Original Research Paper

Innovation and Self-Organisation: The Documentation of a Central Character Story

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Abstract

This paper describes a teaching innovation where a "Central Character" was interwoven with the stories shared in a kindergarten, and how that innovation was documented. The paper traces the origins and evolution of the notion of a Central Character, what directed it and what children, families and teachers learned through it. We found that the central character concept was the vehicle used by this kindergarten to build family connections and support holistic learning for children and their families. We gained deep understandings about the values, threads of learning and historical and environmental teaching practices that underpinned the use of Central Character stories. This paper explores some of the key methodological insights that guided and emerged from our research. We claim first that the sociocultural understandings of learning which underpin the early childhood curriculum point towards collaborative ways of researching and learning about the impacts of our practices as teachers and researchers, second that understandings of complexity thinking and theory about self-organising systems can enable teachers involved in practice-based research to be innovative in their investigations, and third, that the collective knowledge which emerges as we work together influences the culture of the learning community.

Introduction

From 2006 to 2008, Kidsfirst Kindergartens Bush Street in Rangiora (Bush Street) participated in round three of the New Zealand (NZ) Early Childhood Centre of Innovation (COI) programme funded by the NZ Ministry of Education (MOE). This paper reports on the teachers' research into their innovation, which uses a 'Central Character' to weave personal stories into the fabric of the programme, and their analysis of how this practice enables learning and builds relationships. The two teachers, Kay and Helen, took on the role of 'teacher researchers' to investigate their innovative practices using story as a tool to link and extend experiences and events arising in the daily life of an early childhood centre. Elaine was the 'research associate' for the project during 2007 and 2008. Her job was not to research the innovation but to support the teachers in doing their own research.

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We, the authors, came together from various fields of expertise. As kindergarten teachers, Kay and Helen had knowledge and experience of teaching in the NZ early childhood sector under the influence of the early childhood curriculum, *Te Whāriki* (MOE, 1996). As a lecturer and researcher, Elaine had knowledge about research processes and an interest in the relevance of post-structural and complexity theory to teacher learning. While supporting the teachers in this research project she also explored the use of praxis-based research (Mayo, 2006) as a form of practitioner or action research. This meant that we became a team of researchers. Even though Elaine's role was one of support, she was also investigating her own practice through self-study.

This paper locates learning within a sociocultural frame (Rogoff, 2003; Fleer, 2006a) where fresh understandings are born out of the complexity of practice, where knowledge can be seen as contextual and embodied, and where healthy community interaction can be seen as the source of cultural growth.

The innovation of the notion of Central Character stories described in this paper is, to our way of thinking, very simple, yet we found it hard to explain. It is simple because it has become part of our everyday practices as teachers and researchers and we understand it. It is hard to explain because it emerged in our practice, as we explored our learning and the learning of the Bush Street children and family and whānau (extended family members). To the casual observer, the daily activities at Bush St might not appear very different from what you might see in any other early childhood centre or in any other team of researchers. This research shows, however, that the notion of a Central Character within an ongoing story has enriched the learning of the whole Bush Street community in ways that cannot be seen by a passing visitor. Complex relationships are fostered within a community where a shared, quasi-imaginary friend might emerge at any time to join in and strengthen conversations at home or at the kindergarten.

We found ourselves exploring how teacher thinking evolves and adjusts to address issues and challenges arising in everyday practice. We sought to identify the origins of our thinking. As discussed in Henson, Smith and Mayo (2009), we called on understandings from complexity thinking (Davis & Sumara, 2006), Bhabha's (1994) notion of a third space where differing voices come together to create something new, Schrag's (1997) notion of self after postmodernity, sociocultural and post-structural theory. Without collegial support from within the Ministry of Education's research programme through its twice yearly meeting and leadership, we could not have been so brave.

