, beliefs, and values.’ (p 77)
Osberg, Biesta et al (2008)	‘Knowledge <i>emerges</i> from our transactions with our environment and feeds back into this same environment, such that our environment becomes increasingly meaningful for us. This means we cannot have knowledge <i>of</i> our environment, once and for all – it is not something we can see, something to look at. Rather, it is something we have to actively feel our way around and through unendingly. Why unendingly? Because in acting, we create knowledge, and in creating knowledge, we learn to act in different ways and in acting in different ways we bring about new knowledge which changes our world, which causes us to act differently, and so on, unendingly.’ (p 223)

Anand and Singh (2011)	<p>Identify three meanings:</p> <p>‘First, it refer to a state of knowing, by which we also mean to be acquainted or familiar with, to be aware of, to recognize facts, methods, principles, techniques and so on. This common usage corresponds to what is often referred to as "know about." Second, the word "knowledge" refers to "the capacity for action," an understanding or grasp of facts, methods, principles and techniques sufficient to apply them in the course of making things happen. This corresponds to "know how."</p> <p>Third, the term "knowledge" refers to codified, captured and accumulated facts, methods, principles, techniques and so on. When we use the term this way, we are referring to a body of knowledge that has been articulated and captured in the form of books, papers, formulas, procedure manuals, computer code and so on.’ (p 928)</p>
Cornelissen, De Jong et al (2012)	<p>‘Knowledge is based on personal interpretation, and is created in co-evolution with the environment. It is not transferable to other persons, because it depends on the personal interpretation within a specific context.’ (p 473)</p>

From these descriptions it can be seen that some authors view the phenomenon through considering different ‘types’ or meanings while others focus more on the experiential aspect of knowledge creation and sense-making.

Much of the work exploring knowledge through the perspective of explicit and tacit types of knowledge cite the work by Nonaka (1994) and Nonaka and Konno (1998), who argue that ‘knowledge creation is a spiralling process of interaction between explicit and tacit knowledge’ (p 42). They argue that it is through the four phases of the SECI model - socialisation, externalisation, combination and internalisation - that new knowledge is created. Socialisation requires interaction between individuals, such as through shared experiences and working together on tasks, to share tacit knowledge; a tacit to tacit process. Externalisation is a tacit to explicit process through the articulation of tacit knowledge enabling others to understand, often using story or metaphor to facilitate the process.

Combination is the capture and dissemination of new knowledge through the use of collection and reflection, documentation and presentation; an explicit to explicit process.

Internalisation is the explicit to tacit process in which individuals engage in learning, with the knowledge emerging from the combination phase relevant to them within an organisational context that may include training or on the job experience. The four phases create a cycle of organisational knowledge creation (Nonaka 1994; Nonaka and Konno 1998; Ramírez, Morales et al. 2011). To achieve the on-going cycle of organisational knowledge creation the organisation needs to provide an environment in which individuals have the opportunity to interact, develop relationships, and engage in dialogue and learning, acknowledging that any knowledge created through the process is context dependent (Nonaka, Krogh et al. 2006).

Other researchers argue against the separation of tacit and explicit knowledge (Glisby and Holden 2011; Fullwood, Rowley et al. 2013). The interconnectedness of tacit and explicit knowledge is illustrated by Eraut (2004) through an experience from his research in which nursing professionals identified what areas of knowledge had been used in a variety of incidents however the professionals had difficulty describing how the knowledge was used. Eraut argues that this example clearly demonstrates the ‘paradox of professionals being able to refer to codified, scientific knowledge in clear explicit terms, yet using that knowledge in ways that are still largely tacit’ (p 256).

Cornelissen and colleagues (2012) agree, and consider the tacit/explicit view of knowledge creation as the second of currently three phases in the shifting views of organisational knowledge and learning. They argue that the first phase considered knowledge from a cognitivist perspective, in which knowledge was considered as an object or commodity that could be stored and retrieved. The second phase was strongly based on the tacit/explicit view

of knowledge, in which knowledge is embedded in the individual and shared through social relationships, but also considered as a commodity that, once extracted from individuals, can be shared across the organisation. The third and current phase considers knowledge from a constructionist perspective focussing on ‘the activities and social processes in networks of social relationships, where meaningful knowledge resides’ (p 473).

While not explicitly stated in the educational literature the view of knowledge Cornelissen and colleagues (2012) suggest as the first phase (knowledge as a commodity that is able to be transmitted), is reflected in earlier approaches to the provision of professional learning for teachers. However, the current understanding of teacher professional knowledge more closely aligns with the third phase.

The movement in understanding of professional knowledge to a constructionist perspective is influencing the discussion across the literature relating to learning in the workplace in both an organisational and educational context.

Professional learning in the workplace

Although professional learning in the workplace is considered from differing perspectives across the educational and organisational literature, the synergies are evident. Both have moved from an attitude that had an emphasis on information or knowledge transfer for learning, to identifying the importance of collaboration between colleagues leading to the co-construction of knowledge.

In the educational literature this shift is evident in the changing terminology used to consider learning by teachers. The term ‘professional learning’ has been adopted by many researchers

to replace the term 'professional development' when discussing the learning undertaken by teachers. As Timperley (2011) points out the term 'professional development' has connotations of information delivered to teachers to influence their practice, whereas 'professional learning' implies the active engagement of teachers in the creation of their professional knowledge through interaction and challenging assumptions and beliefs. 'Challenge and meaning-making are essential because solving entrenched educational problems requires transformative rather than additive changes to teaching practice' (p 5). However, both terms are often used synonymously across the literature (Melville and Yaxley 2009).

To support a national understanding of professional learning the Australian Institute for Teaching and School Leadership (aitsl) was commissioned to develop the Australian Charter for the Professional Learning of Teachers and School Leaders (the Charter) in consultation with Australian education authorities and relevant teaching and leadership associations. The Charter emphasises the importance of professional learning for on-going improvement in teaching and leadership practice and defines teacher professional learning as follows:

Professional learning is the formal or informal learning experiences undertaken by teachers and school leaders that improve their individual professional practice, and a school's collective effectiveness, as measured by improved student learning, engagement with learning and wellbeing. At its most effective, professional learning develops individual and collective capacity across the teaching profession to address current and future challenges. (aitsl 2012 p 2)

From this definition it is clear that professional learning is focussed not only on what occurs within a classroom but also within the school. It enhances the skills and knowledge of individual teachers and school leaders as well as continually improving the effectiveness of

the school. Professional learning is achieved through a number of experiences, both formal and informal, therefore all learning opportunities should be valued and supported. Across educational systems the current focus is primarily on formally organised professional learning, however recent research in this field is acknowledging the informal learning that occurs within schools (Lovett and Gilmore 2003; Flint, Zisook et al. 2011; Saunders 2012).

The differing nature of work in organisations is reflected in the focus of the literature with a significant body of work on organisational learning. There is no generally agreed definition or description for organisational learning however the following descriptions show a convergence around some key ideas (Table 2).

Table 2 Descriptions of organisational learning

Author	Description
Argyris and Schön (1996)	<p>‘Each member of an organization constructs his own representation of the theory-is-use of the whole, but his picture is always incomplete. He strives continually to complete his picture by redescribing himself in relation to others in the organization. As conditions change, he remakes his descriptions; other individuals do likewise. There is a continual, more or less concerted meshing of individuals’ images of their activity in the context of their collective interaction.</p> <p>An organization is like an organism, each of whose cells contains a particular, partial, changing image of itself in relation to the whole. And like such an organism, the organization’s practice stems from these very images: its theory-in-use is dependent on the ways in which its members represent it. Hence, our exploration of organizational learning must not deal with static entities called organizations but with active processes of organizing.’ (pp 15/16)</p>
Sun (2003)	<p>‘...the term ‘organizational learning’ refers to the learning <i>process</i> of an organization and by the organization in a collective (organizational) way.’ (p 156)</p>

Yeo (2005)	'...organizational learning is a process which answers the question of "how"; that is, how is learning developed in an organization? the term "organizational learning" is used to refer to the process of learning.' (p 369)
Easterby-Smith and Lyles (2011)	'... <i>organizational learning</i> refers to the study of the learning processes of and within organizations, largely from an academic point of view. The aims of such studies are therefore primarily to understand and critique what is taking place.' (p 3)
Vera, Crossan et al (2011)	'...organizational learning is the process of change in individual and shared thought and action, which is affected by and embedded in the institutions of the organization.' (p 154)
Lyle (2012)	'Organisational learning is a heavily theoretical area of study that examines learning models used within organisations and then posits theories based on those studies. It is specifically interested in understanding how organisations learn as units, how individual learning contributes to collective learning, and how learning effects the organisation's overall ability to adapt to its environment.' (p 217)
Swift and Hwang (2013)	'At the core of organizational learning is the process of sharing information in a way that helps individuals to cooperate with each other in organizational goals.' (p 20)

From the above descriptions there is general consensus that organisational learning refers to the process of individual and shared learning within the context of an organisation. As Marshall and Smith (2009) and Yeo (2005) suggest organisational learning is the process of learning how employees within an organisation learn individually and collectively and contribute to the capacity of the organisation. In their review of the literature on learning in organisations Thomas and Allen (2006) also found a strong focus on the process of learning through embedding the 'discoveries, evaluation and insights by individuals' into the organisation (p 125). They note that, fundamentally, all organisations learn through the process of organisational learning, but the extent to which they learn and transform depends on the organisation's ability to expand their capacities that are influenced by factors such as

the type of learning individuals and teams engage in, the importance of individual mental models, and the culture of the organisation. This view is reflected in the work by Marshall and Smith (2009), who argue that the field of organisational learning is a ‘complex and multifaceted’ one which requires a deeper understanding of factors that foster or inhibit learning by individuals and teams.

Across the organisational literature, single loop learning (or adaptive learning) and double loop learning (or generative learning) have been discussed in relation to organisational learning to differentiate between types of learning and their impact on the organisation. Single loop learning results in simple changes that are easily embedded into the work environment, while double loop learning requires reflection and often results in changes to views and behaviour (Swieringa and Wierdsma 1992; Argyris and Schön 1996; Argyris 1999; Yeo 2005; Thomas and Allen 2006). Argyris (1999) argues that both types of learning are required by all organisations. Single loop learning is useful for dealing with the routine issues that arise; those issues that do not require the underlying values of the organisation to be questioned or changed. Double loop learning on the other hand is used for complex issues that require an exploration of underlying values to address the issue. He notes that most tasks in an organisation are able to be addressed through single loop learning action, although it is the double loop learning actions that ‘control the long-range effectiveness, and hence, the ultimate destiny’ of the organisation (p 69).

A third level of learning, triple loop learning (or deuterio learning), is suggested as essential for moving the organisation forward into a development cycle (Swieringa and Wierdsma 1992; Mishra and Bhaskar 2011). Single loop learning can be considered necessary for day to day improvement; double loop learning reflects on current organisational beliefs and

practices and is necessary for organisational renewal; while triple loop learning is essential for the development of the organisation through reviewing the 'essential principles' of the organisation, determining what it stands for and what kind of organisation it should be.

Engaging in double or triple loop learning requires the organisation, and the individuals working within it, to have the capacity to raise and discuss significant issues, reflecting on underlying beliefs and values openly essentially 'questioning and challenging the very existence of the organisation' (Mishra and Bhaskar 2011 p 346). Mishra and Bhaskar go on to argue that triple loop learning requires an organisational culture that fosters learning and supports reflection and challenge. This is supported by Thomas and Allen (2006), who argue that 'the dominant organisational culture and its sub-cultures strongly influences the nature of learning and the way learning occurs or does not occur in organisations' (p 128), and that these cultures are influenced by the social and emotional responses by people to each learning situation.

The need for individuals to engage in challenging beliefs and practices for continual improvement is reflected in the literature related to learning by teachers. However, the focus is the beliefs and practices of the individual teachers rather than the organisation. While teachers are continually engaging in single loop learning type activities through informally sharing ideas and resources, the demand for improvements in teaching practice requires them to challenge their own beliefs and practices as well as those of their colleagues. This has resulted in a significant body of research into effective approaches to the provision of learning experiences for teachers. These approaches have begun to change from what is referred to in the literature as the 'traditional model' of professional development that used the one-off dissemination of information approach, to a long term collaborative approach

encouraging engagement in double and triple loop type learning (Fischer 2004; Lieberman and Mace 2008; Flint, Zisook et al. 2011; Timperley 2011).

The traditional model often provided ‘one size fits all’ large-scale workshops and seminars, designed to provide teachers with ‘pre-packaged knowledge’ that they were expected to take back to their schools and implement. These workshops and seminars were usually of one or two days duration, reflected political priorities and were not well received by the attending teachers (Flint, Zisook et al. 2011; Tytler, Symington et al. 2011). Another approach identified by Flint, Zisook et al (2011) that has been popular in the past is the cascading ‘train the trainer’ model, in which a representative from a school attends a workshop, or series of workshops, with the intention of redelivering the material to his or her colleagues. The single session workshops, seminars and train the trainer models are considered to be ineffective because they often require teachers to passively receive the strategies or approaches from external experts with the expectation of successful implementation in the classroom with little or no support (Flint, Zisook et al. 2011).

Teachers have difficulty making the connection between the content provided by the experts and their teaching practice. The presentation style of the workshop or seminar does not provide a forum for teachers to discuss the implications of what was presented to their teaching practice, their students and themselves as professionals (Fischer 2004).

As Hannay & Earl (2012) explain:

Traditional forms of professional development are unlikely to assist individuals in reconstructing their mental models or reshaping their personal practical knowledge

because knowledge related to professional practice typically is socially complex, with tacit knowledge embedded in social practices. (p 313)

How and what teachers learn through professional learning experiences are strongly influenced by their professional knowledge, beliefs and values. Teachers constantly assess the value of the activity, based on their perceptions concerning the potential for improving student learning, the potential value for classroom implementation, and the potential implications for them as a professional. Thus, the effectiveness of any professional learning activity is dependent on the individual teacher's perception of the activity (Opfer and Pedder 2011 p 4). The models that are 'collaborative, learning centred, and related to practice are more meaningful to teachers' (Flint, Zisook et al. 2011 p 1164). Teachers are more likely to engage in professional learning that has an impact on student learning if it is 'voluntary, inquiry oriented, pervasive across time and space, and open to the complexity, range and variation' of the needs and interests of each teacher (Flint, Zisook et al. 2011 p 1164).

This view of effective professional learning is supported by the work of Hannay and Earl (2012) who undertook a retrospective analysis of the data emerging from a longitudinal research on 'the role of a school district in facilitating significant educational reforms that required adaptations to individual and collective mental models of professional practice'. The research comprised four studies, the first commencing in 2000 and the final study being completed in 2009, which used focus groups and interviews to gather the data. An iterative process of data analysis and reporting for each study enabled the outcomes of early ones to shape the focus of subsequent research studies and the gradual emergence of a central theme.

From the retrospective analysis of the four reports they identified three actions ‘that triggered educators to challenge and reconstruct their professional personal practical mental models of the teaching and learning’ (p 311).

- ‘improved student learning became the central focus of the school district.
- The school district stressed and created opportunities for educators to collectively engage in professional dialogue about their practice.
- The school district emphasized the importance of educators individually and collectively using evidence to assess whether their actions improved student learning.

The interaction between these three components facilitated individuals reconstructing their professional knowledge which reshaped their mental models.’ (p317)

The changes that occurred during their studies took place over a period of time, requiring a sustained engagement in the process by the participating teachers and leaders in the schools. As Hannay and Earl note it takes time and sustained effort for individuals to reconstruct their mental models as there is ‘no magic bullet or quick fix’ (p 323).

What is clear from the literature is that effective professional learning models have moved away from the approach of continuing to add new information to the existing body of professional knowledge of each teacher (Melville and Wallace 2007), to one that acknowledges the autonomy of teachers and their professional sense of responsibility for their own knowledge creation through interaction with colleagues (Mitchell, Riley et al. 2010).

Within the organisational literature there has also been a shift in the understanding of learning from a focus on individual learning through problem-solving and knowledge transfer to knowledge construction through interaction with others (Littlejohn, Milligan et al. 2011;

Cornelissen, Jong et al. 2012). In the earlier literature there was a greater focus on learning as an outcome of training in which concepts and skills were transferred during training sessions that would then be applied in the workplace (Fenwick 2008). However, learning viewed through a social learning perspective has become more prevalent in the literature. Authors adopting this view of learning refer to social interaction and co-construction of knowledge in the workplace environment (Mavin and Cavaleri 2004; Rashman, Withers et al. 2009). This shift in focus from a training perspective to a more informal, social perspective has encouraged research exploring learning and knowledge sharing practices within organisations through interaction with colleagues.

In their study of learning practices within an organisation, Littlejohn, Milligan et al (2011) identified seven learning practices: formal learning; learning through experience; learning through discussion with others; learning through mentors or coaches; learning through teaching others; vicarious learning; and learning through self-study (p 27).

Formal learning through structured courses 'did not always lead to effective learning' with participants in the study often critical of the passive learning techniques employed by the trainers. However, the participants valued the social aspect of the courses, enabling them to meet colleagues from other areas and organisations and providing them with the opportunity to broaden their networks within and beyond the organisation.

Learning through experience enabled the participants to apply the knowledge gained through the formal courses as well as discovering their gaps in knowledge through participating in workplace projects. The learning that occurred to fill the gaps was mainly through connecting with people who had greater knowledge or experience and completing the projects.

Learning through discussion, mentors, teaching others and vicarious learning all highlight the importance of interaction with work colleagues for learning in an organisational context.

Learning through self-study involved accessing reading material such as trade journals, internal resources and research papers, which they often discussed with colleagues. Self-study learning also included self-paced e-learning courses, but these were not popular with the participants. The authors suggest that 'this could be because the e-resources do not allow for rich interaction with other people' (p 29). While each practice was identified separately the participants noted that they often engaged in a number of the learning practices at the same time to share knowledge.

Through engaging with a range of learning practices the participants in Littlejohn and her co-authors' study were actively sharing and creating knowledge with colleagues in their workplace and extended networks. Learning through activities in which colleagues share and create knowledge has become an important focus for researchers in the field of learning in organisations. It is argued that learning is a collaborative activity in which the participants actively construct knowledge and develop skills through interaction with their environment, such as dialogue with colleagues, reflection and negotiation (Sun 2003; Wu, Lin et al. 2009; Casimir, Lee et al. 2012), and that learning and knowledge are being understood from a social perspective in which the focus is 'on the activities and social processes in networks of social relationships, where the meaningful knowledge resides' (Cornelissen, Jong et al. 2012p 473).

While there is not a significant amount of research focussing on informal interaction leading to professional learning in a school context, the outcomes of investigations into other aspects of teacher professional learning, such as early career teachers, provide evidence that it does

occur and is valued by teachers. In their study of informal professional learning of early career teachers Wilson and Demetriou (2007) gathered data from newly qualified teachers through a survey with open ended response questions and 'support network maps' provided by a small group of teachers in their second year of teaching. They found that the new teachers valued the informal dialogue with colleagues above formally organised professional learning activities because they were able to address issues of immediate concern to the new teacher. They argue that becoming a teacher is not a straightforward process but a 'socially constructed process [that] draws on new teachers' prior experience and may require them having to re-evaluate realities and responsibilities, challenge existing beliefs and values about teaching, as well as becoming integrated into the school culture' (p 226). Collaborating with other teachers, developing sound relationships with colleagues, and engaging in dialogue about teaching, provided the new teachers with the support required for them to develop as a teacher. Other researchers, such as McNally, Blake et al. (2009) and Lovett and Cameron (2011), also highlight the importance of collegial relationships and opportunities to informally engage in meaningful conversations for the professional learning of new teachers.

The value of informal interaction for professional learning was highlighted in the Teaching and Learning International Survey (TALIS) completed in 2008 by the Organisation for Economic Co-operation and Development (OECD). It explored aspects of teacher professional learning, the beliefs, attitudes and practices of teachers, school leadership and teacher appraisal and feedback across 23 participating countries. One section of the survey questioned teachers about their participation in a range of activities, from formally organised learning activities to informal activities. The results show that the most cited form of professional learning, with a 93% reporting rate, was 'informal dialogue to improve teaching' (OECD 2009). Teachers were also asked about the impact of each form of professional

learning on their teaching practice. Informal dialogue to improve teaching was rated as providing a moderate to high impact by approximately 90% of participating teachers. While it is not possible to discern any details about how and why teachers engage in informal dialogue from the survey, the findings suggest that teachers consider it to be an important aspect of their on-going professional learning and supports improvement in their teaching practice.

While the importance of interaction for the construction of professional knowledge has been highlighted across both the educational and organisational literature, the organisational literature draws particular attention to the value of informal interaction for learning in the workplace. The response of individuals to the interaction has a significant impact on the professional learning that emerges.

Knowledge construction through interaction: sense-making and mental models

The process of knowledge construction through interaction has been described by McArdle and Coutts (2003) as ‘a complex mapping of rich connections against an individual’s sense of themselves’. They refer to the process of sense-making as one in which teachers engage in meaning-making and reflection about professional practice. It enables the connections between ‘different experiences and different forms of experience’ to be made (p 230).

Professional learning through sense-making is an on-going process. A teacher engages in sense-making in a variety of situations, such as interacting with a colleague, gaining an insight into a student’s response to their teaching practice or responding to a teaching approach introduced through a reform practice. Each experience is assessed ‘against a backcloth of one’s sense of oneself as a person and, of course within that, as a professional’ (McArdle and Coutts 2003 p 229). The new knowledge emerging from the experience will be

accepted, rejected or modified, depending on the teacher's assessment influenced by the emotional response, particularly if the experience challenged currently held beliefs (Chalmers and Keown 2006).

The development of a person's professional identity within any organisational group is influenced by the level of expertise they perceive they have; the level of expertise they consider others in the group have; and how they consider the others in the group perceive their level of knowledge. The 'positioning' of each person in relation to perceived expertise within the group is 'relational and reflexive'. Individuals often justify their status as a 'knower' within the field under discussion, thus their worthiness to participate in the discussion as well as their willingness to share (Davenport and Prusak 1998; Crane 2012). In a school environment a teacher assumes a variety of identities such as: a classroom teacher, a member of a team, a colleague to other teachers outside of the teaching team and a professional responsible to parents and educational systems. Personal identities reflect the individual's understanding of who they are, and the role they play, in a number of contexts, such as a friend, a member of a family as a son or daughter, and possibly a brother or sister, partner and parent. The multitude of identities are influenced by the written and unwritten rules and norms of each system inhabited by the individual and are continually evolving as they experience life both personally and professionally (Weick 1995; Palmer 1998; Snowden 2002).

The multidimensionality of teachers' lives was explored by Connelly and Clandinin (1995) through the use of a landscape metaphor. The metaphor enabled them to 'talk about space, place, and time' and the diversity of relationships between 'people, things, and events' that populate the landscapes (p 4). The professional knowledge landscape involves all aspects of a

teacher's professional life in an educational context - both the space inside the classroom where they interact with their students and the space outside the classroom where they interact with others. Teachers also inhabit their personal knowledge landscape that reflects their life outside their professional environment. Each landscape influences the other, and as Connelly and Clandinin suggest: 'these settings, each understood in terms of personal and social narratives of experience, weave a matrix of storied influence over one another' (p 27). Both personal and professional knowledge is based on the values and beliefs, the assumptions and expectations, and the unique experiences and memories of the individual teacher. Each new experience is filtered through their personal mental model that influences, and is in turn influenced by, the construction of new knowledge, beliefs and understandings (Dewey 1938; Wideen, Mayer-Smith et al. 1996; Stacey 2001; Flores 2003; 2004; Fiszer 2004; Chalmers and Keown 2006; Opfer and Pedder 2011).

The social nature of knowledge and its creation through interaction has also been highlighted by Rashman and colleagues (2009) in their review of the literature on organisational learning and knowledge. They note that, while some authors consider the organisational knowledge construction process to be from the individual to the collective, others consider it to be the reverse, with collective learning driving individual knowledge creation. However, both views hold that the knowledge created through interaction with colleagues is context specific. The meaning for individuals associated with the knowledge created is inextricably linked with the environment and the people involved at the time of creation, and, therefore, any attempt to transfer it to another context will result in the loss of meaning. This is illustrated in an example provided by Rashman and colleagues (2009) in which the transfer of new work practices from one hospital to another did not succeed due to the staff in the 'receiving' hospital not having the opportunity to engage in the 'sense-making process' undertaken by

the original hospital staff (p 483). During interaction with others, individuals are exposed to 'new stimuli' that each person involved in the experience will need to make sense of (Toit 2003), leading to the creation of knowledge shared by those involved.

Karl Weick (1995) has been a leading proponent of sense-making in organisations. He discusses it through a number of characteristics that demonstrate the individual, social and on-going nature of sense-making. He argues that sense-making is a process that is grounded in the development of identities, retrospective and 'driven by plausibility', often through the use of story, to provide an account of what occurred from a particular perspective at a point in time. As Weick notes: 'to engage in sensemaking is to construct, filter, frame, create facticity, and render the subjective into something more tangible' (p 14). In an organisational context sense-making occurs through the social interaction with others, including colleagues within work teams, other employees across the organisation, and with others from other organisations. It involves both the intellectual and emotional aspects of each individual as they endeavour to make sense of the issues, their identity and potential cues for the future within the current environmental context (Mavin and Cavaleri 2004; Ng and Tan 2009).

Cunliffe and Coupland (2011) disagree with the retrospectivity of this approach and suggest a greater focus on narrative, arguing that narratives enable individuals to make sense of their experiences and evaluate actions and intentions. Findings from their research suggest that sense-making is driven by a desire for plausibility and is a 'temporal process' in which past events, current interactions and anticipated future events are all considered concurrently. They argue that the sense-making process 'is about recognizing and responding to multiple narrations' during any interaction and that 'sense and organizing emerge when a story begins to come together, identities begin to make sense, identities and actions can be give a sense of

narrative rationality and we can connect plot and character' (p 81). The strong connection between emotion and identity also emerged from their study, acknowledging that it is not possible to separate these from the sense-making process they suggest 'identity shapes the story as the story shapes identity' (p 83).

Each person working in an organisation has multiple identities or roles they assume, depending on the context in which they find themselves. These identities are both professional and personal (Armour and Fernandez-Balboa 2001) and are influenced by the individual's mental models through which they filter past and present experiences (Cooper and Pickering 2010).

Finding that the concept of a mental model was rather ambiguous, Rook (2013) explored the concept from a range of disciplinary stances and developed a 'robust definition':

A concentrated, personally constructed, internal conception, of external phenomena (historical, existing or projected), or experience, that affects how a person acts. (p 42)

To explain the definition she argues that: the use of the word concentrated refers to the depth and 'rich intuitive detail' of a mental model; it is constructed by each individual and is thus subjective and personal in nature; it exists in the mind of the individual as an internal conception; the mental model interprets external phenomena and experiences that may be actual or projected, and thus, each individual will interpret experiences differently; and it is through their mental model that a person will make sense of what is happening and respond accordingly.

Acknowledging the differences in personal mental models between individuals, based on each person's unique experience of their life (both personal and professional), explains why two people can attend or participate in the same event and yet describe the event and outcomes differently. Each person will attend to different details depending on what they consider is important to them at the time (Senge, Cambron-McCabe et al. 2000). The interconnection of mental models and experience has been described by Brookfield (1995):

...experience should not be thought of as an objectively neutral phenomenon, a river of thoughts, perceptions and sensations into which we decided, occasionally, to dip our toes. Rather, our experience is culturally framed and shaped. How we experience events and the readings we make of these are problematic; that is, they change according to the language and categories of analysis we use, and according to the cultural, moral, and ideological vantage points from which they are viewed. In a very important sense we construct our experience: how we sense and interpret what happens to us and to the world around us is a function of structures of understanding and perceptual filters that are so culturally embedded that we are scarcely aware of their existence or operation. (in Day and Gu 2007 p 426)

The influence of mental models on individual and learning has been highlighted in the organisational learning literature (Senge 1992; Argyris and Schön 1996; Campbell and Armstrong 2013; Rook 2013). For example, Argyris and Schön (1996) argue that the individual beliefs, values and assumptions about the organisation, their 'theory-is-use', influences the type of learning they engage in. Whether it is single, double or triple loop learning will depend on the individual's mental model within the context of the specific situation. If the issues being dealt with could be perceived to be threatening or embarrassing, single loop learning is usually employed. However, if there is a sufficient level of confidence and trust in colleagues, the learning will more often reflect that of double loop or triple loop

learning, in which they work cooperatively to resolve issues and are willing to challenge assumptions and norms central to the organisation.

The emotional dimension of sense-making, identities and mental models play an important role in the construction of knowledge through interaction. Attributes such as care, fairness, reciprocity and trust are considered essential for people to engage in dialogue with others creating and sharing knowledge (Gao and Riley 2010; Krogh 2011).

Emotions and learning

The influence of emotions on professional learning in a work environment is a significant issue for both the educational and organisational fields. How individuals make sense of experiences personally and professionally will influence their engagement in knowledge construction with colleagues.

One of the most significant contributors to this topic in the educational field, Hargreaves (1998; 2002; 2004; 2005), argues that teaching is an ‘emotional practice’ in which teachers develop a passion for their work, develop and maintain emotional bonds with students, parents and colleagues, and construct their identities as professionals. These emotions are ‘rooted in and affect their *selves*, identities and relationships with others’ (1998 p 319 italics in original). How teachers respond to an experience, be it with students, colleagues or as part of a reform agenda, will be based on the ‘meanings and emotions’ the individual associates with it (Schmidt and Datnow 2005).

Through the use of interviews and a long-term discussion group Hargreaves (2004) investigated the response of teachers to mandated and self-initiated change involving

professional learning. He found that teachers experienced more negative emotions during the mandated changes than during the self-initiated ones. During the mandated changes teachers often experienced frustration and anger due to the perception of the change, and associated professional learning activities, being forced upon them with little regard for their beliefs and values. The responses to the self-initiated changes and professional learning activities were more positive because they provided teachers with an opportunity to contribute to the direction of the change and make sense of the process.

The study by Schmidt and Datnow (2005) supports the findings by Hargreaves, noting that when there is alignment between the individual's ideologies and that of the reform the response is much more positive. However, there is often resistance to change if there is dissonance between the individual's beliefs and values and that of the reform agenda, resulting in feelings of vulnerability or anger. Based on this view they argue that emotions and sense-making are the key elements affecting the interpretation of the reform and therefore the response, positive or negative, by teachers to the process.

In their review of the literature on teacher professional learning, Opfer and Pedder (2011) suggest that 'cognitive conflict', or disequilibrium between a teacher's beliefs and values and their experiences, may provoke an individual to re-evaluate their stance and lead to a change in beliefs, values and (or) practice. However, if there is too great a conflict between the new ideas and a teacher's beliefs, values and experience, they may dismiss the ideas as unsuitable for their practice. While teachers may initially respond negatively to a suggested change, they may begin to modify their responses as they make sense of the experience, reflecting on their beliefs and values and co-constructing new knowledge with colleagues. As noted by

Saunders (2012), the emotional responses felt by teachers can be 'cyclical, often experienced and re-experienced at different stages of the change journey' (p 25).

The motivation of individuals to engage with colleagues in dialogue leading to professional learning is influenced by a number of aspects of their life at that particular point in time, and no two individuals will respond in exactly the same way. Their stage of life and career, and the experiences they have faced both personally and professionally, will provide a particular emotional lens through which they view the world and respond to experiences as they arise. Each of these mediates the other and are in constant states of fluctuation, thus changes in one aspect of an individual's life will have an effect on the others (Day and Gu 2007; Hannay and Earl 2012).

In the organisational literature there is a greater focus on the influence of emotions and perceived trustworthiness of colleagues (Snowden 2002; Politis 2003; Reagans and McEvily 2003; Casimir, Lee et al. 2012; Sankowska 2013; Swift and Hwang 2013) on knowledge sharing and creation. Decisions regarding with whom and how much of their knowledge will be shared, is based on intrinsic motivation of each person and, therefore individuals can be encouraged, but not forced, to share knowledge or engage in the co-creation of new knowledge.

In their study on emotions and knowledge sharing, van den Hooff, Schouten et al (2012) explored the influence of the emotions of pride and empathy on two attitudes identified as positive towards knowledge sharing: willingness and eagerness. Pride is associated with expertise and self-efficacy. If an individual is proud of their experience and expertise, they are more likely to be 'eager to share their knowledge'. Empathy, on the other hand, is the

reaction by an individual to the experiences of others and ‘implies collective concern and pro-social behaviour’ (p 151). Willingness is considered to be the preparedness of an individual to share ‘his or her individual intellectual capital’ with work colleagues, while eagerness describes the level of internal motivation to share ‘intellectual capital’ with colleagues (p 149).

The findings from this research indicate that there is a strong correlation between emotions and knowledge sharing. Van den Hooff and colleagues (2012) found that pride influenced both eagerness and willingness to share knowledge, while empathy was only associated with willingness to share knowledge, noting that emotions are transient. It is the emotional state of the individual at the particular point in time when the interaction is occurring that will influence the intention to share their knowledge. The influence of pride and eagerness to share in van den Hooff and colleagues’ (2012) research is reflected in the study by Wu, Lin et al. (2009), who note that the altruistic nature of individuals positively influences the sharing of knowledge in the workplace. The positive correlation between interpersonal trust and knowledge sharing also emerged from this study, although the authors suggest that the level of trust required to share knowledge is mitigated by the level of altruism expressed by the individual: the higher the altruistic trait in the individual, the lower the level of trust in their colleagues is required.

Trust

Trust as an enabler for knowledge construction and sharing is becoming an important issue for researchers in both the educational and organisational fields (Politis 2003; Chowdhury 2005; Ibert 2007; Rashman, Withers et al. 2009; Casimir, Lee et al. 2012; Sankowska 2013). It is often discussed in terms of an individual’s willingness to place themselves in a position

of vulnerability with others that involves, not only the vulnerability of them personally, but also the vulnerability of the knowledge and skills they possess to exploitation and opportunism (Hoe 2007; Casimir, Lee et al. 2012; Swift and Hwang 2013).

Trust is acknowledged as a significant factor for teacher professional learning in the educational literature (Chan and Pang 2006; Reid 2007; Long 2012). Engaging in professional dialogue with colleagues whom they trust enables teachers to share their strongly held beliefs and values, challenge each other, and probe problems more deeply, which may lead to the surfacing of other important issues (Beatty 2011). The teachers participating in the conversation 'share a learning context' and co-construct their knowledge within this context, each teacher bringing with them knowledge and experience from 'multiple teaching and learning contexts' (Pella 2011). Throughout the conversation each participant will continually assess and reassess the experience through the emotional lens of their past personal and professional experiences.

A key influence in teacher learning (Meirink, Imants et al. 2010) is the relationships between the colleagues engaged in any interaction. Through on-going interaction with colleagues, teachers develop relationships with each other that determine the nature of future interaction. Engaging in conversations that challenge an individual's beliefs and practices and those of their colleagues requires a professional relationship with a high level of trust. The relationship must assuage feelings of vulnerability enabling the teacher to examine their own deeply held beliefs, values and practices, but also be strong enough to challenge the beliefs, values and practices of colleagues (Schuck, Aubusson et al. 2008).

In undertaking their research of professional learning and co-construction of knowledge within the context of co-teaching, Rytivaara and Kershner (2012) observed two teachers during their first year working collaboratively together and conducted four interviews with each person over the two year period of the research. Through the analysis of the observations and rich narratives Rytivarra and Kershner found that the two participating teachers not only learned from each other through reflection on practice, but also through the 'formal and informal learning opportunities' that were 'intermingled in practice and in their on-going dialogue', a 'complex process' that could not be 'reduced to any single event' (p 1007). The collaborative relationship between the teachers was one of trust and equality in which both were active participants in the meaning-making and knowledge construction through their on-going professional dialogue. Rytivaara and Kershner (2012) noted that the two teachers worked as a team with a sense of oneness rather than two individuals, with each teacher contributing their own skills and knowledge to the partnership. The collaboration was 'a means for the co-construction of further knowledge as well as serving as a shared repository for current memories and shared knowledge. Thus, in a collaborative context, teachers would have more knowledge to apply in practice than when working alone' (p 1006). The dialogue the participating teachers engaged in was not formally organised but as a result of their continual interaction as they strove to provide the most effective learning experiences for their students.

Research in the organisational field has explored the concept of trust in more detail. In his study of trust and complex knowledge sharing, Chowdury (2005) identifies two types of trust: affect-based and cognition-based. Affect-based trust relies on the emotional connection with others while the cognition-based trust focusses on cognitive reasoning and the professional credentials of others. As he explains:

With affect-based trust, individuals develop strong links of personal values and emotional ties toward each other. This improves their understanding of each other as individuals and creates emotional openness without much concern for vulnerability. The resulting social intimacy helps them develop shared values, perceptions and mental models. On the other hand, with cognition-based trust individuals may improve professional relationships and enhance professional collaborations. (p 313)

This conceptualisation of trust is reflected in the study by Casimir, Lee et al. (2012), whose focus was on the influence of affective trust in colleagues and affective commitment to their organisation on knowledge sharing. While their findings on affective trust and knowledge sharing reflect other studies into emotion and knowledge sharing (such as Wu, Lin et al. 2009; Hooff, Schouten et al. 2012), they also found that commitment to the organisation had a positive influence on voluntary knowledge sharing.

Affective and cognitive trust were also explored by Swift and Hwang (2013) in the context of knowledge sharing within a social network. They also note that there is 'initial trust' which 'occurs early in the relationship and is based on the affective and cognitive cues' and 'longitudinal trust' that 'occurs based on actual experiences (one does what they say they will do, etc.) between parties over time' (p 24). The results of their study clearly indicate that affective trust is a more influential factor in the facilitation of knowledge sharing than cognitive trust. They also found that affective trust was the only influencing type of trust on the strength of social networks acknowledging that social networks require high personal interaction that tap into the personal emotions reflected in affective trust. The strong links between emotions and relationships within groups was also found by Hoe (2007), who proposes that, due to the dynamic nature of trust, it requires interaction over a period of time

to develop the relationships between people that foster cooperation and the willingness to share knowledge.

The emotional responses by individuals to each experience influences their actions and reactions and inform future interaction. The development of trusting relationships with colleagues supports the construction of professional knowledge through collaboration. This is important for on-going professional learning in a school and organisational workplace that utilise teams and networks to encourage interaction.

Working in teams, networks and communities of practice

Knowledge construction and sharing through participation in teams, networks and communities is raised as an important aspect of life in the workplace and a focus for researchers in the fields of teacher professional learning, organisational learning and knowledge management (Allee 2003; Reagans and McEvily 2003; Opfer and Pedder 2011; Roloff, Woolley et al. 2011; Verburg and Andriessen 2011; Cornelissen, Jong et al. 2012).

In an educational context the most significant body of work in this area focusses on teachers collaborating through formally organised teams or groups. The opportunity to work collaboratively with colleagues as members of small groups focussing on particular aspects of their teaching practice was noted by Long (2012) as a significant aspect of the Quality Teaching Model used in New South Wales, Australia. The model provided a framework and resources to encourage teachers to engage with student data and reflect on their practice through reflective dialogue with colleagues. She argues that through participation in the groups as communities of learners, teachers are 'at the core of their own professional

learning, where they are emotionally and professionally supported by their colleagues' (p 149), which enables 'deep learning' and stimulates pedagogical change.

Collaboration within a team or project group environment enables teachers to interact with colleagues, providing physical and emotional support to each other and opportunities to engage in interaction that can lead to effective professional learning (Lieberman and Mace 2008; Ng and Tan 2009; Conoley and Conoley 2010). However, as Opfer and Pedder (2011) argue, not all collaboration is effective for teacher learning.