In order to explain our innovation and why we think it worked so well for us, we considered research as a form of learning-through-experience. We drew on our tacit knowledge (van Manen, 1995) and working theories (MOE, 1996) and we also learned about our assumptions and challenged our thinking by contrasting our ideas with those of other members of our various communities. We carried out our research at Bush Street in a way that respected the traditions of both practitioner research (Goodfellow & Hedges, 2007) and early childhood practice (Keesing-Styles & Hedges, 2007). This paper describes how the Central Character concept developed, the thinking that underpins it and the outcomes we see through our teaching. The paper's focus however is on the research methodology and evolving practices that deepened insights and analysis.

Central Character Story: An Emergent Phenomenon

The research project explored an innovation in the use of story. In many early childhood education centres in NZ, stories are a core aspect of teaching practice. Unique to our use of story at Bush St is the creation by teachers of a character around whom stories evolve at mat

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time. The notion of Central Character story is a pedagogical tool. It is an evolving story which has a character as a central point around which to gather and explore personal stories, new ideas and interests. The identity of the character is created by the teachers as they anticipate the coming term with knowledge of the children and their families and forthcoming community events. The teachers choose two or three items of clothing to represent the character's identity and to allow a child to adopt that persona for an episode of the story. As the story evolves, other props appear in spontaneous ways to support the stories that emerge on a daily basis. Over time, the mat area where story is told becomes transformed into a space that reflects the learning of the community that term. Within a particular episode, a child becomes the character and the teacher weaves the story. Characters live in a third space that bridges imagination and reality. Children relate well to stories that emerge from this third space because they use their imagination constantly to explore reality and fantasy.

The character exists for the ten weeks of a kindergarten term. We use stories about the character as a tool to link activities and events that arise in the daily life of a kindergarten. We use the label 'Central Character' to describe the pivotal role that this character takes in the life of our kindergarten for a set time. The following excerpt offers a glimpse of a Central Character story line at our kindergarten.

> Imagine children sitting in a circle at mat time, some dress-up clothes in a large suitcase, an attentive teacher, and a parent acting out how she puts her child to bed. Imagine the children watching and comparing what happens here with what happens in their house: they comment, the teacher comments, the parent explains something, the child in the bed grins and pretends to be sleeping. Imagine a couple of other parents watching – and learning.

The teachers had introduced 'Mother Goose' as the Central Character for that term and had a focus on night time, including going to bed. A mother had painted a mural of the night which formed a backdrop for activities that term. Mother Goose became part of many events: she provided continuity within the curriculum. Children dressed up as Mother Goose and shared stories; imagination was fostered; social issues were addressed by talking with Mother Goose or her friends; the teachers had a tool (the ongoing character) around whom they could weave an ongoing story; visitors to the kindergarten became part of the story through the skilled and creative inventions of the teachers; the parents knew about the Central Character and could easily open up conversations with their children with the question "What did Mother Goose do today?"

Mother Goose, like all other Central Characters that we bring to life in our centre, helped us to weave the experiences of children and their families into the programme in a day-to-day way. Children can take on the role of a Central Character with a certain detachment which allows sensitive, emotional and even controversial issues to be addressed openly in story episodes, without placing too great a burden on individual children. The loss of a pet or loved one could be acknowledged, for example, but more frequently the story was a celebration of small events such as a trip to the beach.

Our final report to the Ministry of Education (Henson et al., 2009) discussed the impact of Central Character stories on our kindergarten, the children and the community. In addition to outcomes for individual children and families, we found that the sharing of personal story invited and strengthened relationships, as the individual story joined a collective story through the teachers' use of a Central Character. A Central Character story belonged to the group rather than to an individual and the process of sharing it allowed children to become

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teachers and teachers to become learners. Children can be, and are the experts, as it is their story being told. Those watching often added their ideas. This led to an exciting and unexpected learning journey as the Central Character storyline was adapted to that which was put before it. The act of teaching using Central Character story appears simple but it is complex: it involves the teacher in weaving fresh stories and fresh learning into a rich fabric of past events while at the same time engaging all the children in the shared magic of imagination and learning.

This paper discusses the methodological processes that emerged as we gathered and analysed our data. While the approach we used was informed by various forms of action research, practitioner research, self-study research, collaborative reflective practice and sociocultural theory, we developed an approach which also called on ideas from complexity thinking where reference is made to self-organising systems and the emergence of patterns (Davis & Sumara, 2006). We saw ourselves as working and living in a complex, self-organising community where the things that we thought, said or did could, simultaneously, be seen as both surprising and predictable. Our task as researchers was to capture and describe the rhythms and patterns of our work in relation to using Central Character stories in our teaching and at the same time to include a sense of the unpredictability of that is a feature of all teaching.

We conceptualised knowledge as being emergent; ideas are growing and changing as we learn. We regarded everything as data. This included all the routine documentation and artefacts from within the centre along with data from parent focus groups, video recordings of story episodes, and anecdotal accounts of what we were doing in the character story process. About half way through our research we realised that we were not documenting important ideas about what was happened before and after a character story event. As we wrote more reflectively about the stories we heard from families and children we realised that learning from earlier times often came to be displayed much later. In order to document the key ideas that emerged in discussions we began a systematic process of each writing what we came to call 'one-pagers.' This short writing, which addressed issues as they arose, became the central unit of analysis for the rest of our research. One-pagers became increasingly analytic as we developed our ideas, tested our emerging theories and identified the similarities and differences in our thinking.

Insights into our Research Processes

The five insights described in this paper (building a learning community, documentation and the responsibility of the individual, describing teacher thinking across various time scales, describing a culture and its evolution and a researching disposition) show how current educational thinking has influenced and strengthened our practice-based research.

Insight 1 – Building a Learning Community

Kay and Helen had worked without a research associate for six months when Elaine joined the team in June 2007. The teacher researchers were struggling to know how to document the data they saw as being most important, to capture the spirit of their innovation.

At the end of the project, the team reflected on their thinking in mid-2007. Kay and Helen summarised their position by saying, "We had already investigated many aspects of our work. We had lots of data and had tried to analyse it in various ways but we did not feel as though we were getting to the heart of our story. We needed to be guided into what to do." Elaine's summary was in the form of a question: "How can I support these teachers in their

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research when I have so little understanding of all the work they have done and have very little background in early childhood education and we have so little time to get up to speed?" This tacit methodological question would prove to be instrumental in opening up the insights we report on in this paper.

Kay had kept extensive chronological records of all the activities to date and Helen had folders of material from her analysis of video-recorded sessions and other investigations such as focus group interview with parents. Elaine did not see it as her job to gain an in-depth knowledge of all this data. Therefore, we did two things during our first three meetings together. On the practical side, we documented all the investigations to date and generated a spreadsheet that summarised what we were learning from them and what we planned to do with them, and we put our summary on the wall. More importantly, as it turned out, we talked about the "big picture" of the research topic, process and our lives and values that informed this. We talked about what was most important in this investigation: the use of Central Character stories; early childhood education; practice-based research; educational theory; what mattered for each of us. We shared stories about our families and cats. We talked about all these things and more, and we came to realise why this kind of talking was important and how weaving stories together is at the heart of the Central Character phenomenon. We built trust and learned to listen to each other. In retrospect we see that we were building a learning community (Rogoff, 1998).

Insight 2 – Documentation and the Responsibility of the Individual

Each member of the team had distinct skills, knowledge and insights. The challenge was to capitalise on our expertise and support each other in our different activities. We knew we needed to document our emerging understandings in a way that would make them easily accessible and open for discussion so that we could move our conversations forward. At the same time we wanted to avoid 'busy work' which did not have a clear focus. We decided to document quickly those things we saw as really important. If we limited ourselves to one page of writing on each key point that arose in our discussions then we would be able to generate data about what was most important. Because only one page was allowed it forced the articulate Kay to write less about each point and avoid diversions, it enabled the insightful Helen to write a little about the wisdom she detected in our conversations, and it enabled Elaine to share her theoretical insights into what she saw happening. It was a tool that suited a range of writing skills and approaches.

The evolution of 'one-pagers' (Mayo, Henson & Smith, 2008) was a methodological breakthrough. We were able to capture good ideas when we spotted them: when one of us noticed an insight during a conversation we agreed on who would document it; if we thought of something important when alone, we could document it. Our documentation, over time, became more focused and analytical because we could draw together ideas from several earlier one-pagers to synthesise our ideas in a holistic way. This worked for us because we came to 'trust the processes' of blending collaborative talk with individual writing. It did not matter if one of us was not present because the writing about key points allowed that person to catch up on what had been missed.