They suggest that collaboration is a 'double-edged sword', explaining this statement through the application of the 'Goldilocks Principle':

Too much collaboration and learning are stifling, too little collaboration and teacher isolation inhibit growth, just enough collaboration and teachers receive the stimulation and support from colleagues necessary for change. (p 386)

The degree of collaboration needed for professional learning to occur will vary depending on the individual participants and the context of the activity at that specific point in time (Opfer and Pedder 2011). Ng and Tran (2009) note that collaboration through participation in a team or community may not always lead to learning. Some groups provide people with the opportunity to share stories, problems and practical tips, supporting but not challenging beliefs and values of both themselves and the group. They argue that learning requires reflection that will challenge assumptions and create new knowledge.

Teachers value the opportunity to reflect with colleagues. In their examination of four professional learning projects undertaken through the Australian Government Quality Teacher Programme Ingvarson, Meiers et al (2005), found that the most important influence

on teaching practice was the opportunity for ‘active learning’ and ‘reflection on practice’, facilitated through a professional community within the school. The extent to which the project strengthened the community, through increasing opportunities for engaging in dialogue with colleagues focussing on teaching practice and student outcomes, influenced the professional learning that occurred. Reports by participating teachers were more positive about projects that created a learning community through on-going supported learning activities and follow-up support, than projects that did not. It was also noted that increasing the opportunities for dialogue over a prolonged period of time had a significant impact on professional learning. It provided additional scheduled time for the formal team meetings and opportunities for relationships to develop, which influenced the amount of time teachers chose to spend meeting informally with other colleagues participating in the project.

In their study of teacher reflection through the use of a learning community, Maloney and Konza (2011) found that not all teachers were equally engaged in the process and identified a number of factors that may have influenced their engagement and contribution. The project was a collaboration between the early childhood team of a primary school, the deputy principal and two university researchers, with the aim to develop a shared vision for the early childhood education of the school. The attendance at workshops, willingness to share opinions and debate issues ‘ebbed and flowed’, with the teachers who did share the vision being developed maintaining their level of enthusiasm, while others opted to become passive participants or not attend meetings. The passive teachers appeared to lack the confidence to voice opinions or disagree with colleagues or the deputy principal. Maloney and Konza (2011) suggest that strong professional relationships need to be established between members of the community to ensure each person feels confident to share practice, engage in debate about issues they hold dear, and participate in the co-construction of knowledge.

Across the organisational literature it is acknowledged that working in teams or groups provides opportunities for people to interact, develop relationships and co-construct knowledge. However, there is also a significant body of work focussing on knowledge construction and sharing through participation in informal groups.

In an attempt to differentiate between teams, networks and communities of practice, Wenger and Snyder (2000) suggest some basic characteristics of each type as illustrated in the ‘Snapshot Comparison’ table (Table 3) below:

Table 3 Snapshot Comparison (Wenger and Snyder 2000 p 142)

	What’s the purpose?	Who Belongs?	What holds it together?	How long does it last?
Community of practice	To develop members’ capabilities; to build and exchange knowledge	Members who select themselves	Passion, commitment, and identification with the group’s expertise	As long as there is interest in maintaining the group
Formal work group	To deliver a product or service	Everyone who reports to the group’s manager	Job requirements and common goals	Until the next reorganization
Project team	To accomplish a specified task	Employees assigned by senior management	The project’s milestones and goals	Until the project has been completed
Informal network	To collect and pass on business information	Friends and business acquaintances	Mutual need	As long as people have a reason to connect

The groups are considered to exist along a continuum in terms of formal arrangements, with work groups and project teams at the formal end, the informal network at the other and communities of practice emerging ‘in the social space’ in the centre (Allee 2000 p 6). The characteristics of the formal work group, (often referred to as a team in other literature), project team and communities reflect the general understanding of these groups by other authors (for example: Senge 1992; Allee 1997; Ng and Tan 2009; Krogh 2011; Roloff, Woolley et al. 2011; Long 2012; Mueller 2012). However, there is a broader use of the term network to include more formal as well as informal arrangements.

Through their analysis of the literature and study of networks in large organisations, Verburg and Andriessen (2011) identified four types of knowledge networks that occur in an organisational context: strategic networks; on-line strategic networks; question and answer networks; and informal networks (p 41). The strategic and online strategic networks are formally arranged networks, operating within an organisation with a closed membership, and consisting of a limited number of people with a perceived position or specific expertise in the organisation. Question and answer networks are less formally organised, operating through an organisation’s intranet and relying on the willingness of individuals to exchange questions and answers in relation to practical problems. As its name implies, the informal network operates outside the formal organisational structure. It provides employees with areas of interest in common a forum in which they are able to share ideas, concepts and stories and closely reflects the description suggested by Wenger and Snyder.

Teams, networks and communities all provide individuals with the opportunity to interact with others, thus facilitating the development of relationships that may lead to the creation and sharing of knowledge. Within a team, network or community, the relationships rely on

the development of both emotional and cognitive trust, which take time and interaction (Hoe 2007; Swift and Hwang 2013).

Communities and informal networks can exist both within and outside organisations, and connect individuals who share professional disciplines and interests. The membership of these groups is not restricted, and may represent people from across an organisation or from across a number of different organisations, and provides a social forum for the sharing and creation of knowledge (Senge, Kleiner et al. 2002; Verburg and Andriessen 2011). Through participation in a community each member shares experiences and ideas, engaging in conversation leading to the co-construction of knowledge shared by the community. As part of this process each person establishes their own identity in relation to others and contributes to the development of the shared identity, values, norms and history of the community (Wenger 1998; Krogh 2011).

When new members join the community they are exposed to the embodiment of the community's history through the participation and identities of practitioners, which includes not only the other members but also the composite stories of that community. As they engage in the community the newer person negotiates their identity in relation to others and, in doing so, influence the identities of others (Wenger 1998).

The development of trusting relationships occurs over time within a community and each person will determine the level of sharing and knowledge creation they will engage in with others based on the relationship at the time (Krogh 2011). In his study of investment bankers Chivers (2011) finds that the network of colleagues also become a network of friends as they

develop a close trusting relationship through helping each other learn and cope with the complexity of the work and socialising after hours.

People often 'serve as conduits of learning through their simultaneous membership' of multiple teams, networks and communities (Roloff, Woolley et al. 2011 p 262). While the 'knowledge cannot be separated from the human networks and communities that create it, use it, and transform it' (Allee 2003 p 113) because 'it depends on the personal interpretation within a specific context' (Cornelissen, Jong et al. 2012 p 473), the ideas and concepts created within the community or network, as interpreted by each member of the community or network, can be utilised in the co-creation of new knowledge in another community, network or team. When considered in a school or organisational context it is clear that 'learning and knowing are embedded in everyday practice and experience, with knowledge emerging from and contributing to workplace activity' (Ferguson, Burford et al. 2013 p 169).

Teams, networks and communities that exist both within and outside a school or organisation are important mechanisms for developing relationships and enabling interaction that may result in the construction of professional knowledge. Establishing an environment in which professional learning, knowledge construction and knowledge sharing are encouraged and supported is essential for a school or organisation (Senge 1992; Senge, Cambron-McCabe et al. 2000; Thomas and Allen 2006; Hord and Sommers 2008).

Learning Organisations and Professional Learning Communities

Providing a workplace environment to encourage professional learning within the school or organisation has been raised from different perspectives in the educational and organisational literature. While the concepts of professional learning communities (educational literature)

and a learning organisation (organisational literature) have emerged separately, both lay claim to creating an ideal school or organisational culture in which continual learning through collegial interaction, participatory decision-making and shared beliefs and values is the norm.

Recognised proponents of professional learning communities, such as Hord and Sommers (2008) and DuFour, DuFour et al. (2008; 2010), are concerned that the term 'professional learning community' (PLC) has been used to describe a number of collaborative approaches to teacher professional learning, including year level teams meeting regularly and groups of teachers participating in a project. They contend that a professional learning community is the school rather than smaller teams and groups. As argued by DuFour and DuFour et al (2010), 'While collaborative teams are an essential part of the PLC process, the sum is greater than the individual parts.....we believe it is helpful to think of the school or district as the PLC and the various collaborative teams as the building blocks of the PLC' (p 10).

While Stoll, Bolam et al. (2006) note that there is no universal definition of a professional learning community they endeavour to 'unpack the concept'. Centrally located in the concept of a professional learning community is the word 'learning', indicating that teachers as professionals learn within a collaborative community. The community is the 'heart' of a professional learning community. The focus shifts from individual professional learning to professional learning within the context of a community of learners. The professional relationships between members of the community are meaningful and supportive with 'an ethic of interpersonal caring permeating the life of teachers, students and school leaders' (p 225).

The literature focussing on learning organisations shares a similar issue regarding an agreed definition or description, with a wide variety of descriptions offered. In an endeavour to tease out the common elements a sample of descriptions has been collected from the literature and is provided in the table (Table 4) below.

Table 4 Descriptions of a learning organisation

Author	Description
Senge (1992)	'...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.' (p 3)
Sun (2003)	'...a learning organisation can be expressed as an organization which is in the process of learning or on the journey of continuously learning.' (p 157)
Yeo (2005)	'...learning organization" is a collective entity which focuses on the question of "what"; that is, what are the characteristics of an organization such that it (represented by all members) may learn? The "learning organization" embraces the importance of collective learning as it draws on a larger dimension of internal and external environments.' (p 369)
Thomas and Allen (2006)	'The learning organisation concept is about building learning and knowledge creating capacity in individuals and enabling the effective dissemination of this knowledge through the organisation. In essence then, the learning organisation is the product or result of a critical combination of internal change mechanisms concerned with structure, process and human capability allied to continuous environmental reviews intended to maintain or improve performance.' (p 126)
Easterby-Smith and Lyles (2011)	'The <i>learning organization</i> is seen as an entity, an ideal type of organization, which has the capacity to learn effectively and therefore to prosper.' (p 3)
Lyle (2012)	'Learning organisations...represent the practical application of organisational learning theory. They use the theoretical findings of organisational learning to inform the ways in which they might foster continuous improvement through effective learning practices. Viewed this way, learning organisations are the dynamic representation of the theory.'(p 217)

It is clear from this sample of descriptions of ‘a learning organisation’ that there is no agreed definition or description. However, the common elements emerging from across this sample suggests that a learning organisation is a kind of entity in which systems or individuals engage in learning practices through which knowledge is created and shared to benefit both the individual and the organisation. A few descriptions expand on these elements, bringing in a cultural dimension in which learning is nurtured and fostered to enable the organisation to continually improve. One of the most referenced works related to learning organisation is that of Peter Senge (Yeo 2005; Retna 2006; Susilaworn and Muenjohn 2009; Bui and Baruch 2010; Lyle 2012), which will provide the basis for the discussion in this review.

From the above descriptions of a learning organisation and professional learning communities it is clear that, while the concepts have emerged from differing perspectives (schools and organisations), there are some commonalities. The following table (Table 5) highlights some of the similarities and differences between the two concepts through the five elements of a professional learning community identified by Hord and Sommers (2008), and the five disciplines of a learning organisation identified by Senge (1992).

Table 5 Elements of professional learning communities and learning organisations

Professional learning communities	Learning organisations
<p><i>Shared beliefs, values, and vision:</i> the vision for the school is based on shared beliefs and a focus on students’ learning, which is strengthened by their own continuous learning.</p>	<p><i>Shared vision:</i> is based on the shared views and aspirations of employees for the organisation, encouraging commitment.</p>
	<p><i>Personal mastery:</i> the individuals’ commitment to on-going learning through continual reassessment of their personal vision.</p>
<p><i>Collective learning and its application:</i> What the community determines to learn and how they will learn it in order to address students’ learning needs is the bottom line.</p>	<p><i>Team learning:</i> all members of the team need to work together to engage in dialogue about complex issues and learn together.</p>
<p><i>Shared personal practice:</i> Community members give and receive feedback that challenges their pedagogy and supports their individual improvement and that of the school.</p>	<p><i>Mental models:</i> encourages reflection on held assumptions, beliefs and values. Challenging these beliefs and understandings is necessary for learning and growth.</p>
	<p><i>Systems thinking:</i> a conceptual framework for considering the organisation as a whole rather than separate parts and integrates the other four disciplines.</p>
<p><i>Shared and Supportive Leadership:</i> administrators and teams/faculties hold shared power and authority for making decisions.</p>	
<p><i>Supportive Conditions:</i> <i>Structural</i> factors provide the physical requirements: time, place to meet for community work, resources and policies, etc. to support collaboration. <i>Relational</i> factors support the community’s human and interpersonal development, openness, truth telling, and focusing on attitudes of respect and caring among the members.</p>	

From this table the synergies between the two concepts can be seen. Shared values and vision are considered an essential attribute for both professional learning communities and learning

organisations. For schools, the values and beliefs held by members of the community influence their behaviour and attitude to learning and change, and therefore a shared commitment to the on-going improvement of student outcomes provides the platform for conceiving a shared vision (DuFour, DuFour et al. 2008). The vision for the school must be one that can be shared and sustained, providing the pathway for the school to continue to move forward. It also needs to be revisited regularly to ensure it continues to provide a goal to strive towards. Otherwise, if the vision is achieved, a school will stagnate and not continue to improve student learning, as Pankake, Abrego et al (2010) point out, ‘we never *arrive*, we only continue the journey’ (p 123 italics in original).

In learning organisations the need for a shared vision is equally essential. Organisational leaders build a shared vision, based on shared views and aspirations for the organisation, emerging from personal visions (Senge 1992). This approach is more effective than imposing a vision on employees, regardless of how inspiring it may be, because if the vision is not a shared one the outcome will be compliance by employees but not commitment. It provides a purpose and direction for the organisation and influences the commitment of individuals to continual professional learning.

Working collegially in a team or group enables individuals to address common issues and co-construct knowledge. Team learning is an essential discipline for organisations because it is teams, rather than individuals, that are the ‘learning unit’ of the organisation. Individuals within teams are required to learn how to work with each other so the team is able to utilise the skills and knowledge of all member to address complex issues. Through dialogue and discussion, teams are able to learn. Senge (1992) differentiates between dialogue and discussion, arguing that during dialogue members of the team explore complex issues

creatively, listening to each other and suspending their own views. During discussion, however, members present and defend differing views, leading to the identification of the most appropriate for the issue under discussion. Without dialogue and discussion there is a tendency for 'group think' to occur, in which individuals succumb to the pressure for conformity and harmony within the team (p 237).

The importance of dialogue and discussion is also reflected in the professional learning community element of collective learning. Groups of teachers work together to co-construct knowledge through engaging in collegial inquiry into classroom practice and its implications for their students (DuFour, DuFour et al. 2010). While the focus for the inquiry will vary depending on the issues identified by the teachers, such as the implementation of a curriculum, dealing with challenging students, or the implications for them and their students of a new policy, there is sustained engagement by teachers in reflection and dialogue with their colleagues, leading to knowledge construction (Hord and Sommers 2008).

Reflection on assumptions, beliefs and values encourages individuals to engage in continual learning that will support the improvement of the organisation or school. The approach suggested by professional learning communities is the sharing of personal practice with colleagues. This enables teachers to reflect and learn from each other through professional dialogue and observing colleagues at work. The deprivatisation of the classroom is not an easy step for many teachers but provides opportunities for observation of teaching practice for a number of purposes, such as facilitating the observation by a colleague of a teacher with expertise in a particular area, with follow up conversations and coaching as needed (Pankake, Abrego et al. 2010). Visiting a colleague's classroom also supports professional learning through the practice of observation and feedback in a collegial manner. The observation and

feedback are not undertaken as part of an evaluative process but as a mechanism for providing collegial support and reflection on teaching practice (Hord and Sommers 2008).

The discipline of mental models acknowledges that individually held assumptions, values and beliefs influence how each individual perceives the world and thus their reactions to situations. Reflecting on and challenging these assumptions and beliefs both personally and through dialogue with colleagues, is necessary for learning and growth to occur.

The fifth discipline identified as essential for learning organisations, systems thinking, is not reflected in the educational literature. This is the discipline that integrates the others, providing a conceptual framework for considering an organisation as a whole, which can exceed the sum of its parts, and ‘seeing interrelationships rather than things’ (Senge 1992 p 68). While Senge has developed and described each of the disciplines separately, he stresses that each one is critical to the success of the others. Each discipline is reliant on the others. For instance, developing a personal vision through personal mastery supports the development of shared vision which, along with the discipline of mental models, is required for teams to work together effectively. Systems thinking provides the framework to support the ‘shift of mind’ taking place in which people perceive themselves and their world differently.

While leadership and supportive conditions are identified as elements of the professional learning communities literature, but not disciplines of learning organisations, they are discussed in the broader context of learning organisations in the literature. Leadership in a PLC has to be a shared responsibility. ‘Within the community, pedagogical leadership works in parallel with strategic leadership as teacher leaders and administrative leaders develop new

roles and relationships within the school' (Stoll, Bolam et al. 2006 p 237). Everyone within the learning community is responsible for striving towards the vision, and needs to take responsibility for it, and thus, decision-making is a shared, collaborative activity, rather than the responsibility of the principal or executive staff of the school. Hord and Sommers (2008) observe that while sharing leadership responsibility may be challenging for principals, it can also be difficult for staff because 'historically, teachers have been acculturated to see the principal as all-powerful, all-wise, and all-competent. It is difficult for teachers to propose new ways of thinking and doing when the principal is viewed in such a way' (pp 10 - 11).

In organisations, the traditional view of leaders is also one of people responsible for making the decisions and setting the directions. To function as a learning organisation the understanding of the role of leaders needs to change to one in which they are 'designers, stewards, and teachers' (Senge 1992 p 340). They are responsible for establishing an organisational culture that supports continual learning through challenging personal and organisational assumptions and beliefs, and building a shared vision.

The organisational structures that impact on the degree to which individuals are able to physically interact with each other and the 'patterns of interaction' encouraged by the organisation, such as 'open or closed', 'competitive or cooperative', 'productive or defensive' (Argyris and Schön 1996 p 29), influence the level of trust between people, thus determining how, when and why people chose to share their knowledge and participate in the co-creation of new knowledge (Swift and Hwang 2013). Enabling people to interact and encouraging a collaborative team approach to work supports the construction of knowledge through the 'informal and social process' of knowledge sharing (Bhatt 2002).

The supportive conditions of relationships and structure influence the ability of teachers to interact and the trust developed between colleagues (Hord and Sommers 2008). Working collaboratively requires positive relationships based on trust and respect because ‘engaging in learning can be risky, especially when working with colleagues. Teachers are unlikely to participate in classroom observation and feedback, mentoring partnerships, discussion about pedagogical issues, curriculum innovation, unless they feel safe’ (Stoll, Bolam et al. 2006 p 239). The development of these relationships requires time and opportunities to interact. In a school operating as a professional learning community teachers are provided with regular times to meet together, either in small teams or as a whole school, through an adjustment to timetables and other demands on a teacher’s time after school. The provision of meeting rooms and large workrooms enables teachers to plan and share ideas and resources as well as engage in reflective conversations. Locating teachers of similar year level or subject areas in close proximity to each other facilitates serendipitous interaction as well as more formal activities such as collegial observation (Stoll, Bolam et al. 2006).

Becoming a school functioning as a professional learning community, or an organisation functioning as a learning organisation, is not an easy task as research into both types of learning communities has found. Many organisations have used these five disciplines as the foundation on which they ‘have attempted to understand and transition to learning organisations’ (Lyle 2012 p 221) with mixed results. For some the approach adopted by management results in a less than successful implementation (for example, see Parding and Abrahamsson 2010). While others were more successful, such as the shift in one organisation from what Haldeman (2011) describes as ‘dysfunctional’ to one more closely resembling a learning organisation was a slow and ‘difficult process of learning how to learn’ (p3). Over a period of three years significant changes took place, including a renewal of the leadership

team, employee involvement in developing a shared vision, and a commitment to organisational learning. Senge (1992) stresses that organisations can never declare themselves to be a learning organisation. There is no end point, becoming a learning organisation is a continual endeavour of practising the disciplines and learning.

This need for sustained change in culture is echoed in the professional learning communities literature in which it is noted that becoming a professional learning community is not a program or an innovation that can be implemented, but a change in culture that requires sustained commitment from all members of the community (Fullan 2007; DuFour, DuFour et al. 2010). The process of changing the culture of the school to reflect that of a professional learning community is a complex and problematic exercise demanding the modification of ‘the very culture of the organization and the assumptions, expectations, habits, roles, relationships, and norms that make up that culture’ (DuFour, DuFour et al. 2010 p 248). Everyone involved with the school ‘will be called upon to redefine his or her role and responsibilities. People comfortable working in isolation will be asked to work collaboratively. People accustomed to hoarding authority will be asked to share it. People who have operated under certain assumptions their entire careers will be asked to change them’ (DuFour, DuFour et al. 2010 p 248). These changes require sustained commitment over a long period of time by all concerned.

Professional learning communities and learning organisation have the potential to support on-going professional learning through formal and informal interaction with colleagues. Current research highlights the difficulties in changing a school or organisational culture enabling them to become a learning community that suggest that further research is required to fully understand their influence on interaction and learning.

Conclusion

The internal and external pressures for continual improvement and innovation in both educational and organisational contexts are a key driving force for the significant interest in informal workplace learning (Sun 2003; Huffman and Hipp 2010; Glisby and Holden 2011; Priestley 2011; Schiuma 2012). This has been an area of theoretical exploration and research within the organisational literature for some time, while it is a more recent area of concern for the educational field that is realising its importance in supporting change within schools and the implications for formalised professional learning.

The organisational field addresses a number of issues that provide insights for education. It has been found that while formalised education and training will provide some leverage for an organisation, the greater source of knowledge and skill is embedded within the individual employees, thus the focus of knowledge sharing, creation and capture (Fenwick 2008; Littlejohn, Milligan et al. 2011; Cornelissen, Jong et al. 2012). Approaches to learning and managing knowledge within an organisation have been influenced through the consideration of different types of knowledge: tacit and explicit (Whyte and Classen 2012; Fullwood, Rowley et al. 2013). A technological approach can enable the capture and sharing of explicit knowledge through documentation and electronic means, but it is not able to capture the tacit knowledge of individuals. This type of knowledge requires a more social approach. Individuals require opportunities to interact with colleagues (Nonaka, Krogh et al. 2006). These opportunities can be provided through participation in teams, networks and professional communities, enabling individuals to establish relationships in which a level of trust is achieved to facilitate the sharing of knowledge and skills, and engage in knowledge creation. Proponents of learning organisations argue that, if an organisation functions as a learning organisation, it will provide the environment that supports interaction between

colleagues, nurtures learning and innovation and enables the organisation to meet the challenges of change (Senge 1992; Yeo 2005; Haldeman 2011; Lyle 2012).

It has also been noted in the educational literature that on-going teacher professional learning requires an environment that: values collaboration; engenders the development of relationships based on mutual trust and respect; shares decision making; and promotes shared values and beliefs (Ingvarson, Meiers et al. 2005; Stoll, Bolam et al. 2006; Fullan 2007; Hord and Sommers 2008; Opfer and Pedder 2011). Such an environment will provide the time and opportunities for teachers to interact with colleagues informally that can lead to the trusting relationships necessary for teachers to engage in informal professional learning. Effective formally organised learning activities also need to be collaborative in nature, with sufficient time for the participating teachers to develop the relationships with their colleagues necessary to support each other emotionally as well as cognitively. These learning activities should be inquiry-oriented, enabling teachers to make the connections with their teaching practice and engage in reflection with colleagues (Hargreaves 1998; Flint, Zisook et al. 2011). The proponents of professional learning communities suggest that a school that is functioning effectively as a professional learning community will provide such an environment (DuFour, DuFour et al. 2008; Hord and Sommers 2008).

However, as noted in both the educational and organisational literature, just establishing a supportive environment will not guarantee knowledge creation and sharing. The emotional dimension of working with others, the influence of past personal and professional experiences, and the importance of developing trusting relationships all highlight the complexity of learning in the workplace (Hargreaves 1998; 2004; Schmidt and Datnow 2005; Ng and Tan 2009; Sankowska 2013). Each interaction and learning experience influences,

and is influenced by, the individual's emotional state at that point in time, the personal mental models applied to the interaction, and the personal and professional identity within that particular context, with the knowledge constructed through the experience specific to that context (Weick and Sutcliffe 2005; Cooper and Pickering 2010; Gao and Riley 2010; Opfer and Pedder 2011). Thus, learning 'takes place through experience and interaction, in relation with others, and in contexts where it is shaped by the familial, social and cultural paradigms experienced' (Beattie, Dobson et al. 2007 p 121), and is a recursive process and context dependent.

While it is clear from the literature that workplaces, be they organisations or schools, are complex environments in which a range of factors influence the knowledge creation and sharing that occurs, understanding what influences individuals to engage in these activities with colleagues is still unclear (Stevenson 2005; Pella 2011; Cornelissen, Jong et al. 2012; Warhurst 2013). The pressure on teachers to commit to on-going professional learning is driven by the external demands of mandated policy and programs, as well as their desire to provide their students with the educational experiences to develop the knowledge and skills that will enable them to successfully navigate life beyond school. Although the pressure for continued professional learning will not abate in the foreseeable future, gaining an insight into what influences an individual to engage in informal professional learning with their colleagues will support teachers and inform future research.

This review has established that existing research acknowledges the importance of interaction for the creation of professional knowledge within a work environment, and the significance teachers place on informal interaction with colleagues as an opportunity for professional learning leading to changes in practice. It also identified a need, particularly in the

educational field, for research exploring teacher engagement in informal interaction leading to professional learning, which this thesis addresses.

Chapter 3: Theory and Methodology

The theoretical underpinnings and methodology that inform this research project are discussed in this chapter. Carter and Little (2007) argue that epistemology, methodology and method are the three fundamental facets of any research, providing the 'framework for planning, implementing and evaluating' qualitative research (p 1316). The epistemological basis for the research informs the methodology that in turn influences and justifies the method employed. Following this path of influence, Carter and Little (2007) note that the 'method makes epistemology visible' (p 1321). While epistemology, methodology and method are the three key aspects of research, other formal theories may also inform the research project with the methodology providing the link. These theories are able to influence the entire project, from establishing its objectives and determining its design, through to the analysis and interpretation of the findings, although, depending on the research methodology, 'the absence of theory at various points in the process might be appropriate' (p 1324).

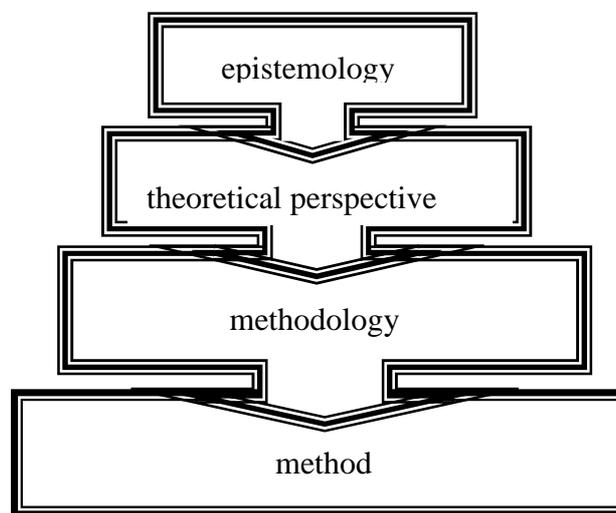
Epistemology, methodology and method are also identified by Crotty (1998) as essential for a research project, but he unpacks the theoretical perspective from the methodology, arguing that it provides 'the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic and criteria' (p 3). Creswell (2003) also argues that theory provides a lens that guides the researcher, shaping the questions asked and methodological approach selected.

Crotty (1998) suggests a four element model, based on four questions he considers need to be addressed by any researcher once an area for investigation has been identified:

- What *methods* do we propose to use?
- What *methodology* governs our choice and use of methods?
- What *theoretical perspective* lies behind the methodology in question?
- What *epistemology* informs this theoretical perspective? (p 2 italics in original)

The four elements inform one another as illustrated in the following figure (Figure 1).

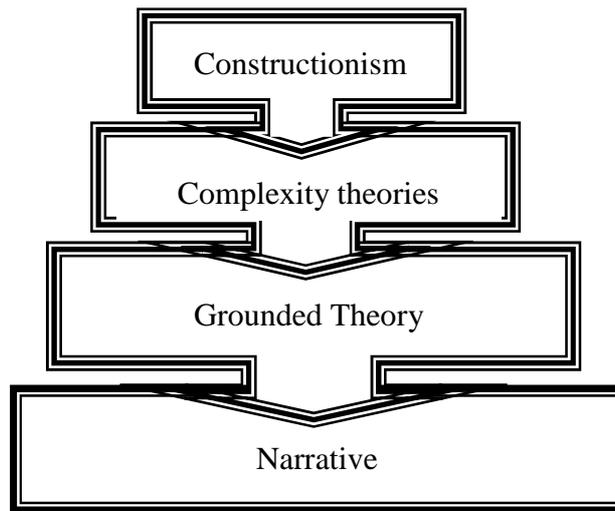
Figure 1 A four element model for developing a research approach



(Crotty 1998 Figure 1 p 4)

Following Crotty's model, this research was informed by constructionism as the epistemology position, with complexity theories providing the theoretical perspective. The use of grounded theory as the methodology enabled the outcomes of the research to emerge from the data gathered from participants, who were engaged in the phenomenon under study, through their participation in narrative workshops. The following figure (Figure 2) illustrates the approach undertaken by this research.

Figure 2 The research approach based on the four element model



This chapter discusses the first three elements of the model while the following chapter will discuss the method and findings of this research.

Epistemology

The epistemological position informing this research is constructionism, which is defined by Crotty (1998) as:

...the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. (p 42)

This perspective does not support the objectivist stance that knowledge exists in the world as a reality and is discovered. Instead it considers that knowledge is constructed by individuals, constantly reviewed and revised, constructed and re constructed, in response to interactions with people, environments and events that occur throughout life (Dewey 1938; Crotty 1998; Denzin and Lincoln 2003). As Gubrium and Holstein (2008) note ‘the leading idea always has been that the world we live in and our place in it are not simply and evidently “there” for

participants. Rather, participants actively construct the world of everyday life and its constituent elements' (p 3).

Both constructivism and constructionism posit the view that all knowledge is constructed, not 'built up within the mind through dispassionate observation' (Gergen 1994 p 68) however they diverge in locus of the knowledge construction. Constructivism has been influenced by the works of Piaget and suggests that individuals construct their own knowledge through experience with the world, developing mental models that change as the individual encounters different experiences (Talja, Tuominen et al. 2005). In contrast, Davis, Sumara et al. (2008) argue that 'constructionists do not regard the individual as the locus of learning but as a learning system within a greater learning system' (p 102). Constructionism, also known as 'social constructivism', has been influenced by the work of Vygotsky and suggests that knowledge is constructed within a 'socio-cultural context' through interaction with people, the environment and events in which 'both the individual and the environment are changed' (Talja, Tuominen et al. 2005 p 85). From this perspective the knowledge constructed through any interaction is specific to the contexts in which it was constructed, grounded in the social, historical and cultural experiences of each individual involved and the context in which it occurs (Shank 2006). As Burr (1995) argues, what is considered reality is constructed through the interaction of people and, therefore 'all knowledge is derived from looking at the world from some perspective or other' (p 6).

For research purposes Crotty (1998) suggests that constructivism is appropriate when the focus is entirely on 'the meaning making of the individual mind' (p 58). However when the research focus broadens to include knowledge created through the interaction with others, then constructionism is the most appropriate epistemological stance. This is supported by

Burr (1995), who argues that for research focussing on the ‘social practices engaged in by people’, the ‘explanations are to be found neither in the individual psyche, nor in the social structures, but in the interactive processes that take place routinely between people’ (pp 7-8). She goes on to suggest that, from a constructionist perspective, the focus of an enquiry should not be on the consideration of the ‘nature of people or society’ but rather ‘a consideration of *how* certain phenomena or forms of knowledge are achieved by people in interaction (p 8 italics in original).

The focus for this research is the construction of knowledge through interaction with colleagues within an educational context that aligns epistemologically with constructionism.

Theoretical perspective

The theoretical perspective influencing this research is complexity theories. Complexity theories emerged principally from the fields of physics, biology, chemistry and mathematics, but its potential to investigate and explain a phenomenon from a different perspective has seen it utilised across the social science fields, including business management, economics and health (Davis and Sumara 2006; Mason 2008). The field of education is also embracing complexity theories as they explore and understand what is occurring in educational institutions such as schools. It enables the researcher to move away from the linear, ‘cause-and-effect’ models (Morrison 2008) to a more holistic approach that considers the interconnectedness of phenomena in the school environment.

Definition

There is general agreement across the literature that there is no single definition for complexity theories. Given its transdisciplinary nature ‘it has to be recognized that any particular definition is coloured by the perspective of the original discipline’ (Burnes 2005 p

74). Davis and Sumara (2006) go on to state that ‘many complexivists have argued that a definition is impossible’ (p 4) and that it should be considered more of an ‘umbrella notion’ (2006 p 4). Complexity ‘offers a view of the world as composed of multiple, nested, and open dynamic systems’ (Haggis 2009 p 52) and it is within these systems that large numbers of agents interact with each other through which they influence, and are influenced by, the systems.

Complex systems

Open systems, such as human organisations, are complex systems with many interacting components. The interactions in these systems are subject to change that, in turn, influences change within the individual components. These systems cannot be reduced to their component parts and understood because of this interconnectedness: the whole is greater than the sum of its parts. However, not all systems are complex. Complicated systems are perceived as closed systems that can be reduced to their individual components, each of which can be discretely studied and understood, then reassembled: the whole system being understood through the sum of its parts (Snowden 2002; Davis, Sumara et al. 2008; Semetsky 2008; Haggis 2009).

Davis, Sumara et al. (2008 p 77) have summarised the key differences between complicated and complex systems in the table below (Table 6):

Table 6 Differences between complicated and complex systems

Complicated (mechanical)	Complex (learning)
Physics (Newton)	Biology (Darwin)
Machine metaphors	Ecosystem metaphors
Linear imagery	Cyclical imagery
Input/output flows	Feedback loops
Efficiency-oriented	Sufficiency-oriented
Goal-oriented	Growth-minded
Reducible	Incompressible

While there are a number of terms such as complex adaptive systems (Morrison 2008; Semetsky 2008), complex responsive processes (Stacey 2001), and complex learning systems (Davis and Sumara 2006), that are used to discuss complex systems in the literature, there are some commonalities in the characteristics attributed to them across the literature. The following is a sample of the characteristics as identified by four researchers in this field:

Holland (1995)

Holland has identified four properties and three mechanisms of complex adaptive systems (cas) as the ‘seven characteristics that cross-disciplinary comparisons suggest are central to a broad understanding of *cas*’ (p 6 italics in original). Each of the characteristics is interrelated.

- Aggregation (property)
- Tagging (mechanism)
- Nonlinearity (property)
- Flows (property)
- Diversity (property)
- Internal Models (mechanism)
- Building Blocks (mechanism)

Holland notes that any other characteristics identified across the literature can be reflected within one of the properties or mechanisms.

Davis and Sumara (2006)

Davis and Sumara have suggested eight ‘necessary qualities’ researchers have identified as essential to class a system as a complex system.

- *Self Organised* - complex systems/unities spontaneously arise as the actions of autonomous agents come to be interlinked and co-dependent;
- *Bottom-Up Emergent* - complex unities manifest properties that exceed the summed traits and capacities of individual agents, but these transcendent qualities and abilities do not depend on central organizers or over-arching governing structures;
- *Short-Range Relationships* - most of the information within a complex system is exchanged among close neighbours, meaning that the system’s coherence depends mostly on agents’ immediate interdependencies, not on centralized control or top-down administration;
- *Nested Structure* (or scale-free networks) - complex unities are often composed of and often comprise other unities that might be properly identified as complex – that is, as giving rise to new patterns of activities and new rules of behaviour;
- *Ambiguously Bounded* - complex forms are *open* in the sense that they continuously exchange matter and energy within their surroundings (and so judgments about their edges may require certain arbitrary impositions and necessary ignorances);
- *Organizationally Closed* – complex forms are *closed* in the sense that they are inherently stable – that is, their behavioral patterns or internal organizations endure, even while they exchange energy and matter with their dynamic contexts (so judgements about their edges are usually based on perceptible and sufficiently stable coherences);
- *Structure Determined* - a complex unity can change its own structure as it adapts to maintain its viability within dynamic contexts; in other words, complex systems embody their histories – they learn – and are thus better described in terms of Darwinian evolution than Newtonian mechanics;

- *Far-From-Equilibrium* – complex systems do not operate in balance, indeed, as stable equilibrium implies death for a complex system. (Davis and Sumara 2006 pp 5-6 italics in original)

Radford (2006)

Radford (p 183) cites the work of Paul Cilliers, who suggests ten characteristics of systems which could be considered complex:

- They consist of extremely large numbers of elements that cannot be accounted for within conventional reductive forms of analysis;
- These elements must be seen to interact in a dynamic way;
- These interactions are rich insofar as elements in the system are influenced by a number of other elements and themselves influence many others;
- They are non linear and this guarantees that small causes can have larger results and vice versa;
- They are usually have fairly short range, interacting only with neighbouring elements;
- There are loops in all interactions providing feedback;
- Complex systems are usually open i.e. they interact with environment making it difficult to define their borders;
- They operate far from equilibrium;
- They evolve through time, past being responsible for present behaviour;
- Each element of system is ignorant of the behaviour of the system as a whole, responding only to local behaviour. (Cilliers, 1998, pp.6-7)

Coppieters (2005)

Coppieters identifies seven characteristics of complex systems:

- Relationships are non-linear and contain feedback loops;
- Complex systems are open;
- Complex systems are holistic;
- Boundaries are difficult to determine;
- Inability to predict. A complex system has history;

- The concept of ‘edge of chaos’;
- A complex system demonstrates autopoiesis. Complex systems are self-organizing and transform themselves. (Coppieters 2005 p 133)

While the above samples express the characteristics of complex systems in different ways, there are a number of common characteristics emerging as significant to describing complex systems: emergence, adaptability, self-organisation, non-linearity, dynamic, flows and relationships, uncertainty and interconnection. These characteristics are also reflected in the works by Fenwick (2009), Zellermyer and Margolin (2005), Stacey (2001), Morrison (2002) and Haggis (2009). Acknowledging that these characteristics are essential for a system to be considered a complex system, a complex system can then be understood to emerge through the interactions with other agents (both human and non-human) within and across systems. The reactions by each agent to these interactions will vary depending on the relationship between the agents, responses to previous interactions and the purpose of the current interaction. Given that each agent constantly responds and adapts to other agents within each system of which they are a part, it is not possible for a linear, cause-and-effect process to be identified. As Phelps et al. (2011) argue ‘complex systems can respond very differently to identical circumstances since the system, not the conditions, determine the response’ (pp 49-50).

Complex systems develop over time as the norms and cultures of each system emerge through the interaction between the agents. Davis (2005) describes these norms and cultures as ‘emergent rules and laws that are native to the systems’ (p 20). The emergence of rules and laws, or patterns and order specific to the system, require time enabling the agents within the

system to react to the interactions and influence future interactions. Haggis (2008) explains that:

If there is a sufficient number of these interactions, and if they take place over a sufficiently long period of time, specific forms of order, or organisation, will periodically *emerge* from within the system. (p 166 italics in original)

It is the self-organising nature of complex systems that leads to the emergence of order specific to each system because, while each system is sensitive to the influence of neighbouring systems, it is the interactions of the agents within the local system that lead to the emergence of the rules and norms specific to that system. However, these rules and norms are not static. They are constantly modified to adapt to changes within the system and its neighbouring systems (Burnes 2005; Fenwick 2009).