This approach to data gathering enabled us to work as individuals within the collective. We did not need to aim for consensus or to develop shared writing. Our individual voices and insights were fed into the mix of our collective learning, and vice versa: our learning happened through the interactions that alternate between the individual and the collective.

The one-pager technique (Mayo et al., 2008) became part of the culture of the centre. It may be that the technique sits naturally within the early childhood sector because of its use of

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learning stories (Carr, 2001) where the teachers describe children's learning by writing about the child's activities. This NZ approach to assessment "begins to show some of the complexities associated with thinking about assessment from a sociocultural perspective" (Fleer, 2006b). Kay and Helen were also in the habit of displaying reminders of special activities and events around the centre using a single-page format. What surprised us, however, was that because we became enthusiastic about writing in this way, others around us began to adopt the technique. We had gifts of one-page writing from parents, visiting academics, and student teachers.

Insight 3 – Describing Teacher Thinking Across Various Time Periods

We found that the teachers make decisions about a Central Character story around four different time scales that range from macro- to micro-levels. Teachers think about (a) long-term principles and practices of education, (b) the kinds of opportunities that they expect will arise within a particular term, (c) the happenings of a particular day and (d) the opportunities that arise in the instant of teaching. For each they make choices based on their experience as teachers, their knowledge of their community, and their interest in building relationships. The full report (Henson et al., 2009) describes how the notion of Central Character story (the construct or the big idea) emerged as Kay explored ways to address key issues about programme planning as she saw them in the 1990s. It describes how teachers decide on a Central Character for the term based on their knowledge of the children's interests and concerns, the season, and the possible events. It describes how, on a particular day, the teachers decide whose story will be shared, and what random events might be woven into the tale. As well, it shows that in any instant the teacher is, like an actor in theatre-sports, creating a spontaneous story out of the children's ideas and her own.

We found that at each of these levels the same kinds of ideas and principles applied. In every case we were addressing the social agenda current at the moment, for example, how to recognise religious festivals like Christmas or Ramadan in a multi-faith society. Such questions cannot be ignored if we are to enable children to learn to live in multicultural communities. Teachers need ways of building an inclusive curriculum that can adapt, in an instant, to the underlying issues of our times. The Central Character notion serves as a tool for addressing the big issues in early childhood education and the more local and immediate concerns of our community of learners. The daily interests of individual children, their excitements and their worries, drove decisions about how a Central Character story would twist and turn on a particular day. Thus, an underlying theme was adjusted to the interests of the community of children. In any instant, a teacher used her experience and knowledge of past threads in the story, teamed with her intuitions as to where the story might go, to make instantaneous decisions about what to do next. The approach enabled the children to explore myths and legends and to appreciate world views that differ from their own.

We found that these four time scales of decision-making in enacting Central Character stories inform each other. We found through our reflective writing that the values, the ways we work, the underlying curriculum and our principles about relationships were consistent across all four levels. By working among these four levels and noticing patterns in each we learned more about our underpinning assumptions and values. This kind of analysis calls on complexity thinking and related concepts of fractals and self-similarity. A fractal is "scale-independent" (Davis, Sumara & Luce-Kapler, 2008, p. 16) which means, in this case, that no matter whether we studied the notion of Central Character stories over several years or the decision-making of a teacher in the moment, the complexity was just as great. Complex systems are not like complicated systems where if we break them down into their component parts we find simple elements like cogs and wheels (think of a car or a watch). Complex

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systems, such as weather, geological phenomena or classrooms of children and teachers, change in unpredictable ways on a variety of levels. Self-similarity occurs where whatever the level of analysis there are features that are similar to each other (as in river bed, a coastline, an arterial system, or the structure of branches in a tree). In this study we gained insight by noticing the patterns of self-similarity across different time-scales and episodes of story.

Insight 4 – Describing a Culture and its Evolution

During the three year project we were expected by the Ministry to disseminate our research by sharing ideas and experiences with other teachers. This could be achieved by, for example, talking to groups, running workshops and hosting visitors to the centre. Initially we found it very hard to show visitors what was important about the notion of Central Character story because our practices looked similar to what was happening in many other early childhood centres. A snapshot of the innovative practice might be seen (and was at times) by visitors as being a teacher-centred form of mat-time with one child dressed up as a character. A snapshot could not show the movement of ideas in children's thinking nor the ways in which the teachers were weaving stories from previous sessions into the activity of today's session nor how these ideas were played out in the future. A snapshot could not show how the children, during the rest of the session and at home, used the ideas from Central Character in their play and in their talk with their families. We documented the routine stories of our sessions as learning stories and displayed photographic reminders of our learning in the kindergarten but it was not until we used one-pagers to document the stories told by adults about what children were doing and saying at home that we realised how our teaching practices supported family conversations.

The kindergarten was selected to be a Ministry of Education funded Centre of Innovation based on the innovation of the notion of a Central Character. But, there was also something special at this centre about teachers' relationships with parents. Many parents stayed for short or long periods of times during sessions. Their sense of belonging was indicated in subtle ways, such as contributing during the story at mat time. Something interesting was happening that was worthy of investigation. This 'something special' had to do with the culture of the centre and our unique approach to stories.

As we explored our teaching practices we developed several one-pagers that summarised our underlying values, curriculum, practices as teachers in modelling relationship building, our environment and the key things we had learnt through exploring the Central Character concept. These one-pagers go some way toward describing the culture that has developed at our centre. Many of them are included in our final report (Henson et al., 2009). For example:

- In working with a transcript of a videotaped session in 2006, we identified how closely our work reflected *Te Whāriki* (MOE, 1996) and went on to develop a one-pager set of values which underpin our practice. We recognised that, above all, we cared about relationships with people and helping families to support their children's learning. We found that we spent more time with parents than is probably the norm.

- Both indoors and outdoors at the centre, artefacts reminded us of connections between children and families. They reminded us of where and when the teachers and children had, together, made up and shared stories. The teachers developed a one-pager that gave visitors an idea of the history and the depth and breadth of stories recorded in the physical spaces around the kindergarten.

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- A third one-pager, threads of learning, summarised the key ideas in the Bush Street curriculum that were consistently woven into stories. We did not teach to themes, but instead found multiple opportunities to explore core ideas of relationships, wellbeing and love of the environment.

- A fourth one-pager displays a 'wall' of strategies which shows how we build the relationships and interactive skills. This page, which emerged only late in the research process, highlights teacher thinking and the strategies we use to foster learning in our community.

As we concluded our investigation, we summarised our thinking about using Central Character stories into a single page which we can use in talking with groups and individuals even though it is too cryptic to stand alone. We have come to see that by carrying out this research we have explored, described and strengthened the culture of Bush St. By bringing our ideas into the open we have celebrated and built on the strength of our community.

Insight 5 - Researching Disposition

One of our greatest insights into undertaking research involved a shift in thinking away from seeing research as a description of things that have been learned into an exploration of things we wanted to find out. We came to celebrate curiosity and to ask ourselves how we could check out our assumptions. Instead of making statements about our strongly-held beliefs and defending them we shifted to write about them so that our conversations could focus on differences as well as commonalities and small adjustments could be made to either clarify our similarities or to recognise and celebrate our diversity. We talked about curiosity being a key – we wondered how we could be sure that all the children were involved in Central Character storylines in different ways and we explored ways to investigate this.

Different strategies were used to explore the interactions of children during mat time over a term. The teachers recorded the information from memory at the end of the 20 minute mat session and looked at each other's records as a reliability check. We each took this data and explored it diagrammatically: initially we tracked the involvement of five randomly chosen children through the Central Character storylines of a term; we then tracked all children's involvement over a term; we found a way to illustrate participation in relation to the number of weeks children had been in the morning session.