Change is not only a continual process for complex systems, but is irreversible. As Osberg, Biesta et al. (2008) point out:

...in acting, we create knowledge, and in creating knowledge, we learn to act in different ways and in acting in different ways we bring about new knowledge which changes our world, which causes us to act differently, and so on, unendingly. (p 223)

The system is constantly responding to interactions within and across all the systems it inhabits, learning and adapting. From the perspective of individual learning, Morrison (2008) describes the mind as 'not static; each new event is met and learned by a new mind – it is not the same mind as it was moments before' (p 25). This is reminiscent of the notion that you never step in the same river twice because the particular water that originally enveloped your feet has moved downstream. Complex systems - whether individuals, groups or communities - are continually changing. Some of the changes are imperceptible while others are more

dramatic, but all are responding to the interaction within their environments (Nielsen, Triggs et al. 2010).

The patterns or order emerging from the interaction within a system cannot be caused, but they can be influenced. Kurtz and Snowden (2003) describe a case study involving military graduates and pre-school children. The graduates were asked to manage the pre-schooler's playtime, which they attempted to do using a military approach of ordered play 'based on rational design principles, and in consequence achieved chaos' (p 5). The graduates then observed experienced teachers undertaking the same activity. The teachers did not try to control the activity, but instead intervened to 'stabilize desirable patterns and destabilize undesirable ones' then would 'seed the space' to encourage the emergence of the patterns they wanted. Seeding, or the creation of attractors, is also discussed by Gilstrap (2005), who suggests that attractors 'act as magnetic forces that draw complex adaptive systems towards given trajectories' (p 58). From a management perspective, the use of feedback mechanisms can create new attractors across the systems within their sphere of influence and encourage a move towards the desired direction (Kurtz and Snowden 2003; Gilstrap 2005).

Schools as complex systems

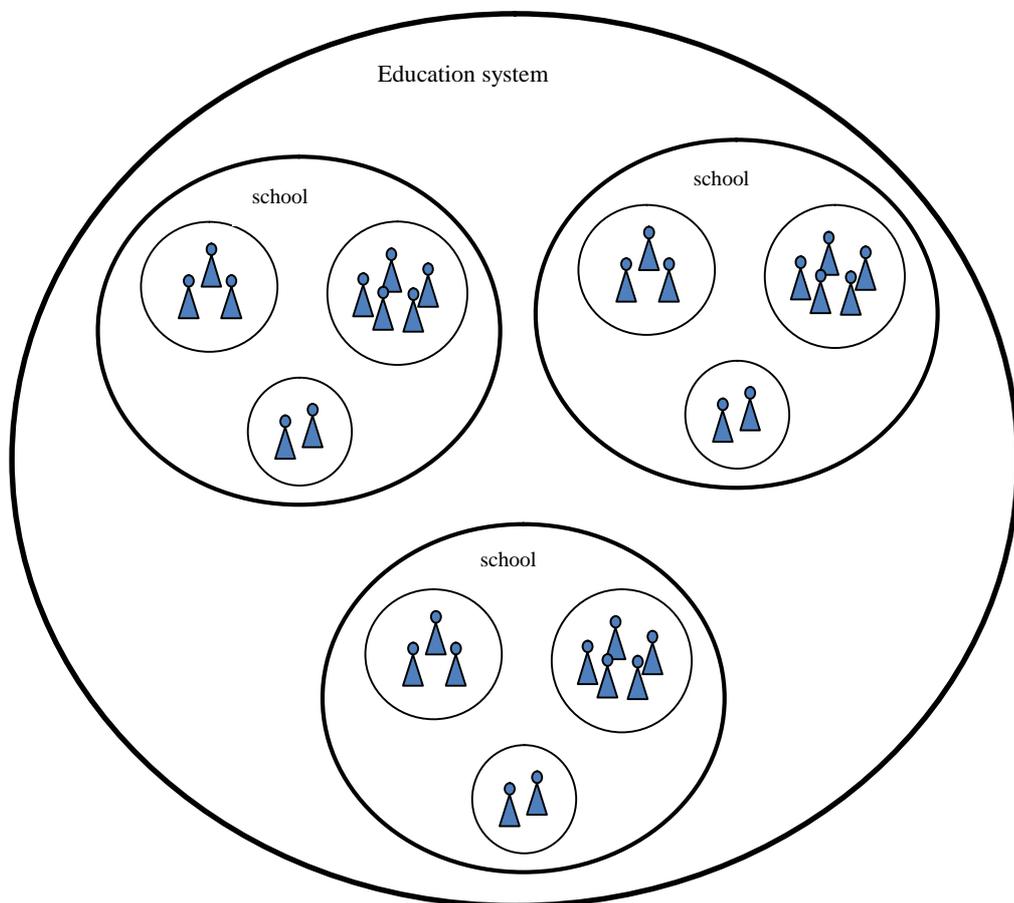
Morrison (2008) suggests that schools can be considered complex adaptive systems 'being dynamical and unpredictable, non-linear organizations operating in unpredictable and changing external environments' (p 22). Haggis (2009) also discusses schools as dynamic systems that evolve 'specific to that system's history and conditions' (p 53) in combination with 'the interactions of the larger systems in which they are embedded' (2009 p 53). Schools can clearly be identified as separate entities, each similar but different to each other due to the

interactions of the systems within it (for example, students, teachers, teams), functioning within a larger system such as an education system (Davis and Sumara 2006).

The phenomenon of systems embedded within systems has been described by Davis and Sumara (2006) as ‘nestedness’.

Complex unities can be (and usually are) simultaneously autonomous unities, collectives of autonomous unities, and subsystems within grander unities. They are nested. (p 90)

Figure 3 Figurative representation of the nestedness of teachers



Based on the ‘figurative representation of the nestedness of complex unities’ by Davis and Sumara (2006 p 6) the figure above (Figure 3) provides one possible scenario of nestedness for teachers. It is a simplistic, two dimensional representation and does not attempt to

articulate the multiple systems within each system, such as the non-school based systems within an education system. Nor can it demonstrate the interaction that would occur between education systems and their subsystems. However, it does acknowledge that individuals can be considered complex systems nested within other systems (Beswick, Watson et al. 2010). The small triangular shaped elements represent the individual teachers, who are part of multiple groups with other teaching staff within a school community that includes parents and students. Each school is part of a larger education system. The boundaries indicated are purely arbitrary for the purposes of this example acknowledging that individual agents and systems interact across and between systems not just between their neighbouring systems (Osberg, Biesta et al. 2008 p 219). It is through these interactions that the systems organise themselves, determining the rules and boundaries specific to their system. As Haggis (2009) notes:

A system is particular in three senses. First, it has its own set of initial conditions. Second, these conditions have given rise to a specific history of emergent effects and ongoing conditions, in relation to that system's evolution through time. Third, the system is connected to and partly constituted by, a particular configuration of other, different systems. (p 54)

When we consider the nested nature of school systems we can see that each person within the system has multiple dimensions, or roles, such as a member of a family, a work colleague or a participant in a leisure activity, as they participate within and across a number of different systems (Kurtz and Snowden 2003; Haggis 2009). Within each system the individual influences, and is influenced by, others and the rules and boundaries of that particular system, 'co-evolving' and 'shaping each other' (Morrison 2008 p 20), with each different type of interaction producing differing outcomes. Thus individualised identities are constantly

evolving through the interaction of personal and professional relationships within and across multiple systems (Weick 1995).

The opportunities to interact across the nested systems within a school may be restricted through ‘complexity reduction’. Biesta (2010) describes complexity reduction as ‘reducing the number of available options-for-action for “elements” within a system’ (p 7). Controlling mechanisms, such as school buildings, timetables and organisational structures, can create ‘temporal boundaries’ restricting the interaction within and across the nested systems, thus reducing the opportunities for learning by individuals.

Complexity and learning

In discussions about complex systems the notion of adapting to interactions has often been considered in biological terms where ‘experience guides changes in the organism’s structure so that as time passes the organism makes better use of its environment for its own ends’ (Holland 1992 p 9). However, human systems not only respond and adapt to the interactions but learn (Holland 1992; Morrison 2002), creating the histories that are unique to each one.

From a complexity perspective, Davis and Sumara (2006) suggest learning is dynamic and non-linear and ‘can be characterized in terms of recursion, iteration, feedback loops, folding back, elaboration, and growth’ (p83). Learning is not a predictable, cause-and-effect process; instead it is a co-construction of knowledge through the interactions between individuals and with their environment, each continually responding to, and learning from, the other during the experience (Phelps, Hase et al. 2005; Haggis 2009). Learning as a process of constructing knowledge is emergent; occurring for each individual through the active interaction with their

environment as they seek to understand, live in and change it (2008). This phenomenon is described by Morrison (2008):

Individuals and their environments (however defined, whether cognitive, cultural, communitarian, social, emotional, physical) shape each other emergently and agentically. Knowledge is simultaneously socially, culturally, temporally and locally contextualised, situated, learned and shaped. (p 25)

Morçöl (2005) also suggests that knowledge is ‘temporally contextual’ because it is constructed by individuals who bring differing perspectives to the dynamic interaction taking place at a particular point in time. The outcomes from every interaction will be different for each person participating due to the personal histories of each participant which ‘both enables (and constrains) one’s perceptions of new experiences’ (Davis, Sumara et al. 2008 p 201). Given that each person perceives each experience differently, it is not possible to predict or control what is learned by any person or group as an outcome of an interaction (Haggis 2008; Morrison 2008). To understand what has been learned during the interaction it needs to be considered retrospectively, with each person who participated making sense of the experience based on their current personal history (Snowden 2002).

The unpredictable nature of learning in a complex environment is of particular relevance to educational research. Teachers participate in a complex web of systems, both personal and professional, in which they continually construct knowledge through interactions with others. The unique histories each person creates throughout their life influence future interactions. Making sense of each experience is undertaken retrospectively and each person participating will have a different interpretation of what occurred. Informed by constructionism and complexity the researcher breaks with ‘simple successionist cause-and-effect models, linear predictability, and a reductionist approach to understanding phenomena, replacing them with

organic, non-linear and holistic approaches respectively, in which relations within interconnected networks are the order of the day' (Morrison 2008 pp 19-20).

Methodology

Complexity theories provide a methodological direction to investigate and understand learning in schools and organisations (Davis and Sumara 2001; Zellermyer and Margolin 2005). It suggests that a holistic approach is required to make sense of a complex environment and discover the relationships, interactions and processes that occur within it.

This approach enables phenomena to emerge from the dynamics of the interactions and relationships, and provides a context for greater understanding of what is taking place (Kraft, Brill et al. 1999; Davis and Sumara 2001; Zellermyer and Margolin 2005; Creswell 2008).

A qualitative research approach aligns with a constructionist epistemological position (Creswell 2003) and complexity theories. It is considered the most appropriate for the investigation of human experience and, as Polkinghorne (2005) notes, 'the experiential life of people is the area qualitative methods are designed to study' (p 138). This is supported by Yin (2011), who argues that qualitative research involves:

- Studying the meaning of people's lives under real-world conditions;
- Representing the views and perspectives of the people [...] in a study;
- Covering the contextual conditions within which people live;
- Contributing insights into existing or emerging concepts that may help to *explain* human social behaviour; and
- Striving to use multiple sources of evidence rather than relying on a single source alone. (pp 7-8 italics in original)

The focus of this research was to explore what influences the interaction of teachers leading to learning within the context of their work environment from the perspective of teachers. It required a qualitative methodology that provided the holistic approach necessary to enable

the researcher to ensure the outcomes of the research reflected the views of the participants. Grounded theory ‘builds on the strengths of qualitative methods as an inductive method for building theory and interpretations from the perspective of the people being studied’ (Ezzy 2002 p 61).

Grounded Theory

Grounded theory is a methodology that enables the development of a theoretical understanding of complex phenomenon from qualitative data, grounded in the perspective of the participants of the study (Creswell 2003). As Strauss and Corbin (1990) point out, through the development of a grounded theory ‘we are trying to capture as much of the complexity and movement in the real world that is possible, while knowing we are never able to grasp all of it’ (p 23).

Grounded theory emerged in the mid-1960s from the work of two sociologists, Glaser and Strauss, each of whom brought differing understandings to the methodology (Charmaz 2006; Hall, Griffiths et al. 2013). Glaser ‘imbued grounded theory with dispassionate empiricism, rigorous codified methods, emphasis on emergent discoveries, and its somewhat ambiguous specialized language that echoes quantitative methods’, while Strauss ‘brought notions of human agency, emergent processes, social and subjective meanings, problem-solving practices, and the open-ended study of action’ (Charmaz 2006 p 7). The resultant grounded theory methodology provided a methodology that moved away from the testing of hypotheses deduced from existing theories to an inductive approach in which the theories emerged from the data (Charmaz 2006; Shank 2006; Hall, Griffiths et al. 2013).

Strauss and Corbin (1990) describe a grounded theory as:

...one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge. (p 23)

The iterative nature of grounded theory enables researchers to explore phenomenon through a process that requires them to constantly review what is emerging and re-examine the data which takes into account the complexity of the environment in which the phenomenon is occurring.

While Strauss and Corbin provide detailed descriptions of the procedures used in a grounded theory approach to a research project, they also note that ‘a certain amount of openness and flexibility are necessary in order to be able to adapt the procedures to different phenomenon and research situations’ (Strauss and Corbin 1990 p 26). Charmaz (2006) also discusses the procedures for conducting grounded theory and points out that they should not be considered prescriptive, instead viewed as a set of ‘flexible guidelines’ (p 9). This flexibility in the methodology enables researchers to gather and analyse qualitative data which results in a theory generated from the perspective of the participants (Strauss and Corbin 1990; Charmaz 2006; Creswell 2008).

Ethical considerations

This research relied on the willing participation by individuals which brought with it ethical responsibilities. The assurance of confidentiality and voluntary nature of participation in the workshops was paramount and was stressed in both the written information provided to potential participants and the verbal introduction to each workshop. Confidentiality was

achieved through the removal of any identifying material which may reveal the participant's identities or that of individual schools mentioned and the use of pseudonyms when required to maintain the fluency of a narrative. The workshops commenced with an explanation of the purpose and design of the research; the role of both the researcher and participant during the workshop; that they were able to withdraw at any time with no ramifications either personally or professionally; and the completion of a 'consent to participate' form.

To ensure that the data collected and analysed throughout the study accurately portrayed the experiences shared by the participants they were invited to review the transcripts of the workshop they participated in once all identifying material had been removed. A significant proportion of the participants indicated a willingness to receive a copy of the transcript with over half of these validating the data.

This research did not seek to establish a particular case or viewpoint, but develop an understanding of the teachers' experiences therefore the values, beliefs and perceptions of all participants were valued and respected, adding to the richness of the data.

This research received formal approval through the University of Canberra's Committee for Ethics in Human Research and approval to conduct the research with ACT Government teachers was granted by the ACT Department of Education and Training.

Limitations and delimitations

This research is restricted to one aspect of teacher professional learning experiences - the learning gained through informal interaction in a school environment - however it recognises that formal professional learning activities make a significant contribution to teacher

professional learning. Formalised professional learning is acknowledged throughout this research but the focus for this study was on informal interaction therefore it did not explore professional learning through interaction in formalised setting as part of the data gathered, but it was noted by the participants. While it is understood that teachers engage in professional learning through informal interaction more broadly than within their specific school, it was decided to place a boundary around the focus of the inquiry to ensure the research was manageable.

Generalisability

Guba and Lincoln discuss the issue of generalisability and consider that a generalisation ‘cannot be made when the inquiry is concerned with human behaviour’ (Guba and Lincoln 1981 p 118) because the context is lost. Guba and Lincoln (1981) explain that the findings from a qualitative inquiry are relevant to the context from which they emerged, but it cannot be assumed that the same outcomes would emerge from another context. This research investigated the experiences of three groups of teachers through their perceptions of informal interaction leading to professional learning in a school environment, expressed as shared stories. This provided a unique perspective in terms of the experiences of the participants and the shared understandings that emerged through the analysis phase. These outcomes cannot be generalised outside of this context.

Credibility

The credibility of an inquiry can be determined through ‘verification and further exploration’ of the data with the participants (Silverman 1993 p 156). Grounded theory methodology provides the flexibility for the researcher to involve the participants at a number of stages during the inquiry. Participants in this research verified the initial data collected through the

narrative workshops and were active co-constructors of the categories and theory during the analysis stage.

Verisimilitude

Bailey and Tilley (2002) note that:

...the qualitative researchers who analyse stories identified in interview data recognize the primacy of stories as meaning-making strategies. They are interested not so much in the facts or *truth* of these accounts, but rather in the meaning portrayed in story form. That is, although stories identified in interview data frequently recount the experiences or events of everyday life, they are, by definition, *always* reconstructions of the events that they describe. Storytellers reconstruct their stories to convey a specific perspective of an event: it is *meaning* not *truth* that is conveyed in the form of stories. It is the truth of *their* experiences, not an objective, decontextualized truth.
(p 581 italics in original)

Polkinghorne (1988) also notes that the results of research using narrative ‘cannot claim to correspond exactly with what has actually occurred – that is, they are not “true,” if “truth” is taken to mean exact correspondence or conformity to actuality. Research investigating the realm of meaning aims rather for verisimilitude, or results that have the appearance of truth or reality’ (p 176).

This research aimed for verisimilitude through acknowledging that the experience shared by each participant was their truth. It also acknowledges that stories are recounted from the perspective of the teller which will have an impact on the ‘accuracy’ of what occurred. However, it is the meaning conveyed through the story that is important to this inquiry.

Conclusion

This chapter described the epistemological position, the theoretical perspective and the methodological approach informing this research. From a constructionist position knowledge is constructed contextually through interaction between human beings and their world, and this understanding of knowledge is reflected in complexity theory. This theoretical perspective suggests a qualitative methodology and, to enable the experiences of the teachers participating in this research project to be clearly represented, grounded theory was the methodology used for this study.

The following chapter describes the method used for this research. It explains the stages used for data gathering and analysis and the emergence of the findings through the involvement of the participants, endeavouring to ensure that the findings reflected what was 'true' for them.

Chapter 4: Method and Findings

This chapter presents the research question, the assumptions that have informed it and discusses the method used for gathering, analysing and interpreting the data. This method was informed by the epistemological position, theoretical perspective and methodological approach discussed in the previous chapter. The process undertaken with the participants to collect and make sense of the experiences shared in narrative workshops and the emergence of the themes through group sense-making workshops, is described in detail with the findings briefly introduced at the end of the chapter.

Research question

What influences teacher engagement in informal interaction leading to professional learning with colleagues in a school environment?

Assumptions

The following assumptions were made in addressing the research question:

- Sense-making through conversations with colleagues is valuable for professional learning and valued by teachers.
- New information is filtered through the individual teacher's personal and professional experiences, values and beliefs to create new knowledge that makes sense to them.

Sense-making through conversations with colleagues is valuable for professional learning and valued by teachers.

Learning through sense-making is an ongoing process and occurs as both an individual and a collaborative activity. As an individual each teacher makes sense of their professional world on a daily basis through continually assessing and reassessing their teaching practice, which has been informed by information gained from formal courses, past experiences and reading

professional literature. Teachers collaborate with a number of colleagues, both formally and informally, within their own school and from other schools. A key element of this collaboration is the dialogue that teachers engage in with colleagues to share their experiences, beliefs and values about teaching and learning. It is through these conversations that learning can occur (Weick 1995; Senge, Cambron-McCabe et al. 2000; Stacey 2001; Lovett and Gilmore 2003).

Professional conversations provide teachers with the opportunity to reflect on and, through this process, relive their experiences. These conversations are often narrative in nature to provide a context for the main points of the experience the teacher wants to convey. As Polkinghorne (1988) notes, we live storied lives and continually create narratives to explain experiences to ourselves and others as well as constructing imaginative ‘what if’ scenarios to inform decisions. When teachers are engaged in these conversations the narratives they create are informed by, and through reflecting, inform their professional knowledge.

New information is filtered through the individual teacher’s personal and professional experiences, values and beliefs to create new knowledge that makes sense to them.

The individuality of teachers, and thus the beliefs held regarding what is good teaching, is significant in the context of professional knowledge and learning. Each teacher filters new situations, information and concepts through their own experiences, beliefs and understandings to create or recreate their personal and professional knowledge (Dewey 1938; Wideen, Mayer-Smith et al. 1996; Stacey 2001; Flores 2003; Eraut 2004; Fiszer 2004; Chalmers and Keown 2006).

McArdle and Coutts (2003) discuss this process of filtering as ‘a complex mapping of rich connections against an individual’s sense of themselves’ in relation to sense-making by teachers as they acquire and develop professional knowledge and skills throughout their career (p 229). Sense-making combines processes of reflection and meaning-making, while arriving at judgements arising from, and applied to, professional practice. The key to this processing is that it allows connections to be made between different experiences and different forms of experience (McArdle and Coutts 2003).

All teachers have their own set of values and beliefs, based on past personal and professional experiences, that will affect how they perceive and react to future experiences, and in turn, the knowledge they create (Dewey 1938). This knowledge is constantly reviewed and revised, created and recreated, in response to interactions with people, environments and events that occur throughout life. In a professional context these interactions occur both within and outside the classroom, requiring teachers to continually adjust to the widely varying, and sometimes conflicting, demands placed upon them on a daily basis.

Data gathering method - narrative

The data to be collected in this research required the participants to reflect and reconstruct experiences. Narrative has proven to be a useful tool for researchers ‘for exploring teachers’ perspectives on their culture, beliefs and actions’ (Woodward 2000 p 337) because ‘we organize our experience and our memory of human happenings mainly in the form of narrative – stories, excuses, myths, reasons for doing and not doing, and so on’ (Bruner 1991 p 4), which reflect the ‘intentional states while so engaged [the] beliefs, desires, theories, values, and so on’ (Bruner 1991 p 7). This view is echoed by Connelly and Clandinin (1990) through their work exploring the professional lives of teachers in which they note, ‘humans

are storytelling organisms who, individually and socially, lead storied lives. The study of narrative, therefore, is the study of the ways humans experience the world' (p 2).

Narrative has been used by other researchers to explore aspects of the professional lives experienced by teachers. These include Zembylas (2003) exploring the construction of teacher identity and emotional aspects of teaching; Raffatini (2008) investigating the teacher leadership; Melville and Yaxley (2009) investigating the context of teacher professional learning; and lisahunter, Rossi et al. (2011) studying the professional learning spaces for beginning teachers. Researchers value the use of narrative because it provides the participants with a mechanism for expressing their understanding of the experiences retold during the study, and provides the researchers with an approach through which they could explore and understand the experiences recounted by the participants.

Population

Twenty-nine current and former teachers from ACT government schools participated in narrative workshops that provided the data for this research. Twenty-five participants were from two schools that provided a representation from all schooling sectors: primary, secondary and college. Four participants were former ACT government school teachers who volunteered to participate in the pilot workshop.

Following the three narrative workshops a sub-group of five participants volunteered to contribute to the initial analysis of the data through a coding workshop and four participants contributed to the development of the themes emerging from the data.

Although participants reflected a diverse range of ages, years of experience and teaching sectors, no demographic data was collected because the focus for this research was the shared

experiences of all participants and the data emerging from the workshops would not be analysed at an individual level.

Methodological stages used for this research

The stages used for this research are based on the stages of grounded theory suggested by Strauss and Corbin (1990), and while they are written in a linear form below, the iterative nature of grounded theory demands the movement between data collection, analysis and theory development throughout the process.

- Collect and transcribe the data: data was collected through the recording and transcription of narrative workshops.
- Analyse the data: initial coding and categorisation process was undertaken with the participants and then followed the iterative process of grounded theory.
- Theoretical sampling: this was carried out throughout the coding and category development stage.
- Grounding of theory: as the theory emerged it was validated against the data.

Data collection

The participants in the pilot workshop were former teachers with whom I had previously worked. I invited each person to consider participating in the workshop and provided them with an information pack that outlined the aim of the research, participant involvement, evidence of ethics approval from both the University of Canberra and the ACT Department of Education, and contact details for both my supervisor and myself. This workshop was primarily conducted to refine the process and my skills in facilitating a narrative workshop. However, as the experiences shared by the participants during the workshop were highly relevant to the research, they were included in the data set for analysis.

The two narrative workshops conducted in schools were coordinated through an executive officer nominated by the respective principals of the schools, and took place at a time

convenient to the participants. Information packs, identical to those provided to the pilot workshop participants, were distributed to the teachers who had indicated a willingness to participate. The first workshop of 12 participants was conducted in the morning and the second workshop of 13 participants was conducted after school. Morning and afternoon teas were provided to create a relaxed environment and as a 'thank you' to the participants for volunteering their time and sharing their experiences.

Each workshop commenced with a brief explanation of the research process, their rights as participants and the opportunity to participate in the analysis phase of the project. All participants completed and signed an informed consent form on the bottom of which they were also able to indicate if they were willing to review a transcript of their workshop and/or participate in the analysis phase.

I used both analog and digital audio recording devices to capture the conversations during the workshops and only noted a few words or phrases to explore further during the workshop if not raised by the participants.

To provide the focus for the workshop I reiterated the aim of the research and then initiated the conversation with the stimulus question: 'Can you think of a time when you would consider the conversation/s you had with one or more colleagues in your school was valuable professional learning?' I had been concerned that there may have been reluctance among the groups to be the first person to share an experience so had one of my own in mind to share, but this was not required for any of the workshops. All participants in the workshops were attentive to the person sharing, often encouraging the teller with head nods and murmurs of 'yeah' or 'mmm', and all shared at least one experience.

All workshops ran over time, presenting me with the challenge of tactfully slipping into the flow of stories to wind up the workshop and thank the participants for sharing their time and experiences so willingly. While I was packing up the equipment and refreshments a couple of teachers at each workshop commented that they had really enjoyed the workshop and considered it a professional learning experience.

Data transcription

I transcribed each workshop separately and, to ensure anonymity, removed any names or other identifying material, or replaced actual names with pseudonyms to retain the meaning. Approximately 80% of participants accepted the offer to review the transcript of their workshop and a copy was emailed to them for comment and verification. I received a reply from approximately 60% of the participants emailed, with all verifying that it was a true reflection of their workshop's conversation.

Analysis of the data

Coding the data

The transcribed data from all three workshops produced a large number of stories from which a selection was required for the coding workshop with the subgroup of participants. To make this selection I revisited the methodology literature for advice. Guided by Creswell (2008) and Strauss and Corbin (1990), I reread all transcripts, making general notes about each story. During this process a number of broad themes emerged that were common across all workshops. Stories from each workshop were selected to represent the range of themes discussed and collated into one document for the workshop. After the coding workshop I continued coding the other stories.

A number of the participants had indicated a willingness to participate in the coding workshop and were contacted to arrange a mutually suitable time and location. The selection of transcribed stories was sent out one week prior to the workshop to enable the participants to read the stories. Once again, afternoon tea was provided for the participants and both analog and digital audio recording devices were used to capture the conversations during the workshop.

Not all participants had managed to read the stories prior to the workshop so time was provided for all to read through the document. Once we were ready to begin, I explained the coding process as described by Strauss and Corbin (1990) using sentence by sentence, line by line, and word by word analysis of each story. As a group we worked slowly through the first story guided by questions suggested by Strauss and Corbin (1990 p 63) such as:

- What is this?
- What does it represent?
- What is being said here?
- What name can we give it?
- Does the name we have given it reflect what the teller meant?

As codes were suggested I noted them on a double-spaced copy of the transcript above the coded word or section of text. The group worked methodically through the remaining stories, discussing the phenomenon they were focussing on and making links between similarly themed stories as they coded. Occasionally the discussion would lead to the sharing of an additional story by one or more participants and then the focus would return to the transcribed stories. At the end of the workshop the group had generated 130 codes which are provided in the table below (Table 7).

Table 7 Codes generated in coding workshop

acknowledgement of achievements	levels of respect
active participation	levels of trust
admission of need	maintaining dignity
advocates	making personal connections
affirmation	mechanism for reflection
angst	mentoring
assumed roles	non formal meetings
assumptions about knowledge	non-judgemental support
attentive listening	observation
being heard	one-to-one conversations
brainstorming	open relationships
broadening understanding	open to new ideas
building connections	opportunistic moments
building trust and respect	opportunistic time
celebrations	opportunities for exchanges
chains of communication	opportunities for participation
collegial support	opportunities to develop relationships
common problems/issues	opportunities to share new knowledge
common time	overheard conversations
common understanding	perceived expertise
communication	personal and professional respect
communication across fields/areas	physical layout/structure - classroom
concern for others	physical layout/structure - school
consistency	physical layout/structure - staffroom
content experts	practical support
content knowledge	problem-solving
coping strategies	reaffirming
courage to seek help	reciprocal support
cry for help/support	recognition of expertise
debriefing	recognition of work
dedicated time	reflection
designated work space	relief
de-stressing	responsibility to pass on knowledge
different environments	re-viewing (different lens)
different perspectives	safe place to debrief
discussion catalyst	sanctity of relationships/discussions
emotional support	school structure (staffing)
empathy	seeking advice
epiphanies	serendipitous gathering of like minds
establishing relationships	shared physical space

established relationships	sharing experiences
expectations	sharing network
experience	sharing resources
exploring ideas	social functions
external peer support	social location
feedback	social network
feeling of under-preparedness	specific content requirements
feeling of isolation	stimulating thinking
feeling valued	strong school culture of trust
focussed discussion	strong social support
formalisation of process	support network
having fun	targeted support
honesty	teachers as life-long learners
humour	team teaching
incidental observation	teams
inclusive	tension relief
informal learning	trapped feeling
information sources	triggers for learning
insights	trust to do the job
just in time learning	uninterrupted conversation
lack of control	unplanned discussions
lack of time	unpredictable direction of conversation
leadership of school	validation of work
leadership opportunities	valued by school leadership
levels of relationships	valuing differing views

Following this workshop I coded the remaining transcribed stories. The codes were printed out and placed on small post-it notes ready for the category development workshop.

Category development

A small subgroup of participants met to group the codes into emerging themes. By the end of the allocated time for the workshop a number of broad categories had been identified that the group wanted to refine, and so we met again the following week for an additional hour. Both workshops were recorded using analog and digital audio recording devices.

The participants looked through the codes discussing potential themes and began grouping similar codes onto large pieces of paper. As the grouping process progressed provisional labels such as ‘communication, team work and technical’ were assigned to the different sheets of paper. Quite a bit of discussion, with statements such as ‘*I don’t think it belongs there but it kind of does*’ and ‘*a bit of both that one*’, ensued particularly around ‘overlapping’ codes that they felt could have been placed under one or more themes. Twelve broad themes had been identified by the end of the workshop:

- Developing relationships
- Building teams
- Team work
- Communication
- Technical
- Feelings
- Fun
- Challenges
- Beginning teachers
- Thinking/mind matters
- Problem-solving
- Physical environment

Towards the end of the workshop the group had begun to discuss the properties of the themes, noting that they required quite a bit of refinement and agreed to meet again the following week to continue this process.

At the start of the second grouping workshop one of the participants commented that they were glad there had been a week in between workshops as it had provided them with time to consider the codes and themes and how they could be refined. This second workshop

followed an iterative process of reviewing: the themes, the codes and the relationships between the themes. The discussion focussed on why codes were placed within particular themes and what each theme represented. This process resulted in the redistribution of codes into the following seven themes:

- **Emotions:** Emotions form part of the ‘personal schema’ through which each individual perceives their world both personally and professionally. In a work environment the emotional state of an individual will influence, and is influenced by, the interactions with colleagues. The expectations of self and others during these interactions in activities such as participating as a member of multiple teams, will affect the perceived outcomes of the interaction and the level of trust between colleagues. Emotions have a significant influence on the development and maintenance of relationships.
- **Communication:** Teachers employ a range of mechanisms when communicating through conversations at work depending on whether it is conducted in a social or professional context. The relationship between the individuals participating in the conversation will influence the communication mechanisms utilised and the outcomes of the conversation will influence the relationship.
- **Cognition:** When teachers are engaged in professional learning through conversations with colleagues they use a variety of strategies during the knowledge construction process. The strategies employed will depend on the issue under discussion, the number of colleagues participating in the conversation and the relationship between the colleagues.
- **Leadership:** Leadership in a school can be in a managerial sense (principal and executive teachers) that has an impact on the collegial nature of the school and the

attitude to supporting each other professionally. Leadership can also be in terms of teachers who have expertise in a specific area of knowledge and are able to provide professional support to others. Leadership in a school provides the opportunities, physical and attitudinal, for the development of relationships between colleagues.

- **Teams:** Teachers are members of multiple teams within a school and employ a range of strategies to establish and maintain them. The strategies used will depend on whether they are formally or informally organised teams and the relationships between the teachers. Teams provide individuals with the opportunity to develop on-going relationships.
- **School structure:** The physical and timetabling structures in place in a school have an impact on the opportunities for teachers to interact informally. The physical structures may be fixed, such as the buildings, but still provide a level of flexibility enabling decisions to be made about the use of internal space such as creating a preparation room for teachers to share. While still constrained by a number of factors, such as the number of staff and timetabling requirements within a school, consideration can be given to scheduling time off-class for groups of teachers thus providing the opportunity to interact.
- **Relationships:** Relationships between teachers in the work environment develop and change through the day-to-day interactions that occur. The relationships develop at both a social and professional level and influence, and are influenced by, these interactions. The level of trust in a colleague at a particular point in time will have an impact on the degree to which an individual will confide professionally in a colleague, which in turn affects the professional learning that occurs during a conversation. The relationships between teachers influence, and are influenced by, the other six themes identified in this research.

During a discussion about the relationships between the seven themes the group commented that they were all ‘interrelated and interconnected’. One participant sketched a visual representation of what was being described, connecting the themes in ‘a web where there is a whole heap of linkages between them’. The interconnectedness of all the themes was an important aspect of the workshop discussion because it enabled the group to agree on the placement of some codes within particular themes while acknowledging their strong link to other themes. All were in agreement that Relationships was the core theme with the other themes influencing, and being influenced by it.

Theoretical sampling

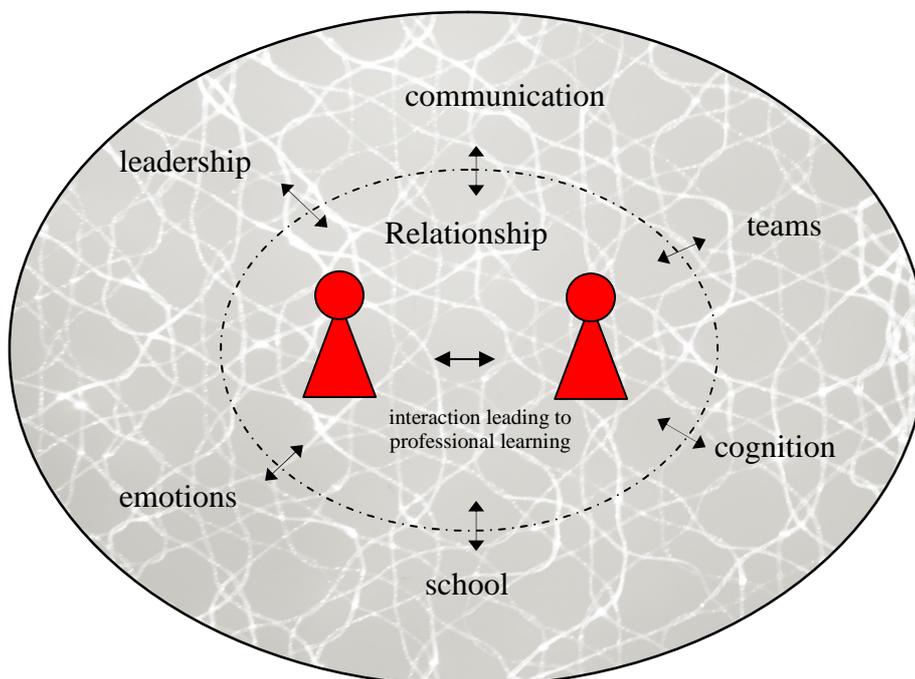
The coded transcripts were entered into the computer program, NVivo, and the codes grouped into the themes. Reports for each theme, with the coded references, were generated to provide me with a clearer picture of the whole data set. I moved between the reports, the original stories and the transcripts of the coding and grouping workshops, re-immersing myself in the richness of the data. I reviewed the themes and their codes by comparing the coded references with each other, both within the themes and across the themes, and revisiting the original stories for context. During this process I was cognisant of the coding and grouping process undertaken by the participants during the relevant workshops and would return to their transcripts to re-engage with their reasoning and justifications for decisions made. This iterative approach enabled me to refine and streamline the codes within the themes.

Grounding the theory

Throughout the ongoing process of moving between the emerging storyline and data to verify the relationships between the categories, it became clear that while the relationships between the individuals engaged in the conversation were the most significant influence on the

outcomes of the experience, the other categories influence, and are influenced by, these relationships. All categories are interrelated in a complex contextual web and cannot be considered independently of each other. The outcome of this process was a theoretical model that provides one approach to understanding the complexity of what is occurring during these conversations. This model is represented below (Figure 4).

Figure 4 A diagrammatic representation of the theoretical model



The diagram is able to indicate the two way influence between relationships and other factors and the 'web' style background is an attempt to indicate the multiple linkages across all the elements on a two dimensional diagram. All of the factors influence, and are influenced by, each other and the degree to which the influence is felt will depend on the context of the interaction.

Evaluating the research process

To reassure myself of the efficacy of the research process I returned to Strauss and Corbin (1990) who suggest seven criteria that assist in the evaluation of a grounded theory research process (p 253).

Criterion 1: How was the original sample selected? What grounds?

The selection of the original sample was based on my sensitivity to the focus of the research and desire to include a range of perspectives from teachers across the schooling sectors. All participants were volunteers and there was no coercion or rejection of any teacher willing to take part in the workshops.

Criterion 2: What major categories emerged?

Through the iterative process undertaken during the two grouping workshops, the seven themes emerged from the data: emotions, communication, cognition, leadership, teams and relationships.

Criterion 3: What were some of the events, incidents, actions, and so on (as indicators) that pointed to some of these major categories?

The following section, 'overview of the emerging themes', provides a detailed description of the major themes using examples from the participants' narratives which articulate the events, incidents and actions that point to their emergence.

Criterion 4: On the basis of what categories did theoretical sampling proceed? That is, how did theoretical formulations guide some of the data collection? After the theoretical sampling was done, how representative did these categories prove to be?

During the grouping workshop, the participants noted that many codes could fit within a number of themes. They discussed each code, articulating what theme it best ‘fitted within’ providing me with an understanding of what each theme represented to them and the basis for me to continue the theoretical sampling. All themes were reviewed, comparing coded references with each other within and across themes. The sampling utilised the original data from the workshops, rather than additional data, to identify narratives that did, or did not, align with the identified themes. All seven themes proved to be representative of the phenomenon.

Criterion 5: What were some of the hypotheses pertaining to conceptual relations (that is, among categories), and on what grounds were they formulated and tested?

During the development of the themes the interconnectedness of all the themes began to emerge. Throughout the grouping workshop and theoretical sampling process the formulation and testing of these relationships occurred through comparing and contrasting the data within and across the themes. The theoretical framework for this research, complexity theories, played a significant sensitising role in this process and the emergence of the theoretical model.

Criterion 6: Were there instances when hypotheses did not hold up against what was actually seen? How were these discrepancies accounted for? How did they affect the hypotheses?

The hypotheses that emerged were tested against the data as the properties of the themes were identified and the relationships between them became clearer. Initially the hypotheses tested focussed on the relationships between the separate themes however, what emerged through this process, was the strong interconnections between all seven themes and, therefore, required a modification to hypotheses to reflect the complexity of the relationships.

Criterion 7: How and why was the core category selected? Was this collection sudden or gradual, difficult or easy? On what grounds were the final analytic decisions made?

As the relationships between the themes developed the key theme clearly emerged with the other themes becoming subsidiary. The grouping of codes into themes was a considered process by the participants of the grouping workshop with the final themes determined to be the best representation of the data. Affirmation of the themes was undertaken through the theoretical sampling process. The key theme was 'broad enough' to embody the phenomenon under inquiry (Strauss and Corbin 1990 p 121), and all other themes were able to be seamlessly related to it.

The collection of codes into themes by the participants required two workshops to initially group them into broad themes which were then refined into the final seven themes. It took me quite a while to make sense of what the identified themes represented and how they addressed the research question. Complexity theories informed the emerging model and provided me with the language to articulate it.

Overview of the emerging themes

Each of the themes and the theoretical model that emerged from this research is illustrated using the voices of the participants (in italics) in the following descriptions.

Emotions

The emotions identified by the participants are those experienced by the individual in the work environment. While the emotions are the feelings personally experienced by the individual the focus of these emotions can be broadly viewed from two perspectives: intrapersonal (inward looking) and interpersonal (outward looking).

Intrapersonal emotions:

Teachers want to feel competent and confident in their professional role as a teacher and colleague. Participants expressed feelings of anxiety and a sense of inadequacy, particularly as a beginning teacher or an experienced teacher moving into a new area or school.

I realised once I'd stepped in it was a whole new ball game, the pedagogy was different, the approaches were different, and it was terrifying. (Sandy)

Participants also described feeling *demoralised* because the situation had placed them *way out of their comfort zone*. New curriculum, teaching approaches and student management issues, such as managing a difficult group of students often result in feelings of *under-preparedness*.

I know I was quite panicked, that's what you said before in a joke about desperation that forge relationships I remember going to Nonie several times on the Friday before school started and saying 'but what do I teach, what do I include?' (Ann)

Many beginning teachers acknowledged that their lack of experience contributed to these feeling and felt comfortable approaching more experienced teachers seeking advice and

support to deal with their situation. However, this was not the case for many experienced teachers. Participants discussed the perception that once a teacher had a few years of teaching experience it was expected, by both themselves as professionals and the school community, they would have a repertoire of skills and resources to cope with new situations. It was often this perception that exacerbated the feelings of inadequacy and a reluctance to seek support from colleagues.

While you are an experienced teacher you may not be an experienced teacher of the content if you have to teach a subject you don't know. (Sally)

Well, it's awful; when you come as an experienced person and you feel inadequate. (Sally)

When a teacher did seek advice and support it was from a colleague the individual trusted to provide non-judgemental support.

When you talk to somebody, for example when you've stuffed up, the person you're speaking to treats you with dignity. (Beth)

It makes an enormous difference because then you feel they have not chastised you like a baby but being, not only respectful but you've been able to keep your own dignity, and you come away feeling well, I'll go back to them next time. (Beth)

To be treated with respect for what they did know, not judged for what they didn't and *maintain their dignity* during the conversation was very important for the teacher seeking the advice. For the teacher providing the advice and support these conversations were perceived as an example of colleagues valuing them as a person who is approachable as well as for the knowledge and skills they possess.

Through that perceived expertise people will approach you in a way that feels comfortable with them. Part of your expertise is that you can provide it to different people in different ways. (Suzie)

They're quite happy to come into your classroom after school or whatever and ask 'what do you know about this approach?' (Marie)

Feeling valued and respected as a professional by colleagues, regardless of whether they held leadership positions or not, was seen as important by the participants because of the impact on their self-confidence and sense of professional worth. As one participant emphatically stated,

We feel valued as people and to me that's important because it matters that what you do matters, and it's not about recognition in front of other people, it's not about award winning, it's not about any of that, it's just about people seeing what you do as important enough to listen to each other. (Beth)

Interpersonal emotions:

Feelings of empathy for other teachers often fuelled the desire to help colleagues through sharing knowledge, skills and resources. Participants shared a number of anecdotes often beginning with phrases such as *same thing happened to me, when I think back, I can remember*, in which they expressed an understanding of a colleague's situation through reflecting on their own past experiences and reliving the emotions associated with them. The support they received, or would have liked to receive, during that experience influenced their desire to provide support to their colleague. One participant took this further and felt that they had a professional responsibility to pass on the knowledge and skills they had acquired over time to colleagues.

When we think of ourselves as professionals then we know we have a professional responsibility to pass on that knowledge to the next person because that's what a profession is, it's the passing on of the knowledge to the person next to you or the people that you work with. (Sandy)

The teacher librarian in a school usually worked with all teachers and was therefore in a position to gain a broader view of what was occurring across the school. This enabled them to indicate commonalities, such as concerns for the behaviour of particular students or families of students, and linkages to colleagues that could lead to closer working relationships. One teacher librarian felt she often fulfilled the role of *mother confessor* as well. It was during the one-to-one conversations in the library that teachers would debrief, seeking a sympathetic ear more than advice.

In the library where you are dealing with various different scenarios ranging from computers to kids, research issue to storytelling, I'm seen in a kind of mother confessor role – I guess it's just a chance for people to off load stuff. (Kate)

Respect for others, particularly when differing viewpoints are the focus of discussion, was raised as important because it enabled the person to be open to new ideas. This openness is not always easy especially when each person is passionate about their particular stance, but it can lead to a shift in perspective and provide the opportunity for learning.

We might choose to disagree with certain things but we've all seen everybody's opinions and ideas and when you come back to that respect bit, it's what the consensus is of the group. (Sandy)

Emotions form part of an individual's personal schema: the filter through which each person views the world both personally and professionally. In a work environment emotions affect the perceptions of colleagues, which impacts on how open or guarded the interactions (actions and reactions) between individuals in the workplace may be and therefore the type of

conversation and learning that occurs on each occasion. The emotional outcomes of each interaction influence the ongoing relationship between the individuals which, in turn, influence the interaction. Emotions are intricately linked with both personal and professional relationships, and the continual ebb and flow of emotions as teachers live their lives, adds to the complexity of developing and maintaining relationships.

Communication

There are many forms of communication, however the communication identified through this research relates to conversations between colleagues. The participants noted that there are a range of conversations between colleagues that can be broadly grouped into two categories: collegial and congenial. The congenial conversations were more socially oriented *the social chit chat* and the participants did not consider these conversations to result in professional learning. The collegial conversations were work oriented and resulted in professional learning.

Teachers often provide and receive feedback through their conversations with colleagues. Participants shared many experiences about feedback, including practical suggestions following a review of lesson plans or exam papers, and reports of positive comments by students and/or parents.

We write up an exam but then we give it to someone else to review it and pull it apart, which they do with great glee, and replace questions but they explain why, it's not just a matter of 'I didn't like that question' but why they didn't like it or why it didn't work. (Ross)

The other day someone came to me in the staffroom and said 'oh, I've just been grabbed by one of your students and they've asked me this whole lot of stuff about one of your classes and, wow, you've obviously really got them..' and she went on to talk about it, but what it made me feel was that I had obviously hit the mark and done something right so it kind of felt for me that I was doing something right and I would keep doing it. (Rose)

Participants who have supervised pre-service teachers discussed the value of the feedback discussions that occurred during the weeks of teaching practice for the student teacher.

For my prac teacher this year they have a new component to their assessment where they have to do an oral presentation to their mentor about what they learned while they have been here and it ended up being a two way conversation rather than them actually just doing the presentation. We had a fantastic conversation about the nature of teaching and what she'd learned and so on. It was incredibly valuable. (Liz)

These focussed conversations required the experienced teacher as well as the pre-service teacher to reflect on their practice and beliefs.

Participants felt they could be more honest about problems they were experiencing during one-to-one collegial conversations. A conversation with a trusted colleague who attentively listens provided the opportunity to seek support or advice regarding an issue they did not want to raise in a group situation.

Many teachers are more likely to approach you in a one-to-one informal situation than to ask a question or to raise an issue in a whole of staff setting. (Marie)

I think you can be more honest when it is informal and one-to-one. (Greg)

It was so invaluable having this person I felt was actually listening to me and helping me. (Mel)

During small group conversations, such as within a team, the focus is usually a common issue. These conversations provided a context for the participating teachers to reflect on their own practice in relation to issue raised and explore other possibilities.

We'd spend the first 15 minutes just talking about our classes and things that we were having problems with. (Mel)

It's always really nice to ask amongst the team, you know, what can we do in this situation where I've got a child that does this and there's always someone who says I had a kid like that last year and these are some of the things I did with them. (Greg)

Conversations between teachers, both socially and professionally, occur at all levels, from whole staff to small teams to between two individuals. These conversations influence, and are influenced by, their relationship and each individual's emotional state at the time.

A focussed collegial discussion in which all participants attentively listen and provide supportive feedback can build trust and strengthen relationships.

Cognition

The cognitive activities and attitudes identified by the participants of this research focus on the learning that occurs during conversations between colleagues. A number of these activities, such as brainstorming and problem-solving, are used as part of formal learning experiences as well as during conversations with colleagues on an informal basis.

Participants used the term *re-viewing* to describe the opportunity to look at an issue from a different perspective.

I went away from that conversation with a 'hmm, I'll think about this on another level'. (Ross)

When discussing students, teachers were able to view the student in a *different light* such as gaining an insight into their behaviour in different situations.

It was noted that reflection was common during conversations between all teachers.

It's great for me, it encourages me to reflect on what I did and why I did it. (June)

Reflective conversation between pre-service teachers and their supervising teacher, where the focus of the conversation is often on teaching practice, were also raised by the participants.

Isn't it good that it works both ways, when you've got a prac teacher with you, you find yourself, through your conversations, justifying to yourself, your teaching pedagogy, the teaching strategies you use, why something worked and what you might have tried before. The informal dialogue you are having with them is reaffirming to you, it also makes you reassess where you are, you learn from them but also the reflection that you go through yourself when you have a prac teacher is quite phenomenal. (Sally)

The triggers for learning are varied. They could be discussions about papers or journal articles, observing a colleague, a passing comment by a colleague, the desire to *know more* or a question/problem posed by a colleague.

The conversations in the staffroom would sometimes stimulate discussions, debates, arguments, whatever. (Bill)

Participants expressed the importance of teachers being open to new ideas and therefore learners throughout their career.

We always need to be learning, lifelong learners which is what all teachers are. I'd dare anyone to say they're not a lifelong learner and be a teacher because that's what we do and that's what we try to inculcate in our students. (Kate)

This attitude to learning enables teachers to engage in learning, both formally and informally, through a range of mechanisms including informal conversations.

Sometimes the initial conversation was social in nature but, as issues were raised, the conversation evolved into a learning opportunity for all teachers involved utilising a variety of problem-solving techniques.

What started off as a 10 or 15 minute afternoon coffee break turned up to be an hour of very robust discussion about issues which we were dealing with. (Bill)

You learn, you discuss and you explore, pull it apart and critically analyse what am I doing in the classroom. (Nina)

Participants discussed the number of *aha* moments resulting from these conversations.

And it was just that conversation, I still remember it, yeah, just that sort of idea, what was involved in it and taking a whole new approach to the way I taught a lot of things. (Joan)

When support is sought the individuals engaged in the conversation may employ specific problem-solving and reflective activities to focus the dialogue. The relationship between the participants influences the cognitive activities employed. The outcomes of the conversation will influence the current and future relationship between the individuals.

Leadership

Leadership can occur at many levels. There is leadership in the managerial sense that can be in the role of executive teacher (team leader), deputy principal and principal of the school as well as leadership through perceived expertise in a knowledge or skill area. These leadership roles are not mutually exclusive and teachers often fulfil multiple roles depending on the needs of the school and colleagues at any given time.

Teachers valued executive staff (senior management), particularly principals, who could *walk the talk* clearly valuing learning and collegial support.

It is a designated time where we have those conversations, both formal and informal, and I value that because I think it's really important to have, and it's something the principal values and thinks is important for us as an executive. (Kate)

The ability of the executive to build a strong school culture of learning and working together was identified as important by the participants.

The professional readings that we do at the exec meetings are helping us to develop a picture of the school as we see it so we are getting a better visual image of what we perceive as being the school, the school culture. (Sandy)

There is a culture in this school of everyone working together. Kids and staff working together as well. (Mel)

Acknowledging achievements by individuals and teams was discussed. This acknowledgement can take many forms, from team leaders providing *rewards* such as chocolate frogs or muffins for each team member on the completion of student reports, to more public celebrations such as during staff meetings or in school newsletters. Participants

felt that this acknowledgement was recognition of the work done and reinforced the common goals the team and school was striving to achieve.

With that respect comes the opportunity to have celebrations around the successes and things like that. They're little things but they're celebrations of our work but it's also respecting the fact that we're working towards common goals. (Sandy)

Fulfilling a mentoring role was valued by both the mentor and person receiving the mentoring.

When I was first promoted the deputy and the principal were very good at mentoring and appearing in the staffroom when they knew I was the only one off to have a conversation about the week or to invite me to observe a meeting and I've taken away a few things that are tenets I hold. (Cathy)

The mentor is perceived as a leader in a specific context. This could be expertise in particular knowledge or skill areas, or teaching experience. The willingness of the person sharing their knowledge and expertise and their *approachability* were important factors for teachers at all levels.

This person (beginning teacher) had said: 'look, I sit with these people who have been teaching forever, I get a lift with them in the morning and at night and if I've got a question or something is bothering me, by the time we arrive at work they have both sorted it out.' (Anya)

From a managerial perspective, the expectations and support provided by the leadership of the school or team has an impact on the relationships between teachers. A consultative approach, rather than a top down, controlling one, supports the emergence of relationships and the learning that occurs through them. An open and collaborative approach by teachers

who are perceived to have expertise in a particular field engenders a level of trust that supports a relationship through which learning can occur.

Teams

Participants noted that teachers are members of multiple teams across the school environment, with each team having a different but related focus. Some of these teams are teaching teams in which teachers work closely with others teaching a similar age group or subject area. Other teams focus on broader school issues, such as curriculum areas, supporting students with special requirements, or the management of the school.

The collegial support provided through working in a team was often raised during the workshops. Participants described the importance of being able to *bounce ideas around* about a range of problems and issues they had in common with colleagues, as well as sharing resources and ideas among teachers who have subject areas or year levels in common.

So the sharing of resources with other teachers and the experiences in the classroom of what they were doing was very valuable to my own personal development as a teacher in the classroom. (Olga)

Participants who were in their first or second year of teaching were particularly emphatic about the value of the support they had received from colleagues during this early stage of their career.

They teach you in teachers college all this theoretical stuff but when you are out there on the ground needing to do what we do every day with all the additional burdens or administrative responsibilities as well you hit the ground running, you really do, and the people around you who support you are such a valuable resource. (Olga)

The core, the root stuff that I needed for day to day survival came from my colleagues, just in informal discussions and things like that. (Sandy)

Teaching in a shared space enables teachers to work together with a number of classes and the opportunity for incidental observation of each other's practice. These observations and the conversations associated with lesson preparation for teaching as a team can lead to reflection on practice and professional learning.

So those incidental moments of casual observation from which you can get a flow on to either informal or formal professional learning. (Bill)

A lot of it we did by saying, 'oh, we'll join our classes together and I'll show you, I'll present a lesson' since then I've done the same thing with other colleagues and said 'we'll team teach'. (Sandy)

Through the sharing and planning together as a team, teachers are able to *get to know each other* fairly quickly and establish relationships with colleagues that enables them to seek and provide support to each other.

You have to try and enthuse them and sometimes it doesn't work and you come out feeling totally devastated so you talk to your peers around you and they might give you strategies which you take back into the classroom to see if 'okay that really worked'. (Olga)

Executive teachers (middle management within a school) also shared experiences of working together as an executive team. The opportunity to debrief with others about issues with other staff or students was considered very valuable.

At one school I was at the year coordinators were the executive teachers so you had 4 of them in one room and that was very valuable experience because you overheard the conversations that came in and you could debrief after that. You also knew everybody else's kids and you had that background so the kids quite readily accepted

that anybody would deal with them if they turned up at the coordinator's room.
(Cathy)

All of the teams within a school provide teachers with the opportunity to develop relationships through ongoing interaction with colleagues. While the teams are formally organised, the relationships between individual teachers are self-organised and cannot be forced or coerced, with each teacher determining the relationship they will have with colleagues at any given point in time. Teams influence, and are influenced by, the relationships between individuals.

School structure

The physical and timetabling structures of a school have a significant impact on the opportunities for teachers to interact. The physical layout of the school, particularly in relation to workspace available for teachers to plan and organise their lessons and flexible teaching areas, were raised by the participants. Workspaces that enabled teachers to be in close proximity to colleagues when not teaching provided the opportunity for interaction. Teachers commented that they engaged in work-related conversations, some of which could become quite *deep*, when the workspace was more open.

Can I just say the layout of the staffrooms is very good in this school – in other areas particularly Outback Town it was a very, very small staffroom and the desks were back to back with shelves between them and you were lined up in a little cubicle so you can't actually see the person next to you or in front of you and the talk was different, really really different in that you don't get the same exchanges in those staffrooms as you have here this is excellent, this is really good. (Ross)

The physical layout of the staffroom has a lot to do with exchanges. (Cathy)

Participants also commented on the benefits of flexible teaching areas that allowed for two or three teachers to work in an open environment. These areas are more common in primary schools but a number of newer secondary schools have been built with a level of opportunity for teachers to work together. Teachers valued the ability to converse with colleagues during teaching time as well as the ability to see them at work. Observing colleagues often led to fruitful discussions at a later time.

That's what I always liked about these open spaces, you can actually do that. (Bill)

Yeah see what someone else is doing. (Marie)

Joan and I talked constantly in between classes and we have two classrooms which are interconnected rooms. (Mary)

Timetabling structures also impact on the ability of teachers to *catch up* or have the *serendipitous meetings* in staffrooms/workspaces that can lead to valuable professional learning. Participants discussed the value of common time *off class* that provided the opportunity for conversations to occur.

I think for me the most effective informal learning was perhaps not at the morning tea but when we had common release time and that sort of thing. (Marie)

You often have people just chatting with people in your direct team, and while that's excellent it does pay to go to other areas but it does get hard with time, different timetables and structures too. (Pip)

When I was in another school there were a couple of us got there early in the morning every morning and we'd spend the first few minutes just talking. (Mel)

Having a large, welcoming staffroom that attracts teachers at morning tea and lunchtime was seen as valuable for interaction with colleagues from across the school. Scheduling social events, such as special morning teas or lunches held in the staffroom, or other large area within the school, also encouraged the across school interaction.

In schools everybody tries to get to morning teas, that's when you caught up with people. (Suzie)

Social functions help. We run a faculty social function every term they help to get to know everyone. (Cathy)

The opportunities for teachers to interact with colleagues, provided through the physical and timetabling structures, influence the development and maintenance of relationships across the school.

Relationships

Relationships emerge from the interactions between individuals in the work environment and take time to establish. Through this interaction different levels of relationships are formed between colleagues. Some remain congenial, basically social in nature where the everyday conversations take place, while others deepen to become collegial, where the levels of trust provide the basis for an open professional dialogue enabling teachers to discuss issues related to their work. At the deepest level the trust between the individuals enables them to have open and honest conversations in a professional sense. This leads to reflection and learning.

There are different levels of relationships, there are people that you can talk to about the day-to-day stuff, the minor things and there are other people that you can go to because you're going to get the support on big issues. (Sally)

Participants discussed the importance of a range of opportunities to interact with colleagues. Social activities with a focus on fun, such as celebrations and social functions, allowed them to *get to know* each other on a personal level. These activities can occur within a group of teachers, such as a team or faculty, or at a whole school level. The social activities enabled individuals to get to know each other on a personal level and influence the relationship established between them.

Those social functions that can happen at the beginning of the year, or get together, are really quite important for establishing an open relationship. (Anya)

It's incredible the information you find out about people and the backgrounds and what they've done, it adds a new dimension to the person and it's extra connections that you can make on different levels. (Joan)

Opportunities to interact professionally were considered essential by the participants in order to develop and maintain the collegial relationships required for the *frank and honest* dialogue to occur. These relationships take time to establish and are based on trust and respect for the individual as a professional as well as a person.

When you are building up those trust relationships, there has to be a basic level of respect for the other person as a professional, as well as a human being, but initially the respect is as a colleague. (Sandy)

Participants discussed the impact of school timetables and physical structures, such as open meeting areas and teaching spaces, on the interaction they were able to have with colleagues.

With timetabling, I'm finding the time to have the informal chats with people is tending to be reduced. (Mel)

The more opportunities available, the greater the chance of developing relationships with the trust required for open and honest conversations.

Working in teams or faculty groups also provides significant opportunities for the development of collegial relationships. Sharing a common focus, such as year group of students or subject area, provides a context for interaction and learning.

I think if you teach the same bunch of kids you need to talk to each other, I don't know if its choosing to establish the relationship with that person or whether you just have to because you need to work together. (Beth)

Participants shared a number of experiences in which they had developed a deep relationship with one or more colleagues due to working closely with them in a team environment.

It was a safe place where you could exchange the ideas or frustrations or whatever and go back with a different mindset or a new set of strategies and skills, and as I said it was safe. (Sandy)

It's also nice to joke about what's happening in your day with your other teachers as well and you know that's not going to go outside of your staff study. (Greg)

While these relationships change as teams change over time, a level of respect and trust remains between the individuals.

I think if you've got teachers you're already familiar with that helps you too, being able to be open about what you talk about rather than being in a totally new environment where nobody knows each other. (Greg)

Participants discussed the different levels of relationships with colleagues and the time it takes to establish them. Examples of how the progression of the relationship depended on the

response from the colleague were shared during the workshops. A positive and supportive response encouraged teachers to pursue the relationship.

I can say there are different levels of relationships, professional relationships, that I have with staff right across the school and it is how they respond to me as well. (Mel)

I think we all have our preference about who we go to and to whom we speak because they have shown us that support, they have listened to us so there are people we're not going to go to as much because we don't seem to, in our eyes, get that same support. (Mel)

Emotions play a significant role in the development and maintenance of all relationships. How people act and react colours the perceptions of each person and thus influences the relationship between the individuals.

It's the same with any relationship and trust thing you always start with the little things first and if you get a good response and they are supportive you know you can go back next time and it may be a little bit more serious. (Sally)

Being a new teacher to the school last year, there was one person who stood out, who went out of their way to make me feel welcome, they checked on how I was going and I could say now that my relationship with that person was stronger and it developed quicker than with anyone else because they went out of their way to help me. (Mel)

Participants described the importance of trusting a colleague to respect the sanctity of the relationship especially when seeking support.

I think it's really important that we keep that sanctity of the relationship. You have to be quite comfortable with someone before you say 'I've got this class that's running all over me.' (Anya)

Relationships change over time and the other six themes identified through this research influence the relationships between colleagues. However, it is not possible to isolate the level of influence due to the very personal nature of the relationship, the individuality of each person involved, and the complex environment in which it is occurring. The impact of each of the other themes on the relationships also varies, adding to the complexity of the environment.

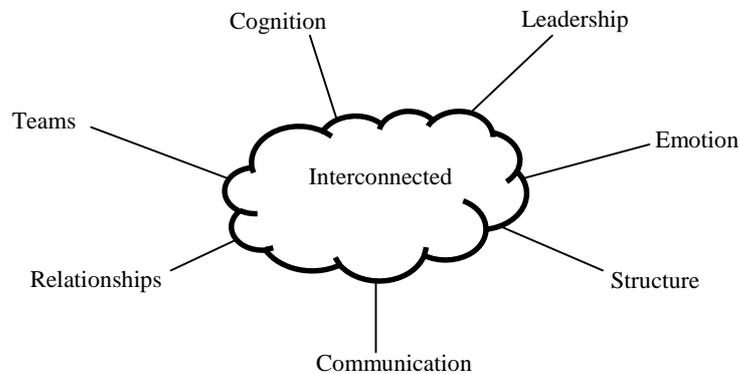
Emergence of a theoretical model

During the grouping workshops I read out relevant quotes and stories from the transcripts to illustrate a number of the codes that provided the context for assigning codes to groups. Towards the end of the second grouping workshop there was a significant amount of discussion regarding the complexity of the phenomenon and the connections between the themes.

Going into the stories behind these [codes] you end up with a web where there is a whole heap of linkages between the groups. They are all interrelated and interconnected. (Bill)

While explaining her understanding of the connections one participant drew a ‘rough’ visual representation of what she was describing, which is reproduced below (Figure 5).

Figure 5 Participant's representation of connection between themes



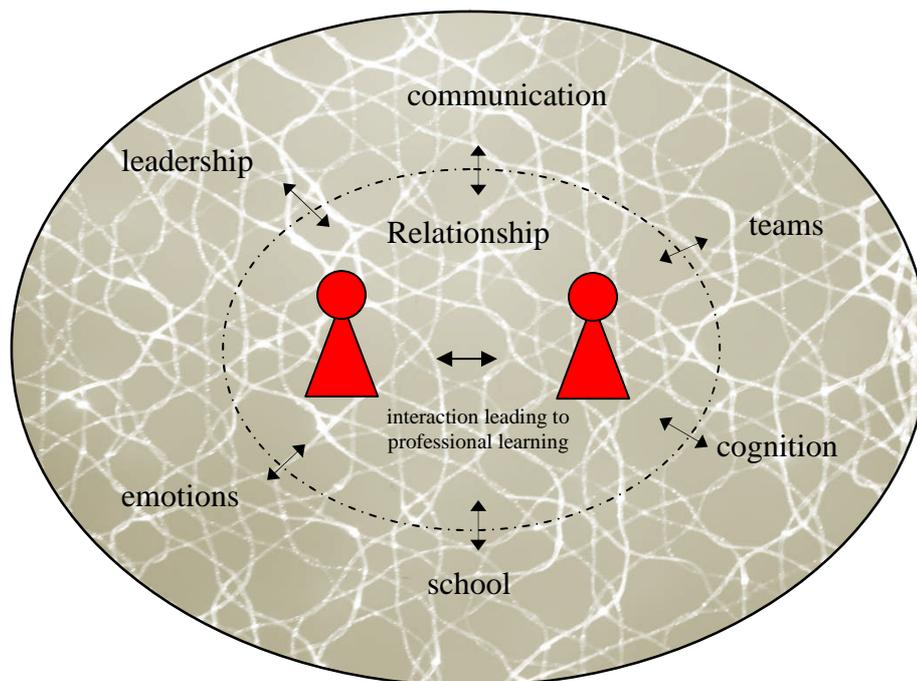
As the discussion about the interrelatedness of the themes progressed, it became clear that while all themes are interconnected the theme ‘Relationships’ was the one that was the most significant and encompassed the phenomenon under investigation.

It is really about the relationships between people – it’s key to the whole thing. If the relationships are there – they respect each other, they support each other, they’re willing to work together and they communicate well and all those sorts of things.
(Bill)

The theoretical model that has emerged from this research provides one approach to understanding the complex nature of teacher professional learning through interaction in a school environment.

While the visual representation of the model below (Figure 6) is shown in two dimensions, each theme is connected to the others and needs to be considered within the context of the whole.

Figure 6 The theoretical model



When we consider two teachers engaged in conversation the perceived relationship provides the lens through which they will continually assess and reassess the interaction. This relationship is informed by each individual's emotional state and past experiences with the other person in a variety of contexts. The communicative and learning strategies used by each person will be modified in response to the dynamics of the interaction, each assessing the other's strategies and responding according to their perception of the experience. Each interaction adds to the individual's personal history which will influence future relationships and interactions. Teachers need the opportunity to interact with others and the leadership of the school is in a position to provide a number of these opportunities, such as through working in teams and the structure of the school. How a person responds to the opportunities

will depend on their current relationship, their emotional state and the context for the interaction. Acknowledging the interconnectedness of the emerging themes complexity theories are applied to provide a holistic approach to considering what influences teachers to engage in conversations leading to professional learning in a school context.

Conclusion

This chapter discussed the method used for this research that was informed by the epistemological position, theoretical perspective and methodological approach discussed in the previous chapter. It described the research journey from data gathering and analysis, to the development of a theoretical model and the important role of the participants throughout this journey. The participants not only provided the data through their willingness to share experiences, but were a critical element in the analysis stages, ensuring the data were truly representative of the stories told. This chapter also introduced the findings of this research using the voices of the participants to illustrate the development of each theme and the model that has emerged seeking to understand the influences on informal interaction leading to professional learning.

The following three chapters draw on the literature to discuss the emergent model applying a complexity lens through which the interconnections are explored.

Chapter 5: The Emergent Model – Introduction and Self-organisation of Groups

The emergent model provides a unique perspective on informal interaction leading to professional learning. It focusses attention on the interrelatedness and interconnectedness of the identified influencing factors. While it is acknowledged that each factor influences teacher engagement in informal interaction, the factor's level of influence ebbs and flows as individuals act and react to ongoing experiences, both personal and professional. The strength of the model is its clarification of the dynamic influence and interplay between these factors.

The interconnectivity of the factors posed a challenge for a coherent discussion of the model however complexity theories provided a lens through which to consider the phenomenon.

The discussion is presented across three chapters, initially positioning the model contextually and then, drawing on the literature to validate the model, discusses it through the following perspectives: self-organisation of groups; collegial interaction, and emergence of professional learning. This chapter positions the model within a school setting, describing the interconnections between the identified factors using complexity theories and then considers the formal and informal groups and teams within a school environment and the emergence of order and leadership within these groups.

Following on from this chapter the discussion considers the model from the perspective of collegial interaction. Chapter six investigates the opportunities for interaction between teachers, the emotional aspect of interaction and its impact on future interaction, and the conversational aspect of teacher interaction. The final perspective, emergence of professional learning, is discussed in chapter seven. This chapter explores the importance of trust in

relationships between colleagues, activities teachers engage in with each other through which professional learning emerges and the influence of leadership across the school on teachers working collegially and engaging in professional learning. Chapter seven closes by considering the limitations of the model and draws the discussion about the model to a conclusion.

Locating the model within the school setting

For the purposes of this research an arbitrary boundary has been placed around a single school as the location for the phenomenon under study. As Osberg, Biesta et al. (2008) argue: ‘we have to acknowledge that to model or theorise any interconnected system we first have to cut it off from the other regularities or systems with which it interacts’ (p 219). This study acknowledges that the individual teachers are nested within the bounded school system but also exist in relationships with the broader educational community and beyond, both personally and professionally (Davis and Sumara 2006). This connection beyond a single school was reflected in the stories shared by the participants who acknowledged the interactions with people and organisational structures outside of the school under discussion.

When we consider a school through the theoretical lens of complexity theories it can be viewed as a dynamic, non-linear and self-organising system (Fallon and Barnett 2009) that ‘affects and is affected by many overlapping, intertwining, and nested learning systems’ (Davis, Sumara et al. 2008 p 110). As a system, a school is constrained by a number of features such as **school structures**, both temporal and physical (for example timetables and building layout), as well as other factors exerted by other systems such as curriculum and community expectations (Haggis 2008; Biesta and Osberg 2010). These constraints influence the interactions and, therefore, the organisation of each system within the nested systems.

Teachers, as agents within a school system, organise themselves into sub-systems (such as groups and **teams**) and move within and between the systems influencing and being influenced by them (Morrison 2002; Johnson 2008; Fenwick 2009; Haggis 2009). Some of the groups and teams are formally organised, such as year level teams or subject area faculties, while others are organised informally by individual teachers for both social and professional purposes. Within each system the 'social position' of each person is negotiated and the **leadership** of the system emerges that may or may not reflect the formal leadership arrangements (Morrison 2002; Davis and Sumara 2006; Scribner, Sawyer et al. 2007).

Each system develops its own history with norms and cultures that emerge and adapt through the ongoing interactions between the members of the system, influencing and being influenced by other systems that each one is 'embedded in and connected to' (Davis 2005; Haggis 2008 p 167). Members of the system bring their own history and, through **communication** and negotiation, establish their identity unique to each system, thus having multiple identities across the larger system identified as their 'school'. Each member also has a personal history and multiple identities that influence and are influenced by the professional identities, all of which are constantly changing over time (Kurtz and Snowden 2003).

A central theme across complexity theories is the **relationships** between the agents of each system (Mason 2008). Over time feedback from each interaction, both positive and negative, influences future interactions, the development of identities and the relationships between the participants. For teachers, their **emotions** are 'rooted in and affect their selves, identities and relationships with others' (Hargreaves 1998 p 319), thus influencing the professional learning that emerges from the interactions with their colleagues.

From the perspective of complexity theories a learner can be defined as ‘a complex unity that is capable of adapting itself to the sorts of new and diverse circumstances that an active agent is likely to encounter in a dynamic world’ (Davis and Sumara 2006 p 14). Davis and Sumara (2006) continue to explain that ‘the named learner can be considered simultaneously a coherent unity, a complex of interacting unities, or a part of a grander unity’ (p 14). The unity adapts to the complexity of its environment through the knowledge that emerges through the interactions within and between systems (Osberg, Biesta et al. 2008). In a school context the learner can simultaneously be one teacher, a group of teachers, or the whole teaching staff of the individual school adapting to their dynamic world through employing a range of **cognitive** activities during their interactions with their colleagues.

The relationships between individual teachers influence the formal and informal groups that form (Roxå and Mårtensson 2009), the interaction that occurs between colleagues within these groups (Huffman 2011), and the professional learning that emerges from the interactions (Schuck, Aubusson et al. 2008).

Self-organisation of groups

Teachers have been organised into year level or subject department teams to encourage the sharing of expertise and resources for many years, however the potential of teacher teams for supporting professional learning has become a greater focus for researchers (Scribner, Sawyer et al. 2007; Meirink, Imants et al. 2010). According to Daly, Moolenaar et al. (2010), the importance of collaborative structures for ongoing teacher professional learning and school reform has underpinned studies on educational reform worldwide. They argue that ‘teachers who collaborate are better able to access and make use of the individual and collective resources embedded in their professional network’ (p 363). These resources

include the knowledge and skills of their colleagues however the extent to which these are shared depends on the relationships between the individual teachers.

The findings of this research identify a number of groups, both formal and informal, that co-exist within an individual school environment. These groups include year level or subject teams, executive teams, project or task groups, social groups and informal collegial groups, with teachers being members of multiple of groups. Morrison (2002) observed that the range of teams within a school can include work teams and special purpose teams, all of which can be long term or short term depending on their purpose, and that teachers are usually member of several teams at the same time. He argues that a team is

...a social group and not just a device for getting tasks done. Membership of a team and a group is a matter of commitment and positive interpersonal relations, not just of procedure. Some teams and groups are formal, others are informal. (p 430)

This co-existence has been acknowledged by other researchers, such as Ali (2011), who investigated informal communities of practice within schools that functioned alongside the formal organisational structures; and Durbin (2011), whose research focused on both formal and informal networks in organisational settings.

Through participation in multiple groups across the school, participants are provided with the opportunity to interact with a large number of teachers. They consider that the development of strong collegial relationships occurs more often through working in year level or faculty teams particularly when all collaborated on the planning of student work rather than through the groups addressing issues with a broader focus such as curriculum teams. Acknowledging that the broader issues are important to their work, they feel that working with other teachers

on the more immediate *day-to-day* necessities of teaching is a more effective vehicle for developing relationships with their colleagues. Through working closely together the teachers are able to *get to know* each other quickly and establish relationships through which they can seek and provide support to each other.

Informal groups often emerge from the interaction between teachers within the formal groups, and may exist for varying length of time depending on their purpose and the involvement of the members (Wolf-Branigan 2009). In this research, short term informal groups address an immediate need, such as curriculum resources, technical advice and coping strategies. Longer term informal groups provide ongoing support such as the informal mentoring of a beginning teacher. These findings are reflected in the study by Rogers (2006) who describes a variety of informal groupings by colleagues for different purposes. Similarly, the study by Picard (2005) illustrates the development of a long term informal group that begins informally through a conversation about their students' reading and, as the relationship deepens, progresses to a long term collaborative activity.

Other informal groups discussed by the participants in this research are those that are private in nature, with two people requiring a high level of trust enabling the individuals to engage in conversations in which they risk exposing their vulnerabilities to each other in order to solve specific issues and grow as a professional. These conversations are usually conducted in private, to avoid exposing a perceived weakness to other colleagues. Kurtz and Snowden (2003) also found that while the formation and functioning of formal groups is public (known and understood across the nested systems), informal groups can be public or private, depending on their purpose and the desires of the members.

Formal and informal groups co-exist in a workplace, influencing each other through the interaction between the individuals who are members of differing groups (Morrison 2002; Durbin 2011) from across a range of hierarchical and vertical levels within and across educational systems (Osberg, Biesta et al. 2008). Both types of groups ‘have to concern themselves with the personalities, emotions, group dynamics and leadership behaviours of their participants’ (Morrison 2002 p 44) as they negotiate the process of self-organisation. This process takes time as each member responds to the interactional dynamics and personalities of other group members and develops the relationships supporting the participation and contribution by all (Scribner, Sawyer et al. 2007).

Emergence of order in groups

The formal teams discussed in this research are organised administratively within the school and include team teaching groups (two or more teachers teaching in the same physical space usually with the same year level students), year level or subject teams (cohorts of teachers with a year level or subject in common), executive teams (middle management teachers who retain a teaching load), and teams for special purposes, such as students with special requirements (many of these teams have teachers from across the school and often include the principal and/or deputy principal). While the significance of the relationships between the teachers within all teams and groups is acknowledged, one participant raised the importance of these relationships for those who team teach within his current school:

[In the primary sector of schooling] we still have a lot of teachers who won't team teach. I love to team teach and I always try to pick my partner who is someone that I can share everything with. (Greg)

The team teaching is personality based, you pick this year who you want to teach with next year from the teachers that are already there and who you get on well with. If it's a new teacher you're not sure if you are going to be able to team teach with them – if their ideas are totally different. (Greg)

Within this participant's current school, team teaching is encouraged but not mandated and the ability to 'select' their teaching partner supports the relationships between the teachers who choose to team teach. In this research all of the participants had worked in schools in which teams based on year level or subject area were in place providing the teachers with the opportunity to develop relationships with a range of colleagues. However, not all teachers are willing participants in a team environment. As one participant in this research recalled a teacher a previous team he had worked in *just had to do everything in her way, in her own room and never really discussed things*. Therefore, the relationship he, and the other team members, had with her was professional but was not one through which he could engage in conversations leading to professional learning.

Establishing collegial teams take significant time and effort and may not be achieved across an entire school. As Hord and Sommers (2008) note 'bringing together individuals who do not respect or trust each other is problematic' (p14). Daly and Moolenaar (2010) found that the relationships between teachers in effective communities are built on trust and enable professional learning to take place however, in less effective teams, the relationships are strained and do not progress beyond the level of providing basic support such as sharing resources. Difficulty establishing a relationship within a faculty team was raised by one participant in this research. She was new to a school and, when endeavouring to seek support and advice from faculty colleagues felt they were *turning against* her. This experience was a

most unpleasant one for her and impacted on her ability to establish relationships with colleagues as well as on her self-esteem as a teacher.

The experiences shared by the participants in this research reflect a broad range of positive and negative encounters with colleagues across the school that have a significant impact on the developing relationships between individuals and across teams. While not all experiences within a team or group context are as supportive and collegial as the participants consider ideal working arrangements, all agreed that being part of a team or community:

makes it easier to build a trust relationship because you know they are experiencing the same things as you are. (Pip)

As Andrei, Oțoiu et al (2010) note, although many teams in schools consisted of people who have not previously worked together and often did not know each other, they do share a common identity through being members of the same school, which provides a starting point for the development of relationships and group identities. The participants of this research acknowledge that a supportive collegial team relationship takes time to develop and the emergence of a group identity for each team is implied through references to *your team* and *our team* and previous working teams such as being a member of a particular year level team.

Through the interaction of the members of each group (such as a community, team or network) patterns, norms, rules and culture emerge particular to that group (Davis 2005).