When we began this research we held an unwritten assumption that what we needed to do was explain exactly what we did so that others could follow if they wanted to, but we were very clear that there would be no expectation that others should do as we did. We have moved to a position where we would hope that others will see what we have managed to achieve in exploring and analysing our practices and seeing the layering of values and practices that inform our teaching. Such research might seek similar consistency. We are constantly facing the challenge of building new relationships as children move through the centre. What we have been able to describe is a way of working that fosters flexibility and adaptation, and which includes parents, families and the community. We are constantly questioning our practices and exploring ways to adjust to meet the ever changing conditions around us. We have become more confident in our ability to adapt and learn because we understand many aspects of our ways of working more deeply. We know that our practices are grounded in *Te Whāriki* and informed by sociocultural theory, complexity thinking and practice-based research. We have learnt that, as teachers, we have the skills and knowledge to be educational leaders in the communities into which we network.

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Three Claims about Teaching and Learning

This section develops the three claims made in the abstract to this paper.

1. The sociocultural understandings of learning which underpin the early childhood curriculum point towards collaborative ways of researching together and learning about the impacts of our practices as teachers and researchers

We viewed our research methodology as emergent within the framework of insider research (Brannick & Coghlan, 2007). Our approach was guided by our growing understanding of various forms of action research, practitioner research, self-study research and reflective practice. In essence, however, we used the simple tool of writing 'one-pager' reflections on our thinking. We wrote about our insights after discussing our fresh writing, questioning our shared understandings, exploring our differences, building on our existing ideas in the light of reading and experience, and identifying important ideas to be investigated further. We wrote, always, about the ideas that seemed most important for our ongoing learning. This iterative process led to deeper conversations as we continued to challenge our knowledge and the quality of our work. We summarised several domains of knowledge (core values, common threads of learning, physical environment and teaching strategies) that enabled us to describe the practices of the teachers in this centre. While these broad domains would be similar to those in other centres, the specifics are unique to us. Kay and Helen argue that these domains of practice existed as tacit knowledge before the project began but that they are now able to articulate and share their practice more overtly. The identification of these domains emerged over time within the practices of the teachers. Later, the teachers' ability to articulate these domains emerged. Collectively, we were working in what Shulman and Shulman (2004) describe as a communal theory-rich environment which includes "deliberation, collaboration, reciprocal scaffolding and distributing expertise" (p. 265).

Emergent phenomena do not appear overnight and, because they are not formulaic, are constantly adapting to fresh challenges. Indeed, a key finding of our research was related to our resistance to anything that begins to look like a prescription of how we, or anyone else, might use the notion of a Central Character in our teaching or one-pager writing to document our research. The two strategies we describe are tools that enabled us simultaneously to build on our existing knowledge and to strengthen the communities in which we worked. This finding sits comfortably with post-structural theorising where knowledge "becomes the ability to perform effective actions" (Kvale, 1996, p. 19) and with sociocultural theory where "narratives, voice, metaphor and dialogue in professional knowledge communities are worthy of increased attention in practitioner research" (Goodfellow & Hedges, 2007, p. 198).

(2) Understandings of complexity thinking and theory about self-organising systems enable teachers involved in practice-based research to be innovative in their investigations

Our work at Bush Street was informed also by complexity thinking and understandings about the emergence of phenomena (Davis & Sumara, 2006). The one-pagers allowed us to document ideas in ways that let us share them freely with parents, families and student teachers within a community of learners. For there to be a free flow of ideas, we suggest there need to be non-hierarchical patterns of interaction, a willingness to share ideas with others, a lack of defensiveness about the value of varied contributions, generosity and warmth in relationships, a means of documenting ideas that emerge without critique, and the dispositions to question assumptions and be curious about the impact of specific activities. We suggest that these kinds of relationships were developed through conversation within our

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team, about using Central Character stories and how they influenced the learning and culture of Bush Street. Documentation through one-pagers enabled us to focus on the ideas and celebrate the growth in our thinking.

It helped our theorising to think of Central Character stories and one-pagers as two phenomena that emerged within the self-organising systems linked to Bush Street. Self-organising systems are analysed in terms of the patterns of organisation rather than of individual actions of the individual components within the organisation.