During any interaction between group members, local and global rules and norms that exist in other contexts will be drawn upon as each person negotiates with others. External norms and rules can be used to justify and explain an individual's actions and attitudes, or attempt to persuade others to a particular point of view. Stacey (2001) suggests that when people engage

in these negotiations ‘they are not simply applying the regularities of rules but referring to them in order to explain, justify or condemn their own, or others, deviations from them’ (p 131). It is not possible for rules to apply to all situations and, therefore, people will often employ them as tools rather than be ‘rule-driven’ (p 131).

While there was no specific reference to the development of norms and rules within a team environment in this research, it was implied by the participants when talking about the development of relationships with each other in teams. They discuss *getting to know each other*, sharing past experiences, and finding out who is willing to share and responds positively to their own willingness to share ideas and resources. Through this process of interaction each person forges differing relationships with colleagues, some more trusting than others, and contribute to the development of each group identity.

As well as developing relationships with colleagues in teams, teachers also negotiate relationships with colleagues across the school. Participants valued the social functions that enable them to engage in conversations with a range of colleagues. Some of the resulting relationships are ones in which a level of trust develops to the point that colleagues can *have deep and meaningful* professional conversations. Developing relationships across the school encourages the establishment of a broader group identity that participants considered influenced, and was influenced by, the school culture. One participant described the culture of the school as *the way we do things around here* and considered it to be an important factor in the development of attitudes, norms and rules that influenced both the formal and informal groups that emerged across the school. The work by Schein (2010) supports this view, arguing that culture ‘is both a “here and now” dynamic phenomenon and a coercive background structure that influences us in multiply ways’ (p 3), and is constantly evolving

through the interactions between people and their behaviour at the time. He goes on to note that culture provides a structure that guides thoughts, feelings and behaviour within a group or organisation to support positive interaction and provide meaning to the activities individuals are engaged in.

In terms of a school environment there are multiple groups all with their own particular culture, and many of which function within larger groups. Haggis (2009) explains the impact of a school as a system on the smaller systems, or groups, that are nested within the school system. As part of the broader educational community, the norms, rules and attitudes that make up the culture of a school share the interactions of the larger systems, and ‘the shapes and patterns of these larger system interactions, in combination with each system’s own historically created patternings, provide the *constraints which are necessary for emergence to occur* (at the level of the smaller system)’ but what emerges from these interactions is specific to each system (p 53 italics in original). While both formal and informal teams and groups across schools are influenced by the culture of the school, the findings of this research reflect the explanation by Haggis (2009) with each team or group developing its own norms and identity.

One of the most recognised and influential models attempting to describe the emergence of order in formal groups was developed by Tuckman and published in 1965 (Morrison 2002; Bonebright 2010). It initially identified the four stages of forming, storming, norming and performing, but in 1977 Tuckman reviewed the model and identified a fifth stage, adjourning, which completes the life cycle of a group. Bonebright (2010) notes that there is extensive application of Tuckman’s model across a range of settings, from organisational to educational, and notes that it is still one of the ‘most commonly cited group development

models' within educational literature (p 118) and that another model with the same breadth of impact is unlikely to emerge from current literature. She acknowledges that current theories 'recognize the complexity of group dynamics in today's world and are not easily represented in a simple model' (p 119) and that recent studies into aspects of group dynamics, that take into account factors external to the group, are able to provide a deeper and broader understanding of the development of groups than Tuckman's model. However, Tuckman's model has sufficient breadth to provide a starting point for discussion.

This view is supported by Morrison (2002) and Main (2010), who both acknowledge the potential in the model as a basis for understanding group development but question the linearity of the model. Main (2010) argues that teams often develop in a more cyclical manner, moving backwards and forwards through the stages, or even stagnating within a stage rather than progressing through them sequentially. While there are limitations to Tuckman's model, the issues reflected in stages are often articulated in the research focussing on formalised teacher professional learning projects that utilise a team approach. These issues include: the expectation that conflict will arise during a change process, such as professional learning; the acknowledgement that it takes time for teachers to develop relationships in a team environment that enables them to be open and honest; and that effective groups challenge each other but have the type of relationships in which they are able to work through issues as they arise (Lovett and Gilmore 2003; Beatty and Brew 2004; Scribner, Sawyer et al. 2007).

The participants in this research shared experiences of formally organised teams they considered worked effectively and others that were less effective. As argued by Main (2010) earlier not all teams progress to the stage of functioning well, with some stagnating at an

earlier stage in the development of their group. One experience shared by a primary level participant is as follows:

My first year here my teaching partner closed the divider between the teaching areas and we never did anything together. By the end of the year I still didn't know all the kids in her class. She just had to everything in her way in her own room and we never really discussed things – we'd all teach the same thing but you'd have five teachers doing it one way and her doing it a different way. (Greg)

This participant and his teaching partner were members of a year level team of six teachers as well as members of a sub-team of two. His teaching partner participated in the larger group meetings, planning the focus for the term and sharing resources, but did not engage in conversations regarding teaching practice and preferred to teach independently. This independence impacted on the relationship the participant had with his teaching partner and the possibility of learning from each other. The relationship reflected in the story by this participant would be described by Meirink, Imats et al. (2010) as cooperative rather than collaborative. They suggest that cooperation involves two or more teachers agreeing to work together but maintaining their own autonomous practices; while collaboration suggests that the teachers share decision making and responsibility for their teaching practice.

This research found that relationships are a significant factor in teachers working together in a team environment. These relationships are based on experience of interacting with each other over a period of time and the trust that develops between colleagues within these teams. This finding is borne out by Andrei, Oțoiu et al. (2010), who argue that 'trust does not just provide a basis for a relationship, but it is also shaped by this relationship' (p 122). In their study Andrei, Oțoiu and co-authors found that, for their participants, trust developed over a period of time, starting with a perception of vulnerability and risk associated with the task

and other members of the group, moving on to relationships and trust, based on the interaction and task based experiences with the other group members over time.

Andrei and co-authors argue that 'being an emergent state of the group, trust is never fully formed, but always reevaluated, recalibrated and rebuilt across the stages of a groups' existence' (p 132). They also noted that the group members would often describe an event from a group perspective rather than their own perspective. The findings from their research suggest that the development of trust between participants is not a linear process but a dynamic one in which the 'phases of trust formation overlap and interact with one another', continually forming and reforming over time based on the interactions between individuals (p 135).

The relationships and trust developed through working together in a formal team or group arrangement can influence the emergence of informal groups, such as communities of practice and informal networks, within the work environment.

Self-organisation of informal communities and networks

Communities of practice are common in work environments and take a number of forms: they can be large or small; some might exist for a short time while others last for years; they may be located within a particular physical location or spread across the world; the membership may be homogeneous, with people from the same function or background, or heterogeneous; they can occur within a team or across organisations; they might begin spontaneously or be intentionally developed; and may exist unrecognised within an organisation or become institutionalised (Wenger, McDermott et al. 2002).

Whatever form communities of practice may take, they can all be described as:

...groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. (Wenger, McDermott et al. 2002 p 4)

Members of communities of practice value belonging to a group in which they are able to understand and share perspectives around particular issues. They are often drawn to remain with the group as they learn together developing 'a unique perspective on their topic as well as a body of common knowledge, practices, and approaches' (Wenger, McDermott et al. 2002 p 5) and a sense of identity.

This description is illustrated by an experience shared by one of the participants of this research. The group described by this participant had a common focus on teacher and student learning particularly around the use of information technology.

There was a group of us, one in particular kicked it off, it started as an informal situation around coffee - let's meet every Wednesday morning if you can be there that's great if you can't that's okay - and we would discuss what's been happening in our particular areas of work. They were quite different some were in technical areas some were in learning development areas and research areas and we would just basically reflect on and share with others what had happened and others in the group would then provide advice, having thought about this. If it's a problem 'have you tried that', 'talk to so and so' not only stimulating the thinking about who are our sources of information that could help us in our problem-solving but there was also sharing of 'I read this report this week and it was really interesting and said this' so it was ongoing where people were engaged in professional reading. So it started as a serendipitous gathering of like minds, it was a very informal thing and that was great. (Suzie)

Each member of this community of practice brought a different perspective to a common focus and through sharing their knowledge and skills were able to support each other, solving problems together and broadening the knowledge and skills of each other. The participant recalling this experience did not refer to the group as a community of practice, just an informal group or *gathering of like minds*. In his brief introduction to communities of practice, Wenger (2006) points out that in an organisational context communities of practice are usually referred to as a network, group or club rather than a community.

While the participants in the study by Wolf (2008) continue to refer to their working arrangement as a creative partnership, it exemplifies a community of practice. Wolf (2008) followed two primary teachers and two theatrical artists as they worked together focussing on the language development of the teachers' students during a period of over two years. The community was initially established as a partnership between the teachers in the school and a company of players, however, as they continued to work together the potential of the collaboration became broader for all members of the community as they developed a creative curriculum based on mystery. All members of the community, and the students, engaged in significant learning and, as Wolf (2008) notes, while the students 'entered into the adventure of learning. The teachers and artists shared in the adventure, for they too entered into the language and learning that comes with creativity, collaboration, compromise and critique' (p 100).

Opportunities for communities of practice to emerge from formalised professional learning activities have been noted in other research as well. Flint, Zisook et al. (2011) describe a three year study involving a partnership between a university professor and two teachers focussing on student writing. Over time the relationship between all participants became one

in which they were comfortable to reflect and problem-solve together, the teachers being viewed as professionals ‘who had a great deal of insight, creativity, dedication and contextually situated knowledge’ (p 1167). Flint, Zisook et al. also note that ‘as the teachers became active participants in their own professional development, they began to reframe their identities as writing teachers – writing teachers who brought questions, critical points, and new understandings to consider with others’ (p 1168). Through this process the researcher and the two teachers constructed a community of practice.

Ali (2011) reports on a different approach to the development of communities of practice. A project in Pakistan used a cluster-based training program for teachers, based on subject areas, which provided the opportunity for teachers to develop communities of practice within and across the clusters. It was found that communities of practice did emerge through the cluster model, although it was difficult to gauge the effectiveness of the communities for the professional learning of the participating teachers given the implicit nature of knowledge (p 79).

To differentiate communities of practice from other groups, such as informal networks, Wenger (2006) identifies three characteristics essential for a community of practice: the domain that is the common interest shared by members who have a level of competence in the field; the community who learn from each other through joint activities and discussion; and that members of a community are practitioners who develop their practice through sharing experiences, problems and resources (p 2).

Teachers are members of a range of informal groups, including communities of practice and informal networks. The findings from this research indicate that the emergence of informal

groups for professional purposes is often triggered by a desire to improve teaching practice. Some of these groups may involve a number of members who have proven to be willing to share resources and expertise and are open to exploring issues (Picard 2005; Stevenson 2005), while other groups may be limited to two or three members. These small groups often emerge when a teacher, who is feeling vulnerable about their professional knowledge or skill, seeks support (emotional and professional), from colleagues with whom they have established a strong trusting relationship (Kelchtermans 2005; Rogers 2006; Lee and Yin 2011). Other informal groups emerge from the friendships that have developed through working together, and may be located within or outside the school, as illustrated by the following excerpt:

I'm a specialist teacher and there are four of us, we all started out as classroom teachers but have been promoted but we have maintained a dinner a month where we meet and discuss, and we do have professional conversations, and that's not the whole idea of the dinner but to catch up as well, but that's the times where we have those types of conversations about 'what are you doing in our school and what are you doing for this, and how are you managing this' and I think a lot of us have those other networks outside of our own school where it is an informal time where you might meet and have those informal conversations with other people and that's where you often pick up some good ideas to bring back to your own school. (Alison)

Many participants in this research enjoy participating in friendship-based informal networks similar to the one described above, both within and outside their school, however the members of these networks are not necessarily the colleagues to whom they turn for support for the 'serious issues'.

In her research on knowledge creation in organisational settings, Durbin (2011) focusses on the formal and informal networks, noting that individuals are members of both networks and

may choose membership of particular networks for various reasons, such as 'career enhancement or friendship' (p 94). According to Durbin 'informal networks involve interactive behaviour between individuals whose relationships are more likely to be the result of their own choice, and that may be formed to accomplish work-related tasks or to provide social benefits, or both' (p 94). Engagement in informal networks is at the discretion of the individuals involved in which the relationships may be based on work or social interaction or both.

The importance of informal networks or groups for social relationships as well as work related relationships has also been raised by Morrison (2002). He notes that it is common for informal groups and cliques to be established within a school that are able to provide both 'psychological and interpersonal support' to teachers (p 44). Morrison goes on to argue that, within a school, there is no clear 'demarcation between formal and informal' groups; the continual interaction between individuals and groups blurs any possibility of identifying the impact of one group on another. All groups are self-organising and 'both informal and formal groups have to concern themselves with the personalities, emotions, group dynamics and leadership behaviours of their participants' (2002 p 44).

While the formation of teams, or groups, both formal and informal, provide a mechanism for teachers to work collaboratively and build a supportive environment, the relationships that develop within these teams cannot be controlled, only influenced, and the leadership and culture of the school are significant influencing factors (Morrison 2002; Scribner, Sawyer et al. 2007; Meirink, Imants et al. 2010). These influences were mentioned by a number of the participants of this research.

I think the linchpin is the development between those good strong teams and the trust that we develop between our colleagues in those teams. And also building up a good strong school trust culture and the expectations around that. (Sandy)

Another participant at the same workshop agreed with the above comment, adding that:

I think, I've found there's so much informal learning going on within your team that no one wants to get out of that situation, you know there's so much happening that it's really hard to go to the main staffroom because you know there's already going to be a lot going on in your own staff room that you want to be part of, so unless you had a set time when everybody went to the staffroom, most teachers these days don't want to give up that informal time. (Greg)

There was general agreement in this workshop that it was important for the leadership of the school (at all levels, not just the principal) to encourage activities that not only supported strong relationships within groups, formal and informal, but also across the school to promote and enhance the collaborative culture of the school.

Leadership and self-organisation

While some formal groups, such as secondary faculty teams, may have a senior staff member who performs a leadership role, other groups do not and different teachers will assume a leadership role at different times depending on a range of factors, such as perceived knowledge or skills relevant to the needs of the group at that time. Teachers in the study by Davis and Sumara (2001) were not assigned roles or provided with any incentives to take on particular roles however, over time, they began to assume unofficial leadership roles related to their areas of interest and expertise. The authors consider that this development is illustrative of the self-organisational nature of a complex system.

For the participants in this research, assuming unofficial leadership roles within formal teams was considered a sign of support and recognition of skills and knowledge by their colleagues. The roles often changed, depending on the focus of the activity or discussion within the team or group, the expertise of each individual member of the group, and their trust in their colleagues to value their contribution. The roles and responsibilities adopted by each person varied as they negotiated their relationships with colleagues in each team or group of which they were members within the individual school system. These findings are supported by Scribner, Sawyer et al (2007) who note that in self-managing teams there is a form of shared leadership within the team, with multiple leaders emerging at various times for various lengths of time; and Morrison (2002; 2008), who argues that the order and structures of systems emerges through the interaction and relationships between agents of the system, and is difficult to predict.

The influence on the culture of trust in a school by teachers in formal leadership roles, such as principal and executive teachers, was highlighted by the participants in this research. Participants noted that a distributed form of leadership encourages teachers to support each other collegially and share their knowledge and skills. Stoll (2011) argues that trusting relationships can be influenced by ‘those in senior leadership positions inviting others to share in the leadership of the school and engaging them in collective learning that is meaningful to them. This helps build trust with each other’ (p 110). Leaders who adopt a distributed leadership model, in which ‘chains of command are replaced by webs of influence and networks’ (Morrison 2002 p 57), provide an environment in which the organisational structure of teams and groups is able to emerge from the ‘grass roots’ (Coppieters 2005; Coleman 2011; Eyal and Roth 2011).

Adopting a shared, or distributed, leadership model does not mean abrogating leadership responsibilities, and, as this research found principals are still able to influence the formal and informal teams functioning across the school. One example shared by the participants was the strategy of ongoing professional conversations utilised by the principal with the leadership team to ‘develop a picture of the school’ and the desired school culture. The outcomes of these conversations would influence other conversations within and between teams and between individual teachers as they interacted as part of their work, creating an attractor. Through the creation of attractors school leaders are able to influence teams and groups, both formal and informal, drawing them towards desired ‘trajectories’ (Fullan 2001; Gilstrap 2005). As Beswick, Watson et al. (2010) note:

A skilled leader is able to notice emerging patterns, intervene to stabilise those that are helpful (in terms of his/her intentions) and destabilise those that are not, and to structure the environment by *seeding* it or creating *attractors* around which pattern of interaction emerge, so that desired purposes and outcomes are likely to emerge. (p 157)

Thus, while they are unable to control how the individuals within a formalised team organise themselves, or the emergence of informal groups, they are able to influence them through their leadership style and the creation of attractors.

Fullan (2001) identifies three social attractors essential for effective change within a school: moral purpose; quality relationships; and quality ideas through the co-construction of professional knowledge. These attractors support the development of a trusting and collegial working environment and acknowledge the importance of emotions to teaching (Hargreaves 1998). Participants in this research discussed the importance of their work being valued by school leaders and colleagues that reinforced their feeling that the job they were doing was

worthwhile (realizing their moral purpose). These feelings encourage them to seek support and advice from colleagues varying from resources to *deep and meaningful* conversations about teaching practice. The relationships with colleagues would strongly influence who they approached for each purpose (Hoekstra, Beijaard et al. 2007; Jurasaitė-Harbison 2009).

Drago-Severson (2004) notes that teaming enables teachers to reflect on their practice and beliefs through seeking opinions from other teachers with whom they have established sound relationships; however the culture of the school, influenced by the leadership approach by the principal, will impact on the collaboration, and thus the relationships and formation of informal groups, between teachers.

Conclusion

This chapter positioned the model within a school context and considered the self-organisational nature of teams and groups, both formal and informal, and the emergence of order and leadership within these groups. Participants also noted that, because they are members of multiple teams or groups across the school, they are constantly involved in establishing and maintaining working relationships with colleagues from across the school. While the formal groups within the school are organised administratively, the informal groups emerge through the development of relationships between colleagues for a variety of reasons, including social interaction and support, sharing of ideas and resources with a number of colleagues, as well as engaging in private conversations with one other very trusted colleague. Regardless of whether the team or group is formally or informally organised, order will emerge through the interaction between all members as they negotiate the rules and norms specific to that group over a period of time. However, it was found in this research that while the emerging order for the informal groups was considered a positive one this is not always the case for formally organised teams, with some participants expressing

dismay at the lack of positive relationships and collegiality with some colleagues resulting in an independent working arrangement for that particular team. The participants also raised the importance of the school culture (influenced by the leadership team of the school through the creation of attractors), on the emergence of order and informal leadership within teams across the school.

The emergence of informal groups within a school is facilitated through the interaction between teachers within formalised teams and other groups across a school. Through the on-going interaction, relationships develop enabling teachers to establish levels of trust with colleagues that may lead to long or short term informal groupings from which professional learning may emerge.

The next chapter explores the model through the perspective of collegial interaction focussing on the opportunities for interaction within a school, conversational interaction and the emotional aspect of interaction.

Chapter 6: The Emergent Model - Collegial Interaction

This chapter continues the discussion of the emergent model through the perspective of collegial interaction. It explores the participants' experiences of time, space, conversations, professional identity and emotions in the light of existing knowledge to reveal a deeper understanding of this perspective of the emergent model.

The interaction between colleagues in this research is varied. Participants interact more frequently within organised teams related to their area of responsibility (such as year level, subject area or leadership team), but there are also opportunities to interact with other colleagues through membership of other groups (such as curriculum development teams and project teams), as well as socially. The social interaction is considered an important mechanism to enable teachers to meet and *get to know* colleagues at different times of the year. Participants provided examples of these social functions, such as faculty drinks at the beginning of the year and regular whole of school functions. The relationships between teachers across the different teams and groups 'emerge through the continuous rich and recursive interactions' (Fenwick 2009 p 106) that are '*multiple and multiply connected*' across the school as a system (Haggis 2008 p 167 italics in original).

Opportunities for teachers to interact are influenced by the organisational constraints placed on the school, such as timetables and school building structures (Biesta 2010). Time and space are identified in the findings of this research as constraining factors for teachers to interact both formally and informally, which impacts on the development of relationships between colleagues. School timetables, including on-class time, playground duty rosters and scheduled meetings, can hinder the opportunities for interaction between teachers, however

with careful planning, such as restructuring school timetables to provide common off-class time for teacher teams, this challenge can be eased (Rogers 2006; Hord and Sommers 2008; Wilcox and Angelis 2012).

The participants in this research raised the issue of sufficient time and space available for them to interact with each other. The use of the physical layout of the school building is important for enabling interaction between teachers throughout the day. Older-style school buildings often have separate classrooms along corridors for both primary and secondary sectors, although many secondary schools did have staffrooms for faculty or subject area teachers to work in, these were not commonly available in primary schools. The participants did note that the layout of newer school buildings seems to cater better for teacher interaction through the provision of facilities, such as common workrooms for primary year level teams and some interconnected classrooms for secondary teachers. Utilising the spaces available for interaction within a school requires time. Participants stressed the importance of common release time (non-teaching time) for year level or subject area teachers to enable them to meet, plan, share resources and ideas and engage in conversations. A number of participants commented on the increasing *busyness* of schools which was reducing the opportunities to talk or the time available when the opportunities presented themselves.

The issues of time and space are also borne out in the literature focusing on teacher professional learning (for example Lohman 2000; Stoll, Bolam et al. 2006; Hord and Sommers 2008; Fallon and Barnett 2009). As Huffman (2011) argues ‘time to meet and dialogue and physical proximity of the staff to one another in department or grade level groups’ (p 329) are necessary for the development and ongoing support of communities of learners in schools.

Time

Time for teachers to meet both formally and informally has been cited as a major challenge in schools. As stated by Senge, Cambron-McCabe et al. (2000), time 'is the most precious of all school resources' (p330) and is an essential resource for the development of relationships between colleagues that lead to collegial support and learning (Hargreaves 2002; Rogers 2006).

From a whole school perspective Hord and Sommers (2008) argue that time is 'one of the most challenging factors' for schools who are endeavouring to establish themselves as professional learning communities. Time is required for not only whole school meetings to ensure the development and maintenance of common goals and values, but also for teams, such as year level or subject area teams, to meet regularly. This is supported by Senge, Cambron-McCabe et al. (2000), who note that teachers require 'substantial and regularly scheduled blocks of time' (p 330) to enable them to meet as small groups, teams and as whole schools.

The study by Cosner (2009) focussing on capacity building in high school settings, found that the principals of the participating schools identified teacher collaboration as essential for building the trust required to achieve their goals. To facilitate the interaction between their teachers, principals implemented changes to the structure of their school to enable additional time and opportunities for teachers to meet.

During a discussion in the workshop about time to meet one participant in this research noted that:

You often have people just chatting with people in your direct team, and while that's excellent it does pay to go to other areas but it does get hard with time, different timetables and structures too. (Pip)

This participant acknowledged the importance of common release time for teams and the difficulty timetables presented for interaction with colleagues across the school. She felt that most schools did *the best they could* but the larger the school the more difficult it seemed to be.

The importance of common time for teacher teams to meet has been identified in other studies: Stoll, Bolam et al. (2006) noted that 'schools need to be organised to allow time for staff to meet and talk regularly' (p 240) which often means the restructuring of school timetables; Jurasaitė-Harbison (2009) found that opportunities for interaction between teachers was identified by two of the three principals in her study. These principals organised the school timetable in such a way as to provide common preparation time for year level teachers; and in their study on high performing middle schools. Wilcox and Angelis (2012) identified common planning time as an important factor for building capacity and collaboration.

These findings are supported by the participants in this research, one of whom commented that the common release time was useful for interacting with colleagues

where you are away from other distractions and in that particular time your focus is on your classroom practice, you know what your students are doing, where you want to take them, who are the kids with the problems that you need to address at the moment and that, I think, provided a focus for discussions that happened in that time.
(Marie)

Finding time for regular team meeting is also highlighted in the literature with a focus on professional learning. Many of the recent projects use a model of groups or learning communities working together and raise the issue of time for teachers to meet to have the focussed conversations leading to learning, acknowledging the importance of time to develop relationships between the participating teachers.

Regular meetings, preferably weekly, were needed by the teachers participating in the two collaborative learning projects conducted by Erickson, Brandes, et al. (2005). Some participating groups managed to arrange for common release time from face-to-face teaching during school hours, some met during lunchtime or afterschool, and one group met over coffee and muffins before school. The teachers involved in these projects were committed to them and worked to find time to collaborate.

Tschannen-Moran (2009) found that school leaders who pursued the development of their school as a professional learning community arranged time for collaborative planning and shared decision making noting that:

Teachers make complex decisions; as such, structures and time that allow for collective deliberation enhance the quality of those decisions. (p 226)

Time was also raised as an issue by the participant in this research in relation to working with pre-service teachers. While they enjoy the opportunities for learning that arose through discussions with their 'prac teacher' (for both the pre-service and mentoring teachers), the time needed for meaningful discussions can become an impediment to teachers accepting a mentoring role for a pre-service teacher. As expressed by one participant:

That actually chews up a lot of time when you have a prac teacher in the classroom – it's not what is happening in the classroom it's the discussion before and after it eventuates. I have stopped taking prac teachers because I found that the time needed for discussion and follow-up is too much to keep on top of other things. (Nina)

Time for conversations between mentors and student teachers was an issue for both the mentor and student in the study by van Velzen and colleagues (2012). It was noted by the mentors that pre and post lesson conversations were time consuming and often the discussion broadened from just the lesson. While they were concerned about the time required for the conversations, all mentors acknowledged their importance and prioritised their available time to ensure the conversations were not rushed. The student teachers also commented on the length of time needed for the conversations, however, they considered them a good investment especially when they could see improvements to their skills and knowledge as teachers as an outcome of the conversations. It was also noted by the student teachers that the level of trust within the relationships with their mentors increased as the practicum progressed enabling 'critical discussion of behaviour and ideas' (p235).

Not all mentoring is formally organised, as the beginning teachers in this research found. A number of participants who were in their early years of teaching shared experiences of informal mentors, usually experienced teachers working with students in the same year level or subject area, who are willing to provide them with the support and guidance they need to

survive the first years of teaching. One participant commented that it was often desperation by the beginning teacher that initiated the relationship but that, during their short time with their colleagues they felt that the person they chose to seek support from was approachable and that they could develop a deeper trusting relationship with them over time.

Time for dialogue and reflection provides the opportunity for teachers to build camaraderie with colleagues that can then lead to the level of relationships through which they are willing to support each other (Fischer 2004). Unfortunately, as the demands placed on schools and teachers continue to increase, this time is reducing. As one participant in this research noted:

I'm finding the time to have the informal chats with people is tending to be reduced, I'm finding people are getting really busy and I feel bad if I'm interrupting what they're doing. (Mel)

Agreeing with the sentiment of the concerns expressed above, another participant described how she and a colleague were fortunate to be presented with an opportunity to spend some uninterrupted time together:

One of my fond memories was when I came to this school, myself and a colleague car-pooled. And it's a half hour drive so that presented a really good opportunity for lots of discussion not only about day to day things that were going to happen at school when we got there but learning, getting each other's advice about 'what would you do in this situation?' and 'what do you think about this?', 'how would you go about that?' That has been incredibly useful, and a great use of our time when you are in a car for half an hour you may as well be working so to speak. That's gone on for a number of years now and to me that's one of the most useful things I've found, there's lots of others of course. (Alison)

Car-pooling provided these teachers with the time and location to develop a relationship that enabled them to engage in the professional conversations leading to learning. As Southworth

(2011) explains, a professional conversation ‘is not simply talking – it is *professional learning* and it is sometimes profound professional learning’ (p 77 italics in original).

Teachers in other research, such as the study by Stevenson (2005), found that time was an issue in engaging in professional learning conversations with colleagues due to the ‘intensification’ of their work. The conversations were often very short as teachers sought answers to practical questions from colleagues they felt were able to address them quickly.

This supports the work by Lohman (2000), who found:

An issue compounding the learning challenges presented by job intensification was that teachers’ time was almost completely committed. (p 90)

The teachers in her study found that longer non-teaching blocks of time (some primary teachers had blocks of 25 minutes), and common non-teaching time with colleagues who taught the same year level or subject area, were essential for engaging in informal learning. One of Lohman’s recommendations is building in a greater amount of ‘unencumbered’ time to allow teachers to participate in informal learning activities.

As with the participants in this research, the teachers in the study by Rogers (2006) complained about the constraints of time to seek and provide support to each other and valued what could be done in the short time available. These teachers also raised the issue of being reluctant to approach colleagues because of how busy they were, noting that ‘the expertise is often there, it’s being able to access it; time is a big factor’ (p 119).

Teachers need time, not only to share and learn with each other, but also to unwind and *off-load*. For the participants in this research this often occurs when teachers come together socially, such as on a Friday afternoon. The importance of debriefing for relieving stress and

building collegial relationships was discussed by Rogers (2006) and debriefing requires time. Without sufficient time to interact, teachers are unable to establish the relationships with colleagues necessary for professional learning to emerge from formal or informal interaction.

Space

As well as sufficient time to interact, teachers also need suitable areas in which to meet. A team room or common work room was valued by participants in this research, especially those with an open layout that enables teachers to converse informally, share resources and ideas and prepare together. Beginning teachers found that these spaces could be a supportive environment where they could listen and learn through the stories shared by the experienced teachers, as well as seek the emotional and practical support needed to develop as a teacher. The ability to be together in an area and engage in focussed conversations related to their students facilitates the development of respect and collegiality between the teachers. During a discussion about common release time, participants in this workshop also talked about where they could go to have the conversations. As one participant pointed out, having a shared space was:

Vital, yeah, absolutely, somewhere that was away from, not in the classroom, where you had all the students still accessing you but not a social place like the staff room. I guess a designated work space a little bit secluded from other things particularly in light of the focus that you had where you were looking at your programming and stuff like that, that's where a lot of the discussions about where we fitted in with curriculum documents, where changes in policy were filtering down, that was the space where you worked out how that impacted on what you did in the classroom.
(Marie)

In their study on mathematics departments Beswick, Watson et al. (2010) found that the team room functioned as an attractor for the staff because many of the staff 'spent most of their

non-teaching time in that space and informally shared their practice' (pp 164-165). One of the participants in their study, the Head of Department, commented on the value of the interaction that occurred in the team room:

Sometimes we're working and talking at the same time, there's lots of it, and somebody else comes in and they join in. People seem to be much more ready for that than if you were to convene another formal meeting because they don't feel they have to be there, they're drawn in by interest. (p 165)

The potential for the interaction between teachers to take place in a common work room, particularly for beginning teachers, was also noted by Lisahunter, Rossi et al. (2011). They found that the work rooms function for both social and work related activities and influence the relationships between the teachers. One teacher in their study described the layout and use of a staffroom in a secondary school, where teachers from all subject areas were housed in one open plan staffroom that had workspace for them along the walls. For the teachers in their study:

...the physical layout of the space embodies and encapsulates this strong sense of openness, cooperation and collaboration between teachers, regardless of teaching areas, giving access to an invaluable resource, other teachers. (p 40)

The staff room was not only a working space but also a relaxed, social space in which teachers could unwind and have fun together. Using the common work room for social as well as work-related conversations provides teachers with the opportunity to share experiences, develop relationships and encourages a sense of collegiality that supports them both materially and emotionally (Hargreaves and Goodson 1996; Rogers 2006; Stoll, Bolam et al. 2006).

The layout of the common work room was discussed by the participants in this research, noting that the interaction between the teachers is usually more frequent when the layout of the space is open, enabling teachers to see each other and engage in conversation without having to move from their own desk. The shared work room arrangement is more common in secondary schools but more are being included in the design of newer primary schools. One issue raised by both the participants in this research and other research is the proximity of the work rooms, and the whole school staffrooms, to the classrooms (Lohman 2000; Senge, Cambron-McCabe et al. 2000; Morrison 2002; Jurasaitė-Harbison 2009).

While the teachers appreciated having a common work room, if it is not close to classrooms of the teachers using it they feel that they miss out on the informal interaction that occurs when teachers use the room between classes or before going out on playground duty. In the primary schools that do not have common workrooms teachers commented on the distance from their classroom to the whole school staffroom. If the distance is seen as too great many teachers will remain in their classrooms during short breaks and miss out on time with other colleagues. One of the teachers in the study by Jurasaitė-Harbison (2009) pointed out that the ‘teachers’ lounge’ was on a different floor to her classroom and therefore she found it difficult to go there very often. The architecture of this school was an impediment not only for teachers accessing a shared staffroom, but also interacting with each other due to the floor plan of the building.

Senge, Cambron-McCabe et al. (2000) suggest that the layout of some buildings, such as older ones with separate classrooms and few common work spaces for teachers, can inhibit the informal interaction between teachers, particularly the corridor conversations enjoyed by participants in this research. These conversations can vary from a quick question or promise

of a resource in the pigeon hole, to longer ones focussed on issues related to their students (Rogers 2006). Clearly, providing access to colleagues through the organisation of teaching and common work spaces for teachers to meet and prepare resources enables interaction to occur. This is supported by Lohman (2000), who found that:

...a lack of proximity among teachers' classrooms diminished a teacher's ability to exchange knowledge with colleagues, particularly those in the same grades or subject areas. Consequently, teachers were less likely to informally talk and share resources with those whose classrooms were not near theirs. (p 91)

One secondary teacher in her study was separated from her subject area colleagues and expressed dismay at her inability to participate in the corridor conversations between classes. Locating year level or subject area classrooms in close proximity to each other, and providing more common spaces for teachers with reduced distances to classrooms, enables teachers to interact during the day and supports the opportunity for these conversations to occur (Senge, Cambron-McCabe et al. 2000). This may require an assessment of the current and potential future use of rooms within a school to support the serendipitous interaction between teachers (Morrison 2002; Stoll, Bolam et al. 2006; Hord and Sommers 2008).

Some of the participants in this research discussed experiences in newer primary schools in which flexible teaching areas enabled two or more teachers to work together with students of the same year level. In some schools these areas have dividing doors that can be closed or remain open depending on the teachers involved while other schools had open areas with one or two small 'withdrawal' rooms for small groups. The ability to interact with colleagues throughout the day and observe their practice is a very positive aspect of this arrangement and the relationships that develop between the teachers are based on mutual respect and trust. During this discussion one of the secondary teachers commented that the structural issues of

school buildings prevented them from experiencing this interaction. However, some newer secondary schools are designed to provide a number of interconnecting classrooms as well as the traditional standalone classrooms. One of the secondary teachers participating in this research shared their experience of working in interconnecting classrooms:

We have two classrooms which are interconnected rooms and I would constantly send kids back and forth and she would come to me or we would go to each other because I needed answers and it wasn't formal at all it was continually informal, all the time.

(Mary)

Close proximity to other teachers of the same year level or subject area is especially important for beginning teachers to provide them with the collegial support that many early career teachers have described as vital (Lohman 2000). Working in flexible teaching areas, or in a classroom next to where their year level or subject area colleagues are teaching, as well as access to common work rooms enables trusting relationships to develop amongst teachers through the opportunities to interact.

While some participants in this research valued the opportunity to engage in social interaction with colleagues at a nearby pub or café, not all schools are close to these types of facilities and, therefore, a whole school staffroom that can cater for a large group is desirable to enable teachers to debrief and get to know teachers from other areas of the school. The informal nature of these interactions provide teachers with a chance to *off-load* and *de-stress* as well as forming relationships through which they are able to support each other collegially (Rogers 2006; Hord and Sommers 2008).

Opportunities to interact with colleagues are an essential element of a teacher's professional life. They can provide experiences through which they are able to build trust between

colleagues and promote candid conversations in which they can support and learn from each other. The provision of spaces within the school for teachers to meet supports the opportunity for interaction.

Conversational interaction

The participants in this research noted that conversations can take many forms, depending on the situation. They grouped them broadly into two types: the congenial, or social, conversations and the collegial, or professional, conversations. The social conversations are considered important for *getting to know* each other *as a person* as well as finding out about their professional background. While the outcomes of congenial conversations rarely result in professional learning, they do provide the opportunity for teachers to develop relationships with their colleagues that may lead to collegial conversations in the future. The professional conversations are focussed on work-related issues, through which professional learning generally occurs. The 'depth' of learning that occurs depends on the relationship between the participating teachers, with the greater the level of trust, the more open the conversations are and the deeper the learning. The participants commented that they felt they could be more honest in an informal one-to-one conversation with a trusted colleague. The relationships between the individuals influence the willingness to engage in conversations and the type of conversation that occurs while the results of the conversation influence future relationships with each other.

Describing the conversational process as 'a self-organising one that produces emergent patterns of meaning for participants', Stacey (2001 p 361) suggests that 'speakers take turns that are organised by certain principles that have themselves emerged out of the history of interaction in the community of speakers to which they belong' (2001 p 361). The role each

member of the community assumes, the group norms, and the relationships between all members, continue to change as the group continue to interact and over time. An example of what occurs during an activity in which a group of teachers are interacting is provided by Fenwick (2009):

As each person contributes and responds within the activity, she changes the interactions and the emerging object of focus; other participants are changed, the relational space among them all changes, and the looping-back changes the contributor's actions and subject position. (p 106)

While the above example is of a group of teachers engaging in an educational project, the interaction and responses to the interaction are reflected in all teams and groups across a school in both a professional and social context. The 'communicative process' influences the relationships between individuals and the present and future interactions (Semetsky 2008 p 87).

Reflecting the findings of this research, a number of studies have differentiated between the social and professional conversations that occur between teachers as well identifying levels of dialogue within professional conversations (for example: Orland-Barak 2006; Scribner, Sawyer et al. 2007; Robertson 2009; Southworth 2011). In their study of collaborative inquiry groups, Nelson, Deuel et al (2010) also identified two key forms of teacher conversations: the congenial conversation that remains polite and superficial; and collegial dialogue that engages teachers in deeper conversation about practice. They found that, within the inquiry groups 'probing another's ideas and actions reveals differences in beliefs and values and can lead to personal and emotional conflicts...to avoid these emotional and affective conflicts, teachers often work hard to maintain congenial conversations' (p 176). In contrast, when teachers engage in collegial dialogue there is a willingness to be open and

honest about their practice. Through this form of dialogue teachers will endeavour to understand each other through questioning, clarifying meaning, and suggesting alternative perspectives in a non-judgemental manner.

Initial meetings between teachers in the workplace usually involve superficial conversations, during which time each person is gauging the other, determining the potential of the relationship and approaches to future conversational interaction (Routman 2002; Haigh 2005). This is illustrated by the following excerpts from a workshop in this research:

You try to get to know the person first, you don't just mine them for information, you get to know them a little bit, sometimes it's in the background. But I have come across a few teachers over the years that I probably wouldn't [engage with] only because they come across as too busy. (John)

You know if you go and talk to somebody and their body language shows you that they're not really interested, they don't have the time for you. (Mel)

According to Haigh (2005), the getting to know you conversation:

...typically involves self-presentation, initiation of topics and the establishment of common contexts. On the basis of the outcomes of these moves, participants in the conversation then decide whether they can, or want to, establish an interpersonal relationship that will involve some degree of solidarity, (mutual rights and obligations), familiarity (mutual knowledge of personal background) and mutual affect (emotional commitment). (p 11)

Through these conversations teachers assess the skills and knowledge of each individual and their approachability, forming the basis for future conversational interactions and relationships. Roxå and Mårtensson (2009) suggest that teachers have a very small cohort of colleagues with whom they have sufficient trust to engage in sincere conversation about their

teaching practice. Conversations with other colleagues, not within this cohort, will often be more guarded.

When engaged in conversation, both social and professional, teachers often share their experiences through story, enabling them to make sense of their experiences, provide a context for the listener and communicate meaning (Polkinghorne 1988; Clandinin and Connelly 1995; Horn 2005; Melville and Wallace 2007; Southworth 2011). During the workshops conducted for this research, participants would recall experiences that illustrated the issue under discussion. Often an aspect of the story, or a particular word, would trigger a memory for other participants who would then share stories, continuing the same topic or starting a new one. Stacey (2001) discusses this phenomenon in terms of attractors in which particular words can act as attractors for conversational themes that trigger more conversations on that theme until a new attractor, possibly triggered by an association, will emerge.

Triggering of similar stories by listeners through inviting reflection and discourse is one of the four characteristics of 'a useful story of practice' identified by Jalongo and Isenberg (1995). The other three characteristics are: it is genuine and rings true; it is interpreted and reinterpreted; and it is powerful and evocative (pp 10 - 11). A useful story will resonate, or 'ring true', with the other teachers listening, encouraging them to reflect on their experiences and respond with comments or their own stories. A teacher may share the same story multiple times but, while the experience remains the same, it may be 'interpreted' and retold from a different perspective. A story may also evoke strong emotions from both the teller and listener as the teller relives the experience and the emotions associated with it prompting a response from the listener. All four characteristics were present in the stories shared by the

participants in this research, as evidenced by the responses to each story from the other participants through head nodding, murmurings of agreement or sympathy and the desire to share stories with a similar theme. Towards the end of one workshop a participant commented:

Actually having this sort of conversation, and having the time to laugh about it and reaffirm all the good things that are happening in the school as well, is really good.
(Mel)

The stories shared during the workshops were a reflection of what occurred between the colleagues within the school.

Not all storytelling leads to professional learning, sometimes they provide the opportunity to debrief and share experiences, both positive and negative. Often the teacher sharing a negative story is not seeking answers or advice but emotional support from colleagues that is frequently provided in the form of similar ‘war stories’. The participants in this research discussed the importance of having time to debrief and *vent without feeling bad* with colleagues. The opportunity to engage in dialogue with others, talk about the experience and *have a laugh* often released the stress and tension, particularly off-campus as one participant noted:

In Outback Town we used to have a regular Friday afternoon session debriefing meeting at the pub - they were the best places. (Ross)

The debriefing conversations provide the teachers with an opportunity to share experiences in an informal, and sometime social, setting that are important for the development of relationships between teachers (Haigh 2005). These relationships may form the basis for

conversations leading to professional learning or remain congenial. As Kinnucan-Welsch and Jenlink (2005) note:

Conversation, by its very nature, is relational. Whether it is dialogue, discussion, debate, or design discourse...it embodies relationships as a foundation of the interaction between one individual and another. In this sense, relation is the foundation of conversation. (p 394)

Engaging in conversations assist in the development of collegial relationships which in turn influence future conversations positively or negatively, weaving 'webs of relationships' amongst all teachers engaged in the conversational interaction (Kinnucan-Welsch and Jenlink 2005 p 396). As Shields and Edwards (2005) suggest, engaging in dialogue with a colleague requires a relationship based on trust, while, ironically, engaging in dialogue supports the development of relationships and levels of trust between colleagues.

Trusting relationships develop over time and the participants in this research discussed the benefits of working with teachers over a number of years in terms of knowing each other and the opportunity to have open conversations with a number of colleagues. This is illustrated in the following excerpt from one workshop:

I also think that because each year you have a group of teachers you've taught with the year before, you might have a group of new teachers coming into your group but you've still got a core group that you are familiar with and I think new teachers tag along with that, they hear teachers talking about whatever and they feel they can join in that conversation because these teachers are already talking about these things. I think if you've got teachers you're already familiar with that helps you too, being able to be open about what you talk about. (Greg)

Relationships based on a deep level of trust with long term colleagues were also identified in the study by Roxå and Mårtensson (2009), focussing on professional or collegial types of conversations which they refer to as ‘significant conversations’ about teaching (p 547). Three characteristics of ‘significant conversations’ emerged from their data: trust, privacy and intellectual intrigue. In both Roxå and Mårtensson’s (2009) study, and this research, the teachers engaged in ‘significant conversations’ with colleagues the participants considered trustworthy and to whom they could turn for support and open dialogue. Participants of the conversations will engage in ‘intellectual intrigue’ through sharing experiences and re-examining issues that leads to professional learning and, potentially, the development of stronger relationships (p 547). The conversations with trusted colleagues take place in a location in which the teachers feel they are able to be honest about the issue under discussion, and express themselves without feeling they need to conform to perceived standards or norms appropriate for their role. As Roxå and Mårtensson (2009) argue, when teachers are unsure of how their actions will be interpreted by colleagues they will often behave according to what they perceive as the most appropriate for their role in that context.

Reluctance to engage in conversations with colleagues, or in the presence of colleagues individuals consider to be intimidating, has been raised by McDonald, Vickers et al (2010) who found that this reluctance may also be applied to colleagues they were previously comfortable with if the conversation turns to topics they considered could place them in a position of vulnerability. However, participants in their study also identified the benefits of supportive conversations in which they would debrief and positively acknowledge each other’s contributions. Reluctance to share personal experiences to avoid feelings of anxiety was also discussed by the participants in the study by Grey (2011). In her study there were a number of reasons for feelings of anxiety, including confidence in their own competence as a

teacher by both beginning and experienced teachers, and concerns about offending colleagues during discussions about pedagogy and teaching practice. For each of these situations the anxiety was overcome as they developed stronger relationships with their colleagues and, through ongoing conversations, felt safe to discuss their teaching practice and give and receive feedback.

Conversational interaction provides teachers with the opportunity to develop strong relationships with colleagues which may lead to the emergence of professional learning. These relationships with colleagues are strongly influenced by the emotional responses to the interactions that occur in the workplace (Hargreaves 1998; Schmidt and Datnow 2005; Akkerman and Meijer 2011).

Emotional responses to interaction

In this research participants discussed their emotional reactions to the interaction with students and colleagues in the school environment that were both positive and negative. The positive emotional responses were described in terms of feeling valued by colleagues, experiencing a sense of satisfaction in a successful session with students, and affirmation of shared goals and purpose in relation to their role as a teacher. The negative emotions were often associated with a sense of vulnerability as a teacher, and raised in terms of feelings of inadequacy, anxiety and lack of control. Many of the emotional responses experienced by the teachers related to their professional identity as a teacher – their understanding of what it is to be a teacher – and their relationships with colleagues.

Hargreaves (1998) describes the emotions of teaching as ‘deeply intertwined with the purposes of teaching, the political dynamics of educational policy and school life, the relationships that make up teaching, and the senses of self which teachers invest in their

work' (p330). He argues that teaching is a caring occupation with teachers making significant emotional investments in their work. Each teacher has their own moral purpose; their reason for being a teacher. This purpose, along with the ability to fulfil it within their work environment, shapes the emotions associated with teaching. Positive emotions, such as a sense of achievement, are often associated with the purposes being fulfilled. However, when purposes are not fulfilled, negative emotions such as anxiety and frustration, are often felt.

Teaching requires teachers to develop relationships with students, parents and colleagues. Through the practice of teaching the emotions of each person are activated and will influence how they express their own feelings and their actions. These actions, in turn, will affect the emotions and actions of the other people with whom they are interacting. However, it is important to note that different personal and professional backgrounds, such as culture, ethnicity and gender, influence the emotional state of the individual and what is considered appropriate demonstrations of emotions. As Hargreaves points out 'emotional states are not universally positive or negative, good or bad. They can only be evaluated in *context*' (p 329 *italics in original*). As an emotional practice involving relationships with others, teaching involves a significant degree of understanding of the emotional state of others. During any interaction each person interprets the emotions of the others involved. 'We reach inside our own feelings and past emotional experiences to make sense of and respond to someone else's' (1998 p 320).

Teachers experience a range of emotions related to their sense of physical, psychological and moral security and integrity. When they take risks, such as trying new ideas or seeking advice and support from colleagues, their sense of 'self' and professional identity is exposed, and

that can lead to feelings of anxiety and vulnerability. If the outcomes of these risk-taking actions are positive, teachers will often experience feelings of satisfaction and achievement. Many of these emotions are connected to an individual's sense of power to manage a situation. When a person experiences increases in their sense of power or status, they feel happy, satisfied and content. Conversely, when the sense of power is reduced, feelings of fear and anxiety are commonly experienced. Hargreaves (1998) concludes that:

The emotions of teaching are, in this sense, not just a sentimental adornment to the more fundamental parts of the work. They are fundamental in and of themselves. They are deeply intertwined with the purposes of teaching, the political dynamics of educational policy and school life, the relationships that make up teaching, and the senses of self which teachers invest in their work (p 330).

The points raised by Hargreaves (1998) are also reflected in the findings of other educational research, particularly studies with a focus on teacher responses to educational reform.

Emotions are discussed in terms of being 'interpersonal and relational' and embedded in all interactions with others (Schmidt and Datnow 2005 p 951); 'inextricably interconnected with belief, context, power and culture' (Lasky 2005 p 901); 'beacons of our true selves' because they provide 'an inner perspective for interpreting and responding to experience' (Zembylas 2003 p 215); and that they 'should be recognised for their crucial role in teaching' (Geijsel and Meijers 2005 p 427).

In this research emotions permeate all shared experiences, reflecting the concept of teaching as an emotional practice closely linked to their identity as a teacher.

The following is an example of an experience described by a participant:

I think you can have the best laid plans and a lesson that you think is going to be absolutely fabulous and stimulating and you go into the classroom and the kids are not really ready to do anything and everything you've done falls in a flop... you come out feeling totally devastated. So you talk to your peers around you and they might give you strategies which you can take back into the classroom. (Olga)

This story reveals a range of emotions, both positive and negative, connected to the participant's sense of identity as a teacher, her level of trust in her colleagues in seeking support, and her expectations of empathy and support from colleagues. Other shared experiences revealed feelings of vulnerability related to developing relationships with colleagues and the impact of these feeling when interacting with them; feelings of powerlessness related to leadership in the school and broader educational system as well as in the classroom; and feelings of achievement when *things went right* with students and colleagues.

From their study on teacher sense-making and emotional responses to school reform, Schmidt and Datnow (2005) also noted a wide range of emotions expressed by their participants. 'Indeed we saw teachers' emotions ranging from the positive that included feelings of joy, enthusiasm, satisfaction, comfort, trust, confidence, validation, contentment, and affirmation to the negative, which conversely, included feelings of self-doubt, worry, guilt, anxiety, stress, nervousness, apathy and uncertainty' (p 961).

A teacher's sense of who they are as a teacher, their professional identity, is at the heart of their emotional actions and reactions in the school environment. It provides the backdrop for interpreting situations and potential future actions and influences the relationships with others

(Veen, Slegers et al. 2005). As Zembylas (2003) states, the formation of identity is closely linked with emotions both influencing the other in a continual reinterpretation which connects the emotions with 'self-knowledge' (p 223).

Teacher identity

The findings of this research identified that an individual's response to feedback during a conversation is influenced by their current emotional state, their past and present relationships with the colleagues with whom they are interacting and their identity in the particular context. This is supported by other research that also notes that a teacher's identities and self-efficacy are in a state of continual change in response to the feedback they receive and how they interpret that feedback. During any interaction people are providing and receiving feedback which is context dependent, positive and negative, verbal and non-verbal, and constantly influencing the ongoing interactions (Holland 1995; Richardson and Cilliers 2001; Lakomski 2005; Beauchamp and Thomas 2009).

There are a number of common elements emerging in the literature discussing teachers and teacher identity. Teacher identity can be described as 'complicated and multifaceted' (Lee and Yin 2011 p 27); dynamic, constructed and re-constructed over time throughout the individual's career (Guerrero and Gutiérrez 2008; Beauchamp and Thomas 2009); being influenced by the 'particular socio-cultural, historical, and institutional context' of the interactions that occur (Zembylas 2003 p 213); and unable to be completely separated from the personal identity of the individual (Akkerman and Meijer 2011).

Given the multifaceted nature of identity, defining a teacher's identity is a difficult and complex task. Beauchamp and Thomas (2009) suggest that the following statement by Sachs (2005 p 15) is a useful starting point:

Teacher professional identity then stands at the core of the teaching profession. It provides a framework for teachers to construct their own ideas of 'how to be', how to act' and 'how to understand' their work and their place in society. Importantly, teacher identity is not something that is fixed nor is it imposed; rather it is negotiated through experience and the sense that is made of that experience. (p 178)

Clandinin and Connelly (1995) use the metaphor of a professional knowledge landscape to understand the lives of teachers in the workplace. The metaphor provides a 'sense of expansiveness and the possibility of being filled with diverse people, things and events in different relationships' (p 4). The components on the landscape are wide and constantly evolving, reflecting the beliefs, knowledge and experiences that teachers encounter during their professional lives. Clandinin and Connelly discuss the different places on the landscape: the in-classroom place where they are a teacher interacting with their students, and the out of classroom place where the interaction is with colleagues, providing them with the opportunity to engage in conversations, reflect on practice and learn. Across this landscape teachers fulfil a range of roles and reflect a range of identities depending on the place they find themselves at a given point in time (Robinson, Anning et al. 2005). The participants in this research suggest that changing roles depending on the context was not uncommon. In one context a teacher may assume an identity in which they adopt a leadership role, while in another their identity may be that of a reserved participant depending on the interaction with their colleagues present at the time and their self-efficacy. Each person adapts to the changing contexts, influenced by the feedback from colleagues, becoming the identity they perceive is

the best fit in that situation while maintaining a level of ‘autonomy and control’ (Fenwick 2008 p 22).

Teachers also have a personal identity outside of their professional identity, different dimensions of the same person, therefore interrelated and continually influencing and being influenced by the other as teachers evolve both personally and professionally (Clandinin and Connelly 1995; Armour and Fernandez-Balboa 2001; Beauchamp and Thomas 2009).

Akkerman and Meijer (2011) suggest that:

All that a teacher considers relevant to his profession, that he or she tries to achieve in work, is part of the whole ‘personal’ self. Vice versa, a teacher is not merely a professional regardless of all that he or she is otherwise; personal histories, patterned behavior, future concerns may all inform the position(s) of the teacher as a professional. (p 316)

Individuals are able to move between and amongst their multiple identities, both personal and professional, ‘as needed without so much as a second thought’ (Snowden and Stanbridge 2004 p 145). Fenwick (2008) describes this adaptation as ‘shapeshifting’ in which people are able to adopt different identities depending on the context but still retain a ‘coherent identity’ to act as an anchor (p 22).

Beauchamp and Thomas (2009) discuss the multiplicity of identities, suggesting that there is often a ‘core’ identity within a particular context, but there will be ‘multiple forms of this identity as one operates across different contexts’ (p 177). For this research the core role can be identified as that of ‘teacher’, with this identity being discussed by the participants in the context of a teacher in the classroom, a teaching colleague in a team of teachers, a teacher in a managerial leadership role, or a teacher in a leadership role due to recognised knowledge or

skills (in areas such as curriculum, pedagogy and student management). It was suggested by the participants that there were expectations, by both themselves and others, associated with being a teacher and the ability to adapt to a range of roles across the school.

There is an assumption that because you are a teacher you can teach anything at any level. It's about assumptions and expectations. (Greg)

The beginning teachers in this research were starting their career with assumptions and expectations of what it is to be a teacher, what a teacher does and how they act in the classroom, with parents and colleagues. These perceptions are formed throughout life, initially based on their own experience in school as a student, and are reconstructed as experiences as a student teacher then a qualified teacher occur. Brad Olsen (2008) provides an example of the changes one teacher experienced to her understanding of what a teacher is and does during her teacher education. Her initial understanding stemmed from her experience as a school student and her admiration for her father, who was a teacher. During her time as a student teacher she experienced conflicting emotions as she was faced with negative school experiences raised by a friend, and teaching practices suggested by her professors that differed from that of her father and her own experience as a school student. Making sense of this situation required her to reconsider her developing teacher identity and adapt it to accommodate her new understandings.

When facing change, particularly significant change as in educational reforms, teachers may face 'acute emotions', particularly if the changes are in conflict with their current sense of identity and purpose as a teacher (Schmidt and Datnow 2005 p 951). Negative responses to the change may result in resistance, both overt and covert, as teachers attempt to influence the changes taking place (Hargreaves 2004; Kelchtermans 2005). Lee and Yin (2011) studied the

emotional responses by teachers to curriculum reforms and note that the required changes to teaching practice as a result of the reforms ‘impact on teachers’ identities and create reactions which are both rational and emotional’ (p 27). They also noted that the teachers’ emotional and cognitive responses to the reforms determine the ‘ways and extent which reforms are accepted, adapted, and sustained’ (2011 p 27).

The participants in this research expressed their sense of identity, intertwining both personal and professional identity to reflect the whole person, through the positive and negative emotional reactions to the interaction with students and colleagues.

Positive emotions

Through their shared stories the participants in this research described a number of positive emotions, such as trust between colleagues, validation of work and feelings, acceptance of different perspectives, affirmation, feeling valued by colleagues and a sense of achievement. In their study Schmidt and Datnow (2005) found similar positive emotions and suggest that they are a response to reforms that better aligned with the teachers’ ‘own moral purposes of teaching and learning’ (p 961).

Veen, Slegers et al. (2005) also noted in their research of teacher identity, emotions and change that there was a positive emotional response to change when it related to the teacher’s preferred teaching practice – a sense of affirmation for their professional identity. Olsen (2008) described these responses as confirmatory in which the experiences align with the teacher’s beliefs and understandings.

The participants in this research discussed the importance of sharing positive stories with colleagues as a way of reaffirming their sense of identity, as shown in following quote:

There is so much positive stuff that it reaffirms what you are doing as well. I often have self-doubts about how I am working, the relationships I build with the class, whether I am actually imparting knowledge to these kids. It can reaffirm that what you are doing is a good thing. (Mel)

Validation of work and feelings were often expressed through stories about debriefing by the participants in this research.

It's one of the most important things to debrief, to off load at the end of the week in an informal setting where you are discussing the same kids. It gives you insights into what you're doing and what the kids are doing. As a beginning teacher you realise that, okay you have a problem with a kid, but you talk to other people and realise everyone had a problem, not just you. (Ross)

In his book about collegial support in schools, Bill Rogers (2006) discusses the benefits of debriefing, or 'off-loading', as a 'collegial coping' mechanism. It can become a form of bonding with colleagues, assist with the development and affirmation of trusting relationships, validate feelings, relieve stress and 'act as a 'clearing house' for problem analysis and resolution' (p 31).

Stories of debriefing on a Friday afternoon in a nearby venue, such as a café or pub were shared with much amusement in this research. The teachers who participated felt they could de-stress and talk to a range of colleagues in an informal setting, establishing and maintaining relationships in a positive (and often fun) atmosphere. The flow-on effect from the debriefing sessions include valuing different opinions and practices and developing an 'acceptance of

fallibility' which Bill Rogers (2006) explains as 'seeing a colleague's failure and struggle, not seeing them *as a failure*' (p 94 italics in original). As one participant commented:

Seeing everyone as equals, you feel that everyone is the same and you can mention your problems to everyone and they can mention them to you and there's no 'I'm right and you're wrong' we're all there to help each other. (Greg)

Experiences of positive emotions also come from a sense of accomplishment and recognition of achievements by colleagues (Hargreaves 2004; Lee and Yin 2011). Examples of these experiences were shared by participants in this research. These stories highlighted the importance to the participants of their work, particularly in relation to their students, being acknowledged and recognised by their colleagues. One participant expressed her delight at being told by a colleague that, judging by the enthusiasm of her students, she had obviously managed to really engage them. This feedback made her feel that she *was doing something right and would keep doing it*.

In his study into inclusive and exclusive educational change, Hargreaves (2004) notes that the positive emotional responses from teachers were when they talked about self-initiated change, although Hargreaves notes that some of the self-initiated change discussed by the teachers in his study may have had its origins in mandated reforms. The teachers in Hargreaves' study identified positive benefits for their students as well as for themselves through improved relationships with, and recognition from, colleagues.

The focus on positive outcomes for their students and perceived 'success' as a teacher through the recognition by colleagues, is at the heart of a teacher's professional identity and often produces positive emotional responses. Future interaction with colleagues will be influenced by these positive experiences that will be reflected in an improved level of trust in

their relationships. However, if teachers are placed in a position in which their professional identity is challenged they may experience negative emotions such as feelings of vulnerability and frustration (Hargreaves 1998; Hargreaves 2004; Kelchtermans 2005; Lasky 2005; Veen, Slegers et al. 2005).

Negative emotions

The stories shared by the participants in this research that reflected negative emotions most often related to their sense of professional identity in the classroom, how they felt they were coping as teacher, and the responses from their students and colleagues. They talked about feeling underprepared to teach their students, struggling with student management issues, and the importance of non-judgemental support from colleagues to saving face and self-esteem.

The negative emotional reactions of the participants in this research reflect the points identified by Hargreaves (1998), mentioned earlier in the chapter. The feelings of anxiety, powerlessness, self-doubt and uncertainty emerged from experiences in which they considered their 'moral purpose' difficult to achieve and their professional identity was at risk.

During analysis of the professional biographies he had collected, Kelchtermans (2005) also found a number of instances in which the teachers in his study felt 'powerless' or 'not being in full control' and used the term 'vulnerability' to describe this dimension of their work. The 'basic structure in vulnerability is always one of feeling that one's professional identity and moral integrity, a part of being 'a proper teacher', are questioned' (p 997).

Feelings of vulnerability in the classroom setting are not uncommon, particularly in situations in which a teacher is trying a new teaching approach or dealing with content they are less familiar with. The reaction by the students, and the teacher's level of comfort in taking risks with these students, will affect the emotional response by the teacher (Lasky 2005). Negative classroom experiences have a significant impact on a teacher's professional identity and self-esteem. The feelings of humiliation, despondency and fear often arise as a result of an imbalance between what they consider a 'good teacher' does and what they are doing (Kelchtermans 2005).

Outside the classroom setting the interaction with colleagues can raise a sense of vulnerability, particularly if the individual is feeling less confident in their role as a teacher or leader. Depending on the relationships with their colleagues, the individual may withdraw emotionally to avoid *looking stupid*. Beatty and Brew (2004) found a number of teachers expressed concern about opening up to colleagues for 'fear of seeming to be out of control or stupid, fear of being ridiculed, fear of inviting the crossing of boundaries and losing power in relationships' (p 338). Teachers new to a school, whether experienced or a beginning teacher, often withdraw emotionally until they have developed relationships with colleagues in which they feel less vulnerable. One participant noted:

When you are a beginning teacher you feel you have to do what is asked of you. You are too scared to question. (Greg)

Craig (1995) relates the story of a beginning teacher, Tim, who felt vulnerable to the views and expectations of the experienced staff that didn't always align with his own views and beliefs. During his first year 'he learned to be silent and to mirror what experienced teachers

were doing' (p 99). Over time, as Tim's professional identity developed, he became more confident and felt less vulnerable with certain colleagues.

Reflection on practice and learning collaboratively has been central to many professional learning projects, particularly those adopting professional learning communities, however the level of open reflection depends on the relationships between the teachers and how vulnerable they feel. As McArdle and Coutts (2010) found in their study, the teachers were willing to explore the use of technology with colleagues but would often become defensive if asked to discuss their own practice, avoiding placing themselves in a position of vulnerability. This reluctance to challenge, or be challenged by, colleagues meant that reflection either did not occur or lacked depth.

Other negative feelings discussed by the participants of this research were those of frustration, powerlessness and lack of control of activities outside the classroom. One teacher expressed these feelings in relation to his experiences with the traditional form of professional development (PD) mandated for teachers.

I find formal PD really dull as dishwasher, I have no say and no control in the speed or pace in which I'm learning. I find being stuck in a massive room with 200 people for two days frustrating. I don't have the time, I don't have the inclination and I don't have the interest to learn like that. (John)

Other experiences of mandated change were shared by the participants all of which shared common negative emotional responses of not being respected as a professional and feeling powerless to have any 'real' input into the process.

Lee and Yin (2011) found that many of the teachers in their study engaged in 'passive resistance' to the reforms initiated by the Chinese Ministry of Education. The teachers were not prepared to 'challenge or confront the reform policy publicly' but, while appearing to be willing to change, would not put the changes into practice, presenting 'wholehearted acceptance but never follow through' (p 40). These findings are not uncommon in research into teacher identity and change. Hargreaves (2004) found that 'emotional responses to mandated changes are predominantly negative'. The teachers in his study were frustrated with many aspects of the process, including the lack of consultation and fast pace of the change that impeded their ability to fulfil their moral purpose.

When a teacher's professional identity and moral purpose are challenged, both inside and outside the classroom, feelings of vulnerability and frustration are often experienced. In situations where the challenge is related to mandated change they will often react negatively, becoming defensive and withdrawing emotionally (Hargreaves 1998; 2004; Rogers 2006; McArdle and Coutts 2010; Lee and Yin 2011). However, having the opportunity to 'debrief' with a trusted colleague and explore options may assist to ameliorate long term negativity.

Emotions have a considerable impact on the interaction between colleagues thus significantly influence the professional learning that emerges through interaction.

Conclusion

This chapter considered the interaction between teachers on their personal and professional relationships. Opportunities for interaction with colleagues were significant issues for the participants for establishing relationships, both socially and professionally, who argued that they were often constrained by time, the layout of the school and the busyness of school life.

Through the provision of common release time and suitable spaces for working and socialising teachers are able to interact formally and informally and engage in conversation. The findings from this research identified two main forms of conversations between teachers: congenial (social) and collegial (professional). While the congenial conversations can provide the opportunity for teachers to develop collegial relationships over time it is through collegial conversations that teachers share their knowledge, support colleagues both emotionally and professionally, solve problems, reflect on beliefs and values and express their professional identities.

As a caring occupation the emotional investment made by teachers is reflected in their actions and reactions to the interactions that occur on a daily basis in a school environment. Teachers experience the highs and lows, positive and negative emotions, associated with teaching students and working with colleagues in a range of situations, all of which impact on their sense of what it is to be a teacher, their professional identity.

A teacher's emotional reaction to the interactions with colleagues has a significant influence on their relationships with each other. Negative experiences challenge their professional identity, instil a sense of vulnerability and a desire for emotional silence, and impede the development of trusting relationships. Conversely, positive experiences affirm their professional identity, build trust between colleagues and promote candid conversations through which they can support and learn from each other. It is through these interactions that professional learning emerges.

The following chapter presents the final perspective of the model, the emergence of professional learning. It considers the importance of trust between colleagues, the interaction leading to professional learning and the impact of leadership approaches to teacher engagement in informal interaction.

Chapter 7: The Emergent Model - Emergence of Professional Learning

The previous two chapters have discussed the emergent model through the perspectives of self-organisation of groups and collegial interaction. This chapter continues the discussion of the model through the final perspective: emergence of professional learning.

The focus of this research is informal professional learning in the context of a single school. The participants, however, as agents participating in a number of nested, self-organising systems, acknowledged the connection with the wider educational community and the potential emergence of professional learning within a variety of contexts. These include formally organised courses, such as gaining a qualification through a tertiary institution or attendance at workshops organised by the education department; less formal options, such as support from a mentor or departmental consultant; and informal learning through conversations with trusted colleagues within their school. The constant interaction and feedback within and across the systems leads to ongoing learning through the co-construction of knowledge by teachers as they strive to establish their roles in the work environment (Phelps, Hase et al. 2005; Morrison 2008).

Learning within systems such as schools, is ‘a process through which a unity becomes capable of more flexible, more creative activity that enables the unity to maintain its fit to its ever evolving context’ (Davis and Sumara 2006 p 92). For teachers within a school, this process involves continually constructing and reconstructing their professional knowledge through collegial conversations with their colleagues. As Allee (2003) argues ‘every conversation is an experiment in knowledge creation – testing ideas, trying out words and

concepts, continuously creating and re-creating our experience of life itself' (p 113). It is through these conversations that professionals make sense of their work, creating a context for it and exploring options for continually improving it. When people engage in conversations there are several knowledge worlds being created simultaneously each one unique to the individuals participating and the context in which the conversation is taking place. The relationships between individuals are a significant influence on the conversational interaction between teachers.

Relationships

Relationships develop through the interactions between colleagues and are continually evolving as each person acts and reacts to the actions of others (Daly, Moolenaar et al. 2010). This research found that interaction within a social context provided the opportunity for teachers to *get to know each other* personally and develop respect for them both personally and professionally. One participant explained that the main purpose behind the social functions run by his faculty each term was to *help to get to know everyone* because the teachers *feel more comfortable if you socialise with the people* that would hopefully lead to the development of collegial relationships between them. Some relationships remain congenial, in which the individuals socialise at work, while others become collegial in nature, in which the individuals feel they can discuss work-related issues, ranging from sharing resources and anecdotes to opening up, seeking and providing work-related support that requires each party to respect the professionalism and confidentiality of the other (Nelson, Deuel et al. 2010).

Fallon and Barnett (2009) studied the transformation process of a school environment that aimed to move it from one in which the teachers perceived a problem of teacher isolation into

one 'designed to foster collegial practices' (p 1). Their findings indicate that there was a level of collegiality developed through professional collaborative relationships, and that these relationships 'protect the group's professional diversity by allowing individuals to maintain professional boundaries around their work' (p 11). They noted that the 'educators seemed to have made individual choices to maintain a certain degree of isolation, of privacy, shielding themselves from reflective inquiry and criticism' (p 12) and concluded that the restructuring of the school organisation to reduce isolation 'might end up in shifting rather than dismantling boundaries of isolation among educators' (p 13). Fallon and Barnett consider that the process reduced the physical distance between teachers but did not establish the relationships required for reflective professional learning to occur.

Citing Little (1990), Fallon and Barnett (2009) suggest four types of collegial practices undertaken by teachers (p 5): 'storytelling and scanning' that maintains complete independence; 'aid and assistance' that is provided when requested; 'sharing' that involves the sharing of resources and ideas but does not challenge current practice; and 'joint work' that moves beyond sharing to working together with a willingness to reflect and challenge each other. Fallon and Barnett (2009) consider the first three practices provide levels of collegiality that are supportive but do not place teachers in a position of vulnerability. The fourth practice indicates a willingness to engage in critical reflection on practices and may occur through participation in activities such as team teaching, mentoring and peer coaching. In his study on colleague support in schools, Rogers (2006) also found the different levels of relationships that will vary from 'ideas sharing and generation, to having a mentor/coach relationship through to personal disclosure where private (and professional) confidences are risked' (p 101). He notes that sharing resources, ideas and experiences met the basic needs of teachers, such as the need to belong or affiliate with a group or team. It is through these

activities that teachers will develop the trust required for supportive relationships (Clandinin and Connelly 1995; Hargreaves 2002; Rogers 2006; Ibert 2007).

Participants in this research discussed a range of activities related to learning through conversations with colleagues that ranged from sharing information and resources with a wide range of colleagues:

...well I've been teaching in so many different sorts of areas and so the sharing of resources with other teachers and the experiences in the classroom of what they were doing was very valuable. (Olga)

This reflects the first three types of collegial practices suggested by Fallon and Barnett (2009). Other activities challenged their beliefs and values through reflection on their teaching practice with a very trusted colleague reflecting the fourth type of collegial practice. The participants talked about *just in time learning*, *brainstorming*, *triggers for learning* and *reflection* within the context of both seeking support from, and providing support to, colleagues as they endeavoured to provide stimulating educational experiences for their students. Their willingness to participate in any activity was influenced by the relationships they had with the colleagues participating and their emotional reactions to the interaction taking place. As noted in this research, each relationship will be different and each person will have their own *preference about who we go to and to whom we speak* based on past experiences.

A number of opportunities, both formal and informal, to engage in activities in which ideas and resources are shared with colleagues, and relationships developed, were identified in this research, including participating in organised group activities such as the moderation of

senior student assessment. While *getting the group together* was formally organised, it provided the teachers with the opportunity to get to know each other well. Having established the relationships with each other the teachers valued these meetings and willingly exchange stories, ideas and resources during their time together. A number of these relationships enabled teachers to meet informally and reflect on their teaching practice.

Meeting in groups that shared a common focus, such as moderation, year level or subject area students, was preferred by the teachers in the study by Fiszer (2004). It was felt that meeting as a large group, such as whole staff, did not address the learning needs of all teachers involved and some of the ideas shared were often not applicable to everyone present. A smaller group with a shared focus enabled the teachers to build a relationship in which they could share resources and ideas, brainstorm and plan together and, when a problem arose, 'ask the person next door, their peer group' (p 31). Engaging in problem-solving or brainstorming activities within small groups, such as year level or subject area teams, was also raised by the participants in this study. As one participant noted:

That's where a lot of the discussions about where we fitted in with curriculum documents, where changes in policy were filtering down, that was the space where you worked out how that impacted on what you did in the classroom. (Marie)

The working relationships that emerged from the small group interaction provided the teachers with the confidence to seek out a colleague, or colleagues, who they thought would be able to provide them with the information, ideas or resources they required quickly, enabling them to use the resources or ideas immediately in their classroom.

Other studies such as those by Flores (2003), Stevenson (2005) and Meirink, Imants et al. (2010) also found that teachers will approach colleagues who they consider are willing to share ideas and resources appropriate to the needs of their students. Many of these colleagues worked in a collegial environment that facilitated the development of relationships between the teachers in which they felt comfortable approaching colleagues for support. Teachers would engage in conversations with these colleagues at various times, such as in meetings, between classes in the hallway, and after school. One participant in this research noted that many of the conversations in which ideas and resources were shared occurred during a morning tea or lunch break, or prior to a staff meeting after school.

Teachers are often reluctant to share concerns related to teaching practice in a large group for fear of *appearing stupid*, preferring to approach one colleague who they trusted. The opportunities to *talk things through, bounce ideas of each other* and *go over what happened out loud* with these colleagues provides the speaker with a forum to verbalise their thoughts and make sense of the experience.

In her study of teacher collaboration, Snow-Gerono (2005) found that many of her participants valued the opportunity to engage in dialogue with trusted colleagues as one participant, Penny, is quoted as explaining:

I think better when I talk to people, and either try to explain something or bounce ideas around, or question them. So, for me, it's integral. It helps me reflect and process what I'm doing. (p 251)

As part of the process of engaging in professional dialogue with their colleagues, teachers would also question each other, probing the stories and teasing out ideas. This activity could

lead to what Snow-Gerono (2005) has termed ‘dissensus’ (p 251), in which teachers critique and possibly disagree on aspects of teaching and learning. This questioning activity is undertaken within a collaborative environment that supports all participants and, therefore, even if consensus is not reached, everyone has engaged in professional learning (Snow-Gerono 2005). When sharing experiences, often through the use of story, teachers are able to review past events as if they were currently occurring, reflecting on the different contexts in which they took place and project into future events (Jalongo and Isenberg 1995). It provides the speaker with the opportunity to review the experience, making sense of what occurred, creating a coherent story for both themselves and the listener (Clark 2010).

While sharing experiences through story enables a teacher to make sense of their practice, it also enables the listener to reflect on their own practice, as Shank (2006) suggests, the listener is able to ‘view their own practice through the mirror provided by the storyteller’ (p 720). In her study on how teacher storytelling fosters collegiality and learning, Shank (2006) followed a group of teachers participating in a project focussing on the fostering of collaborative cultures. She noted that in a number of meetings storytelling was the predominant form of conversation and was initially concerned that it may detract from the serious discussion that needed to take place for learning to occur. However, over time:

I recognized the narrative nature of the teachers’ practice and began to understand how sharing stories from their classroom enabled them to put their experiences into language so they could understand it. The stories did not divert the teacher from learning; they were in fact a powerful means *for* learning. (p 713 italics in original)

Shank (2006) notes that teachers will decide what stories they will share and with whom. Through the sharing of professional stories the teachers in her study were able to connect with each other and create a collaborative space in which the relationships between the

teachers encouraged trust and risk-taking. Once the trusting relationship has been established the stories shared provide an opportunity for critical reflection and analysis of their own and others' teaching practice.

Through the retelling of events the teacher who is sharing will often explain their understanding of what occurred and why, articulating for the listeners and themselves their 'thinking, understanding and assumptions' (Southworth 2011 p 77) associated with the event. The process of sharing stories can be insightful for the teller as well as the listener. During the process of recounting a story, the teller relives past experiences and often new understandings can arise at which point the individual may think 'I didn't know I knew that' (Southworth 2011 p 77). Sharing experiences through story can also provide a sense of affirmation about what the teacher knows and understands, validating their experience and identity as a teacher (Jalongo and Isenberg 1995).

Participants in the study by Flores (2003) looking at the workplace learning of new teachers highlighted the importance of listening to colleagues as well as sharing. As one teacher commented:

I find it helpful listening to my colleagues' experience. By listening to their stories you can think about your own practice, and sometimes you think the way they address problems is better and more effective than yours. Usually I act according to my own convictions, but I am also a good listener. (p 14)

Teachers in this research also found listening to the stories and conversations of their colleagues to be a valuable learning opportunity. As one participant noted, sharing a room with four other executive teachers was very valuable *because you overheard the conversations that came in and you could debrief after that*. For this teacher, not only was it

useful to hear the conversation and consider the content from her own perspective, but she was also able to engage in debriefing with the other colleagues present. The debriefing conversations often became a time for reflection on her own actions, beliefs and values, either in relation to her role as an executive teacher, or in relation to her role as a classroom teacher.

Through her analysis of the professional conversations teachers engaged in as part of a professional learning program, Orland-Barak (2006) identified three forms of dialogue that occurred: 'convergent dialogues' during which ideas are shared but rarely challenged; 'parallel dialogues' that is often a form of reflection for the speaker with occasional input from other participants; and 'divergent dialogues' during which participants are challenged to articulate their values and beliefs (p13). Each of these forms of dialogue can occur during a conversation, enabling the participants to address practical or theoretical issues with their colleagues, and are reflected in the types of conversations discussed by the participants in this research. Orland-Barak considered the divergent and parallel forms of dialogue provided opportunities for the co-construction of knowledge 'because they prompt a discourse in which professionals expose, scrutinize and contest deeply ingrained assumptions about their practice' (p 29).

Reflection on practice was an activity that the participants in this research considered to be a *deep and meaningful* one that usually occurred with a very small group, or even only one trusted colleague, because it required them to be open about their teaching practice, revealing their beliefs and values, placing them in a vulnerable position. Through reflecting on practice they felt they were being challenged to learn and improve as a professional.

Reflection

The opportunity to engage in reflection was frequently raised during the workshops.

Participants enjoy sharing ideas and resources with colleagues because they are practical mechanisms for supporting each other, picking up useful tips and techniques and developing relationships with each other. However, reflecting on experiences through conversations with colleagues enables the teachers to consider the ‘why’ of teaching not just the ‘how’ and ‘what’. Within a group of trusted colleagues teachers will *reflect on and share with others what had happened*, exploring the experience and prompting each other to consider more deeply *why they did that particular strategy or approach*, which then encourages the individual or individuals sharing, to articulate *why you thought ‘that was the reason that didn’t work’, or ‘that worked because...’*.

The understanding of reflective activities emerging from this research is echoed across the literature related to teacher professional learning. For example Harrison, Lawson et al. (2005) consider reflection is ‘about the exploration of ‘why’ he/she is (or might be) doing something in a particular way, as well as knowing ‘what’ and ‘how’ it is (or might be) done’ (p 289); Hoekstra, Beijaard et al. (2007) suggest that ‘through reflective dialogue, teachers engage in conversations aimed at discussing assumptions about teaching and student learning’ (p 281); while Snell and Swanson (2000) note that ‘reflection begins with the willingness of these teachers to critically examine their own practices, continues through a collegial process of questioning pedagogical and curricular choices, evaluating who is served or not served by these choices, and culminates in the adjustment of the teachers’ practices to better meet the needs of all their students’ (p 15).