Self-organising systems rely on four core principles: the interaction of neighbours, the recognition of patterns, feedback mechanisms and indirect control (Johnson, 2001). Each principle contributes to the central idea that the focus is not on the individual within the system but rather on essential features of the organisation: the neighbours who interact are the elements that make up the system; the kinds of patterns are identified within the organisation, by those who are part of the system; individuals are given feedback as a part of the system; the whole organism/organisation is not directly controlled by a hierarchical decision-making structure. Instead, patterns emerge, and understandings exist within the networks, and communication and feedback mechanisms. The organism/organisation emerges in response to challenges from its environment. Under this construction, a self-organising system is a living, dynamic life-form.

A community of children, teachers and families is a self-organising system, in which new phenomena are constantly emerging. Such phenomena can be analysed in traditional ways, for example through analysis of videotapes of sessions, observation, anecdotal recording, and interviews with parents. These approaches, alone, do not capture the complexity of the setting where we are constantly surprised by the creativity of the whole. Emergence happens when an interconnected system of relatively simple elements self-organises to form more intelligent, more adaptive, higher level behaviour. "It's a bottom up model; rather than being engineered by a general or a master planner, emergence begins at ground level" (Johnson, 2001, dust jacket). The wellbeing of the system depends on each individual element (idea or person); each element brings something unique to the community; each interacts with others; each detects patterns and reacts to those patterns; no one person controls this complexity. Yet the patterns are predictable, we, as teachers learn how to deal with patterns of behaviour, but we can never be taught by others how to react in any particular setting: such learning is experiential, embedded in praxis, and constantly evolving.

The claims we make are ecological: they relate to building practical knowledge within a community of practice (Wenger, 1998) or a community of learners (Fleer et al., 2006) over a period of time. A key phrase that supported us in our work was 'trust the process.' Whenever we became stuck and wondered how we could explain our complex interactions in simple terms, Kay would say, "Trust the process." We believe that trusting the process worked for us because the process was itself emergent: we did not tie it down with detail that restricted its creativity. What was happening was that we were each enabled to respond in spontaneous ways that built on our individual and collective understandings. This approach is consistent with our understandings as described above, about pragmatic theory and communities that are seen as self-organising systems which adapt to the changes around them.

(3) Collective knowledge that emerges as we work together can impact on the culture of the learning community.

While individuals within the research team have varied knowledge and understanding of the tools, strategies, pedagogies, methodologies and theories of teaching and researching in

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early childhood, the innovative notion of Central Character stories did not come into existence because we 'applied' this knowledge in the form of abstract theory. Our understanding of our innovation emerged as we explored how to do our work well, how to learn and develop our skills, and how to work collaboratively and develop our ideas as we shared them. The practitioners involved were adapting their actions and learning as they responded to the emerging challenges of their day-to-day work. We sought strategies that would meet the requirements of the curriculum or the research project and would allow our work to 'zing.' Where ideas did not flow easily we found ways to communicate better; as a research team we consciously developed our relationships and worked to each other's strengths. Our pedagogical and methodological innovations emerged alongside our growing relationships.

Whereas the focus of much work in psychology is around patterns of action for individual learners, we discovered that our focus was around collective learning in the research team and in the Bush Street community. Our work is an affirmation of the value of sociocultural thinking within practitioner research where a group of practitioners work together to document and develop their cultural practices. This collaborative approach sits naturally within the early childhood sector because of its focus on sociocultural theory.

Conclusion

The innovations of using a Central Character in ongoing stories and one-pager writing are approaches to teaching and researching, respectively, which fit the characteristics of self-organising systems. Together they support the formation of a collective space for learning and researching. The notion of a Central Character supports a way of thinking that enables creativity as personal stories are woven into the collective story telling of the community. The process of researching Central Character story has provided an opportunity for us to use sociocultural practices and complexity thinking to inform and energise our research methodology.

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Helen Smith has always been interested in young children and supporting them to enjoy childhood. She is interested in emergent ideas and sees that, through central character story, we were all (children, teachers and parents) able to teach, share and learn.

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