In their study on collegial interaction and professional learning Park, Oliver et al. (2007) found that teachers reflected on their practice through conversations with colleagues in which they would also question each other or provide supportive advice. They argue that that teachers are able to explore their practice at a deeper level if they move beyond sharing resources and ideas and begin to discuss why, or why not, a particular strategy or lesson worked. It was through this level of reflection that improvements to teaching practice occurred. For teachers to engage in such an open discussion about their teaching practice there must be a strong trusting relationship between the colleagues participating in the conversation. As Schuck, Aubusson et al. (2008) argue:

The supportive yet simultaneously challenging conversations enable us to delve deeply into these practices. [However] without the ingredients that address the emotional and personal as well as the cognitive and professional components, the ability to be open to challenges to our thinking about teaching would be diminished. The elements of trust, openness, friendship and vulnerability we share in our professional relationships, enable us to surface our doubts, and discuss the challenges that we encounter in our practice. (p 222)

The relationships required for learning to emerge through reflection require time to develop, as McGee and Lawrence (2012) found in their study. The participants in their project groups engaged in ongoing reflective conversations about their practice throughout the project, however McGee and Lawrence note that many of the concerns and challenges participants felt during the study emerged after it was completed when the group engaged in reflection on their projects. It was at this time that the deeper learning occurred.

A number of the reflective conversations that occurred for the participants in this research were as a result of observing, or being observed by, a colleague or colleagues. One

participant recalled her experiences of *team teaching* in which she and a colleague shared the space and classes noting that:

Sometimes it just has to be a fresh set of eyes especially if it's a behaviour management issue. (Sally)

She and her colleague would engage in reflective conversations about their teaching and responses by students raising their own concerns and those they observed. The relationship these two teachers had was one in which they both felt comfortable exposing their vulnerabilities in order to improve their practice. Another participant shared an experience of working as a member of a team in which they would offer was made to *join our classes together and I'll show you, I'll present a lesson* or team teach to share the practical knowledge. Each demonstration or observation was followed up with a reflective conversation on the experiences in which all concerned were able to consider the 'what', 'how' and 'why' of the teaching session.

Picard (2005) was able to work with a staff developer in literacy and valued the opportunity to 'observe someone else teach my students while I watched' (p 459). During the observation she was able to take note of the practical aspects of encouraging students to engage in reading, supporting their attempts to gain meaning from the text and matching students with appropriate texts. These observations were followed up with conversations about what was observed and why the staff developer used particular strategies. After a period of time the staff developer began to observe Picard with follow-up feedback conversations. Working with the staff developer supported a collaborative project between Picard and another teacher in her school. They focussed on their students' reading and engaged in 'sustained

conversations' in which 'we found that talking and analysing reading curriculum together helped us to reflect on our own teaching and to critique each other' (p 460).

Working with pre-service teachers was also raised as a significant opportunity for professional learning in this research. Experienced teachers were able to observe the interaction between the students in the class and the pre-service teacher as they presented a lesson and reflect on their own practice. As the following excerpt illustrates:

And it, when you sit back and watch and you can see the issues they're having with the difficult kids in the class as well, and you sit back and look and say 'oh, that's what it's actually like looking in' because they're not behaving any differently, well sometimes they do, they test the student teachers but, you know they are the difficult kids anyway and you go, maybe I need to do a bit more of this too, they are focussing too much on that particular kid or they're letting them get away with too much of that and destroying the relationship with the rest of the class – it can help you with learning as well – I love it.

Another participant commented that during the conversations that occurred following the lesson she *reassessed* her teaching because she felt she needed to *justify* her pedagogy when conversing with student teachers. There was common agreement amongst the teachers who had supervised a pre-service teacher that these conversations are valuable occasions in which they can reflect on their own practice, exploring *why they did what they did* thus their underlying beliefs and values, as they co-construct new knowledge with the pre-service teacher. Each participant in the conversation will engage in reflection on an individual and personal level as well as a collective one, constructing new knowledge and reconstructing identities (Nissilä 2005; Woerkom 2010). However, the role they assume within the conversational group, their self-efficacy and level of trust in their colleagues will influence

the openness of the conversation and the willingness to challenge their own beliefs and that of other participants in the conversation (Prestridge 2009; McArdle and Coutts 2010).

Similar findings have been made in studies related to mentoring programs within school particularly for newly qualified teachers. Patrick, Elliot et al. (2010) found that the experienced teachers in their study recognised that the beginning teachers are at the starting point of their career and that their pre-service training can only prepare them to a certain level for what will take place in the classroom. They valued the new knowledge and skills that the beginning teachers were able to contribute to the school and considered it a 'two-way relationship' (p 283) in which both could learn from each other. Through engaging in conversation with the early career teachers the experienced teachers were able to reflect on their own practice. Patrick and co-authors (2010) note that reciprocity of the learning enabled 'a revitalisation of the professional culture in their schools' due to both the enthusiasm of the early career teachers and the willingness of the experienced teachers to share their knowledge and skills and be open to co-constructing knowledge with their newly qualified colleagues (p 287). For a mentor and mentee to engage in reflective conversations they must be willing to open themselves up 'for scrutiny' thus entering a state of 'co-enquiry' and thus share a strong trusting relationship (Harrison, Lawson et al. 2005 p 290).

Reflecting on beliefs, values and practice through conversations with colleagues has been identified as a significant vehicle for professional learning by teachers. These reflective conversations require a relationship with their colleague that is based on trust.

Trust in relationships

Trust is an essential element of a relationship between teachers that will influence their engagement in conversations leading to professional learning (Geijsel and Meijers 2005; Melville and Wallace 2007; Robertson 2009; Daly, Moolenaar et al. 2010). Participants in this research shared experiences of engaging in a range of conversations with colleagues, emphasising that approaching another colleague for support and advice is often based on the perceived expertise in the area of need, the relationship with the colleague that had been developed through past interactions, and the sense of vulnerability felt by the teacher seeking the support. It was noted that different people are approached to address different needs. Practical support, such as a resource or answers to a technical question, could be provided by a year level or subject area colleague with whom they had a congenial relationship; however an open discussion about particular aspects of their teaching practice is only undertaken with colleagues with whom they have a deep trusting relationship. It takes time to build the level of trust within a relationship to the point in which the interacting teachers feel confident to participate in the 'deep conversations' leading to professional learning. In her study exploring informal collaboration and the use of technology in schools, Stevenson (2005) found similar results. The teachers in her study would seek different colleagues for assistance depending on their area of need and their relationship with the colleague.

Hargreaves (2002) points out that trust 'is a vital ingredient of productive professional collaboration' (p394) and suggests three kinds of trust: 'contractual trust', 'competence trust' and 'communication trust' (p398) are essential for professional learning to occur.

While this research did not specifically identify these different types of trust, they are reflected in the data. Participants noted the importance of each member of a team engaging

equally in activities and sharing the workload (contractual trust) for developing sound working relationships with their colleagues. Teachers trust the knowledge and skills of their colleagues to whom they turn for advice and support (competence trust) and value others, acknowledging the knowledge and skills they are able to share. A significant impact on the willingness to engage with colleagues is the trust required for open and honest communication between colleagues, in which each person feels that they can be truthful both about their own and others practices and confidences will be respected and not disclosed to others (communication trust).

Teachers stated the importance of getting to know each other both personally and professionally, enabling them to assess their willingness to be a team player and share the broader workload involved in school life, competence as a teacher, areas of expertise, and potential for developing collegial relationships. Over time the relationships between the teachers were based on interactional experience with some developing the level of trust required for confidences to be shared. This is supported by Hord and Sommers (2008), who note that building trust requires a significant amount of time and opportunities to engage in activities through which colleagues are able 'to experience the trustworthiness of colleagues and for the individual to extend or become trustworthy to complete the cycle' (p 14).

One participant in this research recalled a situation in which she and her teacher husband provided a beginning teacher with a lift to and from work each day. The relationship between them developed to a level that the beginning teacher was able to seek advice and support during the trips and cited this experience as one of the most valuable for her at a beginning teacher meeting. The participant had been pleasantly surprised to hear about her comment at this meeting:

...it got back to me from someone else that she had said: 'look I sit with these people who have been teaching forever, I get a lift with them in the morning and at night and if I've got a question or something is bothering me, by the time we arrive at work they have both sorted it out.' Jerry and I have been teachers for 30 years and she would just mention a problem she was having and we'd discuss it in the car and it would be solved before she got here. (Anya)

The beginning teacher in this narrative trusted her experienced colleagues to provide her with the emotional and practical support she needed. To risk exposing her vulnerabilities required a deal of trust in her colleagues to respect her as a teacher while admitting she needed help.

The responses from the participant and her husband reflect this respect and their trust that the beginning teacher would value the experiences and advice shared during their conversations.

The relationship between all participants in this narrative reflects the competence and communication trust suggested by Hargreaves (2002).

In his study on teacher collegiality in schools, Rogers (2006) found that 'trust is often expressed in basic aspects of relational behaviour' (p 100), such as acceptance that as teachers they all share basic professional and personal needs and an assurance that colleagues will provide the support and understanding required over time. Rogers also argues that 'trust is also linked to professional growth; we trust our colleagues' perceptions, pedagogical understanding (based on common, extensive, experience) and knowledge, skills and abilities' (p 101). The behaviours suggested by Rogers (2006) were reflected in the experiences shared by the participants in this research, one of whom described it in terms of respect for each other as professionals and a genuine desire to provide non-judgemental support:

We're discussing it and everybody's having the opportunity to have their input into it. We might choose to disagree with certain things but we've all seen everybody's

opinions and ideas and when you come back to that respect bit it's what the consensus of the group is. (Sandy)

It does contribute to learning because you have everybody thinking at the same time and if you are constantly being presented with new ideas or problems to solve in a non-threatening way (...) we are going to get everybody's ideas and nobody's afraid to throw in the odd bit. (Sandy)

This view is also shared by Robertson (2009) who argues that in a relationship in which learning occurs it is essential for each person to acknowledge and respect the skills and knowledge that others brings to the experience.

This research found that teachers would willingly participate in challenging conversations with colleagues when they felt confident about their practice or trusted their colleagues to provide *non-judgemental* support when they admitted a need to understand the issue more deeply. It is often the feeling of vulnerability that encourages a teacher to seek the support and advice of trusted colleagues on an informal basis. These findings are supported by other researchers (for example: Cosner 2009; Woerkom 2010; Cranston 2011), who also argue that trust is an important factor for the emergence of learning through interaction between colleagues. The psychological safety provided through trust and respect in relationships with colleagues enables individuals to take risks in exploring their beliefs, values and practices leading to professional learning. As Schuck, Aubusson et al. (2008) note:

Without the ingredients that address the emotional and personal as well as the cognitive and professional components, the ability to be open to challenges to our thinking about teaching would be diminished. The elements of trust, openness, friendship and vulnerability we share in our professional relationships, enable up to surface our doubts, and discuss the challenges that we encounter in our practice. (p 222)

However, if the high level of trust is not in place teachers will often hide behind a façade of confidence and competence (Robertson 2009). This reluctance to risk exposure is not uncommon amongst experienced teachers who, if they experienced feelings of vulnerability, may withdraw emotionally from the challenge of the conversation inhibiting learning and impacting on the ongoing interaction and development of trust with colleagues. The emotional investment in their identity as a competent teacher is significant and therefore a strong feeling of trust is needed before they will seek advice and support (Beatty and Brew 2004; McArdle and Coutts 2010).

Time and opportunity to develop relationships and engage in deep conversations leading to professional learning is influenced by the culture of the school that, as noted by the participants in this research, is influenced by the leadership of the school. The importance of relationships in everyday leadership practice is stressed by Robertson (2009) who states that ‘it is about relationships – leadership is relational’ (p 40). These relationships are ‘the basis for trusting respectful learning cultures that are open to challenge and change’ (2009). To develop the relationships between the leadership of the school and teachers and influence the culture of the school leaders need to be ‘comfortable with reduced control’, avoid the façade of ‘everything is fine around here’ and be prepared to show vulnerability (p 41).

Leadership within the school

Participants in this research talked about the influence of the school management team (principal, deputy principal and executive teachers) on the relationships and learning that occurred between colleagues across the school. It is clear that the emphasis placed on valuing and modelling of collegial behaviour by the leadership team influences the behaviour of the

other teachers within the school. The understanding by the principal of their role and responsibilities is considered to have a significant impact on the culture of the school.

To define the role of the principal in Australian schools, the National Professional Standard for Principals (the Standard) (aitsl 2011) has been developed by the Australian Institute for Teaching and School Leadership. Acknowledging that each educational environment is complex and different, three interdependent leadership requirements have been identified (pp 6-7):

- *vision and values* – the vision for the school is developed by the school, led by the principal who is ‘guided by fairness, ethical practice, democratic values and lifelong learning’ (p6). The principal models the values and behaviour he or she envisions for the school.
- *knowledge and understanding* – the principal understands current educational research, relevant national and local policies and legislation, and management requirements for the successful running of a school such as financial and human resource management.
- *personal qualities and social and interpersonal skills* – ‘emotional intelligence, empathy, resilience and personal wellbeing’ (p7) are recognised as important for the leadership of a school. The principal has the skills to create a culture of trust and learning within the school.

Using a three part model of plan and act, review, and respond, the three leadership requirements are enacted through five professional practices (pp 9-11):

- *leading teaching and learning* – the principal is responsible for the development of a school culture which promotes collaboration, challenge and support for the teaching and learning in the school.
- *developing self and others* – continuing professional learning is valued and modelled by the principal who provides opportunities, support and guidance. The principal

identifies and builds leadership capacity in others, builds teams and recognises, and celebrates, achievements by staff.

- *leading improvement, innovation and change* – using leadership styles appropriate to the current environment of the school, support and promote continuous improvement strategies to achieve the school vision.
- *leading the management of the school* – manage the school’s human, physical and financial resources through the delegation of responsibilities to staff where appropriate.
- *engaging and working with the community* – the principal creates an inclusive culture within the school community and develops partnerships with the wider community.

The aspects of leadership emerging from this research that positively influence informal professional learning by teachers in schools, particularly those related to the role of principal, reflect a number of the requirements and practices described in the Standard. Participants discussed the importance of a culture of trust across the school in which they felt they were treated as professionals and valued for what they achieved with their students. Stories shared by the participants about working in schools with supportive cultures included the expectations and support for working in a team environment, modelling of behaviour and values by the principal, and support and opportunities for ongoing professional learning and leadership development.

The important role of the principal for establishing a supportive and trusting collegial culture within a school has emerged through other research studies focussing on aspects of school change, innovation and learning. Coleman (2012) discusses the critical role the leader plays in creating a climate of trust that ‘underpins a culture of learning within schools, which in turn is critical to increasing the professional capacity of teachers’ (p 85). Eyal and Roth (2011) highlight the role of the principal in creating the conditions necessary to motivate

teachers to engage with change through clear articulation of vision and empowerment of teachers. Drawing on the literature Cosner (2009) argues that the principal is in a powerful position to build the culture in a school that promotes and creates opportunities for teacher interaction and, through these interactions, the potential development of trusting relationships.

Establishing a positive culture in a school is not an easy task for a principal; they require strong interpersonal skills to navigate the needs of the school community, in particular the teaching staff. Trust has been highlighted as critical to the development of a collegial culture in a school, not only in this research but also across the literature (Cosner 2009; Robertson 2009; Ghamrawi 2011). Teachers need to be able to trust the leadership of the school, as well as colleagues, to be motivated to engage in professional learning with their colleagues.

Morrison (2002) identifies a number of factors required to build trust that include: 'positive and genuine interpersonal communication'; 'putting others before oneself'; 'leaders being sensitive to followers' needs'; 'honesty with people', and 'freedom for participants to control their work within a shared vision', and suggests that 'trust is a central condition for effective leadership' (p 87). Modelling ethical behaviour, moral purpose and 'sincerity, integrity and candour' in all actions by the principal are prerequisites for establishing trusting cultures (Ghamrawi 2011 p 343).

The emotional aspect of engendering positive school cultures has been raised by Beatty and Brew (2004), who argue that 'trust is an emotional phenomenon' (p 329) and principals need to be emotionally prepared to create communities of trust that value respect and honesty.

Exploring the emotional lives of educators, Hargreaves (1998) recommends that educational leaders need to be emotionally aware, as they are managers who are responsible for

‘reculturing’ their schools and supporting the relationships within the schools (p 332). This resonates with the work by Morrison (2002), who emphasises the requirement of interpersonal relationships and emotional intelligence for effective leadership in complex school environments. Citing Salovey and Mayer (1990), he suggests that ‘emotional intelligence is the ability to monitor one’s own and others’ emotions and feelings and to use this to guide our behaviour’ (pp 77-78). Cliffe (2011) investigated the use of emotions in school leadership, utilising the understanding of emotional intelligence described by Salovey and Mayer (1990), and concludes that due to the wide range of emotions, both positive and negative, permeating a school on a day-to-day basis, the skills associated with emotional intelligence enable the school leader to effectively support their staff.

The principal of a school is required to have the personal and professional qualities and skills that foster a positive school culture based on trust, and to encourage the interpersonal relationships between staff necessary for professional learning. Morrison (2002) suggests that, to achieve this culture, the leadership approach needs to be one that promotes and supports a positive climate within the school leading to the development of trust between colleagues rather than a controlling or authoritarian approach.

Leadership approaches

To promote the development of collegial trust between teachers and a positive attitude to professional learning, this research found that the leadership of the school needs to promote ongoing learning by all and value the skills and knowledge of their staff. Other studies have drawn similar conclusions arguing for a leadership style that is positive and supportive (Hargreaves 1998; Morrison 2002; Jurasaitė-Harbison 2009; Tschannen-Moran 2009). There are a number of leadership styles discussed in the literature, however when comparing the

impact of leadership approaches on teacher motivation or innovation, transformational and transactional leadership styles are the most common (Moolenaar, Daly et al. 2010; Eyal and Roth 2011). From an educational perspective Moolenaar, Daly et al. (2010) note three specific dimensions of transformational leadership:

...*vision building*, which refers to the development of a shared vision, goals, and priorities; *individual consideration*, which includes attending to the feelings and needs of individual teachers; and providing *intellectual stimulation*, which entails the support of teacher professional development and the constant challenging of teachers to readdress their knowledge and daily practice (p 629 italics in original).

Transformational leaders provide the conditions that enhance the intrinsic motivation of teachers through supporting and valuing each individual teacher. Conversely, transactional or monitoring leaders focus strongly on compliance with organisational rules and policies through continual monitoring and evaluation of the performance of each individual, usually based on predetermined criteria. Teachers working under transactional leaders are more extrinsically motivated and less inclined to reflect on their work practice. As Eyal and Roth (2011) argue:

...adopting a humanistic approach for human development is thus an Archimedean point from which principals should strive to interpenetrate school reality both for themselves and for others, be they students, teachers, or other stakeholders, under these circumstances, teachers can experience and adopt a self-determined proactive stance, rather than a reactive compliant position. (p 268)

This is reflected in the work by Tschannen-Moran (2009), who refers to 'two contrasting orientations' of school leadership in her study of leadership orientation and trust: bureaucratic

orientations, with centralised command and control; and professional orientations, with democratically shared decision making and management (p 220).

Unsurprisingly, the level of trust between teachers and leaders, and teachers and teachers, will differ between the two orientations. In schools with a bureaucratic orientation there will be an implicit distrust relationship between leaders and teachers: leaders will closely monitor teaching practice, and decision-making will not be a shared process, which encourages teachers to adopt a problem-hiding mentality in order to meet the standards demanded by the leader. In contrast, schools with a professional orientation will view problems as opportunities for learning and refinement, decision-making structures will be in place valuing the expertise of teachers and it will be clear that leaders trust the professional knowledge and skills of their teachers. Providing an environment in which teachers have greater discretion to use their own professional judgement in response to the needs of their students demonstrates the trust of the leadership in the teachers. Under these conditions leaders are able to foster professional attitudes in teachers to their work and encourage stronger relationships with their colleagues (Tschannen-Moran 2009).

The Standard (2011) suggests a flexible approach to leadership: one that utilises a range of leadership styles to suit the current needs of the school. This approach to leadership is echoed by Coleman's (2011) work on school based collaborations, in which he developed a model of 'collaborative leadership' which he states 'is best viewed as a composite and blended form of leadership' that 'involves the skilful combination of a range of leadership styles and behaviours' to provide '*the most appropriate mix of these elements* for the specific context within which they are to be manifest' (p 302). Coleman (2011) has identified five elements of collaborative leadership: authentic leadership - the values based performance of leadership;

relational leadership - the connection between leader and follower; distributed leadership - leadership as a pluralistic endeavour; political leadership - understanding the macro, meso and micro political climate; and constitutive leadership - constructing the contextual meaning for followers (p 303).

While many of the elements identified by Coleman (2011) may correlate with a transformational leadership approach, it does raise one additional element, the political aspect, which is also identified as a leadership requirement for the Standard (2011). This may not be one of the more palatable aspects of leadership, indeed one of the participants in Coleman's (2011) study stated that he 'personally found 'schmoozing' senior officials distasteful, but recognized its importance in promoting the interests of the school' (p 309).

While each element is described separately, there are clear connections between them, such as the dependence on positive relationships by distributed leadership and the commitment by the leader to the values of the school (authentic leadership), and establishing a collaborative working climate (constitutive leadership).

For participants of this research the leadership approach of year level and faculty team leaders had a significant influence on the collaborative relationships between team or faculty members. Participants discussed being treated as a professional and with respect by their team leaders and colleagues as essential for *building up those trust relationships*. One participant, who was a year level team leader, recalled the importance of celebrations within the team for a range of reasons, such as chocolate frogs for everyone when reports were completed. She also talked about a practice of providing muffins on the shared table as a way of facilitating conversation around the table and *respecting the fact that we're working towards common goals*. This form of support for her team was reflected in the study by

Beswick, Watson et al. (2010) in which a Head of Department ensured there were always biscuits, tea and coffee available in a shared workroom to entice the teachers within her department. Acknowledging the need for teachers to feel safe within their school environment if they are to try out new teaching practices, she would not observe her colleagues teaching, instead ‘monitored practice principally through conversations with them and also by listening to classes as she walked through the corridors’ (p 165).

Other studies have discussed the importance of an approach to leadership that is not reflective of the ‘command and control’ style, but one that is open and honest, establishing a collaborative working culture based on positive relationships and a distribution of the leadership role (for example: Morrison 2002; Zellermayer and Margolin 2005; Fallon and Barnett 2009; Emira 2010). Developing this leadership approach requires the leader to recognise that:

Their authority is both earned and limited, leaders must listen, respond, encourage, build relationships, acknowledge, support and keep out – letting go in order to let others achieve what they can do better than the leader. (Morrison 2002 p 59)

One participant in this research discussed a leader in one school in which she had worked who exemplifies Morrison’s leadership approach. She commented that:

I was given lot of opportunities, and in a way she was kind of a mentor to me, and I think she’s been a mentor to a number of people, languages teacher through our system, and encouraged the capacity, your leadership capacity. (Alison)

In their study of a school undergoing restructuring to become a collaborative structure, Fallon and Barnett (2009) noted the importance of building leadership capacity among the teachers to maintain the process, and identified two key leadership roles: ‘sponsors’ who had

‘considerable prestige, authority, and access to resources’ and ‘champions’ who promoted the ongoing restructure through ‘using their relational and political skills’ (p 9). The restructuring process did not rely on ‘clear-cut, easily enforced, centralized direction’ but on a collaborative approach to leading the school through a time of change (2009 p 9). Building leadership through a distributive approach supports the emergence of teacher leadership, however, as Emira (2010) notes, this does not suggest that all teachers assume a leadership role in the school. Instead it provides the opportunity for a ‘democratic and collective leadership’ in which teachers are empowered (p 594).

Teacher leadership usually has a stronger focus on the collaboration with colleagues and performing a leadership role related more specifically to classroom practice than the administration of the school. However, many schools have formally recognised teacher leaders who are the executive teachers (middle management) fulfilling the role of heads of faculties or year level team. In this research it was found that teachers who took on an informal leadership role felt that their knowledge and skills were respected by their colleagues and that, through sharing their experiences, they could engage in interaction leading to professional learning.

Margolis (2008) investigated teacher leadership emerging through a professional learning program and notes that teachers are effective in these roles when ‘they can draw from personal relationships to work closely with peers, facilitating listening with empathy, understanding and respecting multiple viewpoints, and sharing personal experiences with others’ (p 295). He also found that many of the teacher leaders had expressed nervousness about leading the professional development sessions, but that the positive and supportive responses from colleagues allayed these fears, with a number indicating they would take on a

leadership role again. The support provided by the principals in the participating schools also played an important role in building the confidence of the teacher leaders, they ‘listened, shared power visibly, and worked to find teachers the resources they needed to lead’ (p 305).

The importance of teachers sharing the leadership across the school, acknowledging the ‘critical role’ they play in providing well developed learning experiences to engage students in learning and supporting the professional learning for both themselves and colleagues was highlighted in this study and in other research such as the work by Ghamrawi (2011).

Through sharing the leadership the principal is able to act as the fulcrum while empowering teachers to take on leadership roles. The key roles for the principal are to build a culture of trust, influence collegial relationships between teachers who work together and support each other, and enable teacher leadership. As Ghamrawi (2011) notes:

Trusting relations stimulate teachers to exhibit a passion for professionalism, collegial dialogue, collective problem-solving, risk-taking, community building and bear strong commitment to continual instructional development and design. In such cultures, teachers cooperate in performing joint projects and make time to interact around problems of practice, fostering relationships characterized by openness and developing a shared purpose that is centred on student learning. In other words, these cultures of trust secure a climate of dedication to excellence and allegiance to learning that is the crux of teacher leadership. (p 336)

This research identified the importance of a culture of trust across the school to facilitate the establishment of relationships through which teacher interactions lead to professional learning and supports teachers adopting a leadership role. This culture was supported by the leadership being distributed throughout the schools which encouraged the recognition of expertise in specific areas of knowledge or skill by both the principal and colleagues.

Through this recognition they were encouraged to continue expanding their knowledge and

skills and felt valued often leading to the individual taking on a leadership role and sharing their knowledge and skills with colleagues.

With the perception of being an expert, you also have the expectation that you will know how to 'meet my needs'. I think that's part of the perception that you can do that in an adaptable way, part of your expertise is that you can provide it to different people in different ways. (Suzie)

The experience of this participant is reflected in the study undertaken by Raffatini (2008) on teacher leadership. He argues that the informal teacher leadership role occurs because many experienced teachers are seen to be actively engaged in a broad range of activities such as committees in which they have the confidence to offer opinions, ideas and strategies in a manner that considered the impact on the relationships with others. These teachers are identified by their colleagues as people who have the interpersonal skills and practical knowledge to fulfil an informal leadership role. Stevenson (2005) also found that teachers in her study identified particular teachers as informal experts and would seek them out for support 'not only because they are knowledgeable about both the curriculum and how-to information, but also because they appeared happy to assist other teachers' (p 141).

Teacher leadership roles were also identified as mentoring roles in this research. A number of participants shared experiences of themselves as beginning teachers receiving support from a mentor, or fulfilling the role of informal mentor to a beginning teacher, as illustrated below:

My first year out as a teacher I taught maths with drama and what used to happen there I was quite competent in maths as a person but I hadn't actually had any experience other than primary school teaching it and what happened there is the head of the department used to sit down with me each week for a period of time – we would have an arranged meeting - and he would take you through what needed to happen and it happened for the whole of that first year. (Nina)

While this participant did not have a formal mentoring arrangement in place, the head of the department fulfilled the mentor role informally throughout the period required for her to develop the confidence and skills to continue on her own.

In their study on beginning music teachers Roulston, Legette and colleagues (2005) noted that, during their initial year teaching, all teachers sought help from others, including formal and informal mentors. For two of their participants the formal mentoring arrangement had been problematic, however they sought support from other experienced teachers who were able to provide immediate advice and support, such as answers to questions, advice on student management and assistance with the production of events.

Support from other teachers was also evident in the research by Jurasaitė-Harbison (2009), who found that the leadership style of the school influenced the culture of the school which, in turn, influenced the informal learning that occurred through the interaction between teachers. In the school identified as being the least collaborative school, it was found that the leadership had adopted a centralised, top down management approach that did not support formal professional learning opportunities or value informal collegial interaction between teachers. In contrast, the most collaborative school it was found that the leadership adopted a more democratic leadership approach that encouraged the development of a professional community amongst the staff and endeavoured to create a culture of trust and respect. It was in this school that the deputy principal preferred to be considered a 'coordinator and a colleague' rather than 'a boss' (p 313). The latter approach positively influenced the relationships between teachers who felt they had trustworthy professional relationships.

The experiences shared by the participants in this research indicate a preference for leadership approaches that support a collaborative culture across the school. The opportunity for all teachers to feel valued and contribute ideas created an environment in which the sharing of positive and negative experiences was encouraged to enable collegial support to occur. The participants also noted that, while relationships between teachers take time to develop within any situation, the level of trust within these relationships are strongly influenced by the culture of the school. Senge, Cambron-McCabe et al. (2000) echo the findings of this research, arguing that the school culture is important for creating the conditions in which teachers interact and are able to engage in reflective dialogue. Seeking and providing support to each other requires trusting relationships between teachers, which requires a supportive environment. Wenger, McDermott et al. (2002) explain this, using a garden analogy:

A plant does its own growing, whether its seed was carefully planted or blown into place by the wind. You cannot pull the stem, leaves, or petals to make a plant grow faster or taller. However you can do much to encourage healthy plants: till the soil, ensure they have enough nutrients, supply water, secure the right amount of sun exposure, and protect them from pests and weeds. (...) Similarly, some communities of practice grow spontaneously while others may require careful seeding. Yet in both cases, organizations can do a lot to create an environment in which they can prosper: valuing the learning they do, making time and other resources available for their work, encouraging participation, and removing barriers. (pp 12-13)

A supportive environment is essential for formal groups and the emergence of informal communities and networks within and beyond the school (Senge, Cambron-McCabe et al. 2000; DuFour, DuFour et al. 2008; Hord and Sommers 2008; Huffman 2011).

Research focussing on supportive environments for professional learning (for example: Hord and Sommers 2008; Daly, Moolenaar et al. 2010; Flint, Zisook et al. 2011) suggest that schools functioning as professional learning communities can provide the facilitative conditions necessary to positively influence the relationships developed between teachers leading to professional learning. While there is no universally agreed definition of professional learning communities (Stoll, Bolam et al. 2006; Hord and Sommers 2008; Huffman 2011), there is general consensus that a school environment in which the staff function as a professional learning community could be described as one in which the leadership approach is one that encourages sharing of leadership responsibilities and decision making rather than a top-down controlling approach. In this environment there is a shared vision that is reflected in shared values and purposes for improving educational outcomes for students enabling a collaborative culture to develop. The relationships in a professional learning community are 'based on mutual regard, respect and caring' for all members and this attitude extends to non-teaching staff and students as well (2008 p 48). This is an environment in which the focus of learning has shifted from teachers learning in isolation to teachers co-constructing knowledge with their colleagues in a community context.

This research found that teachers often engaged in collegial dialogue with members of teaching teams (year level or subject area teams), focussing on a number of issues related to student learning and behaviour management. The conversations enabled the participating teachers to appreciate the knowledge and skills their colleagues possessed and were willing to share, as well as develop collective norms and values. It was also found that participating in open dialogue with their colleagues provided them with opportunities to engage in reflection on their own practice and the co-construction of knowledge. In her work on professional learning communities, Stoll (2011) argues that through collegial conversations teachers are

working together ‘to develop shared meaning of concepts and practices. It is not just learning together; it is a joint process of generating new and common understandings and creating knowledge of value and use to all involved. In addition, it is a community that is collectively learning about its processes of learning’ (p 104).

Senge, Cambron-McCabe et al. (2000) note that ‘the single most strategic thing that school leaders can do is create conditions that foster professional community – a culture of interaction and reflective dialogue’ (p 328). Teachers will engage in conversations with colleagues when opportunities arise. Some of the conversations are social, some may focus on practical ideas and resources while a few others are deeper, exploring issues and concerns during which an individual may experience feelings of vulnerability regarding their competence and confidence as a teacher. The latter form of conversation requires a strong trusting relationship between the participating colleagues; however, it is from these conversations that professional learning emerges (Hargreaves 1998; Shields and Edwards 2005; Nelson, Deuel et al. 2010).

Conclusion

This chapter considered the emergence of professional learning through the interaction between teachers in a school environment. This research found that teachers engage in a variety of work-related activities with their colleagues, some of which provides immediate classroom support through the sharing of ideas and resources, while other activities have a greater impact on their teaching practice through reflection on current practice, values and assumptions. Collegial support through sharing, often within a team environment, is the most common type of activity and provides the teachers with the opportunity to develop stronger professional and personal relationships with their colleagues. However, these activities do not

challenge teaching practice and thus maintain the status quo. The activities that do challenge teachers are most often undertaken with one or two colleagues with whom there is a strong trusting relationship because they are placing themselves in a position of vulnerability, seeking and providing non-judgemental support.

The relationships and knowledge that emerge from the interaction within the numerous teams and groups across a school cannot be predicted or mandated but, as nested systems, can be influenced by the rules, norms and attitudes promoted at the whole school level. It was acknowledged by the participants that the leadership approach adopted by the principal influences the culture of the school. A principal who demonstrates trust and respect in all their staff, clearly valuing professional learning through working collegially, engenders a culture of ‘working together’ across the school, with teachers feeling their knowledge and skills are valued by all. A collegial school culture supports the development of trusting relationships between teachers which encourage conversations leading to the emergence of professional learning.

Drawing together the three perspectives

In the discussion presented in chapters five, six and seven, complexity theories provide the lens for the model through which the connections between the identified influencing factors can be explored and discussed holistically. As agents within a school system, teachers are continually interacting with other agents and systems influencing and being influenced by them. The factors identified by the participants in this research are enmeshed in this interaction, constantly influencing each other to varying degrees and affecting the outcomes of any interaction. Drawing on the literature these chapters explored the relationships between the factors and highlighted their interconnectivity.

Limitations of the model

The model emerged from the narratives of practising school-based teachers who will have a particular perspective on the issues related to informal interaction leading to professional learning. The terminology used to name the factors reflect this perspective, however similar concepts are reflected in the broader literature and support the findings of this research.

Similar studies conducted in other contexts may produce a variance in the identification and naming of factors that will reflect the importance placed in these factors by the participants.

However, complexity theories suggest that the relationships between the factors will still exist, as argued by this model, therefore the theoretical basis for the model will still be applicable.

The following chapter connects the findings of this research with issues raised in the literature review to discuss the interaction between colleagues from three key perspectives: the knowledge that emerges from the interaction; what influences the interaction; and the opportunities provided within the workplace for interaction, and then placing them in context through the model.

Chapter 8: Discussion of Findings and Implications

This study asks: What influences teachers to engage in informal interaction leading to professional learning? Its findings identify seven key influencing factors: relationships; emotions; communication; cognition; leadership; teams; and school structure. While recognising the importance of each factor, the significance of the findings is a shift in focus to the dynamic interplay between these factors. Across the literature each of the factors has also been raised, supporting the findings, but they are discussed independently of each other. This study argues that they need to be considered holistically due to the complexity of the interconnections between them, giving rise to a theoretical model. While the focus of this research is informal interaction leading to professional learning, the findings also have relevance to formal and informal interaction in both educational and organisational workplaces.

This chapter discusses the findings of this research. It make connections with the issues raised in the review of the literature in chapter one, which drew upon theoretical and empirical research in both the educational and non-school organisational fields. The discussion begins with considering the context for the research in terms of drivers for ongoing professional learning, and then discusses the findings through three main themes that draw together key points raised in both the literature and the findings: knowledge creation through interaction; influencing interaction; and opportunities for interaction. The discussion concludes with a synthesis of the themes using the emergent model. The chapter then considers the implications of the research for educational and organisational leaders and researchers.

Drivers for on-going professional learning

As mentioned in chapter five of this thesis, although the focus of this study is within one school, it cannot be totally disassociated with the broader community with which it interacts. Therefore, it is essential to acknowledge that teacher professional learning occurs within the context of not only the education community, but also the local, national and international societal community that, to varying degrees, influences what occurs within the school (Fullan 2007; Webster-Wright 2009).

Businesses and organisations, both public and private, are constantly under pressure to improve products and services, keep up with the latest technological advances, and maintain a competitive edge. To address this ongoing demand organisations are not only pursuing ways to encourage knowledge creation and sharing across the organisation (Thomas and Allen 2006; Glisby and Holden 2011), but also identifying skills and knowledge necessary for their continued advancement (Bhatt 2002). The constant evolution of required skills and knowledge influences the societal demands on schools of what students need to learn (Skilbeck and Connell 2004; Hannay and Earl 2012) thus informing the government driven (state and federal) teacher professional learning agenda.

Participants in this research recognised that the implementation of new government policies and programs had an impact on professional learning activities, both formal and informal, within the school. The policies and programs that inform the content of school-based professional learning days, are reflected in the professional reading discussions, and often raised in conversation between colleagues - particularly if there was discord between the reform and pedagogical beliefs of the teachers involved.

While external incentives for professional learning were noted, participants also identified the intrinsic motivation of teachers as a significant driver for ongoing professional learning. They argue that, as stated in the Australian Professional Standards for Teachers (aitsl 2013), they are professionals and as such should be *life-long learners*, echoing the observation by Alee (1997), who notes that learning ‘to examine our values and assumptions’ is driven by a ‘deep respect for our responsibilities’ (p 16).

The intrinsic motivation associated with teachers as professionals, with an expectation of their ongoing responsibilities, is reflected in the literature, especially in the work by Hargreaves (1998; 2000; 2004). Statements by participants in this research about being a professional; their obligation to *pass on* their skills and knowledge gained through experience to beginning teachers; and their responsibility for career-long professional learning clearly demonstrate a synergy with Hargreaves’ (1998; 2000) research. The strong emotions associated with being a teacher, which are closely tied to participants’ intrinsic motivation for ongoing professional learning with their colleagues, aligns with Hargreaves’ (1998; 2000) conception of teaching as an ‘emotional practice’ encapsulating people’s purpose in becoming a teacher, their personal and professional identities, and the gamut of responses to students, colleagues and reforms. Hargreaves (1998; 2000; 2004) argues, as do the participants of this research, that the emotional aspect of being a teacher is not fully appreciated by those in leadership positions and government.

Connecting with the broader educational community was also raised by participants. Their ongoing desire for professional learning was cited as a significant factor in attendance at communities of practice, networks and conferences. While exposure to new resources, practices and ideas were beneficial for the teachers, a key reason for attendance is the

opportunity to meet people with similar interests that enabled the development of relationships and knowledge creation with colleagues. This is reflected in the work by Wenger, McDermott and colleagues (2002) in which they suggest that people will form communities of practice around common problems or passions and, as relationships develop, will engage in knowledge creation through the ongoing interaction.

Knowledge creation through interaction

Teachers in this research valued the conversations with colleagues through which they were able to reflect and create knowledge. It is the active engagement in a range of activities that they considered supports learning, hence their rejection of externally imposed and organised 'professional development' sessions in which they were passive recipients of information. This rejection of what has been termed 'traditional PD' is reflected across the literature related to effective models of teacher professional learning (for example: Flint, Zisook et al. 2011; Tytler, Symington et al. 2011; Hannay and Earl 2012), acknowledging the importance of interaction with colleagues, particularly those within the same school or team, for encouraging change in teaching practice through reflection and co-construction of knowledge. Knowledge creation through interaction has also been identified as an essential element for learning and sharing in an organisational (for example: Sun 2003; Mavin and Cavaleri 2004; Rashman, Withers et al. 2009; Littlejohn, Milligan et al. 2011; Cornelissen, Jong et al. 2012) supporting the findings of this research.

This research found that interaction has a significant impact on knowledge creation, however not all interaction results in professional learning as defined by aitsl (2012), that is, improving the teaching practice of the individuals involved. The participants noted that they engaged in a variety of conversations, or dialogue, with their colleagues that could be considered along a

continuum between simple congenial interaction such as polite day-to-day *chit chat* enabling the individuals to *get to know each other* (both personally and professionally) and develop relationships, and deep collegial interaction between individuals who had a relationship with a high level of trust, enabling the co-construction of professional knowledge.

During collegial interaction participants discussed engaging in a range of knowledge creating activities such as: brainstorming and problem-solving; the use of materials, such as articles, to stimulate discussion; sharing ideas, resources and experiences; debriefing; and reflecting on practice. Brainstorming, discussions and sharing ideas provided opportunities for teachers to *work out* what had occurred, or was occurring, that impacted on them professionally, particularly in relation to curriculum or policy changes, and often took place within a team environment. This process of ‘working out’ is consistent with the concept of sense-making discussed in the literature (for example: Weick 1995; Weick and Sutcliffe 2005; McArdle and Coutts 2010). Teachers utilised the discussions for making sense of new ideas, approaches and strategies, enabling the connections between different experiences to be made, with the emerging knowledge assessed against their own pedagogical beliefs and values.

The use of narrative, or story, to share and make sense of experiences also emerged as a common form of interaction between teachers, reflecting the work by Cunliffe and Coupland (2011), who argue that ‘narratives are the means by which we organize and make sense of our experience and evaluate our actions and intentions’ (p 66). In particular, the participants in this research talked about debriefing, or *off-loading* - conversations that enabled them to *relive* the experience, *re-viewing* the events not only through their own perspective but also that of colleagues who would share stories or offer support and advice based on similar past experiences. Early career teachers commented that they found these conversations extremely

valuable, not only because listening to how experienced teachers approached various issues helped them make sense of what they were dealing with and provided some useful strategies, but also because they felt reassured by the fact that experienced teachers still had *bad days*, dealing with similar issues to themselves.

Narrative was identified as an important mechanism for teacher professional learning by this research. It allowed both the teller and the listener to reflect on, and make sense of their experiences and the emerging knowledge was valued by the participants in the interaction. What stories were shared, and the level of detail provided through those stories, was dependent on the context of the interaction and the relationships between the participants at that point in time. This is consistent with a growing body of educational research, such as the studies by Shank (2006) and Southworth (2011), that highlight the value of narrative for learning and sense-making and the influence of relationships on the experiences shared.

What has emerged from this research is that knowledge creation leading to professional learning requires active engagement by the individuals participating in the interaction. This not only includes the sharing of ideas, resources and experiences but also the willingness to *be open to new ideas* and reflect on their teaching. The engagement in the interaction that occurs during any activity described by the participants influences the current and future interactions in a complex cycle of feed-back loops, ultimately impacting on the relationships between individuals, and thus the willingness of each to engage in conversations during which time their beliefs about teaching and being a teacher may be challenged.

Influencing interaction

The participants in this research identified the relationships between the individuals participating in the interaction as the most significant influence on teacher engagement in conversations leading to professional learning. These relationships emerge through the individual's responses to the interaction between colleagues, and are constantly being adjusted as further interaction occurs. The importance of relationships for knowledge sharing and creation within the workplace has been well documented across both the educational and organisational literature, however the development of trusting relationships between colleagues is still an area inviting further exploration as recent studies, such as those by Cornelissen, Jong et al. (2012), Rytivaara and Kershner (2012) and Saunders (2012), have suggested. While these studies focus on trusting relationships between colleagues working within a team or network context, what is emerging from this research is the importance placed by teachers on the development of relationships with colleagues across the broader context of the school, as well as the relationships between colleagues with whom they work within a team context. The participants in this study highlighted the complexity of a school environment. They noted that: many relationships form between teachers from across the school, not only with team colleagues; the membership of teams change (due to a range of reasons, such as teaching a different year level, teachers changing schools or movement provided through other opportunities), and the relationships with previous team colleagues will change, particularly if they remain in the school.

This research finds that during the formation and ongoing development of any relationship, and in particular trusting ones, the emotions of the individuals involved play a significant role. Participants argued that they have a unique relationship with each person and this relationship is continually evolving based on past and current experiences with some

relationships being *deeper and more trusting* than others. The responses to any interaction is coloured by the emotional reaction, both positive and negative, to the experience that in turn is informed by the individual's beliefs, values and sense of self-efficacy. Positive interactions were described as ones in which: the individual felt they were being *treated with respect*; their knowledge and skills were valued by their colleagues, and issues were discussed in a supportive manner, while interactions that were not considered positive invoked negative emotions such as anger, vulnerability and demoralisation.

The findings highlight the inextricable link between emotions, interactions and relationships, and are consistent with other research in both the educational and organisational fields. In an educational context for example: the study by Rogers (2006) whose work on collegiality within schools stresses the importance of positive interaction for the development of trusting relationships; the investigation by Kelchtermans (2005), in which he raises the issue of vulnerability and the links to emotions, a teacher's sense of identity and the impact on interactions; and the extensive work by Hargreaves (1996; 1998; 2002; 2004; 2005) exploring the emotional responses of teachers to a range of circumstances including reforms, leadership and career stages. Examples from an organisational context include: the exploration of the influence of emotions on knowledge sharing by van den Hooff and colleagues (2012); and the investigation by Wu, Lin and colleagues (2009), who noted a positive association between trust and knowledge sharing in organisations.

Influencing the emotional responses to any interaction are the mental models, or personal schemata, and the identities of each participating individual. These concepts have been well documented in the literature, for example the work by Senge, Cambron-McCabe and colleagues (2000), Chalmers and Keown (2006), and Opfer and Pedder (2011) in which there

is agreement that a person's mental models are based on the unique experiences, memories, values, beliefs and assumptions of each individual and that, therefore, no two people experience an interaction the same way; and other studies, such as those by Palmer (1998), Snowden (2002) and Clandinin, Downey and Huber (2009), who stress the importance of acknowledging that each person has multiple identities based on their understanding of who they are and their role in each context.

While these terms are not used by the participants in this study, the concepts are evident through their narratives. Experiences are shared in which the emotional state of an individual at the time would colour their approach to any interaction, both formal and informal, and therefore influence the perception of the experience and future interactions. There were also discussions about the different roles performed by each person and the differing levels of comfort and confidence within each role, clearly referencing their different identities within each context. The perceived support and feedback received from peers and those in leadership roles influences the positive or negative feelings associated with the experiences within the various roles, influencing their identities and projected emotions for future interactions.

Relationships and associated emotions have a significant impact on the knowledge creation process due to their influence on the interaction between colleagues. This impact is reflected in the perceived professional learning that emerges from these experiences. During any interaction each person brings with them their own unique set of beliefs and views based on past experiences that determine what is important to them and why it is important. This influences how they behave in any given situation. As argued by Senge, Cambron-McCabe and colleagues (2000), each person attends with differing degrees of intensity to what is

occurring during the interaction, resulting in differing perspectives of the emergent knowledge created. The cumulative effect of emotional responses to each interaction results in the development of relationships with varying levels of trust between each person. As this research finds, the extent to which teachers are open with their colleagues (such as the level of detail shared in stories, their willingness to admit they need support or advice, or hiding behind a façade of confidence to avoid feelings of vulnerability) varies depending on the relationships they have with the participating colleagues. The greater the level of trust, the more willing teachers are to take risks or be challenged by their colleagues leading to the emergence of professional learning.

Each interaction influences the ongoing development of relationships between teachers through a cycle of emotional action and response to the experience. What is clear from this research is that teachers develop a range of relationships with their colleagues through the various interactions that occur in schools, however, in order for teachers to ‘*open up*’ and reflect on their beliefs and values about teaching they require a relationship with a high level of trust. These relationships do not form quickly and require a range of opportunities, both social and formal, enabling them to develop over time.

Opportunities for interaction

This research identified two broad types of interaction between teachers within a school: social and professional interactions that can occur both formally and informally. The social interaction supports the development of relationships both congenial and collegial, while the professional interaction supports the ongoing establishment of relationships and the emergence of professional learning. Participants in this research recognised a variety of opportunities for teachers to interact both socially and professionally.

The social activities valued by the participants included: organised activities, such as morning teas or lunches and car-pooling; informally arranged ones, such as coffee or drinks after work with team or school colleagues; and *ad hoc* ones, such as chatting in the tea room while making coffee, around the photocopier or in a shared work room. Valuable professional activities suggested in this research include administratively organised meetings with colleagues teaching the same year level or subject area; informally organised get-togethers with a work focus that one participant described as *a serendipitous gathering of like minds*; and the *deep and meaningful* interaction with a trusted colleague exploring work related issues of concern. While there may appear to be a dichotomy that describes interaction as social or professional, this research found that this is not the case. A number of interactions from which professional learning emerged are described by the participants as starting as a social conversation but leading into a professional dialogue with one or two colleagues.

The importance of opportunities for interaction within the workplace has been well documented in the literature - the value of a team, network or community in providing the impetus for both formal and informal interaction with colleagues that may encourage the development of professional relationships leading to the emergence of professional learning (for example: Senge, Kleiner et al. 2002; Rogers 2006; Meirink, Imants et al. 2010; Cornelissen, Jong et al. 2012; Mueller 2012); and the importance of providing close physical proximity to colleagues, such as in a team workroom, classrooms near colleagues teaching the same year level or subject area, or an open office space that enables interaction and the establishment of relationships (for example: Davenport and Prusak 1998; Lohman 2000; Hord and Sommers 2008; Fallon and Barnett 2009). However, what is rarely discussed in the literature, but emerged from this research, is the part social interactions play in the development of relationships with colleagues. The participants consider social activities to be

valuable opportunities to interact with colleagues, enabling them to *get to know each other* both personally and professionally and establish relationships. These relationships have the potential to develop such that future interaction may lead to the emergence of professional learning.

The leadership of a school is found to be an influence on the social and professional interaction between teachers in this research. Organisationally, opportunities for interaction are provided through the timetabling of time for teachers to meet formally and informally and the effective utilisation of the space within the school. The participants also noted the importance of the skill of the management team, in particular the principal, to *walk the talk* in terms of the desire and support for ongoing professional learning to improve teaching practice and recognising the skills and knowledge of colleagues, in encouraging teachers to avail themselves of the opportunities as they occurred. These findings are reflected in works of other researchers focussing on leadership, such as Cosner (2009), Coleman (2011) and Eyal and Roth (2011), all of whom stress the criticality of the leader within a school for creating opportunities for interaction and a culture that promotes collegiality, motivating teachers to engage in activities with each other leading to professional learning.

The recognition of skills and knowledge by the leadership team in the school often leads to teachers taking on the role of teacher leader. This research finds that teachers in this role are rarely members of the leadership team of the school, but rather identified by the team and colleagues as a teacher with advanced knowledge and skills in a specific area. These teachers are often informally approached by colleagues for support and advice in their area of expertise. However, it was noted that, depending on the relationship between the teachers, initial interactions may be tentative as trust is built. This is particularly true for the teacher

seeking the support. As one participant noted *you start with the little things first* and, if the response is positive, future interactions are *more serious*. In his work on collegiality Rogers (2006) also argues that teachers need time and opportunity to get to know each other professionally and establish trusting relationships that enable colleagues to approach others for support and advice.

While teachers acknowledge that some externally provided professional learning sessions are useful, the participants in this research considered the professional learning conducted within their own school, utilising the *strengths* of their own teachers was more valuable.

Participating in the decision-making process, particularly for those teacher leaders identified as the experts developing the professional learning experience, encouraged a sense of involvement and commitment to the event. Active engagement with colleagues during *sessions*, and the opportunity for informal interaction with colleagues during break times supported the development of relationships with some colleagues and the deepening of relationships with others. This whole school involvement with professional learning through interaction with colleagues was considered by the participants to be illustrative of a community of learners, which is reflected in the work by proponents of professional learning communities, such as Hord and Sommers (2008) and DuFour, DuFour and colleagues (2010), and learning organisations, such as Senge (1992) and Haldeman (2011).

It was argued by the participants that the opportunities to interact informally were becoming more difficult due to the *busyness* of being a teacher today. However, communal spaces such as team rooms and whole school staffrooms do provide for incidental interaction that influence, and are influenced by, the relationships between the individuals. Time is required for these relationships to become collegial and, until there is a sufficient level of trust within

the relationship, the interaction will not progress to one through which professional learning emerges.

Drawing it together through the emergent model

The question posed by this research does not have a simple or straightforward answer. What influences teachers to engage in informal interaction leading to professional learning is the continually changing interplay between a number of factors that cannot be fully understood through exploring them as individual components. This is because the phenomenon is greater than the sum of its parts (see Snowden 2002; Davis and Sumara 2006; Haggis 2009). As Radford (2006) argues, complexity theories draw ‘attention to the importance of the interconnectedness of variables within systems and the qualities that emerge as a result of these interconnections’ (p 178). The model that emerges from this research lays out the complex web of interrelated and interconnected influences on teacher engagement in interaction with colleagues that leads to professional learning.

Complexity theories provide this research with a theoretical lens for the model, enabling the influencing factors emerging through the narratives to be considered holistically rather than separately. Through this theoretical lens the interaction between teachers is understood to be a complex, dynamic phenomenon. It is self-organising, emergent, non-linear (recursive), responsive to feedback loops and occurs within a nested structure/environment.

This research finds that the interaction teachers engage in influences the development of relationships between colleagues through constant feedback mechanisms that have an impact on future interactions. The participants argue that while purely social interaction does not usually lead to the emergence of professional learning, it is considered important for

establishing relationships. The participants note that social occasions provide the opportunity to *find out about people* and learn about their personal and professional backgrounds, adding new dimensions to their understanding of the person and making *extra connections* with them on *different levels*. The professional interaction, which may be formally organised (such as through the use of teams) or informal, contributes to the continual evolution of relationships, in particular professional relationships, as teachers discern each other's pedagogical beliefs and perceive their skills and knowledge across a range of areas related to working in a school.

Due to the bottom-up emergent nature of informal interaction, engagement by teachers in this interaction cannot be controlled by the leadership of a school but it can be influenced by those in leadership roles. A distributed approach to leadership across the school not only enables individuals to contribute to the decision-making processes, but also encourages the emergence of teachers in leadership roles through recognition by colleagues or school leaders of their expertise in specific areas. Participants noted that, through this form of recognition, colleagues were more willing to approach identified individuals and engage in professional interaction.

As found in this research and other studies, such as those by Fallon and Barnett (2009) and Rogers (2006), there are different purposes for professional interaction. These purposes range from sharing resources to *deep conversations*, depending on the needs and knowledge of the individuals involved, and the relationships between them (which will determine if a teacher will approach, or is willing to be approached for work related support). While the participants in this research feel that most teachers are keen to support their colleagues, the emotional responses to past and present experiences, including their sense of identity and confidence

within the context of the interaction, has a significant influence on the relationship with participating colleagues and thus what occurs.

The environment in which the interaction is taking place is one in which multiple groups are nested within and across each other. Teachers work in a number of formally organised teams, as well as establishing their own informal groups that are fluid and constantly 'influenced by their context' (Davis and Sumara 2006 p 95). All of the groups within the school have their own lifespan. The formally organised groups will exist until their purpose is no longer required (such as for a specific project) or its role has been fulfilled (such as the end of a school year for year level or faculty teams). The lifespan of informal groups have a greater fluidity due to the nature of their emergence. Some will exist for a short period of time, addressing the needs of its members, while others may continue to exist for years due to the trusting relationships developed between the members.

While teachers are members of a number of groups in a school environment, the isolating nature of their work with students in separate classrooms has a significant impact on their interaction with colleagues. The provision of adequate time (through careful planning of classroom timetables) and suitable spaces (such as meeting rooms) will enable organised and serendipitous interaction between teachers, which in turn supports developing relationships. However, ensuring that opportunities for interaction are available does not guarantee that it will occur, or that the interaction will lead to professional learning. As the participants note, teachers may choose not to use their designated time away from the classroom to interact with others, preferring to work by themselves. If the interaction is organised, such as through common release from face to face teaching for teams of teachers who teach the same year level or subject area to meet, each teacher will physically attend the meeting, however active

engagement with the discussion is at the discretion of each individual (Davis, Sumara et al. 2008).

The findings from this research argue that interaction and the emergence of professional learning from these interactions are unpredictable and non-linear, and therefore cannot be considered within a cause-effect model. Each person will determine what their particular learning requirements are, and with whom they will interact to meet those needs.

Endeavouring to manage the interaction to achieve a learning outcome through formally organised activities may result in a negative response from the individuals involved and disengagement with the process. The emergence of professional learning through informal interaction is determined by the relationships between the participants and their responses to the actions of each other.

Engagement in informal interaction is self-organised, responsive to feed-back loops and can be influenced but not be controlled. It is based on emotional responses to past interaction, past and present relationships, the level of personal and professional trust between the colleagues involved, and the opportunities provided to interact. Teachers will decide what they will share, in terms of their teaching experiences and personal information, and with whom, based on their perception of the relationship they have with the other teachers. This determines the professional knowledge emerging from the interaction.

Implications from this research

The holistic approach to understanding the phenomenon as suggested by the emergent model is applicable to both formal and informal interactions leading to professional learning, and has implications for educational and organisational leaders and researchers.

The development of relationships requires time and opportunity for interaction. Establishing relationships with colleagues cannot be rushed or coerced, however providing opportunities for interaction (both work related and social) will support their ongoing evolution. Organising people into teams is a well-established practice and does provide opportunities for interaction, however, the facilitation of social activities, with colleagues from across the school as well as with team colleagues, was identified as of significant importance by the participants in this research, especially at the commencement of the school year. In an organisational context this is relevant to the formation of new teams or groups, particularly after a restructure, enabling the establishment of a rapport with colleagues in a relaxed atmosphere. Regular social activities throughout the year, such as coffee or drinks after work, morning teas and lunches, support the developing relationships from both a personal and professional perspective and complement the work-focussed interaction.

Knowledge creation leading to professional learning requires trusting relationships developed over time. Interaction through social and work-related activities supports the development of relationships between colleagues, however not all relationships are based on the same level of trust. While people working within a team environment will establish professional relationships between each other over time, some relationships will support the sharing of resources and ideas, while others will have gained a deeper level of trust enabling participants in the conversation to expose their vulnerabilities and engage in knowledge creation leading to professional learning.

The need for time to develop trusting relationships is of particular importance for researchers who utilise groups and teams to investigate professional learning in schools. As McGee and Lawrence (2012) found in their study, some of the ‘deeper learning’ occurred during the

reflection on the completed projects by the groups when the relationships between the participants had reached a level of trust that they could be more open. This suggests that, while time constraints are the bane of research, it is not realistic to expect participants who have not already established strong trusting relationships with their colleagues to be 'open and honest' from the start of a project. Engaging in activities related to the investigation that facilitate the development of relationships in the early stages of a project may support active engagement by the participants in more challenging activities that place them in a position of vulnerability as the project progresses.

Congruence between intrinsic motivation for learning and extrinsic reform agendas requires consideration. The emotional response to change is often recognised but not considered during the change process of reform. As Saunders (2012), Lee and Yin (2011), Hargreaves (2005) and others have argued, a teacher's professional life is inextricably linked with their personal beliefs, values, self-efficacy and professional identity, and any challenge to these will result in a strong emotional reaction. In situations in which teachers are placed in a position of vulnerability the response will often be negative, resulting in resistance (active or passive) to the reform. Teachers need time to make sense of what is being asked of them in terms of changes to practice, curriculum and beliefs, and to identify the level of congruence with their own beliefs, values and professional learning needs. Negotiating the 'what' and 'how' of professional learning associated with change with the people involved supports the sense making process.

Acknowledge and utilise the expertise within the school or organisation for professional learning. Acknowledgement of skills or knowledge by colleagues and the leadership team was valued by teachers who considered it to be recognition and validation of their

competence in their job. This recognition enables individuals to take on a leadership role in their area of expertise, engaging in knowledge creation through informally organised conversations with their colleagues. Utilising the skills and knowledge of these individuals within the school for formally organised school-based professional learning further validates their expertise and enables a local contextualisation of the focus of the professional learning as well as access to the learning leaders in the future for follow-up conversations.

Narrative is an important mechanism for professional learning. Narrative is utilised by people for a variety of purposes, such as sharing incidents, explaining concepts and making sense of past experiences. It provides a context for understanding for both the teller and the listener and often triggers reflection on similar experiences by others participating in the conversation. Shank (2006) described narrative as a ‘powerful means *for learning*’ (p 713 *italics in original*) and this was certainly borne out in this research through the narratives shared by the participants. Narrative also proved to be a valuable mechanism for gathering data for this research. As participants shared stories others in the group would reflect on their own experiences, recount similar stories, and make links to other relevant topics that provided a context for understanding and analysing the data.

Work environments that value and promote ongoing professional learning influence the engagement in interaction leading to learning. The culture of a work environment is significantly influenced by the leadership approach adopted by those in management positions. A collaborative style of leadership has been suggested in this and other research, such as the work by Coleman (2011), as a democratic and proactive approach to leading teams, schools and organisations. Actively encouraging ongoing professional learning through demonstration of their own commitment to learning, providing stimulus for reflection

and conversation and, particularly in a school context, organising timetables, classrooms and meeting spaces to facilitate interaction, all contribute to a supportive work environment.

The outcomes of interaction cannot be predicted or controlled. People are complex. The behaviour and response of each person in any interaction is based on their own unique past and present experiences and, therefore, what each person perceives as the outcomes of an interaction will differ from their participating colleagues. What emerges from any interaction can be influenced through the use of attractors, such as spaces that encourage people to congregate, or activities requiring people to work together to solve shared problems, but, the relationships between the individuals will also influence, and be influenced by, the interaction and affect the outcome. This has implications for educational research that is endeavouring to change teacher practice and beliefs through the use of project groups. No matter how well the project is organised and implemented, the outcomes will depend on the teachers that participate.

Informal interaction leading to professional learning is valued by teachers. The participants of this research were quite emphatic about the importance of professional learning through informal conversations. This view is reflected by the 90% of respondents in the survey by the OECD (2009) who stated that informal conversations had a significant impact on their professional learning. While the importance of informal interaction for knowledge sharing and creation is acknowledged in the organisational context it receives less recognition in the area of teacher professional learning.

Conclusion

Through a discussion about the key findings from both this research and the literature review, this chapter highlighted the complexity of interaction leading to professional learning. What is proposed by this research is that, while it is valuable to explore, in depth, the individual factors identified, adopting the approach provided through the theoretical model that emerged is required to understand what influences people to engage in informal interaction leading to professional learning.

Current research often focusses on one or more of the influencing factors identified in this research: emotions (for example Hargreaves and Goodson 1996; Hargreaves 1998; Hargreaves, Earl et al. 2001; Hargreaves 2004; Hargreaves 2005); trust in relationships (for example Wu, Lin et al. 2009; Casimir, Lee et al. 2012; Swift and Hwang 2013); supportive environments, including teams and networks, leadership and environmental structure (for example Lohman 2000; Hord and Sommers 2008; Meirink, Imants et al. 2010; Coleman 2011; Cornelissen, Jong et al. 2012); and the communicative and cognitive activities associated with workplace learning (for example Eraut 2007; Melville and Wallace 2007; Reid 2007; Rytivaara and Kershner 2012). All of the research provides a deeper understanding of workplace learning through interaction, however this research has found that what influences teacher engagement in interaction is more than the aggregation of the identified factors; it is the dynamic interplay and continual fluctuation in intensity of influence between them all, requiring a holistic approach to understanding the phenomenon.

Implications for educational and organisational leaders and researchers arising from this study have been proposed in the final section of the chapter. The following chapter is a short conclusion to the research project.

Chapter 9: Conclusion

This research explored the complex world of informal teacher interaction that leads to the emergence of professional learning. The research process provided the opportunity to gain deep insights into what influences individual teachers to interact with their colleagues at work, and demonstrated the importance and value of context when researching aspects of teachers' professional lives. This process also resulted in the development of a new theoretical model. The model provides a unique perspective on informal interaction by considering the relationships between, and interdependence of, the influences on this phenomenon.

The outcomes of this study have contributed to the body of knowledge in teacher professional learning and workplace learning in a non-school organisational context and addressed the calls for further research raised in the introduction to this thesis. This chapter reflects on the impetus for this research, the approach taken, and the significance of the outcomes. It concludes with suggestions for future research.

Impetus for the research

The importance placed on teacher professional learning for educational reforms and improvement in student outcomes is quite evident across the field of education, and continues to be a significant focus of political agendas (Fullan 2007; Priestley 2011; aitsl 2012).

Current models for professional learning have adopted a constructionist stance, promoting interaction between teachers to encourage reflection and knowledge creation (Lovett and Gilmore 2003; Mullen and Hutinger 2008; Pella 2011; McGee and Lawrence 2012).

However, while some studies have acknowledged that informal learning also occurs within the school environment there has been little investigation into this aspect of teachers'

professional learning. The importance of informal workplace learning in schools has long been argued by teachers and has recently given an authoritative voice through the OECD survey (OECD 2009). The high percentage of teachers (over 90%) indicating that informal professional learning was the most effective mechanism for improving their teaching was reflected in this study, as illustrated in the following excerpts by two of the participants:

We do recognise the strengths of our teachers and we recognise that the best PD is the stuff you do with your colleagues in school. We often go away and when you get back to school you put away the piece of paper or the booklet, but often when you're doing professional learning in school ...[it is] quite a powerful form of professional learning, maybe not formal, but it is professional learning that we have to do, but we choose to do it with our colleagues because we recognise their strengths in certain areas. (Alison)

And you've got the ongoing support there too -yeah the 'you know when you were talking about that' you can go back to them a week later but you can't always do that when you're doing professional development outside. (Kate)

The field of organisational learning has recognised the importance of informal workplace learning in business and government for maintaining a competitive edge or improving business performance and service (Rashman, Withers et al. 2009; Glisby and Holden 2011; Schiuma 2012). Research in this field, both theoretical and empirical, has identified a range of factors that may influence informal interaction leading to knowledge sharing and creation, including trust, workplace environments and leadership (Senge 1992; Haldeman 2011; Casimir, Lee et al. 2012). Many of these factors have also been identified within the field of education, although the focus of the research has been the formal professional learning models for teachers conducted within a school context rather than the informal interaction leading to professional learning that occurs. However, what is emerging from more recent

studies of teacher professional learning is the significance of informal interaction for learning and the importance teachers place on it for the creation of knowledge (OECD 2009; Thoonen, Slegers et al. 2011; Rytivaara and Kershner 2012). Across both fields the calls for research identified a need for further investigation into informal learning within the workplace, and, in particular, to understand what influences individuals to engage in this phenomenon. Given the importance placed on informal interaction for professional learning by practising teachers, and the identified need for research in this area this study sought to make a contribution through investigating teacher engagement in informal interaction leading to professional learning.

The research process and outcomes

As the theoretical perspective for the research, complexity theories informed the methodological approach for this research. The qualitative methodology employed enabled the findings to reflect the perspectives of the participants, grounding the emerging theoretical model in the narratives shared by them. Through the use of narrative to gather the data for this research, the voices of those actively engaged in informal professional learning were heard and the data was able to be considered contextually. Involving the participants in the analysis phase of the study not only ensured the validity of the emerging influencing factors, but also generated additional narratives as they shared similar experiences to those under consideration, or used narrative to explain their suggestions for coding or grouping the data. As the analysis progressed, complexity theories provided the theoretical lens through which to make sense of the interconnectivity between all of the influencing factors resulting in the emergent model.

The outcomes of the research highlighted the complexity of informal professional learning in the workplace. It is clear that the factors that influence an individual to engage in professional dialogue with a colleague are interdependent and cannot be considered in isolation. At the simplest level of understanding the phenomenon it could be said that the relationship between each of the participating individuals will influence the interaction and the knowledge created during the interaction. However, as the findings of this research suggest, what influences these relationships, and is in turn influenced by the relationships, is the dynamic interplay between a number of factors, including the emotional state of each individual; opportunities for interaction both formal (such as through teams) and informal; the leadership approach within the group, school or organisation; and the conversational interaction the individuals engage in.

This research found that the emotional association with any experience has a significant influence on the retrospective view of events. It is the accumulation of experiences that contribute to a person's personal and professional lives, and this provides a filter through which current interactions are assessed and future interactions are anticipated. With each interaction the filter changes, sometimes subtly and at other times significantly, thus influencing the actions and reactions in future interaction.

The significance of time and opportunity for the development of relationships was emphasised in this research. Of particular importance to this study was the development of relationships with a level of trust that enabled teachers to engage in conversations leading to professional learning. These relationships required a substantial amount of time to establish and maintain, as well as many opportunities, both social and professional, to interact.

The research also drew attention to the importance of a teacher's intrinsic motivation to engage in ongoing professional learning. This motivation has strong connections with their sense of identity as a teacher and beliefs about what it is to be a teacher and, therefore, impacts on their willingness to engage in activities with colleagues both formal and informal.

The findings of this study identified that the leadership team in a school or organisation is able to influence the engagement of interaction leading to the creation of professional knowledge through a range of mechanisms, including the promotion of ongoing learning; the creation of a supportive work environment that encourages interaction; recognition of expertise and supporting the adoption of leadership roles related to that expertise; and actively engaging in their own professional learning through engagement with colleagues.

The integrated nature of the findings is reflected in the implications suggested by this research. Interaction between people is complex, and so the when, where, how and why people choose to engage in professional conversations with their colleagues is dependent on the dynamic interaction of a range of factors that need to be considered holistically by educational or organisational leaders when attempting to effect change in the work place.

Contribution and suggestions for future research

While the central concern of this research was informal professional learning by teachers, the study has demonstrated the synergy with workplace learning in a non-school organisational context, resulting in a contribution to the body of knowledge focussing on workplace learning in both the educational and organisational fields. The findings drew together empirical and theoretical support for the emergent model from both fields.

Through the use of complexity theories as the theoretical foundation and narrative for gathering the data, this research has provided a unique perspective on the phenomenon. It has enabled the voices of teachers to be heard highlighting the complexity of teachers' lives within a school context as they deal with a myriad of external and internal pressures while constantly endeavouring to provide stimulating learning experience for their students.

The individual factors influencing collegial interaction identified in this research have been mentioned in previous studies. This research contributes to the literature by demonstrating the relationships between the factors through the theoretical model and considers them within a web of interconnectivity.

Through the holistic approach to exploring individual engagement in informal workplace learning this study has responded to calls for research from both educational and organisational fields. It has identified factors that influence the motivation of individuals to interact (Stevenson 2005; Wilson and Demetriou 2007); it explored the activities related to informal workplace learning (Fenwick 2008); provided empirical evidence of influences on engagement by individuals in teams and networks (Cornelissen, Jong et al. 2012; Mueller 2012); and investigated the phenomenon from the perspective of the people engaged in the activity (Wallo, Kock et al. 2012; Warhurst 2013).

Informal workplace learning is a complex phenomenon. The findings of this study have made a contribution to exploring and understanding it and makes some suggestions for consideration in future research.

The use of complexity theories as the theoretical foundation for research projects focussing on professional learning to provide a new perspective on the research process and the language for discussing the outcomes of the study.

Broadening the focus of research investigating effective teacher professional learning to include not only the formally organised interaction, but also the informal interaction, may provide a new understanding of teacher engagement in professional learning.

The emergent model suggests a new theoretical approach to exploring teacher professional learning that could be used for research in other contexts, such as higher education and learning in a business or government organisation.

Final comment

What has been made very clear by the participants in this research is the value they place on informal professional learning with trusted colleagues in their schools. This is succinctly illustrated by the following quote made by one passionate participant:

*Professional learning has many, many, many benefits because it **matters** that what **you** do matters. It's not about recognition in front of people, it's not about award winning, it's not about any of that, it's just about people seeing what you do as important enough to listen to each other. (Beth)*

This research acknowledges that what teachers do in their professional lives is important and, through listening to and sharing the experiences gathered in the workshops, affirms that what they do, does indeed, **MATTER**.

Appendices

Appendix 1 – Information for participants

PhD research project: Informal Professional Learning in a School Context

This research will explore with teachers their informal professional learning experiences in schools. It aims to understand what influences teachers to engage in informal professional learning to enable the development of a theory about professional learning in a school environment. For this project informal professional learning is seen as professional learning that occurs outside of the formally organised learning activities for teachers.

Participant involvement

There are two levels of participation in this research a) initial and b) continuing. You are invited to participate in one or both levels. Initial participation involves one workshop while continuing involves an additional two workshops. Teachers who volunteer to continue participating in the research will be contacted by phone or email between the workshops to keep you abreast of progress and arrange the time and location for the workshops.

Initial participation – workshop 1

This workshop will invite participants to share their experiences of informal professional learning in a school environment with approximately five to seven other teachers. The researcher's role will be that of facilitator and you will be asked to reflect and share stories about your experiences in schools throughout your career as a teacher. All teachers have stories to share and the contribution by all participants will be valued.

There is the potential for participants to mention names of schools or colleagues during the workshops therefore all participants will be asked to keep the content of the workshops confidential.

The workshop will be audio taped and transcribed by the researcher. During the transcription process the researcher will remove any information that may indicate the identity of an individual or school. All recordings and transcriptions will be kept securely in a locked cabinet.

Continuing participation - workshops 2 and 3

Workshop 2 The subgroup will review and discuss the transcribed outcomes of the initial workshops and participate in the identification of key themes. During the discussion it is anticipated that additional stories will be shared and included in the research.

The workshop will be audio taped and transcribed by the researcher during which time any information that may indicate the identity of an individual or school will be removed.

This workshop will be held mid-year with specific times and location to be determined through discussion with the participants.

Workshop 3 During this workshop the participants will review and discuss the transcribed themes identified in workshop two and make the connections between them. This will become a model that demonstrates the complex environment that supports professional learning by teachers.

The workshop will be audio taped and transcribed by the researcher during which time any information that may indicate the identity of an individual or school will be removed.

It is anticipated that this workshop will be held later in the year with specific times and location to be determined through discussion with the participants.

NOTE participation in this research project is voluntary and you may withdraw at any time with no consequences to you personally or professionally.

Privacy

No information regarding the identity of any participants will be disclosed at any time. All participants will be asked to keep the contents of the workshops confidential.

All electronic and paper based information gathered during the workshops will be stored securely on a password-protected laptop and in a locked cabinet. The only person to access the material will be the researcher. The stories shared during the workshops will be transcribed to ensure there is no information that may identify any participant, colleague or school.

All data will be transferred to the University of Canberra at the completion of the research project for secure storage for five years.

This research has been approved by the University of Canberra committee for Ethics in Human Research and the ACT Department of Education and Training.

Access to research findings

If you indicate on your consent form, you will be provided with a transcription of the workshops in which you participate and asked to provide feedback to the researcher to ensure it reflects what you intended.

On completion of the research project you will be invited to attend a presentation of the findings.

Consent to participate

If you are willing to participate in one or both stages of this research you will be required to complete an Informed Consent form at commencement of each workshop.

Contact details for further information (actual details not supplied in appendix for privacy reasons)

If you wish to discuss the project at any time please contact myself:

Elise Rogers

Email and contact phone number were provided in original.

Or my supervisor:

Name and contact details for my supervisor were provided in original.

Appendix 2 – Informed consent form

INFORMED CONSENT FORM

PhD research project: Informal Professional Learning in a School Context:

Workshop X

I, _____, declare that I:

- Have read and understood the information provided;
- Willingly volunteer to participate in this research project;
- Will keep the information shared during the workshops confidential;
- Understand that my identity, and that of any colleagues or schools I may mention during the workshops will remain anonymous;
- Understand that I may withdraw from the project at any time;
- Agree that the researcher may use the information gathered during the workshops for publication.

Signed: _____ Date: _____

Contact phone number: _____

Email address: _____

I wish to receive a copy of the transcript of the workshop

I wish to receive a copy of the final report

I am willing to participate in workshop 2 (identification of themes workshop)

I am willing to participate in workshop 3 (making connections workshop)

Appendix 3 – Sample transcript

Excerpt from workshop three

I think if you teach the same bunch of kids you need to talk to each other, I don't know if its choosing to establish the relationship with that person or whether you just have to because you need to work together.

I also think that because each year you have a group of teachers you've taught with the year before, you might have a group of new teachers coming into your group but you've still got a core group that you are familiar with and I think new teachers tag along with that, they hear teachers talking about whatever and they feel they can join in that conversation because these teachers are already talking about these things. I think if you've got teachers you're already familiar with that helps you too being able to be open about what you talk about rather than being in a totally new environment where nobody knows each other.

I thinks it's also about building up a culture of trust within teams and within the school and I know in our school its "if you can't talk well of your school then find another school" and that we don't talk about our school in a bad way out in a public forum – if we need to we do it in house and we work things through that way and I think that's made very clear from day 1 to all the staff and I think that in terms of being a professional (it's in our public service code of conduct).

I think it's important too, being a new teacher to the school last year, I found the way people made me feel welcome, I know when I moved from my first school to the second school in a small staffroom there was one person who stood out, who went out of their way to make me

feel welcome, they checked on how I was going and I could say now that my relationship with that person was stronger and it developed quicker than with anyone else because they went out of their way to help me and I found the same thing here. You know if you go and talk to somebody and their body language shows you that they're not really interested, they don't have the time for you, or they look really busy and start walking off as you are talking to them, to me that's an indication that they don't have the time, sometimes you're choosing the wrong moment so you might try a few times but if they seem to put up these walls the whole time then, to me, it's someone I don't have a strong bond with or relationship with compared with somebody who's showing that they care about me, my development, my professional learning, they have the time of day for me, they'll sit down and have a professional conversation, they'll have fun with me and I can say there are different levels of relationships, professional relationships, that I have with staff right across the school and it is how they respond to me as well.

I think one of the most important things when you are building up those trust relationships, there has to be a basic level of respect for the other person as a professional, as well as a human being, but initially the respect is as a colleague and with that respect comes the opportunities to have celebrations around the successes and things like that, certainly with one team there's a lot of muffins on the table I look at each day – it's the informal celebrations – when I was part of that team I used to have chocolate – it's just a basic acknowledgement that somebody has done something and always when reports were finished there was a chocolate for everybody the night before a big occasion. They're little things but they're celebrations of our work but it's also respecting the fact that we're working towards common goals.

I agree with you but I think it's more, I think it's dignity. When you're talking to somebody, for example when you've stuffed up, the person you're speaking to treats you with dignity, over and above respect.

Understanding.

It makes an enormous difference because then you feel they have not chastised you like a baby but being, not only respectful but you've been able to keep your own dignity, and you come away feeling well, I'll go back to them next time.

Also seeing everyone as equals, you feel that everyone is the same and you can mention your problems to everyone and they can mention them to you and there's no 'I'm right and you're wrong', we're all there to help each other.

I think that's what great about the exec staff where you know they are an exec but it's not a "I'm an exec and you're a level one" it's not judgemental, you're all just having a good time and sharing. The great thing about that is when the need to step up and put on the exec hat and do that part of it, they can and you don't feel like you've overstepped the mark, or you're out of line or whatever.

By the same token I think we all have our preference about who we go to and to whom we speak because they have shown us that support, they have listened to us so there are people we're not going to go to as much because we don't seem to, in our eyes, get that same support. So we do build up those relationships with your work colleagues, it's not like you get on wonderfully with every single person and it doesn't matter who comes and sees is going to give you the same support.

It's the same with any relationship and trust thing you always start with the little things first and if you get a good response and they are supportive you know you can go back next time and it may be a little bit more serious whereas there are different levels of relationships, there are people that you can talk to about the day to day stuff, the minor things and there are other people that you can go to because you're going to get the support on big issues.

I don't know if it's easy here because we've got the teams – the common thread for each team is the kids that you're teaching, so all of one year level or whatever, so you're all teaching the same age group – it's a common understanding and shared experience, I don't know if that makes it easier to build a trust relationship because you know they are experiencing the same things as you are.

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